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EDUCATION AND SOCIAL POLICY DEPARTMENT

PRIORITIES AND STRATEGIES FOR EDUCATION

A World Bank Sector Review

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Priorities and Strategies for Education

Key Issues

- Education is critical for economic growth and poverty reduction. Changing technology and economic reforms are creating dramatic shifts in the structure of economies, industries and labor markets throughout the world. The rate of acquiring new knowledge and the pace of changing technology raise the possibility of sustained economic growth with more frequent job changes during individuals' lives. These developments have created two key priorities for education: it must meet economies' growing demands for adaptable workers who can readily acquire new skills and it must support the continued expansion of knowledge. This paper synthesizes World Bank work on education published since the last sector policy paper in 1980, and considers options for the Bank's borrowing countries.
- Education enrollments have increased substantially and most children at least start school today. Yet major challenges remain: to increase access in some countries and to improve equity, improve quality and to reduce the lag between the reform of economic structures and that of education systems in most countries.
- Reaching those without access, including adults previously denied educational opportunities, is a pressing issue, especially in Africa and South Asia.
- Equity is a major issue involving mainly girls and the poor, including linguistic and ethnic minorities, and other disadvantaged groups.
- Educational quality is poor at all levels in most low- and middle-income countries. Most students in developing countries are neither acquiring the skills called for within their own countries' curricula nor are they doing as well as students in more developed countries.
- Changing technology and economic structures mean that delays in reforming education systems imply lower growth and more poverty than would otherwise occur.
- Present systems of education finance and management are often inappropriate to meet the challenges facing most countries. Public expenditure on education is often inefficient and inequitable. Public spending is inefficient when it is misallocated across education subsectors and within subsectors. It is inequitable when qualified potential students are unable to enroll in institutions because there may be no schools available or because they are unable to pay or obtain financing.
- Increasing pressures on public spending require new sources of funds, from increased efficiency, from reallocations from other areas of public expenditure and from private finance.

- **Most education systems do not permit the flexible combination of instructional inputs and the learning environments that contribute most to effective schooling. Governments can positively influence the quality of education by setting standards, supporting inputs known to improve achievement, adopting flexible strategies for the acquisition and use of inputs, and monitoring performance.**

Reforming Education

- **Reforming education finance and management means redefining the role of government in six key ways, with the appropriate priorities depending on country circumstances:**

A higher priority for education. The major changes in economies and labor markets underline the synergy among macroeconomic policy, physical investment and investment in human capital and require renewed attention to investing in people. Education is critical for sustainable, long-term development and the reduction of poverty.

Greater attention to learning and labor market outcomes. Educational priorities should be determined more through the use of economic analysis, through the setting of standards, and the measurement of their achievement through learning assessments.

Public investment focused on basic education, coupled with more reliance on household financing for higher education. The case for public financing of education is strongest at the basic levels, although the precise definition of basic education will be country-specific. At the same time, advantage should be taken of any willingness to pay for higher education by sharing its costs with students and their parents; governments can also help by bearing some of the risk to correct capital market failures that preclude financial institutions from lending for higher education.

Greater attention to equity. Equity entails ensuring that everyone has a basic education and that qualified potential students are not denied access to institutions. Increased attention to equity will also improve efficiency, as economic growth will be higher the broader the base of education in the economy.

Greater household involvement. Education institutions may be more accountable for their performance when households are more involved in the institutions that family members attend through household participation in school governance and through exercising choice among schools and institutions.

More autonomous institutions. Education quality can increase when schools are able to use instructional inputs according to local school and community conditions and are accountable to parents and communities. Effective use of instructional inputs results from autonomous institutions with authority to allocate their resources.

- **Change will not be easy to implement but can be achieved by expanding educational opportunities, building national consensus and increasing participation. The World Bank will continue to support financial and managerial reform of education systems on a country-by-country basis. The Bank will increase its focus on sectorwide policy and the provision of advice and finance designed to assist governments to develop and implement education policies suitable for the circumstances of their own countries.**

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Preface

i. The importance of education is recognized in several international conventions and in many national constitutions. Education produces knowledge, skills, values and attitudes. As such, it is essential for civic order and citizenship and for sustained economic growth and the reduction of poverty. It is also the main instrument for disseminating the accomplishments of human civilization. These multiple purposes make education a key area of public policy in all countries.

ii. The civic purposes of education—the sharing of values throughout society—are becoming more salient with the widespread political liberalization that has characterized the last decade. Most notable in Eastern Europe and Central Asia, this trend includes the consolidation of civilian democratic rule in Latin America, the introduction of multiparty systems in Africa, and the devolution of political power to subnational levels of government in many regions of the world.

iii. The economic development purposes of education are also becoming more salient, with increased recognition of education's contributions to economic growth, the reduction of poverty and the good governance essential for implementing sound economic and social policies. Reflecting this recognition, World Bank financing of education has grown rapidly in the last fifteen years. The Bank is now the single largest source of external finance for education in low- and middle-income countries. Basic education projects are increasingly important in Bank lending for education, following the World Conference on Education for All, held in Jomtien, Thailand, in March 1990, and sponsored jointly by the UNDP, UNESCO, UNICEF and the World Bank.

iv. The expansion of World Bank education lending has been paralleled by a series of studies on education policy in developing countries: *Education in Sub-Saharan Africa* (1988), *Primary Education* (1990), *Vocational and Technical Education and Training* (1991), and *Higher Education* (1994). Recent World Development Reports have highlighted the importance of education for development: *Poverty* (1990), *The Challenge of Development* (1991) and *Investing in Health* (1993).

v. The present paper is the first World Bank overall sector review of education since the 1980 *Education Sector Policy Paper*. The paper synthesizes the work reflected in the above publications. It complements it with a discussion of evidence and policy options for secondary education, reflecting the results of ongoing work in the Bank's Education and Social Policy Department. It also draws heavily on UNESCO's *World Education Report* (1993).

vi. The paper discusses policy options for low- and middle-income countries¹ to meet educational challenges as they move toward the twenty-first century. It is designed to assist policymakers in these countries, especially those concerned with the education system as a whole and those concerned with the allocation of public resources to education. A second audience is the World

¹ Low- and middle-income countries in this report include developing countries as traditionally understood and the former socialist countries in Europe and Asia whose economies are in transition from command to market orientation.

Bank's staff who interact with these policymakers as the Bank supports its client countries. The paper is about educational policy options, not about the details of education projects.

vii. This paper focuses on the formal schooling system and the role of government in promoting access, equity and quality through sound financial and managerial policies that encourage the expansion and improvement of private and public institutions. The paper makes no pretense to cover every topic comprehensively. The paper does not discuss training or adult education in depth. Training is covered in the 1991 policy paper referred to above; adult education is on the agenda of the Education and Social Policy Department for future work. What the paper does do, however, is to treat the mainstream formal education sector as a whole. It focuses on formal education's contribution to sustained economic growth and the reduction of poverty, reflecting the World Bank's fundamental objective of helping borrowers reduce poverty and improve living standards through sustainable growth and investment in people. The paper emphasizes approaches and ways of determining priorities and strategies; it recognizes that policies must be different for each country, according to its stage of educational and economic development and its historical and political context.

viii. The paper was prepared by a team led by Nicholas Burnett and consisting of Tom Eisemon, Kari Marble and Harry Anthony Patrinos, based on major contributions from Arun Joshi, Marlaine Lockheed and Kin Bing Wu and contributions from Barbara Bruns, Sarbani Chakraborty, Helen Craig, Joy Del Rosso, Reed Garfield, Indermit Gill, Masooma Habib, Jane Hannaway, Ward Heneveld, Donald Holsinger, Theresa Moran, Christina Rawley, Omporn Regel, Rajendra Swamy and Stella Tamayo. Helpful comments on earlier drafts were given by Arvil Van Adams, Jean-Claude Eicher, Vincent Greaney, Lauritz Holm-Nielsen, Bruno Laporte, Jon Lauglo, Michael Mertaugh, John Middleton, Alain Mingat, Paud Murphy, François Orivel, Jamil Salmi, Nate Scovronick, Lyn Squire, Jee-Peng Tan, Zafiris Tzannatos, Michael Walton, Maureen Woodhall and Adriaan Ziderman. The paper was written under the general direction of K.Y. Amoako and the immediate supervision of Peter R. Moock in the Education and Social Policy Department. A Bankwide Advisory Panel provided valuable assistance; members of the panel are: Mark Baird, Carl Dahlman, Birger Fredriksen, Wadi Haddad, Ralph Harbison, Roslyn Hees, Stephen Heyneman, Emmanuel Jimenez, Homi Kharas, Jack Maas, Himelda Martinez, Philip Musgrove, George Psacharopoulos, Julian Schweitzer, Richard Skolnik, James Socknat and Donald Winkler. Prior to Board presentation, the paper was reviewed in September 1994 by an external panel consisting of ministers, senior officials, and academics from Armenia, Colombia, France, Guinea, India, Japan, Jordan, Mexico, Nigeria, Pakistan, Philippines, Russia, Slovakia, Thailand, Uganda and the United Kingdom. Discussions were also held with OECD, UNESCO and UNICEF staff, the UNESCO Commission chaired by Mr. Jacques Delors on "Education for the Twenty-First Century," CIDA, SIDA and USAID staff, donor agency representatives meeting under the auspices of the International Working Group on Education, the Commonwealth Ministers of Education, British academics and officials at a meeting organized by the British Council, and Education International. Jo Bischoff, Ian Conachy, Richard Crum, Kari Labrie and Margot Verbeeck prepared the paper for publication.

Executive Summary

Education, especially primary and lower secondary education, is critical for economic growth and poverty reduction, especially as labor market structures shift dramatically with changing technology and economic reform.

1. Education is a major instrument for promoting economic growth and reducing poverty. It is central to the World Bank's strategy to reduce poverty by: (a) promoting the productive use of labor, the poor's main asset; and (b) providing basic social services to the poor. Investment in education leads to the accumulation of human capital, which is key to higher incomes and sustained economic growth. Education at all levels increases growth, but education alone will not generate growth. Growth requires not only investment in human capital but also in physical capital; both types of investment contribute most to growth in open, competitive economies that are in macroeconomic balance. Education, especially primary and lower secondary (basic education), helps reduce poverty by increasing the productivity of the poor's labor, by reducing fertility and improving health, and by equipping people with the skills they need to participate fully in the economy and in society. More generally, education helps strengthen the institutions of civil society and helps build national capacity and good governance, critical elements in the implementation of sound economic and social policies.

2. Economies and labor markets are changing dramatically throughout the world. Technology, international trade, the deregulation of economies and labor markets, and migration are changing the employment structures of advanced, transitional and developing countries. The rate of acquiring new knowledge and the pace of changing technology raise the possibility of sustained economic growth with more frequent job changes during individuals' lives. Work tasks involve less and less manual attention; hence jobs are becoming more abstract and more removed from the physical processes of production. These developments have created two key priorities for education: (a) it must meet economies' growing demands for adaptable workers who can readily acquire new skills, which increases the importance of the basic skills learned in primary and general secondary schools; and (b) it must support the continued expansion of knowledge, largely the role of higher and postgraduate education.

3. Changes in the labor market are making the roles of the different levels of the formal education system increasingly clear. In primary and secondary schools, the focus is on basic general skills that provide a base for further education and training. The basic skills are language, science and mathematics, and communications. Basic education also includes the development of attitudes necessary for the workplace. In institutions of higher education and in areas offering specialized on-the-job training, the focus is not only on acquiring academic and vocational skills but also on work-related continuing education that updates those skills. Outside the formal system, programs are necessary to deal with the problem of adult illiteracy, but these are not the subject of this report; they will be discussed in a future World Bank paper devoted to adult education.

Progress in increasing education enrollments has reduced poverty by helping low- and middle-income countries' economies grow at historically rapid rates.

4. Educational enrollments in many developing countries have been unprecedented in the last several decades. A typical 6-year-old child in 1990 attends school for 8.5 years, up from 7.6 years in 1980. In Eastern Europe and Central Asia, 9 or 10 years of schooling is universal. In East Asia and in Latin America and the Caribbean, primary education is almost universal. Countries in South Asia and in the Middle East and North Africa are also making steady progress, although those in South Asia have a considerable distance to go. Sub-Saharan Africa is not doing as well. These generally increased average levels of education are contributing directly to countries' economic growth, in many cases at historically rapid rates.

Yet major challenges remain: to increase access in some countries and to improve equity, improve quality and speed up educational reform in most countries.

5. Four major challenges remain. The challenges are in part the result of changes in economies and labor markets and in part the result of countries' success with educational reform. The challenges are: (a) access; (b) equity; (c) quality; and (d) reducing the lag between the reform of economic structures and that of education systems.

6. The greatest access and enrollment challenge lies in Africa. Here primary enrollment ratios are declining as a whole, although individual country experiences are varied. Unless policies change, continuing high population growth rates in Africa, South Asia, the Middle East and North Africa mean that the number of 6 to 11-year-old children not in school will increase from 129 million in 1990 to 162 million by 2015. Moreover, only two-thirds of the number of children who start primary school complete it. As a result, adult illiteracy, which already characterizes over 900 million people in the world, will likely remain a major problem. At the secondary level, the access problem is different: in most countries, more children wish to go to secondary school than are able to enroll. The demand for higher education is in general also increasing faster than supply. The enrollment gap between the transitional economies of Europe and Central Asia and the OECD countries is also widening. The causes behind this growing gap in educational access are the faster progress in OECD countries during the 1980s and declining ratios in the transitional economies since 1989.

7. A second challenge is equity. This major issue mainly involves girls and the poor, including linguistic and ethnic minorities, nomads, refugees, street and working children, and other disadvantaged groups. The gender gap in education is now very small in most countries in Europe and Central Asia and in Latin America. It remains large in the Middle East and South Asia. Moreover, in South Asia, the gap is not closing at all, unlike every other region.

8. The third—and probably most important—challenge is to improve educational quality; it is poor at all levels in low- and middle-income countries. Students in developing countries are neither acquiring the skills called for within their own countries' curricula nor are they doing as well as students in more developed countries. Not only is their mean level of achievement lower on an internationally comparable basis, their performance shows a much greater variation around the mean than in advanced countries. Improving quality is as important as improving access, but it is even harder to achieve.

9. The fourth challenge is to reduce the delays in reforming education systems. As technological progress and the pace of change of economic structures accelerate, delays in reforming education systems to keep pace with economic structures can imply lower growth and more poverty than would otherwise occur. This problem is most apparent in the transitional economies of East and Central Europe. Timely reform can pay off in terms of economic growth and poverty reduction; this fact is evidenced by the East Asian countries that have generally invested heavily in basic human capital for both men and women.

Present systems of education finance and management are often inappropriate to meet these challenges.

10. Improving access, equity and quality requires changes to the financing and management of a country's education system. Reform must also be speeded up. Public expenditure on education is often inefficient and inequitable. Increasingly, public spending on education is also becoming hard to finance as enrollments in the public sector expand. Similarly, most education systems are directly managed by central or state governments, which spend most of their effort dealing with such issues as teacher salary negotiations, school construction programs and curriculum reform. This type of central management allows little room for flexible decisions about instructional inputs and the learning environment that lead to the most effective learning in the classroom.

Public spending on education is often inefficient and inequitable.

11. Education has enormous payoffs for individuals. In addition, there is a strong case for public intervention in education, based on income distribution, capital market imperfections, information asymmetries and externalities. Education can help reduce inequality, opens new opportunities for the poor and therefore increases social mobility. Public intervention can offset the failure of the capital market which makes it very hard for all people, and especially the poor, to borrow to finance their education. It can also offset the relative lack of information among poorer parents about the benefits or quality of education. Public intervention is also justified because the benefits of education accrue not only to its direct recipients but also to society at large.

12. Public spending is inefficient when it is misallocated across education subsectors and within subsectors; it is inequitable when qualified potential students are unable to enroll in institutions because of a lack of educational opportunities or because of the students' inability to pay. Basic education ought usually to be the priority for public spending on education in those countries that have yet to achieve near-universal enrollment at these levels. Most countries have already made it so, with the highest share of public spending on education going to primary education. Except for Europe and Central Asia and some countries in East Asia and the Middle East, few regions have achieved near-universal secondary education, however.

13. Public spending per higher education student, while falling as a multiple of spending per primary student, remains very high. This subsidy trend continues to increase the demand for higher education. In Africa, for instance, spending per student in higher education is about 44 times that per student in primary education; the share of higher education in total public spending on education is now higher than in any other region of the world. Yet one-half of Africa's primary-school-age children are not enrolled in school, and its universities are often of low quality.

14. Within education subsectors, there are often inefficient mixes of inputs, such as between staff and instructional materials. A consequence is low learning and high repetition and dropout rates. For effective learning, this input mix must vary from country to country and school to school according to local conditions. Important broad guidance about the internal efficiency of education systems can come, however, from international comparisons and interschool comparisons. Research generally indicates that modest increases in student-teacher ratios tend to improve education when they permit resources to be reallocated to other critical inputs, such as textbooks. School buildings can be built more cheaply than at present and can serve their purposes more effectively if adequate maintenance funding is assured. Buildings can also be used more efficiently by consolidating small schools and integrating multigrade teaching and multiple shifts.

15. Although public spending on primary education generally favors the poor, public spending on education as a whole often favors the affluent. Total spending is usually biased against the poor because of the heavy subsidization of the upper secondary and higher education levels, which usually have disproportionately few students from poor families. Higher education spending by the public sector is particularly inequitable because the subsidy per student is higher than at lower levels, even though higher education students come disproportionately from richer families.

16. The following comparisons highlight the impact of inefficiencies and inequities in public education spending. By 1990, an average 6-year-old child in East Asia and the Middle East and North Africa completed more than 9 years of school. Yet public spending on education by countries in the Middle East and North Africa represented 5.2 percent of GNP, compared with only 3.4 percent in East Asia. Public spending on education in Africa, which has the lowest enrollment ratios of any region, represents a greater share of GNP (4.2 percent) than in East Asia (3.4 percent) and Latin America (3.7 percent), regions that have largely achieved universal primary education. There is no theoretically appropriate proportion of GNP or public spending that should be devoted to education. In many countries, however, improved education could be achieved with the same or even less public spending, particularly by following the East Asian pattern of focusing public spending on the lower levels of education and of increasing its internal efficiency. Also some countries that spend very little on education could improve results dramatically simply by increasing public spending.

Increasing pressures on public spending on education require new sources of funds.

17. These frequent inefficiencies and inequities of public expenditure on education have combined with expanding public sector enrollments at all education levels to increase the share of public spending on education in GNP. The result is increasing pressure on public funds at the same time when many countries, especially in Eastern Europe and Africa, experienced general fiscal crises. During the 1980s, public spending on education increased or maintained its share of GNP and increased as a share of total central government spending in every region of the developing world, except in Latin America with its debt-induced recession. Real public expenditure per primary student fell not only in Latin America but also in Africa. At the secondary level, real spending per student fell in Africa also. At the tertiary level, it fell in all regions. As enrollments increase, therefore, resources per student decline; without increased efficiency, the quality of schooling will likely decline also.

18. Measures to increase the efficiency of public spending on education can release funds for more productive investment in education. Such measures may still not be enough and other

sources of funds may be required. Some countries in these circumstances have chosen to switch further public expenditure into education and away from other publicly funded activities, such as defense and inefficient public enterprises that can be run better by the private sector. Other countries have decided there is scope, within their macroeconomic policies, to increase the revenues of government and thereby have more to spend on education. Yet others have sought to supplement public funds for education through private funding.

19. Private funds can be encouraged either to fund private institutions or to supplement the income of publicly funded institutions. As for private institutions, some countries prohibit private schools and universities and others regulate them excessively. Since private schools are usually financed by household payments of fees, such restrictions crowd out private spending on education that could have substituted for public spending, in turn permitting more students to enroll at publicly-funded schools. In addition, the very existence of private schools and universities, even though their students tend to come from more advantaged socioeconomic backgrounds, promotes diversity and provides useful competition for public institutions, especially at the higher levels of education.

20. As opposed to enabling private money to fund private schools, charging fees for students at publicly funded institutions raises difficult questions concerning equity, access, and taxation. If some fees are charged for all students attending public schools at all levels, the poor will be hit particularly hard, discouraging enrollment. Scholarship and other systems can be introduced to offset this problem, but they are complex to administer at the lower levels of education. At the upper secondary and higher levels of education, however, a much stronger case exists for the payment of fees by individuals attending public institutions. The gap between the private and the social return to education is generally much greater in higher education than in basic education. This inequity can be overcome by charging the student either from current family income or from future earnings by a loan scheme or through the tax system.

Education is not generally organized to permit the flexible combination of instructional inputs and the learning environments that contribute most to effective schooling.

21. While resource availability significantly affects quality in most low- and middle-income countries, prevailing patterns of educational organization and management are also responsible for the poorer quality of education in many developing and transitional countries compared with advanced countries. A wide variety of policies and inputs can result in effective schooling. Indeed, the factors important in any country, region, community or school are typically specific to that country, region, community or school. Educational research and experience show, however, that the quality of education can be influenced positively by the government in four main ways: (a) the setting of standards; (b) supporting inputs known to improve achievement; (c) adopting flexible strategies for the acquisition and use of inputs; and (d) monitoring performance. These steps are not generally taken, however, because of the prevailing patterns of education expenditure and management and the vested interests associated with them.

22. Governments can improve academic achievement by setting clear and high standards for performance in core subjects. Many countries are now moving toward establishing performance standards at the primary level; at the secondary and tertiary level, they are usually embodied in certification examinations. Once learning objectives have been identified through performance standards, the "technology" of learning comes into play. Learning requires five types of inputs: (a)

the student's capacity and motivation to learn; (b) the subject to be learned; (c) a teacher who knows the subject; (d) time for learning; and (e) the requisite "tools" for teaching and learning.

23. Students' capacity and motivation to learn is determined by the quality of the home and school environments, health and nutrition status and prior learning experiences, including the level of parental stimulation. Learning can be increased by: (a) high quality preschool education programs and by preschool and in-school health and nutrition programs addressing short-term hunger; (b) protein-energy and micronutrient malnutrition; (c) hearing and vision impairments; (d) highly prevalent health conditions, such as parasitic infections; and (e) inappropriate health and nutrition practices. When combined with efforts to improve the school's physical environment, the impact of such programs can be greatly enhanced.

24. The curriculum defines the subjects to be taught and furnishes general guidance regarding the frequency and duration of instruction. Curricula and syllabi closely tied to performance standards and measures of outcome are preferred to those with weaker links. The range of national variation among relatively successful education systems shows clearly that there is no single curriculum that is appropriate to all or most developing countries. Some generalizations can be made, however. At the primary level, curricula are fairly standard, but there are often too many subjects, reducing the time available for teaching core skills. The most effective initial language of instruction is the child's mother tongue. At the secondary level, curricula vary considerably, particularly in science education and vocational education. Because of its importance for development, science education is increasingly integrated in curricula. Because the social returns to specialized vocational education are generally much lower than those to general secondary education, vocational and technical education is best delayed as long as possible; ideally, vocational and technical education is preceded by general education and is held in the workplace. Vocational education works best when it is delivered with the direct involvement of the private sector in its provision, financing and governance. At all levels, attempts to reform the curriculum will improve achievement only when they are accompanied by incentive policies and resources that ensure that the curriculum is taught.

25. Teachers' subject knowledge is strongly and consistently related to student performance. Teachers with a wide repertoire of teaching skills appear to be more effective than those with a limited repertoire. The most effective strategy for ensuring that teachers have adequate subject knowledge is to recruit suitably educated teachers whose knowledge has been demonstrated through assessed performance. This strategy is followed for secondary- and tertiary-level teachers, but is rare at the primary level. In-service training can also improve teacher subject knowledge and related pedagogical practices. It is most effective when it is linked directly to classroom practice and provided by the headteacher. The amount of actual time for learning is consistently related to achievement. Students in low- and middle-income countries spend much less time being instructed than students in OECD countries, a consequence of a shorter official school year, unscheduled school closings, teacher and student absences, and miscellaneous disruptions. Instructional time can be increased by increasing the length of the official school year, by permitting flexible scheduling to accommodate variations in demand associated with agricultural seasons, religious holidays and children's domestic chores, and by assigning homework. The most effective instructional materials are blackboards and chalk and textbooks. Particularly critical in improving reading achievement is supplementary reading material.

26. Setting standards and supporting effective inputs are important for effective schooling. Even more critical is the flexibility to decide locally how to combine and manage inputs and the monitoring of performance. School governing bodies, principals and teachers have the closest knowledge of local conditions and are best suited to select the most appropriate package of inputs. Under the right circumstances, schools and higher education institutions that are accountable to parents, communities, and students can experience more effective learning—and hence improved educational quality—than the systems that currently prevail. Three conditions are necessary for this result: shared goals regarding the learning objectives of the school, professionalism among teachers, and school level autonomy to allocate instructional resources flexibly. A further promising approach is school-based leadership that ensures an effective climate for learning. These conditions combine to hold the school and its teachers accountable to parents and communities for outcomes in the context of national or regional indicators, such as examination results and learning assessments. Yet many education systems in developing countries are run in a rigidly centralized manner with, for instance, central selection and purchases of textbooks and central direction about classroom instruction.

Reforming education finance and management means redefining the role of government in six key ways, with the appropriate priorities depending on country circumstances:

(a) A higher priority for education.

27. Education is now both more important for economic development and poverty reduction than it either used to be or was understood to be. It therefore deserves a higher priority from governments as a whole, and not only from ministries of education. This priority has long been realized in East Asia and is increasingly coming to be understood elsewhere, especially in Latin America. It is important that other countries give education more attention, especially those in Africa, South Asia, the Middle East and the former socialist countries of Europe and Asia.

28. More attention to education is needed because: (a) economies and labor markets are undergoing major changes, requiring renewed attention to investment in physical and human capital; (b) returns to investments in education are high compared with other investments; and (c) there are important synergies among investments in education and other aspects of human capital accumulation. With economic reform now a permanent process in many countries, a longer term development and poverty reduction focus implies a higher priority for education, with specific policies within education varying according to country circumstances.

(b) Greater attention to outcomes.

29. A greater outcome orientation means determining educational priorities more through economic analysis, through setting standards and measuring their achievement through learning assessments. A sectoral approach is key for setting priorities. While governments determine educational priorities for many reasons, economic analysis of education in general, and rate of return analysis in particular, is a diagnostic tool with which to start the process of setting priorities and considering alternative ways of achieving objectives within a sectoral approach.

30. Economic analysis applied to education focuses on the comparison of benefits with costs, for individuals and for society as a whole. Such analysis also compares the costs of alternative interventions to achieve a given educational objective. The comparison of benefits with costs is usually measured by calculating the return, taking labor productivity as the benefit, as measured by

wages. Both the social rate of return and the differences between the social and private rates of return can help in setting public sector priorities. Priorities for public investment determined by this type of economic analysis are those in which the social rate of return is highest and the level of public subsidization is lowest. Rates of return must be calculated in specific country circumstances and cannot be assumed. Methodological problems and practical problems associated with valuing external benefits not captured in wages mean that it is prudent to exercise caution and use good judgement when applying cost-benefit analysis.

31. The high rates of return estimated for basic education in most developing countries strongly suggest that investments to expand basic education enrollments and improve basic education retention should generally be the highest priority education investments in countries which have not yet achieved universal basic education. Other education interventions may also merit a high priority. Investments to improve education quality or education efficiency will often have high rates of return; in some cases, these may even be higher than for investments to expand education coverage. In addition, some improvements in educational efficiency or quality will often be possible through policy changes requiring no specific investments.

32. Decisions about public education priorities beyond primary and lower secondary education have to be taken within a broad sectoral approach. A distinction needs to be made between countries that have largely achieved universal primary and secondary education and those that have not. The former are likely to consider upper secondary and higher education as the priorities, and they can often make informed decisions among these post-compulsory levels by the prudent use of economic analysis that focuses on labor market outcomes. Economic analysis has shown, for example, that the returns to general secondary education are much higher than those to highly specialized vocational secondary education, although analysis has not yet looked into the returns to investment in the more "general" type of vocational education that is now becoming prevalent in many OECD countries. Countries that have yet to achieve universal primary and lower secondary education will also need to give some attention to all levels of education. But economic analysis can guide public choice about investments above primary and secondary education to those that will clearly have a greater impact upon labor productivity and other social benefits.

33. An outcome focus also involves the establishment of performance standards, particularly for primary and general secondary schools, and a system of assessments to monitor what students are learning. Standards, curricula, and monitoring are most effective when they are directly linked through appropriate incentives.

(c) Public investment focused on basic education, coupled with more reliance on household financing for higher education.

34. More attention to efficiency and equity in the allocation of new public investment on education would do much to meet the challenges that education systems face today. To achieve efficiency, public resources should yield the highest returns. This criterion means concentrating public resources in a cost-effective manner where the returns to investment are highest, usually the basic levels of education. To achieve equity, the government needs to ensure that no qualified student is denied access to education because of inability to pay. At the same time, and because the gap between the private and social returns is larger for higher education than for basic education, advantage should be taken of any willingness to pay for higher education by sharing its costs with

students and their parents. Governments can also intervene by bearing some of the risk to correct the capital market failures that preclude financial institutions from lending for higher education.

35. Combining these principles leads to a stylized policy package of fees and efficient expenditure in the public sector consisting of: (a) free primary education and lower secondary education, including cost sharing with communities and targeted stipends for households that cannot afford to enroll their children; (b) selective charging of fees for upper secondary education, combined with targeted scholarships; (c) fees for all public higher education, combined with loan, tax and other schemes so that students who cannot afford to pay the fees out of their own or their parents' current income may defer payment until they have income themselves (accompanied by a targeted scholarship scheme to overcome the poor's reluctance to accumulate debt against uncertain future earnings); (d) assurance of quality primary education for all children as the top priority for public spending on education in all countries; (e) improved access to quality general secondary education (initially lower secondary and later all levels of secondary) as the second priority once all children have primary education of good quality; and (f) efficient spending at school and institution level in the public sector.

(d) Greater attention to equity.

36. Equity of access to education is important to many governments. Achieving equity often requires more attention than it has been given. Importantly, increased attention to equity will also increase efficiency, because economic growth will be higher the broader the base of education in the economy. Equity is particularly weak at the first level of schooling and in systems that include private schools and private financing. Equity has two principal aspects. The first is to ensure that everyone has a basic education—the basic knowledge and skills necessary to function effectively in society. The second involves a government obligation to ensure that qualified potential students are not denied education because they are poor, female, or are from disadvantaged ethnic minorities or geographically remote regions, or have special education needs. At the lowest and compulsory levels of education, equity simply means ensuring that schools are available. At the postcompulsory level, it means having fair and valid ways for determining potential students' qualifications for entry.

37. Achieving equity requires both finance and special measures. Finance is important at all education levels for those who cannot afford to go to school, either because they and their parents cannot pay the associated costs or because the household cannot afford to lose the labor services of those attending school. Scholarships can finance education for the poor. This aid can cover both fees and other direct costs, such as transportation and uniforms and, when appropriate, can also compensate families for the indirect costs of sending children to school. Special measures can increase enrollments of the poor, females, linguistic minorities, and special populations. For the poor, special programs designed to demonstrate the importance of educating children can overcome families' lack of social capital. For girls, special programs can include reserving all-girl classrooms and schools, locating schools within easy access of girls' homes, providing separate sanitary facilities and constructing boundary walls, increasing the number of female teachers, providing childcare centers, and adjusting school hours to fit girls' schedules of work at home. For linguistic minorities, bilingual programs and schools with flexibility in their choice of language of instruction are important, especially at the first level of schooling. The principal policy to reduce the relatively high incidence of physical and learning impairment in developing countries is to improve child nutrition and health. Special programs to improve the nutrition and health of school children can play a role in increasing enrollments and equity in schools. For example, school feeding programs can be

designed to have a positive impact on the enrollment and participation of girls. Other programs can significantly improve the disadvantaged child's ability to take advantage of educational opportunities. For example, the treatment of parasites and micronutrient fortification or supplementation are relatively inexpensive and easy to implement. Also, educating children with minor impairments does not usually require costly facilities or programs, and what costs there are can often be shared with nongovernment organizations.

(e) Greater household involvement.

38. Education institutions may be more accountable for their performance when households are more involved in the institutions that family members attend. There are two main aspects to this: school governance and school choice. Around the world, parents and communities are becoming more involved in the governance of their children's schools. Likewise, students are becoming more involved in their higher education institutions. Effective involvement in school governance does not come easily, however, and training is generally advisable. Increased experimentation with school choice is also a hallmark of recent educational reforms, particularly among OECD countries. No evidence yet exists, however, that the competition that results among schools either improves or worsens school performance. For choice to be effective, there are important factors in the arrangements. Perhaps most critically, there must be more than one possible school that can be reached by the student; this factor will be difficult in some more rural and isolated areas. Second, the institutions should have some differentiating characteristics (e.g., differing emphases on aspects of the curriculum, differing styles of teaching, differing course offerings at the higher level); this condition is most relevant at the higher levels of education. Third, to enable such differences to be real, institutions need to enjoy considerable autonomy in how they teach. By having a variety of types of institution, parents and students can exercise choice and thus provide institutions with an incentive to adapt to demand.

39. Increased household involvement carries with it five major risks. It makes more difficult the implementation of systemwide education policies. It may make more difficult the enforcement of broader national objectives, such as educating girls. It can increase social segregation, if schools are becoming polarized between elite academies and schools for the children of the poor and uneducated. It can reduce equity if schools and institutions accept students on the basis of their ability to pay rather than on academic entrance qualifications. Finally, it may not be successful because parents may not have enough information available to make judgments about quality. The first four risks can be mitigated by policies for the provision of public funding, which can only be made available to schools following certain practices and can be higher per student for poor than better-off children. The fifth risk can be reduced by the government providing open and independent information about school quality.

(f) More autonomous institutions.

40. Education quality can increase when schools are able to use instructional inputs according to local school and community conditions and are accountable to parents and communities. Effective use of instructional inputs results from autonomous institutions and is relevant in all contexts, even remote rural areas. Fully autonomous institutions have authority to allocate their resources, not necessarily to raise them, and they are able to create an educationally-oriented environment adapted to local conditions both inside and outside the school. There is still little evidence available on the impact of increased school-level flexibility in those countries on overall

education system quality. As with school choice, therefore, some caution is called for as more countries experiment with increased school level autonomy.

41. Accountable autonomous institutions can be encouraged by both administrative and financial means. Administrative measures include giving school managements the authority to allocate resources, such as the authority to deploy personnel and to determine such things as the timing of the school day and year and the language of instruction to fit local conditions. Most critically, they also include giving teachers the authority to determine classroom practices, within limits. These limits are set by a broad national curriculum, encouraged by examinations and monitored and supported by standards, learning assessments and school inspectors.

42. Financial measures to encourage school and institutional autonomy and accountability can include: (a) the use of local as well as central government taxation; (b) cost-sharing with local communities; (c) the allocation of block grants to communities and schools without restrictions on the subsequent allocation of the funds; (d) the charging of fees at the higher levels of education; (e) the encouragement of revenue diversification; (f) the use of "portable" capitation grants, vouchers and student loans; and (g) output-based and quality-based funding. Reliance on local funding must be tempered with adjustments from higher levels of government to compensate for the different resource levels of different localities. Indeed, it is not necessary that local control of resources be accompanied by local raising of revenues. It is important, however, that any local financing of schools be done to improve learning, not to reduce resources.

43. The risks of school level autonomy arise particularly with regard to overcoming inequalities in educational opportunities and adherence to national standards and the curriculum. They can largely be mitigated by: (a) clearly separating school-level management and control over resource allocation from exclusive reliance on local financing; and (b) ensuring that some functions are maintained external to the school, such as standards, curricula and performance assessment mechanisms that are best handled at national or regional level.

The relative priority of each reform depends on a sectoral approach according to specific country circumstances.

44. Priorities for change—and for World Bank support—differ according to country circumstances. A sectoral approach is key, both for countries setting their priorities and for the Bank in determining its support. A sectoral approach by countries implies achieving maximum efficiency in the allocation and use of resources so as to increase the quality and improve the quantity of education. A sectoral approach by the World Bank implies attention to the policy environment and institution-building, so that Bank support helps develop the sector as a whole in addition to those improvements in quality and quantity that Bank lending finances directly.

45. In all countries, therefore, Bank lending will be concerned with the policy environment and with the strengthening of institutions. The subsectoral allocation of lending will usually follow countries' own resource allocation priorities. Primary and lower secondary education will therefore continue to be the highest priority sectors in the Bank's education lending to countries that have not yet achieved universal literacy and adequate access, equity and quality at these levels. The Bank's sectoral approach means that its involvement in higher education in these countries which have yet to achieve universal literacy will continue to be mainly to make the financing of higher

education more equitable and cost-effective, so that primary and secondary education can receive increased attention at the margin.

46. As the basic education system develops in coverage and effectiveness, more attention can be devoted to the upper secondary and higher levels. Bank lending for higher education will support countries' efforts to adopt policy reforms that will allow the subsector to operate more efficiently and at lower public cost. Countries prepared to adopt a higher education policy framework that stresses a differentiated institutional structure and diversified resource base, with greater emphasis on private providers and private funding, will continue to receive priority.

47. The transitional economies of Eastern and Central Europe form a special category, with high primary and secondary enrollment ratios, but with the imperative of adjusting the entire education system toward the needs of a market economy. It is particularly important for these countries to maintain funding levels for compulsory (primary and secondary) education, to shift away from overspecialization at vocational, technical and higher education institutions, and to reform the governance and financing of higher education.

Change will not be easy to implement because of the current pattern of vested interests.

48. Education is intensely political because it affects the majority of citizens, involves all levels of government, almost always makes up the single largest component of public spending in developing countries, and has public subsidies that are biased in favor of the elite. Prevailing systems of education expenditure and management often protect the interests of teacher unions, university students, and the elite and central government relative to the interests of parents, communities, and the poor.

Change can be achieved, however, by expanding educational opportunities, by building national consensus, by increasing parent and community involvement, and by ensuring that the reforms are carefully designed and include the necessary financial resources and mechanisms.

49. Financing and management changes are best introduced as education opportunities are expanded. Sometimes the change itself does this, for example, when prohibitions on the private sector are lifted. The expansion of cost-sharing in public higher education, for instance, is politically most feasible when it is linked to expanding opportunities for higher education. Successful change requires building national consensus through involving the stakeholders in the education system in national consultation mechanisms. Increasing parent and community involvement by making schools autonomous and accountable can offset the power of vested interests; it is also critical to increasing flexibility and improving instructional quality. Reform efforts must be thoroughly designed, careful not to disrupt the vital links among the different education subsectors. Financial resources and mechanisms must accompany policy changes, an essential step that is often inadequately provided for.

The World Bank will continue to support the financial and managerial change of education systems on a country-by-country basis through an increasing focus on sectorwide policy.

50. The World Bank made its first loan for education in 1963. The Bank is now the largest single source of external finance for education in developing countries. Since 1980, the total volume of education lending has tripled, and its share in overall Bank lending has doubled. Primary and secondary education are increasingly important; in FY90–94 these levels represented half of all education lending. The early years of Bank lending for education concentrated on Africa, East Asia

and the Middle East. But today, lending is significant in all regions, including Europe and Central Asia, Latin America and the Caribbean and South Asia. Girls' education is receiving explicit focus, with increasing attention given to ethnic minorities and indigenous people. Bank funds are today used less for buildings and more for other educational inputs. The narrow project focus of the past is increasingly giving way to a broad sectoral approach.

51. The World Bank is strongly committed to continued support for education. However, even though Bank funding now accounts for about a quarter of all aid to education, its effort still represents only about half of one percent of developing countries' total spending on education. Thus, the World Bank's main contribution must be advice designed to help governments develop education policies suitable for the circumstances of their own countries. Bank financing will generally be designed to leverage spending and policy change by national authorities. Future operations will therefore adopt an even more explicit sectorwide policy focus in order to support changes in educational finance and management. This strategy may increase both the resources and the elapsed time needed to prepare projects, as key stakeholders must be involved in the preparation of changes. In increasingly decentralized contexts, the stakeholders will include not only central government but also other levels of government, communities, parents, teachers and employers.

52. Bank programs will encourage governments to give a higher priority to education and education reform, particularly as economic reform takes hold as a permanent process. Projects will take more account of outcomes and their relationship to inputs. This insight will be gained through explicit use of cost-benefit analysis and participatory methods in project design and of learning assessments and improved monitoring and evaluation during and after project implementation. The share of basic education in total Bank lending for education is expected to continue to increase, especially in the poorest countries that receive IDA funds. This emphasis will take place within the context of a sectoral approach that recognizes the importance of the various parts of the education system, the interdependencies among these parts, and the need to ensure that the focus as well as the nature of Bank assistance is based on a determination of where the Bank can be most useful in the particular circumstances of each country. Projects will pay greater attention to equity, especially education for girls, for disadvantaged ethnic minorities, and for the poor. This will necessarily involve more attention to early childhood education. Projects will support household involvement in school governance and in school choice through an increased focus on the regulatory framework for education; on quality enhancing mechanisms, such as outcome monitoring and inspection; on recurrent cost financing; and on demand-side financing mechanisms, such as targeted scholarships for the poor, stipends for girls and student loan schemes for higher education. They will encourage flexible management of instructional resources, complemented with national assessment and examination systems to provide incentives. In all these areas, Bank-supported projects will pay increased attention to institutional development and appropriate financial mechanisms, and the Bank's staff will pay increased attention to implementation.

Introduction

- i. **The role of education as a vehicle for sustainable development of society, economic growth and poverty reduction is increasingly being recognized. For most households well-being is determined by income from labor. The productivity of labor, however, to a large extent is determined by peoples' skills, largely a result of schooling. The main source of differences in living standards among nations is differences in human capital, again, largely the product of schooling.**

- ii. **Developing countries' education systems face new challenges as a result of changes in the world economy and their very success in meeting past challenges.**

- iii. **Industrial development and restructuring of productive sectors, changes in international trade relationships, economic reforms and technological advances during the 1980s all have important ramifications for both education and the labor market in the future. The world economy is today more market-oriented, as a result of domestic deregulation in most countries and the explicit adoption of market systems in the former centrally planned economies. The world is also more integrated, as a result of rapid development of communication systems, trade liberalization and expansion, the universal availability of rapidly changing technology, and increased migration.**

- iv. **A technological revolution is changing the global economy by increasing the role of knowledge as the driving force for innovation and productivity growth. Technological developments and labor market changes have produced higher wages for almost all workers in developing countries. The opening up of markets around the world and the rapid flow of goods and ideas from country to country is creating many new opportunities for people. These changes have led to dramatic shifts in labor markets, placing new demands on educational systems.**

- v. **The knowledge gap between industrialized and developing countries is large and widening. Knowledge, understanding and science have grown per capita, and continue to do so. Knowledge grows without bound. While cognitive skill or memory is tied to particular individuals, scientific knowledge is a different kind of intangible that is not tied to individuals. Human capital, not physical capital, holds the key to persistent high growth in per capita income, because people, unlike machines, can learn. There are labor-augmenting spillovers from human capital investments. Of course, there exist significant gaps between classroom education and the effective utilization of knowledge in the production process.**

- vi. **It is becoming increasingly clear that success in this new world requires that countries pursue market-based reforms and continue to invest in peoples' skills. Information technology places a high premium on education. If developing countries are to profit from the knowledge-based economy they require an education system that makes people technologically literate and receptive to innovation. At the same time, technology provides opportunities for countries to produce adaptable workers. There is increased need for people to be able to reallocate their resources in response to changes in economic conditions—allocative efficiency. Radio instruction and computer simulation are but two ways that technology can be used to prepare workers for the world of tomorrow and**

support the process of life-long education. Many of these approaches can be used to bring down the unit costs of education while increasing access, efficiency and quality.

vii. Curriculum changes are also suggested by the changing global economy. Besides being receptive to technology, more science education is necessary, even at the primary level, as well as an education system that produces highly educated, technologically capable personnel. International demands and changing technology, along with country specific needs, may imply increasing the length of the basic education cycle. In most countries primary education involves the first few years of schooling, usually about six. The new era demands scientific and technological literacy and may require a redefinition of basic education to include the first few years of the secondary education cycle.

viii. The main engine of growth is the accumulation of human capital—knowledge. While human capital accumulation also occurs in research organizations and in the course of producing goods and engaging in trade, it is the production of knowledge in schools and educational institutions that is the concern of this report. Rapid economic development of entire societies is not possible without sufficient investment in the skills and education of the very poor and ethnic minorities. Economic development is not sustainable without making a concentrated effort to educate the poor.

ix. Developing countries have largely met the challenge of meeting the enrollment demand for primary education. The major exception is Africa, where fertility remains high. In most regions, however, the challenges today are: (a) to improve quality; (b) to achieve equity, with the ranks of the uneducated increasingly consisting of the poor, of women and of ethnic minorities; (c) to meet rapidly increasing demand for secondary and higher education; and (d) to achieve sustainability in the light of almost universal fiscal restraint.

Part I

Education and Development

Education is a major instrument for the promotion of economic growth and for the reduction of poverty. It is central to both parts of the strategy that the World Bank has adopted to achieve its objective of helping countries reduce poverty and improve living standards through sustainable growth and investment in people: promoting the productive use of labor, the poor's principal asset, and providing basic social services to the poor (World Bank 1990b). Investment in education leads to the accumulation of human capital, which is key to sustained economic growth and increasing incomes. Education at all levels contributes to the overall stock of human capital and hence to growth. Education, especially basic (primary and lower secondary) education, also contributes to poverty reduction by increasing the productivity of the poor's labor, by reducing fertility and improving health and by equipping people to participate fully in the economy and in society. In addition, education contributes to the strengthening of institutions of civil society, to national capacity building and good governance, all increasingly recognized as critical elements in the effective implementation of sound economic and social policies.

Education, Growth and Poverty Reduction

1

Education and Economic Growth

1.1. Education contributes to economic growth, but education alone will not generate growth. Growth requires not only investment in human capital, through education, health and nutrition, but also in physical capital. Moreover, the strongest growth will result from investment in both human and physical capital that takes place in economies with competitive goods and factor markets, resulting from macroeconomic stability, well-functioning labor markets and an openness to international trade and flows of technology.

1.2. Economic growth is explained only in part by stocks of labor and physical capital. The large component of growth that these do not explain is due to improvements in the quality of the labor force, including increased education and better health, together with technological progress and economies of scale (T.W. Schultz 1961; Denison 1967; World Bank 1991d). New theories of economic growth support this finding. They suggest that an increased rate of technological change increases the long-run economic growth rate. Technological change increases faster, in turn, when there are more highly educated workers. Thus, the accumulation of human capital, and specifically of knowledge, facilitates the development of new technologies and is a source of self-sustaining growth (Romer 1986; Lucas 1988; Azariadis and Drazen 1990; Barro 1991).

1.3. Education contributes to economic growth both through increasing individual productivity with the acquisition of skills and attitudes and through the accumulation of knowledge. The contribution of education can be estimated by its impact on productivity, measured by comparing the difference in earnings over time of individuals with and without a particular course of education to the cost to the economy of producing that education. This measure is known as the social rate of return to investing in education, although it does not capture either all social benefits or external effects (Box 1.1). Measuring rates of return to education can be difficult in some cases (Weale 1993), though no more so than for other sectors such as agriculture and transportation, and yet they have withstood the tests of more than three decades of careful scrutiny (T.P. Schultz 1994). And, as was concluded almost two decades ago, human capital theory has no genuine rival of equal breadth and rigor (Blaug 1976). Rates of return to education are very high in low- and middle-income countries (Table 1.1). Country circumstances differ but, in general, rates of return are highest for primary education, followed by secondary and then higher education, in economies with less than universal primary and secondary education. Interestingly, economies with universal primary education that have undergone rapid growth tend to show a higher rate of return to secondary than to primary education (Jain 1991; T.P. Schultz 1993, 1994).

1.4. In almost all countries, rates of return to investment in all levels of education exceed the long-run opportunity cost of capital, usually estimated at 8-10 percent in real terms, making education at all levels a priority for investment. Caution is necessary when looking at rates of return. They can be misleading when, for instance, labor markets are heavily regulated and earnings do not reflect marginal productivity.

Box 1.1. Rates of Return to Education

The concept of the "rate of return to investment in education" is very similar to that for any other investment project: it is a summary of the costs and benefits of the investment that incur at different points in time, and it is expressed in an annual (percentage) yield, similar to that quoted for bank savings accounts or government bonds. If the rate of return to education is 10 percent, this means that when US\$100,000 are invested in education, there will be an annual benefit of \$10,000 over the lifetime of the average graduate, over and above what the same person would have earned without the investment.

Assume that an 18 year old secondary school graduate is driven only by monetary considerations on whether to "invest" or not in a four-year university college degree. Thus, the prospective higher education student has to contemplate and compare the costs and benefits associated with going to college. The cost will be US\$10,000 per year for tuition and other expenses related to her study. This is the direct cost. In addition, the student would have to incur an indirect (or opportunity) cost because she would not be able to work while attending college. This is approximated by what 18- to 21- year olds with a secondary school leaving certificate earn in the labor market, say US\$20,000 per year. On the benefits side, the student expects to be making on average approximately US\$15,000 more relative to the secondary school graduate over his lifetime.

A rough way to summarize the above costs and benefits is to divide the annual benefit of US\$15,000 by the lump sum cost of US\$120,000, yielding a 12.5 percent rate of return to investment in higher education. The logic of this calculation is similar to that of buying a US\$120,000 bond giving a annual coupon of US\$15,000. The yield of the bond is 12.5 percent.

A very important distinction in rate of return calculations is whether the evaluator wears a private or a social hat. The example given above refers to a private rate of return, where the costs are what the individual actually pays in order to receive her education. A social rate of return calculation includes on the cost side the full resource cost of one's education. That is, not only what the individual pays but what it really costs society to educate one person. Since in most countries education is heavily subsidized, the social cost is much higher than the private cost. Hence a social rate of return is typically less than the corresponding private rate of return.

Beyond the above monetary adjustments to arrive at a social rate of return, the latter should ideally include the externalities associated with education. Of course, as in most other sectors, these are extremely difficult to measure, and hence the issue of externalities has remained a qualification accompanying rate of return estimates, in the sense that such rates, as conventionally computed on the basis of monetary earnings and costs, must underestimate the true social returns to investment in education. One of the main arguments used to justify public subsidy of education has to do with externalities. Since the social benefits of education exceed private benefits, governments subsidize education to prevent underinvestment.

The earnings of educated individuals do not reflect the external benefits which affect society as a whole but are not captured by the individual. Such benefits are known as externalities or spillover benefits, since they spill over to other members of the community. They are often hard to identify and even harder to measure. If one could include externalities, then social rates of return might well be higher than private rates of return to education.

Table 1.1. Rates of Return to Investment in Education by Region and Level of Schooling

Region	Social			Private		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Sub-Saharan Africa	24.3	18.2	11.2	41.3	26.6	27.8
Asia ^a	19.9	13.3	11.7	39.0	18.9	19.9
Europe/Middle East/N. Africa ^a	15.5	11.2	10.6	17.4	15.9	21.7
Latin America/Caribbean	17.9	12.8	12.3	26.2	16.8	19.7
OECD	n.a.	10.2	8.7	n.a.	12.4	12.3

^a Non-OECD.

Source: Psacharopoulos 1994.

1.5. Recent studies confirm the importance of education, and especially primary education, for growth. Cross-country studies suggest the possibility of a threshold level of human capital accumulation, beyond which a country may experience accelerating growth (Azariadis and Drazen 1990; Lau, Jamison and Louat 1991). This concept is essentially a reconfirmation of the original hypothesis that formalized a threshold-type relationship between human capital and economic growth (Bowman and Anderson 1963; Easterlin 1981). Primary education is the single largest contributor to growth in both the cross-country and cross-regional comparisons and the within-country analyses carried out to explain the East Asian "miracle" of development (Box 1.2). Differences in the education level of the labor force explain about 20 percent of the differences in growth across states in Brazil; they suggest a threshold level of average education somewhere between three and four years of schooling (Lau, Jamison, Liu and Rivkin 1993), a result confirmed for Brazil using individual level information (Griffin and Cox Edwards 1993) and also for Guatemala (World Bank 1994d).

Box 1.2. Education's Contribution to Economic Growth in East Asia

Primary education is the largest single contributor to the High Performing Asian Economies' economic growth rates. Investment in physical capital is second, followed by secondary school enrollments and population growth. These results are based on a 113 nation cross-country regression that estimates the relationship between the rate of real per capita income growth, the share of investment in GDP and educational attainment.

The High Performing Asian Economies show a significantly higher rate of growth due to education than all the other economies. When comparing East Asia and Latin America, 34 percent of the predicted difference in growth rates can be attributed to higher investment levels and 38 percent to higher enrollment rates. Similarly, the major difference between East Asia and Sub-Saharan Africa is due to variations in primary school enrollment rates. Investment in physical capital accounts for only 20 percent of the difference.

Source: World Bank 1993a.

1.6. The East Asian "miracle" countries invested heavily in both primary and secondary education in an effort to enhance the quality of labor. This effort was complemented on the demand side by a pattern of growth that made productive use of labor and by complementary investment in physical capital. Substantial spending on education increased growth. For example, if Korea had

had only the low school enrollment rate of Pakistan in 1960, its GDP per capita by 1985 would have been 40 percent lower than it actually was (World Bank 1993a).

1.7. Higher education also contributes to self-sustaining growth through the impact of graduates on the spread of knowledge (Becker 1964). Institutions of higher education have the main responsibility for equipping individuals with the advanced knowledge and skills required for positions of responsibility in government, business and the professions. These institutions produce new scientific and technical knowledge through research and advanced training and serve as conduits for the transfer, adaptation and dissemination of knowledge generated elsewhere in the world. Estimated social rates of return of 10 percent or more in many low- and middle-income countries indicate that investments in higher education contribute to increases in labor productivity and to higher long-term growth (World Bank 1994e). Not all of the external effects of higher education—such as the benefits from basic research and technology development and transfer—are fully reflected in the earnings used in calculating these rates of return. The returns to higher education, as to basic education, are thus greater than those measured using earnings, and it is very possible that higher education's contribution to growth may increase with levels of technology and as countries achieve universal primary and secondary education.

1.8. The external effect of education is important for economic growth, and is suggested both by the possibility of a threshold effect at the primary level and by the likely spread of knowledge resulting from the higher education level. The new theories of economic growth—like the older theories—show the complementarity of human and physical capital: a higher stock of human capital enhances the rental value of machines; an increasing stock of physical capital boosts the efficiency of educational investment; and general investment plays a weak role in economic growth when not supported by education (Lucas 1988; Becker 1964). Empirical experience in East Asia demonstrates this complementarity, as it does the importance of sound macroeconomic policies in a broadly competitive economy. The latter is reinforced by the experience of the former Soviet Union. Rapid and sustained physical and human capital investment led at first to rapid growth. However, excessive state intervention in the economy, low capital-labor substitution, the nature of economic planning and—perhaps most importantly—failure to allow the substantial investments in human capital to flourish and lead to qualitative improvements led to a lack of productivity growth, which in the long run resulted in stagnation (Easterly and Fischer 1994).

Labor Market Linkages

1.9. The dramatic shifts in recent years in labor markets that have resulted from economic reforms, the integration of the world economy, technological change (especially information technology) and migration all have important consequences for education. International trade and the deregulation of economies and labor markets have not only contributed to growth but have also led to changes in the employment structures of advanced, transitional and developing countries. The rate of accumulation of new knowledge and the pace of technological change raise the possibility of sustained growth with more frequent job changes during individuals' lives. Work tasks are becoming more abstract and more removed from the actual physical processes of production, which require less and less manual involvement. These developments have two important implications for education systems. First, education must be designed to meet economies' increasing demands for adaptable workers, those who can readily acquire new skills, rather than workers with a fixed set of technical skills that are used throughout their working lives. This need increases the importance of the basic competencies learned in primary and general secondary schools. Second, education systems must

support the continued expansion of the stock of knowledge, largely the role of higher and postgraduate education.

1.10. Major shifts in labor markets occurred during the 1980s, beginning with a reversal of the 1970s' trend of declining rewards to higher education in advanced, market economies. Overwhelming empirical evidence suggests that the rewards to higher education are now increasing in many advanced countries (see, for example, Davis 1992). This trend occurred at a time when earnings inequality grew at unprecedented rates and the average level of schooling in the labor force was very high. The fact that the more educated have improved their position in advanced countries despite an increase in their numbers could suggest that the demand for more educated workers has increased over time, causing an increase in the earnings premium associated with more schooling. While schooling and earnings inequality are related, the earnings premium may increase despite an increase in the average level of schooling (or a decrease in the variance of schooling) if the demand for schooling has also increased. The main reason for the increased demand for skilled labor is technological change. This cause is consistent with the notion that recent technological changes have involved both the de-skilling of many previously lower skilled jobs and a greater demand for workers to fill more highly skilled positions (Blackburn, Bloom and Freeman 1990; Blackburn 1990). Technological change is said to lead to increasing inequality in the following manner. A decreased demand for manual dexterity, physical strength and traditional craftsmanship by employers has increased the demand for educated over less educated workers, resulting in relative wage increases favoring more educated workers (Bound and Johnson 1992).

1.11. The more educated can deal more effectively with a rapidly changing environment (Schultz 1975; Mincer 1989; World Bank 1991d). Highly educated workers have a comparative advantage with respect to implementing new technologies. They are more likely than unskilled workers to be found in new technology industries, where they are relatively better paid than in traditional industries; this advantage holds is true in high, middle and low income countries (Bartel and Lichtenberg 1987; Loh 1992; Gill and Riboud 1993).

1.12. Schooling improves productivity in the market and in the household by enhancing information acquisition. Schooling improves abilities to learn. But reaping returns from schooling investments requires that the scope for productive learning be expanded via either technical innovation or changes in market and political regimes. The introduction of new technologies can raise the returns to schooling if the new technology increases rather than decreases the scope for learning or input misuse. The "green revolution" in agriculture is an example in which there was an increased premium placed on learning or information acquisition. The new, high-yielding imported seed varieties that were the engines of growth of the green revolution were significantly more sensitive to the use of such inputs as water and fertilizer. Learning about the appropriate allocation of inputs under a new-technology regime was a new challenge to farmers formerly engaged in "traditional" farming practices that had large potential payoffs, and the continuing introduction of new seeds every few years may have raised the returns to skills in information decoding (Rosenzweig 1995).

1.13. Relative poverty is generally reduced as the labor force becomes more educated. Evidence for some low- and middle-income countries indicates that equality in schooling corresponds with equality in earnings over the period of the 1980s, in contrast to the situation prevailing in developed countries (see Patrinos 1994). An increase in the number of educated workers leads to decreased earnings differentials between them and the less educated. This effect is reflected in declining education-earnings premiums as education has expanded (Psacharopoulos 1989) and in

declining wage differentials in the 1970s and 1980s in such countries as Brazil, Colombia, Indonesia, South Korea and Venezuela (Davis 1992; McMahon and Boediono 1992).

1.14. Not only is the level of education important in adapting to rapidly changing labor markets, so is its content. It is often suggested, particularly at times of growing youth unemployment, that the school curriculum should be vocationalized or that technical skills should be taught in secondary school in order to equip school-leavers for work in the modern sector. Skills training can indeed increase labor market productivity and earnings, but only when the skills are actually used in employment. International experience suggests that vocational and technical education and training is most effective when it follows a sound general education and when it is job-related. In practice, many countries, especially those in East Asia and the members of the OECD, are now moving at the upper secondary level to increase the technology content of general education and the general content of vocational education and to provide many more course options. This convergence of the upper secondary curriculum has yet to be evaluated in terms of its impact on employment and earnings. Comparative evaluations of earlier, more differentiated, general and vocational secondary curricula indicated clearly, however, that the rate of return was much higher to investment in general than in vocational secondary education (Psacharopoulos 1987).

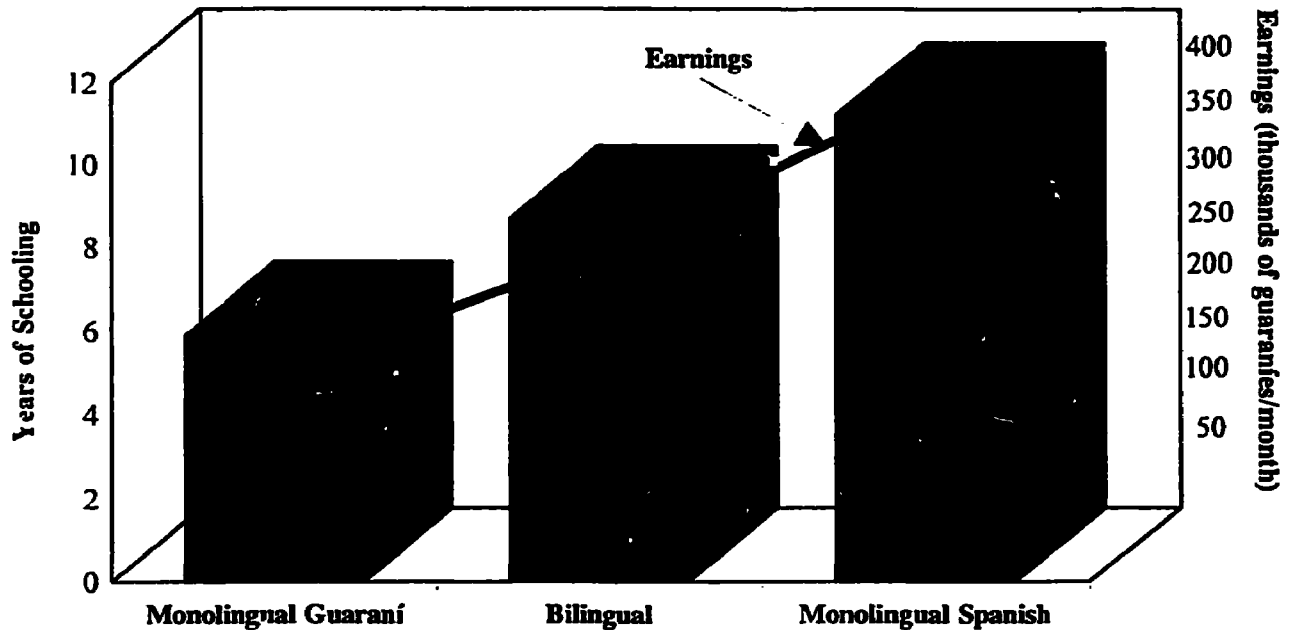
1.15. The roles of the different education levels are thus becoming clearer with these labor market changes. The focus of primary and secondary schools is on basic general competencies, which provide the foundation for further education and training; even vocational secondary education is becoming more general. The basic competencies are language, science and mathematics and, increasingly, communications skills. Basic education also includes the development of attitudes necessary for the workplace. Further education and training then consist of the acquisition of academic and vocational skills, in institutions of higher education and in specialized on-the-job training, with periodic updating through work-related continuing education (OECD 1994a).

Poverty Reduction

1.16. The low earnings of the poor are partly the result of their relatively lower human capital endowments and partly of labor market discrimination. Education can help with the first, but other steps are necessary to deal with the second. The differential in earnings between women and men in Latin America, for instance, is little explained by differences in human capital (Psacharopoulos and Tzannatos 1992). By contrast, human capital endowments explain most of the overall earnings differential between minority and majority male indigenous workers in Bolivia and between monolingual Guaraní speakers and Spanish speakers in Paraguay (Figure 1.1). Education can therefore make a significant contribution to the reduction of poverty. Education confers skills, knowledge and attitudes that increase the productivity of the poor's labor; these three factors increase the poor's output as farmers and, when discrimination is absent, their access to jobs in both the formal and the informal sectors. For instance, a farmer with four years of complete schooling has a much higher productivity than one with no education (Lockheed, Jamison and Lau 1980; Mook 1994). Education also makes workers in industry more productive (Haddad et al. 1990) and can contribute to entrepreneurship (World Bank 1991d).

1.17. The creation of human capital is the creation and distribution of new wealth. It contributes to the reduction of both absolute and relative poverty, but it can take a whole generation

Figure 1.1. Educational and Earnings Attainment (males), Paraguay, 1990



Source: Patrinos, Velez and Psacharopoulos 1994.

to take effect. This process is in contrast to the redistribution of existing capital, as can occur through tax reform and land reform. Resources invested today in education may not result in a decrease in poverty for several years, once the poor whose human capital has been enhanced start to benefit from increased earnings, ability in self-employment and household activity and consumer satisfaction (T.W. Schultz 1982).

1.18. In many developing countries, the most important link between the labor market and the education system for the poor is the urban informal sector. In Sub-Saharan Africa during the 1980s, for example, some 15 million informal sector jobs were created, compared with only one million in the urban modern sector. Since the poor often find it difficult to obtain employment in the modern sector, increasing the productivity of workers in the informal sector is also an effective way to reduce poverty (Mooch, Musgrove and Stelcner 1990). In these circumstances, as with the modern sector, a sound general education may be more effective, and far more cost-effective, than providing specific vocational and technical skills as it equips workers to acquire these skills on the job.

1.19. Studies on the determinants of earnings show that a child's early home environment plays a very important role in the development of that child's intellectual ability. For example, preschool-age children from lower socioeconomic groups perform substantially worse in tests of cognitive development than do children from higher income groups (Selowsky 1980a). These differences can be attributed to malnutrition, lack of sanitation and health facilities, lack of parental stimulation and other environmental deficits surrounding children living in poverty. It has also been shown that early childhood interventions (such as the provision of health, education and nutrition) can have a positive impact on the lives of children from poor backgrounds (Halpern 1986). Various attempts to equalize the opportunities of children from disadvantaged backgrounds have been attempted, but they often start too late in the developing years of the child. Research shows that by

age three or four, children have already been conditioned by the environmental deficiencies of their family life (Selowsky 1980b; Young 1994). There is a need, therefore, to invest more in programs designed to enhance the growth and development of children, to start at early ages (Myers 1992) and thereafter to sustain the advantages that such early interventions provide.

Fertility and Health

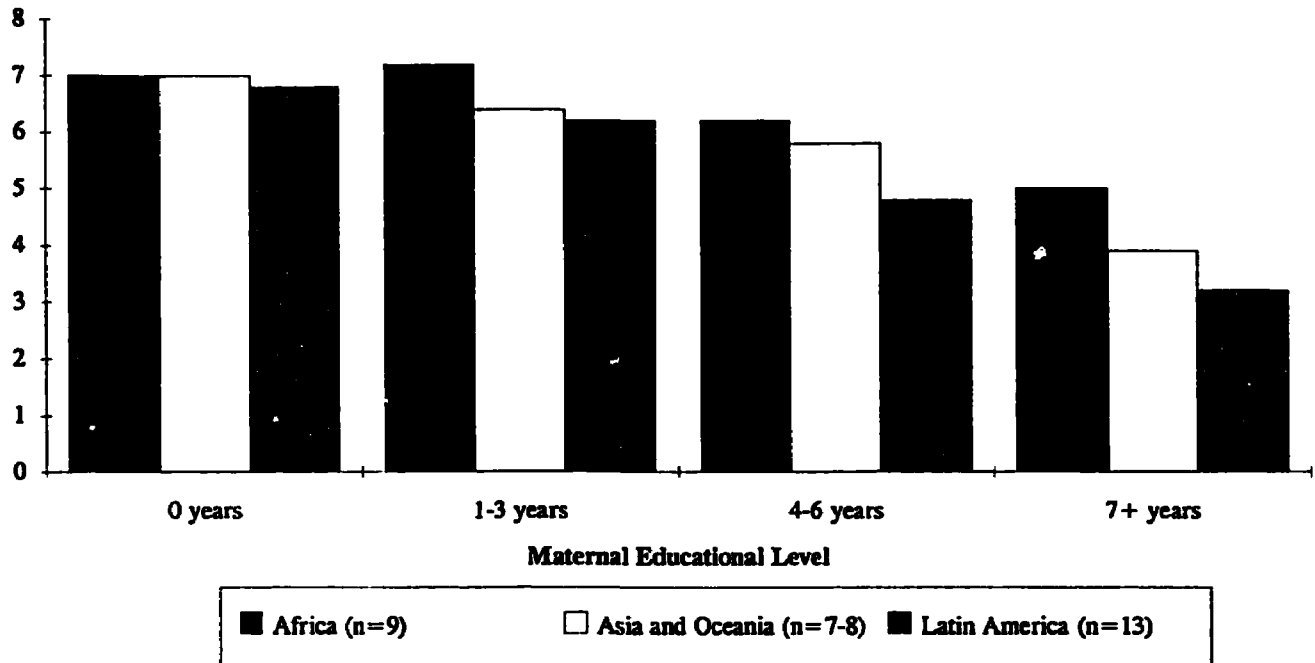
1.20. The more educated a woman, the lower her fertility (Figure 1.2; World Bank 1991d and 1993k). The impact of education on fertility operates through raising women's age at marriage and increasing contraceptive use. For example, age at marriage has been rising steadily in North African countries, due largely to school attendance (Westoff 1992). In Honduras, Indonesia, Kenya and Mexico, schooled women desire fewer children, and they express this desire through a higher rate of contraceptive use.

1.21. The more educated the parents, particularly the mother, the lower is the maternal mortality and the healthier is the child. Parental education is significantly associated with the health status of children (defined by a reduction in mortality or an improvement in survival risks), even after controlling for socioeconomic status and for access to health services (Rodriguez and Cleland 1980; United Nations 1986; Cleland and Wilson 1987; Hobcraft 1993). Rising levels of maternal education reduce the odds of the child dying before age two (Figure 1.3). This relationship holds in both urban and rural settings. On average, child mortality seems to fall by about 8 percent for each additional year of parental schooling, for at least the first 8–10 years of schooling, i.e., resulting from secondary as well as primary education.

1.22. The influence of parental education operates through the use of medical services (such as prenatal care and clinic visits) and changes in household health behavior (such as washing hands and boiling water). These behavioral changes may result both from perceptual and attitudinal changes and from the ability of the educated (whose incomes are higher than those of the uneducated) to afford better nutrition and better health services for their children (Caldwell 1979; Lindenbaum, Chakraborty and Elias 1989; LeVine et al. 1991).

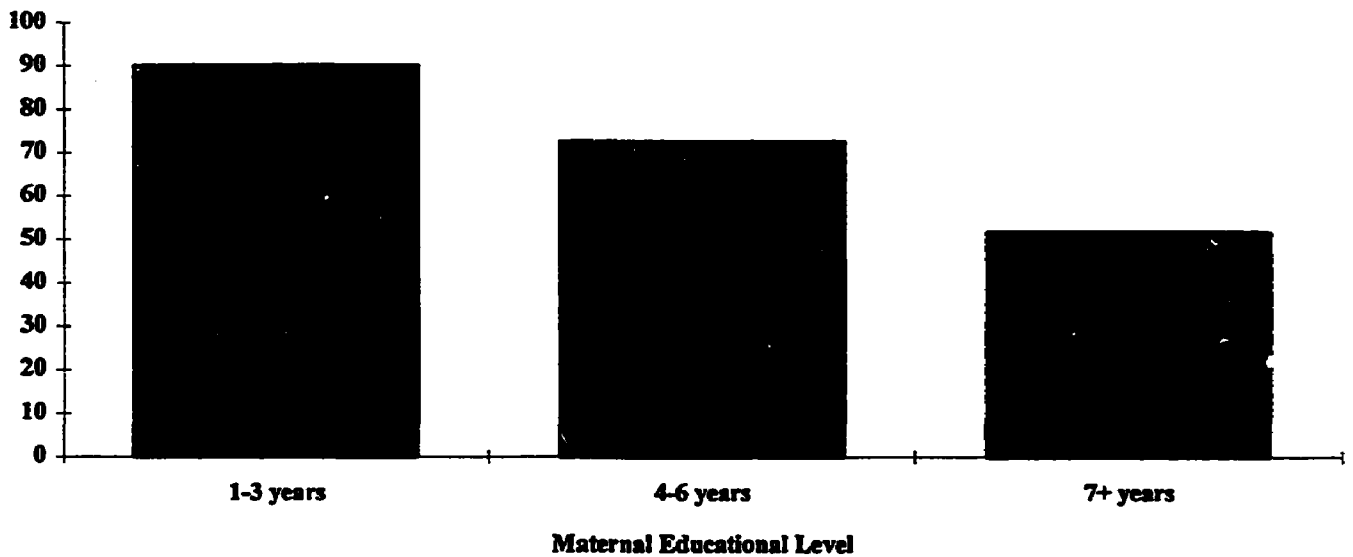
1.23. Even before taking account of these effects, the returns to investment in women's education exceed those to men's education for those women who obtain employment (Psacharopoulos 1994). Once the health and fertility externalities are added, the case for educating girls becomes even stronger. The benefit-cost ratio of these health and fertility externalities in Pakistan, for instance, has been estimated at about 3:1 (Box 1.3).

Figure 1.2. Total Fertility Rate by Women's Education and Region



Source: United Nations 1987.

Figure 1.3. Chances of Children Dying Before Age Two by Maternal Educational Level



Note: Chances of children dying before age two compared to children of uneducated mothers (who would be represented by 100 on the vertical axis).

Source: Hobcraft 1993.

Box 1.3. The Externalities of Investing in Girls' Education

Costs/Benefits of an additional year of schooling for 1,000 women in Pakistan (estimated)

Recurrent cost of one year of education for 1,000 women		\$30,000
Child Mortality	Total averted deaths	60
	Alternative costs per averted death	\$800
	Value of averted deaths	\$48,000
Fertility	Births averted	500
	Alternative cost per birth averted	\$65
	Value of births averted	\$33,000
Maternal Mortality	Total maternal deaths averted	3
	Alternative cost per averted maternal death	\$2,500
	Value of averted maternal deaths	\$7,500

Source: Summers 1994.

Part II

The Record of Experience

The education systems of low- and middle-income countries have made unprecedented progress in recent years. However, the future holds major challenges. These challenges are different for different countries, because countries are at different stages of educational and economic development. Some challenges are of crisis-like proportions, however: enrollments are falling in Africa; there are still over a billion adult illiterates in the world; the gender gap between boys' and girls' enrollments is still very wide in both South Asia and the Middle East and has not closed at all in South Asia in the last decade; the quality of education is poor in almost all low- and middle-income countries compared with OECD ones; and, as the pace of technological change quickens, there is almost everywhere a worrying lag between the reform of economic structures and that of education systems, most notably in the former socialist countries of Europe and Asia now embarked upon the transition from command to market economies. Chapter 2 identifies these challenges, and Chapters 3 and 4 show that current patterns of education finance and education management are not fully appropriate to meet them. East Asia's record shows, however, that the challenges can be met if the lessons of successful experience are adopted.

The analysis in these chapters is mainly regional, using the six World Bank regions.¹ Each region contains a wide range of country conditions; findings clearly do not, therefore, apply to every country in the region. The analysis has been severely hampered by the poor availability and quality of data on education and education finance (Box II.1). The number of countries included in each region varies across figures depending on data availability. Quantitative conclusions thus represent orders of magnitude and directions of trends rather than precise indications.

¹ The six regions defined by the Bank for its operational purposes are Sub-Saharan Africa (AFR), East Asia and the Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), the Middle East and North Africa (MNA), and South Asia (SAS). Data availabilities mean that some ECA regional averages do not include the countries of the former USSR. Illustrations also refer to low- and middle-income countries (LMI) and the members of the Organization for Economic Cooperation and Development (OECD).

Box II.1. The Poverty of Education Data

Educational data and research are generally insufficient for monitoring, policy-making and resource allocation. In Syria, for instance, 50 percent more students completed secondary school than had been estimated, with enormous repercussions for the higher education system. In Uganda, the Ministry of Education estimates there are 85,000 primary level teachers in the system, while the Ministry of Finance estimates there are 145,000. In Mauritius, the rationality of the 1990s' reform of basic education was undermined by the poor quality and analysis of educational data.

The principal problems are the following:

- Existing education statistics are generally not reliable.
- Statistics are too often out-of-date and hence of limited use in informing policy decisions.
- Statistics are too often collected as a matter of course with too little critical reflection on the underlying theoretical framework, comparative perspective and the purposes for which they are intended.
- The information that is collected focuses more on counting inputs than assessing achievement and monitoring labor market outcomes.
- Education research is usually neither available nor used to complement statistics in monitoring education systems.

Efforts to improve the situation are under way in many countries. The OECD initiative to develop a limited set of comparable indicators of national education systems is a good example of a large cooperative project designed to improve the reliability, timeliness, policy relevance and comparability of a core set of essential statistics on education finance, expenditure and student achievement. Similar initiatives are being launched elsewhere, particularly in Asia. And some countries in Latin America have reasonably good data.

Although laudable, these efforts do not go far enough; they do not address the principal causes of the problem in a global perspective. In most countries, there is little incentive, and often little funding, for the collection and analysis of data, especially the assessment of learning, and the monitoring and evaluation of educational developments. In many countries, there is considerable fear of the potential political repercussions of reporting negative trends and weaknesses in the education system. Internationally, there is a lack of global leadership. UNESCO, for instance, compiles international statistics supplied by its member countries, but does not verify them. A major international cooperative effort is now beginning, spearheaded by UNESCO and the World Bank, to improve education data and research in developing countries, perhaps similar to efforts in the 1950s that led to international consensus on the value of using the United Nations' system of national economic accounts, an activity that continues to the present.

Sources: Bhowon and Chinapah 1993; OECD 1993a; Puryear 1995; Tuijnman and Bottani 1994.

Achievements and Challenges

Access

2.1. The average level of education in developing countries is increasing. For the first time in world history, most children at least start school. By 1990, 76 percent of the 538 million 6–11-year-olds in low- and middle-income countries were in school, up from 48 percent in 1960 and 69 percent in 1980 (UNESCO 1993a). These numbers reflect an increasing ratio of enrollments to the primary school age population during the 1980s in every region except Africa. Similarly, at the secondary level, 46 percent of 12–17-year-olds now attend school, having increased during the 1980s in every region. At the tertiary level, enrollment ratios also increased during the 1980s in every region (Figure 2.1). As a result, an average 6-year-old in the developing countries in 1990 could expect to complete 8.5 years of school, up from 7.6 years in 1980; an increase occurred in every region except Africa (Figure 2.2). This impressive increase does not, of course, reveal anything about the quality of education.

2.2. The enrollment achievements in terms of ratios are all the more remarkable when considered in absolute terms (Figure 2.3), as they occurred at a time of general fiscal restraint and, in many regions, of rapid population growth. In Eastern Europe and Central Asia, 9 or 10 years of schooling is universal. In East Asia and in Latin America and the Caribbean, primary education is almost universal. Countries in South Asia and in the Middle East and North Africa are also making steady progress, although those in South Asia still have a considerable distance to go. Sub-Saharan Africa is not doing as well.

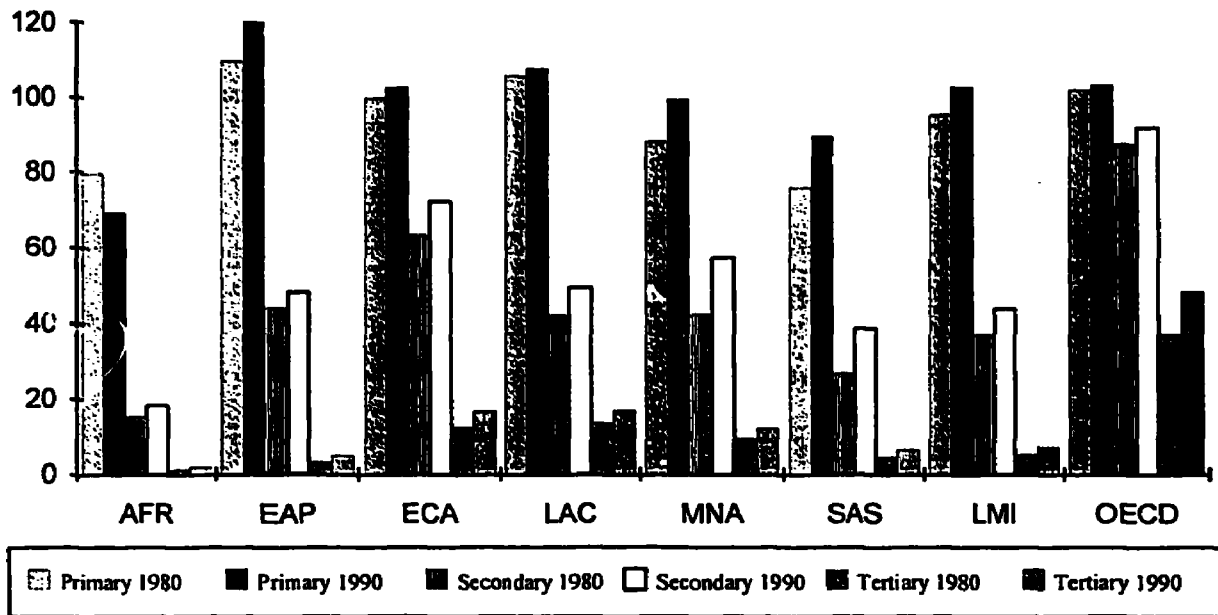
2.3. Demographic pressure is easing. Coupled with past success in increasing access, especially at the primary level, future prospects appear encouraging. The following trends give no reason for complacency, however:

- (a) The absolute number of children in the world without any education at all is likely to increase in the next twenty years.
- (b) Only slightly more than half of primary school students complete the primary cycle.
- (c) Adult literacy appears likely to remain a major problem.
- (d) Fueled in part by past success at the primary level, the demand for secondary and tertiary education is growing faster than many education systems can accommodate.
- (e) The educational gap is widening between the OECD countries and the transitional economies of Eastern Europe and Central Asia.

Demographic Pressure

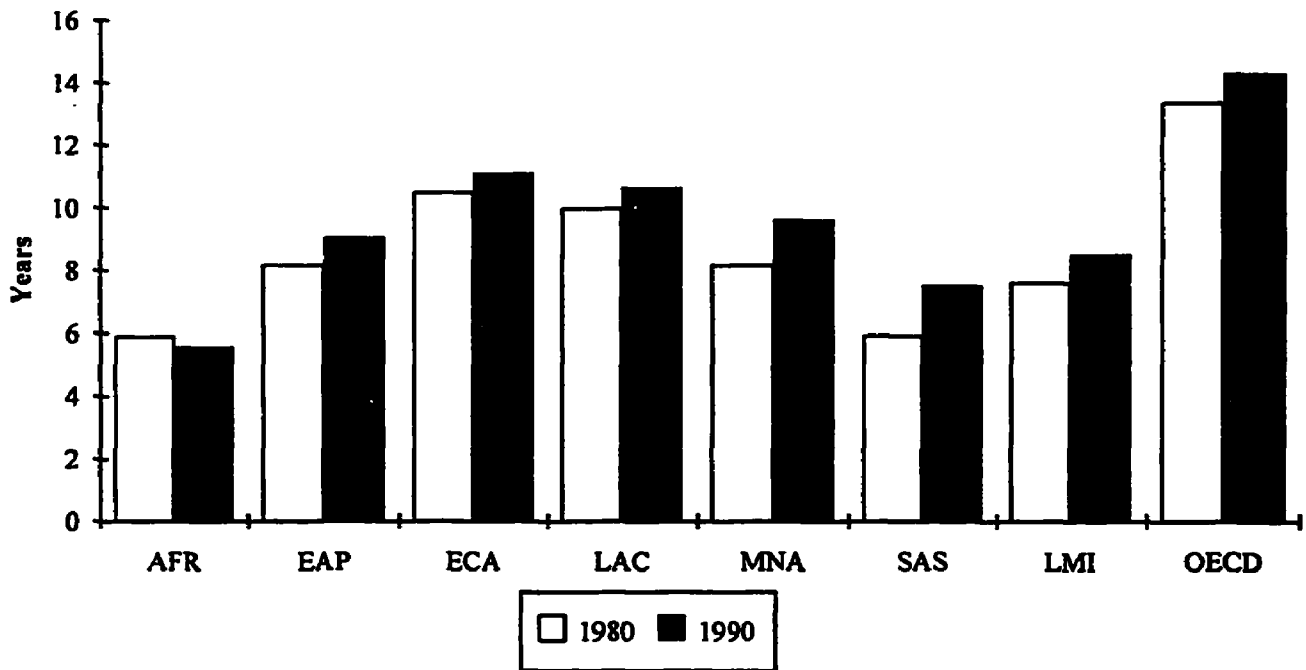
2.4. Demographic pressure on enrollments will remain strong for the next decade, but will start to ease next century as the rate of increase falls. The primary school age population in low- and

Figure 2.1. Gross Enrollment Ratios by Level Of Education, 1980 and 1990



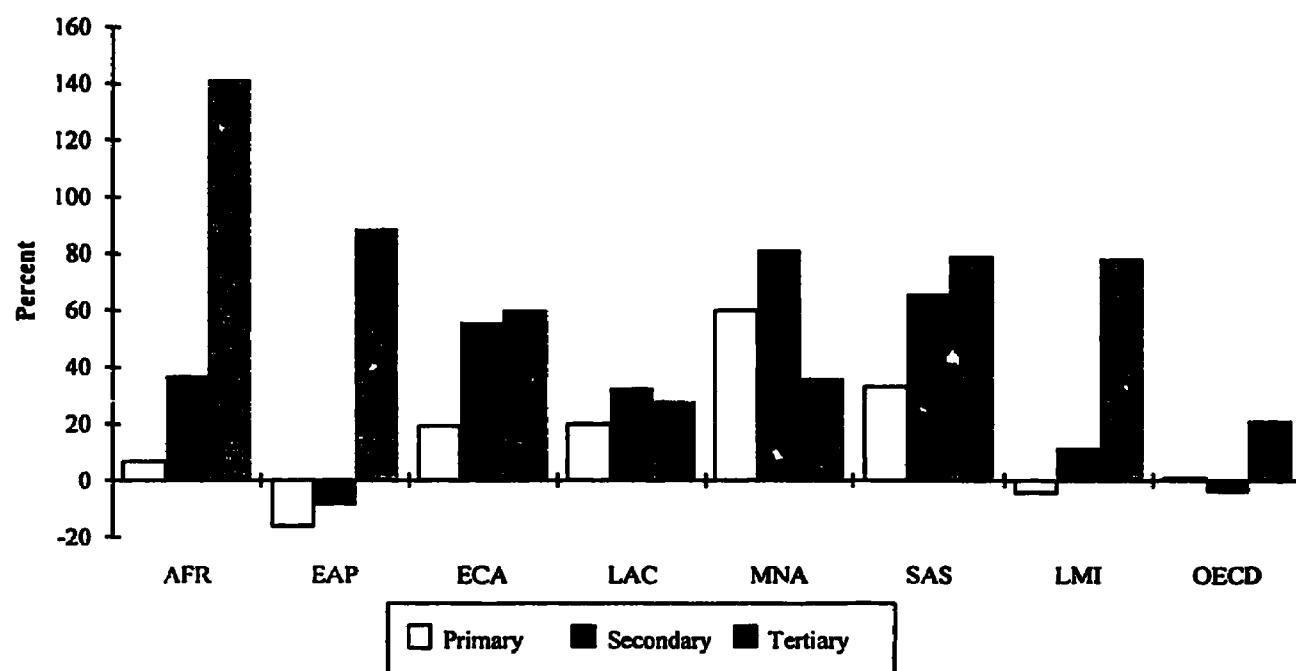
Sources: Based on data in Donors to African Education 1994; UNESCO 1993a; UNESCO 1993b.

Figure 2.2. Expected Years in School by Region, 1980 and 1990



Sources: Based on data in Donors to African Education 1994; UNESCO 1993a; UNESCO 1993b.

Figure 2.3. Growth in Enrollments by Region and Level, 1980-90



Sources: Based on data in Donors to African Education 1994; UNESCO 1993a; UNESCO database.

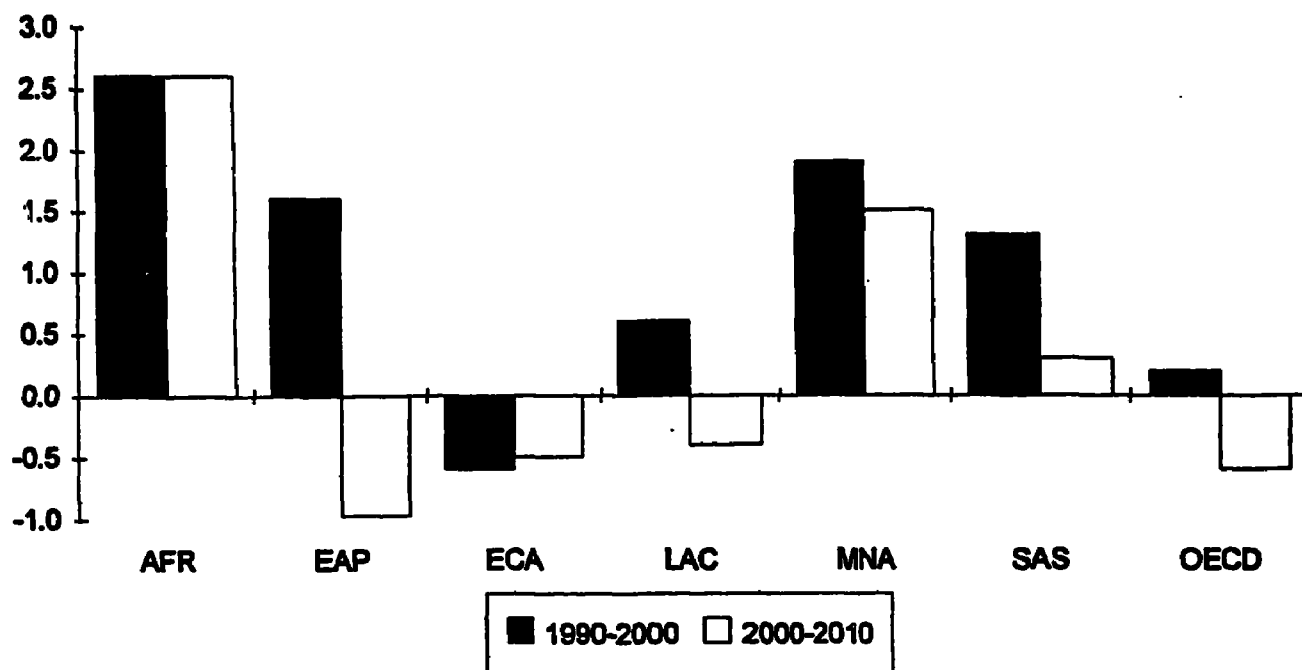
middle-income countries will increase by about 89 million children between 1990 and 2000, but only by a further 22 million between 2000 and 2010. Depending on when they started their demographic transition, some countries now face absolute declines in their school-age populations. In regional terms, this decline is already occurring in Eastern Europe and Central Asia and will occur in the 2000s in East Asia and Latin America (Figure 2.4). Many countries in these regions will also experience declining school-age populations even before the region as a whole; examples are Korea, Indonesia and Colombia. In Africa, South Asia and the Middle East and North Africa, the school-age population will continue to increase, but more slowly in the 2000s than in the 1990s.

2.5. The major demographic pressure on enrollments will continue to be in the three regions with the lowest enrollment ratios for girls and the highest fertility levels: Africa, South Asia and the Middle East. There will be a projected increase of 59 million in the primary school-age population in Africa from 1990-2010, of 28 million in South Asia, and of 16 million in the Middle East and North Africa.

The Out-of-School Population

2.6. In 1990, about 130 million primary school-age children were not enrolled in school; 60 percent were girls, down from 160 million in 1990. The three regions with the greatest demographic pressure together account for about two-thirds of all out-of-school children: Africa (50 percent of all primary age children are not in school), South Asia (27 percent) and the Middle East

Figure 2.4. Primary School-Age (6-11) Population Growth, 1990-2000 and 2000-2010 (percent per annum)



Source: World Bank projections.

(24 percent). The largest absolute numbers are in South Asia, because of its large population (Table 2.1). School-age populations are growing in all three regions, but almost twice as fast in Africa as elsewhere (Figure 2.4). Enrollment ratios in Africa are low, and decreasing on average; only 46 percent of primary-age girls are in school. By contrast, primary enrollment ratios are increasing for both boys and girls in South Asia and the Middle East, although they are still very low.

2.7. Unless the pace of enrollment accelerates, the absolute number of children not attending school at all is likely to increase in the next two decades, for the first time since 1960, to reach 145 million in 2000 and 162 million in 2015 (Table 2.1). This outcome will result from continued high population growth rates, combined with falling enrollment ratios in some countries. Despite overall success, there are at least 42 low- and middle-income countries with gross primary enrollment ratios below 90 (Table 2.2). These countries are concentrated in Africa and South Asia, which contain all 12 countries with gross ratios below 50 percent and 21 of the 30 countries with ratios between 50 and 90 percent. These are also the two regions that have the highest rate of school-age population growth. Gross enrollment ratios include overage students, but nonetheless they do indicate the direction of change, if not the level, implied by net enrollments, the proportion of children of primary school age who are actually enrolled in primary school.

2.8. Particularly alarming are falling primary enrollment ratios and, in some countries, absolute enrollments in Africa. Ratios have not fallen in all African countries, however. Of the 35 countries for which reasonably good data exist, gross primary ratios increased in 20 countries between 1980 and 1990. In 14 others, however, which include the most populous, the ratios fell, and often by a large amount. Thus, the regional average ratio per country, unweighted by

Table 2.1. Children Aged 6–11 Out-Of-School, 1960-2015
(millions)

Region	1960		1980		1990		2000		2015	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Developing Countries	165	96	158	94	129	77	145	85	162	92
percent	52	62	31	38	24	29	22	27	23	27
Sub-Saharan Africa	25	14	26	15	41	22	59	32	83	45
percent	75	82	43	49	50	54	51	55	51	55
Middle East	9	5	9	6	9	5	10	6	12	7
percent	61	72	33	43	24	31	21	27	21	26
Latin America and the Caribbean	15	7	9	5	8	4	7	4	7	4
percent	42	43	17	18	13	13	11	12	11	11
East Asia	67	39	55	32	26	14	27	15	21	11
percent	47	56	25	30	14	16	13	14	12	12
South Asia	49	30	59	38	48	32	47	31	46	29
percent	56	71	40	53	27	28	23	32	20	27

Notes: Percentages refer to out-of-school children proportional to total (or female). Four Arab countries are included in both the Middle East and Sub-Saharan Africa. Regional totals do not add to the total for developing countries, as not all regions are shown. These figures do not adjust for countries where primary education begins at age 7.

Source: UNESCO 1993a.

population, fell only from 79 to 78 percent. This may seem minor, but it was the only region in the world to register a declining ratio. Because many of the individual countries in which the ratio fell were populous, the weighted regional average fell from 80 to 69 percent.

2.9. Clear evidence is lacking on the reasons for falling enrollments in many African countries. Civil disruption and war explain both declining absolute numbers and declining ratios in several countries, such as Angola and Mozambique. Populations are growing rapidly, despite the high prevalence of HIV/AIDS (Box 2.1), and, in many countries, the supply of education has been unable to keep up with demand, resulting in declining enrollment ratios. A reduction in average students enrolled does not explain the decline; in six of the seven countries with declining gross ratios for which net data are available, the pattern of declining ratios is confirmed. Where absolute enrollments have fallen, however, demand has also fallen in the face of low quality, poor employment prospects, the need to have children contribute to household work and difficulties in paying fees and other school related expenses (World Bank 1988). Whatever the explanation, even arresting the decline in enrollment ratios will not be sufficient to prevent an absolute increase in the number of African children who do not attend school. Simply put, the rate of increase of the school-age population is higher than that of enrollments.

Low Primary Completion Rates

2.10. About 30 percent of the children in developing countries who enroll in primary school do not complete it. More than half the countries in East Asia and in the Middle East have completion rates above 80 percent, as do all countries in Europe and Central Asia. By comparison, only one-

Table 2.2. Countries With Primary Gross Enrollment Ratio Below 90 Percent, 1990

<i>Region</i>	<i>Country</i>	<i>Gross Enrollment Ratio Between 50 and 90 Percent</i>
<i>Sub-Saharan Africa</i>	Benin	67
	Burundi	73
	Central African Republic	68
	Chad	64
	Comoros	75
	Côte d'Ivoire	69
	Gambia	64
	Ghana	77
	Guinea-Bissau	60
	Malawi	66
	Mauritania	51
	Mozambique	64
	Nigeria	72
	Rwanda	71
	Senegal	58
	Sudan	50
	Tanzania	69
Uganda	80	
Zaire	76	
<i>East Asia and Pacific</i>	Papua New Guinea	72
<i>South Asia</i>	Bangladesh	77
	Nepal	82
<i>Middle East and North Africa</i>	Former Dem. Yemen	88
	Former Yemen Arab Rep.	76
	Morocco	65
	Saudi Arabia	77
<i>Latin America and Caribbean</i>	Bolivia	85
	El Salvador	79
	Guatemala	79
	Haiti	56
<i>Region</i>	<i>Country</i>	<i>Gross Enrollment Ratio Below 50 Percent</i>
<i>Sub-Saharan Africa</i>	Burkina Faso	37
	Djibouti	44
	Ethiopia	39
	Guinea	37
	Liberia	30
	Mali	24
	Niger	29
	Sierra Leone	48
	Somalia	10
	<i>South Asia</i>	Afghanistan
Bhutan		25
Pakistan		42

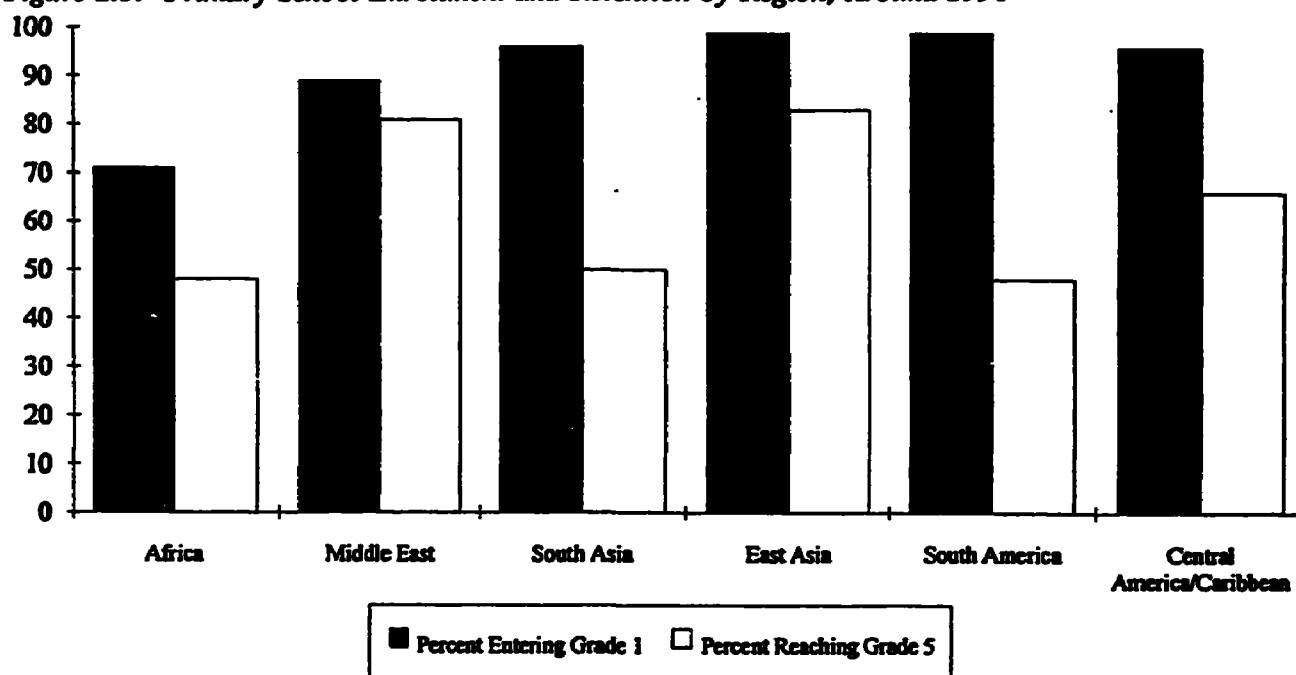
Sources: Donors to African Education 1994; UNESCO 1993b.

Box 2.1. AIDS and Education

HIV is on the increase. The World Health Organization projects that by 2000 as many as 26 million people could carry the virus and 1.8 million will die of AIDS each year, most victims young, at an age of prime working productivity. This could have a profound impact upon the demand for education. Children who lose their parents to AIDS are often forced to drop out of school to survive. In Tanzania, for instance, the widespread prevalence of HIV/AIDS is associated with the withdrawal of girls from school and with marriage at an early age, eroding much of the progress made in female education.

third of countries in Latin America and only one-fifth of countries in each of Africa and in South Asia have completion rates above 80 percent (UNESCO 1993b). Low completion rates mean that the proportion of children reaching grade 5 is roughly the same in Africa, South Asia and South America, despite very different grade 1 enrollment ratios (Figure 2.5).

Figure 2.5. Primary School Enrollment and Retention by Region, Around 1990



Note: Data do not include overage children and are projected using reconstructed cohort analysis.

Source: UNICEF 1993.

2.11. Low primary completion rates result from high repetition and dropout rates. Repetition and dropout are closely linked, the first often leading to the second, although their causes are usually different. They can result from factors on both the supply side and the demand side. On the supply side, they may reflect problems with the quality of instruction. On the demand side, families may need children to work (for instance, in agricultural production) and may withdraw children, especially girls, from school either temporarily, leading to grade repetition, or even permanently. Dropout clearly affects learning outcomes, but this may not be the case for repetition if students learn more by repeating a grade (Eisemon, Schwille and Prouty 1992; Psacharopoulos and Velez 1993). Repetition is, of course, costly to the system. And when a student repeats a grade more than once, repetition often leads to dropout.

Adult Illiteracy

2.12. The combination of an increasing absolute number of children out of school and low primary completion rates means that the formal education system in the poorest countries will likely continue to be inadequate as a mechanism for overcoming illiteracy. Overall illiteracy rates have declined from about 55 percent of all adults in low and middle income countries in 1970 to about 35 percent in 1990. This percentage still represents over 900 million illiterates, up from 840 million in 1970. Many more of them are women than men. Moreover, while adult illiteracy rates are declining, they remain at about 50 percent in Africa, the Middle East and South Asia in 1990 and will not fall much below 40 percent in these regions by 2000 (UNESCO 1990), unless new interventions are introduced.

Growing Unmet Demand for Secondary and Tertiary Education

2.13. In most low- and middle-income countries, there are substantially more students seeking entrance to both secondary and higher level institutions than there are places available, and the proportion of applicants to successful entrants is increasing (for detailed evidence on Asia, for instance, see Tan and Mingat 1992). At the tertiary level, this gap partly reflects the provision of free or heavily subsidized public education. At the University of the Punjab in Pakistan, 94 percent of those applying in 1986 were not admitted, up from 91 percent five years before (Butt and Sheikh 1988). In many countries, such as Korea and Thailand, parents often pay for private tutoring outside regular school hours to increase their children's admission chances. Repetition of the final year of a level is also common, a form of queuing for admission to the next level. In Mauritius, more than 40 percent of secondary students repeat at least one grade to improve their chances of admission to higher education; in Burundi more than 70 percent of primary students repeat the final primary grade.

2.14. The growing gap between demand and supply at the secondary level reflects population growth, the increasing proportion of students completing primary school, governments' difficulties in financing an expanded public system poor parents' difficulties in paying school fees, and restrictions on private schooling. There is strong evidence around the developing world that many 12–17-year-olds at the secondary level are not in school because of a lack of places rather than a lack of interest (Holsinger and Baker 1993). In Tanzania, for instance, successful applicants to public secondary schools represented 11 percent of primary school-leavers in 1970 but only one percent in 1984, because Tanzania neither permitted private secondary schools nor expanded public ones. Since Tanzania started to license private schools in the mid-1980s, enrollments have mushroomed and now exceed those in public secondary schools. This leap demonstrates the previously unmet demand for secondary education. A comparison with Kenya shows clearly that encouraging private schools can help accommodate the demand for secondary education (Knight and Sabot 1990). The same phenomenon is seen at the level of higher education. In Romania, secondary school graduates increased more than 20 percent a year during the 1980s. This increase stimulated an enormous pent-up demand for higher education that has led to the appearance of more than 60 private universities since such institutions became legal (World Bank 1991b).

The Growing Gap Between the OECD and the Transitional Economies

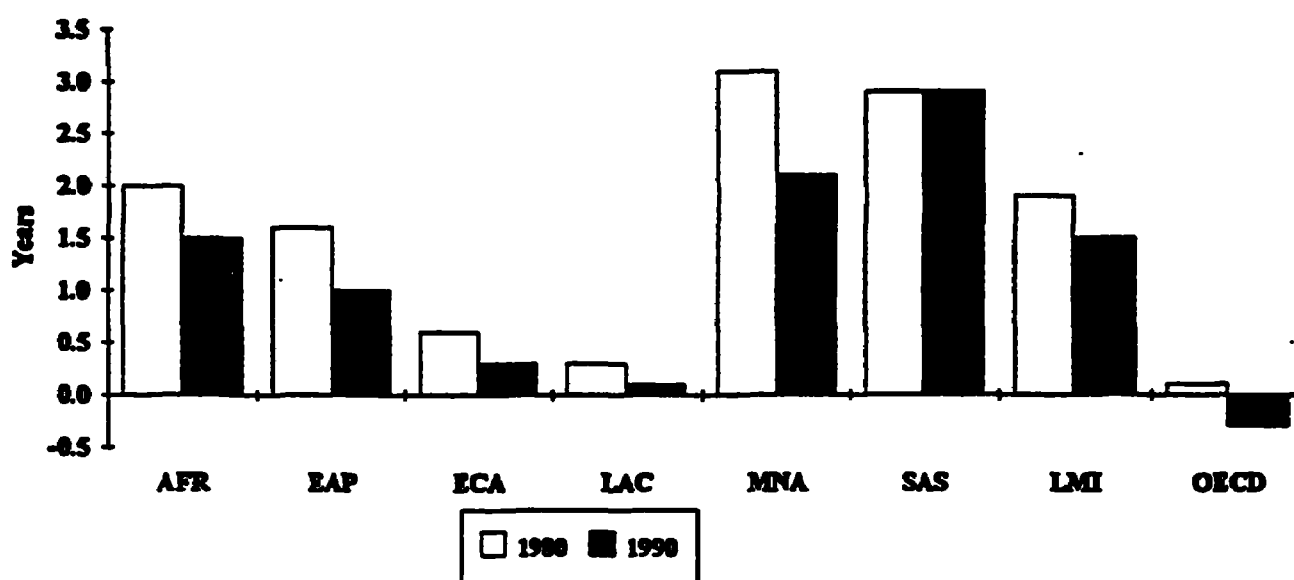
2.15. A wide gap separates the OECD and the transitional economies of Eastern and Central Europe in terms of years of schooling. Average "expected years in school," defined as the number of years of schooling a child of six can be expected to complete, are considerably lower in the transitional economies than in OECD countries (Figure 2.2). Moreover, this average is a moving

target; the expected years an average 6-year-old child in an OECD country will spend in school rose from 13.4 in 1980 to 14.3 in 1990 and will continue to increase in the 1990s. In Eastern and Central Europe, there was an increase in expected years in school during the 1980s, but initial indications are that the expected level is now falling in the transitional economies in the 1990s. As the level of schooling increases in the OECD and falls in the transitional economies, therefore, the gap is widening.

Equity

2.16. Girls, the rural poor, those from linguistic and ethnic minorities, nomads, refugees, street and working children and children with special needs go to school less than others. In part, this reflects limited access. In part, it also reflects lower demand. While there has been an overall increase in the proportion of girls enrolled in school, boys are still more likely to be enrolled. An average 6-year-old girl in the developing countries in 1990 could expect to attend school for 7.7 years, up from 6.7 years in 1980. An average 6-year-old boy could expect 9.3 years of education, by contrast. The gap between boys and girls is widest in South Asia and the Middle East. In South Asia, a girl could expect 6.0 years and a boy 8.9 years; in the Middle East a girl could expect 8.6 years and a boy 10.7 years. The gender gap is now very small both in Eastern and Central Europe and in Latin America, although, of course, such regional generalizations mask country exceptions such as Turkey. In all regions except South Asia, the gender gap is closing (Figure 2.6).

Figure 2.6. Gender Gaps in Expected Years of Schooling, 1980 and 1990



Sources: Based on data in Donors to African Education 1994; UNESCO 1993a; UNESCO 1993b.

2.17. The gender gap in school enrollments is, of course, not just a matter of access. In addition to a shortage of school spaces for girls, there is also lower demand by parents in many countries for education for their daughters, reflecting both cultural norms and girls' work in and around the home. Literate parents are more likely than illiterate ones to enroll their daughters in school and the regions with the highest proportions of illiterate adults are also, therefore, those with the widest gender gaps. Overcoming the gender gap will thus involve not only providing school

places for girls but also overcoming many parents' ignorance of the gains that will result from enrolling their female children.

2.18. Rural populations suffer from educational deficits vis-a-vis urban populations. Only 3 percent of Indonesia's urban population in 1980 had not received any schooling, compared to 10 percent for the rural population. In Venezuela in 1991, 95 percent of urban 10–14 year olds were enrolled in school, but only 86 percent of rural children of the same age (World Bank 1993e). Gender differences are particularly acute when disaggregated by urban-rural residence. In Pakistan in 1991, the proportion of girls and boys aged 7–14 years who ever attended school was 73 and 83 percent in urban areas, and 40 and 74 percent in rural areas (Sathar and Lloyd 1993). In Egypt, 35 percent of rural people are literate, compared to 61 percent of the urban population (World Bank 1991d). Approximately 60 percent of urban students in Colombia complete primary education, compared to only 20 percent in rural areas (World Bank 1990b).

2.19. Relatively lower enrollments among the poor are most pronounced at the level of higher education, largely as a consequence of inequities at the primary and secondary levels. For example, in the late-1980s, 63 percent of higher education students in Chile came from the top income quartile of households, and 92 percent of students in Indonesia and 77 percent in Venezuela came from the top income quintile (Tilak 1989; World Bank 1993c, 1993e).

2.20. Linguistic minorities also suffer from relatively lower enrollments, because they are often poor and because of language policies. Most countries of the world are multilingual, either officially or in practice. Indeed, language diversity is the norm in many countries. More than 5,000 languages and dialects are spoken around the world, including more than 200 in Mexico and more than 400 in India and Nigeria. Linguistic diversity reflects ethnic diversity, and it is often associated with high levels of illiteracy. In Guatemala, for instance, 80 percent of the rural indigenous population are illiterate, and indigenous males in the labor force average only 1.8 years of schooling. In rural Peru, where the majority of the population is indigenous, 70 percent of Quechua-speaking people over the age of five have never been to school, compared to only 40 percent of nonindigenous Peruvians (Psacharopoulos and Patrinos 1994).

2.21. Others who have difficulty going to school are nomads, refugees, street and working children and children with learning and physical impairments. Refugees suffer from the unwillingness of host governments to fund expenses for temporary immigrants. Street and working children suffer, respectively, from the lack of parental guidance and the need to contribute to family income. Disease and malnutrition in developing countries result in a high proportion of children with learning and physical impairments, estimated at 10–12 percent of all those under age 15, most of whom do not have access to school and most of whom come from poor families. Various official estimates from developing countries suggest that only one child in one hundred with special needs attends any form of schooling (Mittler, Brouillette and Harris 1993).

Quality

2.22. Quality in education is difficult to define and measure. An adequate definition must include student outcomes. Most educators also hold the view that the definition should also include the nature of the educational experiences that help produce those outcomes, or the learning environment (see Ross and Mahlck 1990). In terms of both learning achievement and the learning environment, the quality of education at all levels in low- and middle-income countries is not of the same standard as in OECD ones, although the lack of time series data on outcomes makes it

impossible to discern trends in quality. Also, students in low- and middle-income countries drop out and repeat more than those in high income countries.

2.23. Since the definition of quality must definitely include outcomes, an important indicator of the quality of education is the value added of schooling (Bridge, Judd and Mook 1979; Lockheed and Hanushek 1988). The value added is learning gain and the increased probability of income-earning activity. (The value added of higher education also includes research productivity). Cognitive learning gain can be measured by achievement tests. Measuring changes in the increased probability of income-earning activity is extremely difficult since it is affected also by the changing nature of the demand for labor in an economy e.g., a university graduate could receive a quality education in ancient languages, but there might be no demand for such skills.

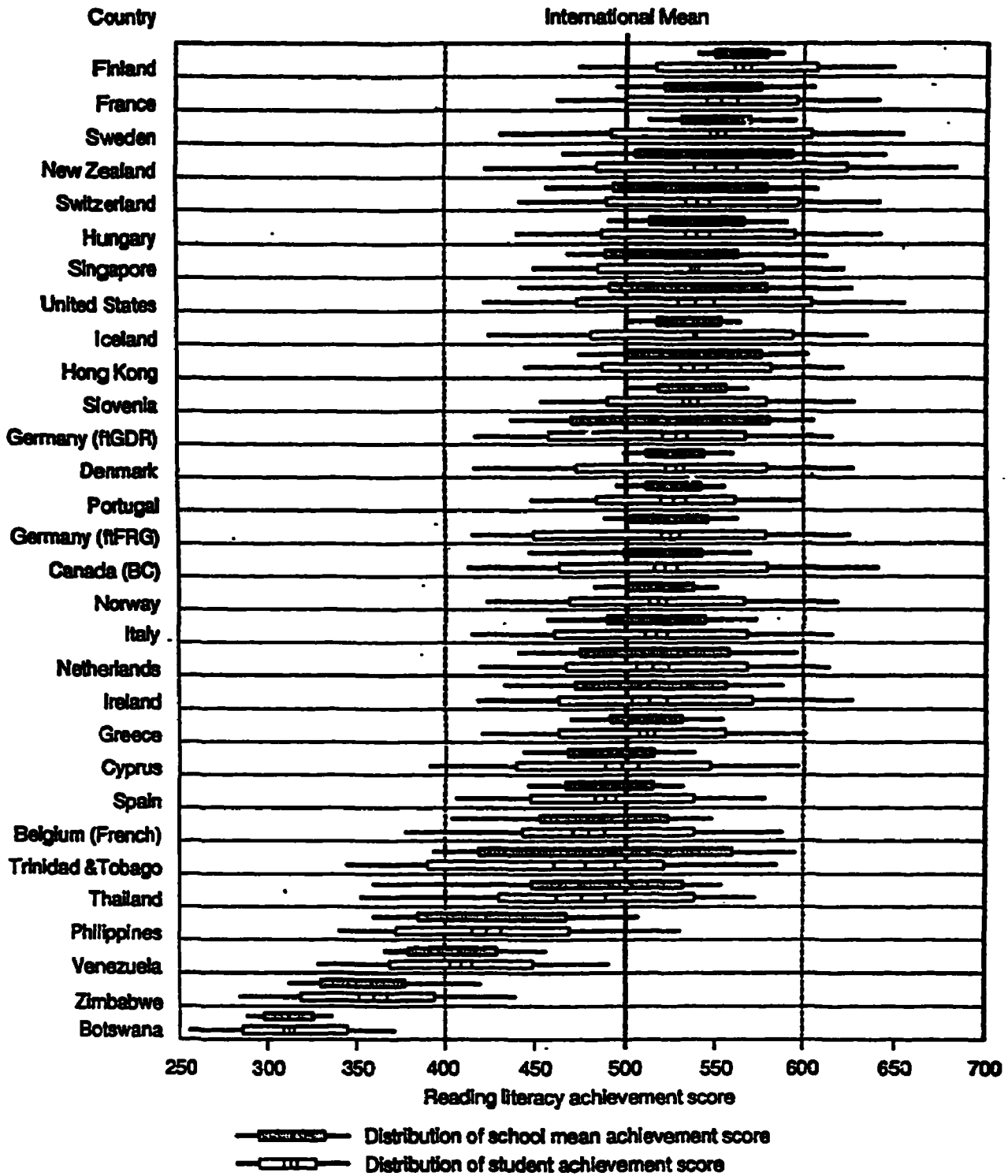
2.24. Recent international achievement comparisons have been made of 9-year and 14-year-old students in reading and in mathematics and science. The bulk of the countries included in the comparisons are OECD countries. Enough developing countries have been included, however, to show that test scores in developing countries are lower—in some cases by more than one standard deviation—than the international mean for all countries compared. The reading results for 14-year olds in Botswana, the Philippines, Thailand, Trinidad and Tobago, Venezuela and Zimbabwe illustrate this finding (Figure 2.7). In Burkina Faso and other Sahelian countries, mean achievement scores of students sometimes approach randomness, suggesting that students are learning very little (Jarousse and Mingat 1993).

2.25. As striking as the lower mean score in developing countries is the greater variation around the mean, both of student scores and school scores. Some Venezuelan students, for instance, test as high on reading as the international mean; others test in the bottom decile. Similarly in the Philippines, 15 percent of schools had results higher than the median score for all countries in a test of achievement in general science (Lockheed, Fonacier and Bianchi 1989). The variance in reading achievement in developing countries appears to be related to differences between urban and rural schools, which are many times more pronounced than in advanced countries (Figure 2.8). Raising quality will thus imply not only increasing average performance but also reducing variation across students and schools by improving both the learning environments and performance most at the worst schools.

Delays in Reforming Education

2.26. The issues of access, equity and quality described so far characterize different countries differently. A more general—and very disturbing—issue is the lag between reform of countries' economic systems and that of their education systems. Technological progress is accelerating, and along with it the pace of change of economic structures (see Chapter 1). In these circumstances, delays in reforming the education system to keep pace with the economic system can imply lower growth and more poverty than would otherwise occur. This dynamic is particularly pronounced in the former socialist economies of Eastern and Central Europe, where many of the impressive educational legacies of the communist period are now threatened by austerity, uncertainty and too slow a response by the education system to political and economic changes (Box 2.2). The failure to adjust education systems is just as serious—if not as visible—in countries in other regions in the face of increasing global economic competition and more open markets. These changes underline the need for a labor force with ever higher average levels of skills and knowledge and with these skills distributed evenly among the population. The East Asian countries, which have generally invested heavily in basic human capital for both men and women, are outstanding examples of what can be achieved when the education system is reformed along with the economic system.

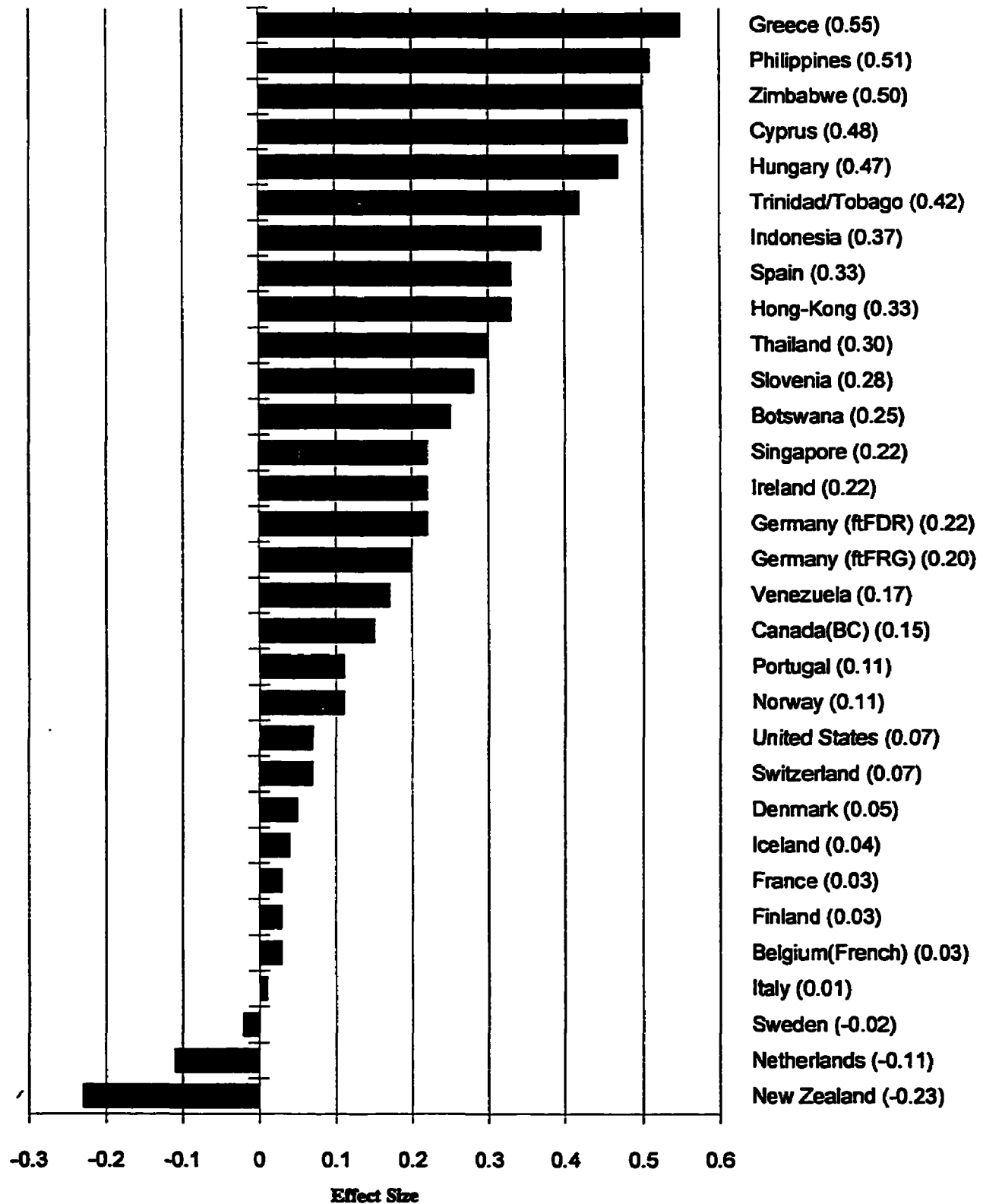
Figure 2.7. International Variation in Reading Achievement, 14-Year-Olds, 1990-91



Note: The center line in each box indicates the mean. The lines parallel to the center line represent +1.96 and -1.96 standard errors of sampling. The endpoints of each box indicate the 25th and 75th percentile points, and the ends of the horizontal lines extending from the boxes plot the 10th and the 90th percentile points. The dotted vertical lines in the graph indicate +1 and -1 standard deviation from the mean international student achievement score.

Source: IEA 1994.

Figure 2.8. Difference in Reading Achievement Between Urban and Rural Schools, 14-Year-Olds, 1990-91



Note: The effect size measures the difference between the mean scores for students in urban and rural areas in relation to the pooled standard deviation. An index value less than 0.2 can be considered as insignificant, between 0.2 and 0.5 as small, and greater than 0.5 as moderate to large.

Source: IEA 1994.

Box 2.2. Education in Eastern and Central Europe During the Political and Economic Transition

The educational systems of Eastern and Central Europe inherited from the socialist period were designed for a centrally planned economy that required labor with specialized professional, technical and vocational skills. The result was a proliferation of narrow training programs. Because resource allocations were determined by politically established plan objectives, there was little need for well-trained managers or for a skilled labor force and citizens capable of showing individual initiative. Studies in the applied social sciences and humanities were discouraged. Teaching and learning practices allowed little scope for independent studies and development of critical thinking skills.

Nevertheless, the educational legacies of socialism are also impressive. They include eradication of most adult illiteracy, universal access to primary and lower secondary education, high average levels of educational attainment, significant reduction of unequal access associated with gender, ethnicity, rural residence and socio-economic status, the provision of high quality compulsory education and the establishment of a large network of preschools, as well as international excellence in many fields of advanced scientific training and research.

These accomplishments are now threatened by austerity, by political and economic uncertainty, and especially by the slow response of educational systems throughout the region to the emergence of participatory political systems and market economies and the consequent demand for new kinds of skills.

Despite the paucity of reliable time series data, there is evidence of decline in important educational indicators in the 1990s. In Russia, for example, higher education enrollment contracted by 5 percent, enrollment in technical and vocational institutions by 9 percent and 7 percent respectively, while preschool enrollments dropped by 22 percent between 1991 and 1993. Between 1992 and 1993 alone, total educational expenditures fell by 29 percent in real terms. In a country where state control produced a high degree of uniformity in educational financing, variations in educational expenditures are increasing between rich and poor localities.

The crisis in public financing of education is widespread in the region. In Poland as in Russia, educational expenditures have declined as a proportion of a shrinking GDP, although Poland's economy is now growing. In Hungary, Bulgaria and Romania and several other Eastern and Central European countries, education budgets have been better protected but public expenditures have declined in real terms. In Romania, per student expenditures in public higher education decreased 36 percent between 1989/90 and 1992/93 although enrollments increased by about 44 percent.

Economic uncertainty and political instability have fostered spontaneous changes in the structure of educational systems. A vibrant private education sector has developed in Russia, Romania, Estonia, Bulgaria and elsewhere as an alternative to state-provided compulsory and higher education. The curricula of many of these institutions emphasizes foreign language training, management and other market-oriented skills. Nevertheless, legislation to accredit private institutions and recognize the qualifications they award has been introduced only recently in a few countries like Romania, which by 1994 had 66 private universities.

Understandably, reform efforts during the first years of transition focused on depoliticizing school curricula and management, reestablishing the political autonomy of universities, redefining the educational rights of ethnic and linguistic minorities, and especially in Russia, increasing local control of schooling. Previous guarantees of employment for graduates of the educational system were abrogated, as were policies that mandated state-owned enterprises to provide and finance various education and training activities. The principle of cost-sharing in non-compulsory education was embraced, either formally through legislation or informally by the introduction of new fees.

In most countries in Eastern and Central Europe, however, structures for administering and allocating public funding for education have remained largely unchanged, notwithstanding a plethora of reform proposals. One consequence of the lack of comprehensive reform is the increasing reliance on decrees and regulations for managing educational systems. In Romania, which has not as yet passed an organic law on education, the government has found it necessary to issue more than two thousand temporary decrees and regulations since 1990 to manage the higher education subsector.

Source: Eisemon et al. 1995; Laporte and Schweitzer 1994; Vlasceanu 1993; World Bank 1994k, 1994l.

Public Finance for Efficiency and Equity

3

3.1. Public finance is the main instrument for implementing public priorities, and there is a strong rationale for public intervention in the financing of education. In general, public investment accounts for about two-thirds of all education spending, though this varies from as much as 93 percent in Hungary to below 50 percent in Uganda (Table 3.1). Public spending on education is often inefficient, however, when it is misallocated across levels and within levels, and it is inequitable when qualified potential students are unable to enroll in institutions because there may be no educational opportunities available or because they are unable to pay or to obtain financing.

Table 3.1. Education Expenditure by Source of Funds, All Levels of Education Combined, in Selected Countries, 1991
(percent)

	<i>Country</i>	<i>Public Sources</i>	<i>Private Sources</i>
<i>OECD Countries</i>	Australia	85.0	15.0
	Canada	90.1	9.9
	Denmark	99.4	0.6
	Finland	92.3	7.7
	France	89.7	10.3
	Germany	72.9	27.1
	Ireland	93.4	6.6
	Japan	73.9	26.1
	Netherlands	98.0	2.0
	Spain	80.1	19.9
	United States	78.6	21.4
<i>Low and Middle Income Countries</i>	Haiti	20.0	80.0
	Hungary	93.1	6.9
	India	89.0	11.0
	Indonesia ^a	62.8	37.2
	Kenya ^b (1992/93)	62.2	37.8
	Uganda (1989/90)	43.0	57.0
	Venezuela (1987)	73.0	27.0

^a Public institutions only. Private sources refer to households only.

^b Primary and secondary levels only. Private sources refer to households only.

Sources: Noss 1991; OECD 1993; Tilak 1993; World Bank 1993c, 1993e, 1994g, 1994m.

The Rationale for Public Finance

3.2. The high private rates of return to investments at all levels of education justify large investments by individuals. High private returns also justify self-financing by families or students, through immediate or deferred cost-sharing. Despite these high private returns and the justification for private finance, there is a strong case also for public intervention, especially for basic education, based on income distribution, capital market imperfections, information asymmetries and externalities. In fact most governments are heavily involved in all levels of education, an activity which in many cases takes up a significantly large portion of public expenditures.

3.3. ***Income Distribution.*** Education can reduce income inequality. If education promotes productivity gains in agriculture and helps labor become absorbed into the modern industrial sector, then income inequality will be reduced. Equality of distribution of education usually results in equality of distribution of income. Education opens new opportunities for the poor and therefore increases social mobility. Public spending on basic education is definitely pro-poor. First, the poor tend to have a disproportionate number of children so that a larger subsidy accrues to a poor family than a rich one. Second the rich may opt out and buy private education, again increasing the amount of the subsidy that flows to the poor. But not all groups in society can afford the direct and indirect costs associated with investing in education, thus providing a role for the state in the pursuit of equality of opportunity. If education was provided under market conditions, only those who could afford to pay tuition fees could enroll. Not only would there be underinvestment from the social point of view, but income inequalities would be preserved from one generation to the next since education is itself a determinant of lifetime income.

3.4. ***Capital market imperfections.*** The private purchase of schooling, especially of higher education, is beyond the means of many poor families. Most credit markets do not provide an effective solution, owing to the existence of strong imperfections which reduce participation, particularly by very poor people. In principle, the budget constraints can be overcome by borrowing, given the high private rates of return to education. However, there are high risks involved for both borrowers and lenders in educational financing. Banks do not accept the promise of future earnings as collateral. The failure of the capital market thus affects not only the lower income groups, but also middle income groups who cannot finance tertiary education without credit.

3.5. ***Information asymmetries.*** Another issue, particularly for low income families, is that parents with little education tend to be less informed than better educated parents about the benefits or quality of education. In the United Kingdom, working class parents also tend not to encourage their children to aspire to an university education (Barr, 1993). The capital market does exist to some extent, but it is far from perfect. Students from poor households are reluctant to saddle themselves with debt. They do not know their future incomes and are understandably reluctant to enter into fixed obligations. Further, those from poor backgrounds tend to underestimate their prospects. Even more important, the lenders are understandably reluctant to accept risks backed only by the uncertain future incomes of reluctant debtors (Arrow 1993).

3.6. ***Externalities.*** The benefits of education accrue not only to its direct recipients, but also to society at large. In the absence of government provision expenditures on education are smaller than would be desirable. An adaptation of new growth theory states that the external effects of human capital are such that the average level of human capital affects a worker's productivity in addition to the effect of her own human capital (Lucas 1988). Widespread public education at the basic level may provide a threshold for development. To take advantage of potential

education at the basic level may provide a threshold for development. To take advantage of potential threshold levels of average education of the labor force, an optimal distribution would appear to be an equitable one, in order to maximize the potential spill-over effects associated with human capital. Important externalities such as the health and fertility impact would not result from private spending alone, but can be captured for society as a whole.

Misallocations Among Education Subsectors

3.7. Because the rates of return to investments in basic education are usually greater than those to higher education in low- and middle-income countries, basic (primary and lower secondary) education ought usually to be the priority for public spending on education in those countries that have yet to achieve near-universal enrollment at these levels. Indeed, most countries have made it so, with the highest share of public spending on education being devoted to primary education (Table 3.2). In all regions except South Asia, moreover, the share of public education spending going to secondary education increased during the 1980s (Figure 3.1), reflecting growing enrollments and the near achievement of universal primary education in several regions. Few regions except Europe and Central Asia and some countries in East Asia and the Middle East have achieved near-universal secondary education, however. Hence the increasing share of public spending going to higher education during the 1980s in regions without high primary and secondary enrollment ratios is unlikely to be efficient, as the rates of return to primary and secondary education are likely higher in most countries. By contrast, the declining share of public spending going to higher education in the Europe and Central Asia region may be inappropriate, depending on the returns to investment at different levels of education.

Table 3.2. Public Recurrent Expenditure on Education by Level, 1990
(percent)

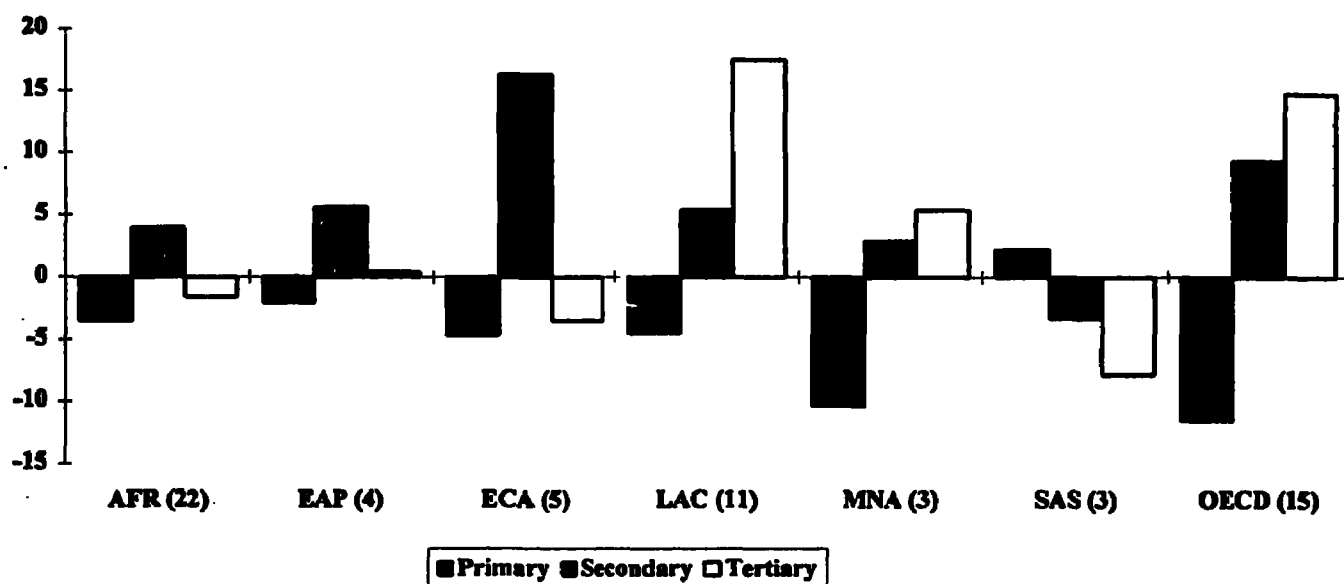
<i>Region</i>	<i>Primary</i>	<i>Secondary</i>	<i>Tertiary</i>
AFR (22)	42.9	28.0	19.7
EAP (4)	41.3	30.5	14.8
ECA (5)	49.3	26.8	15.9
LAC (11)	39.4	28.5	18.4
MNA (3)	36.0	41.5	16.1
SAS (3)	41.5	30.4	13.9
OECD (15)	30.7	39.0	20.6

Note: Unweighted averages; figures in parentheses refer to number of countries in regional sample.

Sources: Donors to African Education 1994; UNESCO database.

3.8. Even though spending per higher education student fell as a proportion of spending per primary student in all regions (Table 3.3), the levels of subsidization of higher education are still very high. This subsidization increases the demand for higher education, even though it is generally less efficient for society as a whole in countries that have yet to achieve universal primary and secondary education. The subsidization of higher education is most acute in Africa. Although private rates of return are 2.5 times higher than social rates (Table 1.1), public spending per student in

Figure 3.1. Change in Allocation of Public Recurrent Expenditure on Education by Level, 1980-90 (percent)



Note: Unweighted averages; figures in parentheses refer to number of countries in regional sample.
Source: Donors to African Education 1994; UNESCO database.

Table 3.3. Public Spending Per Student: Higher Education as a Multiple of Primary Education, 1980-90

Region	1980	1990
AFR (8)	55.3	44.1
EAP & SAS (4)	30.8	14.1
LAC (4)	8.0	7.4
MNA (2)	14.6	8.2
OECD (15)	3.0	2.5

Note: Unweighted averages; figures in parentheses refer to number of countries in regional sample.
Source: UNESCO database.

higher education in Africa is about 44 times spending per student in primary school. The share of tertiary education in public spending on education is higher in Africa than in any other region, at the same level as in OECD countries (UNESCO database).

Misallocations Within All Education Subsectors

3.9. Inefficiencies are prevalent within all education subsectors and reflect an inefficient mix of inputs, such as staff and instructional materials. They can also result from high repetition and

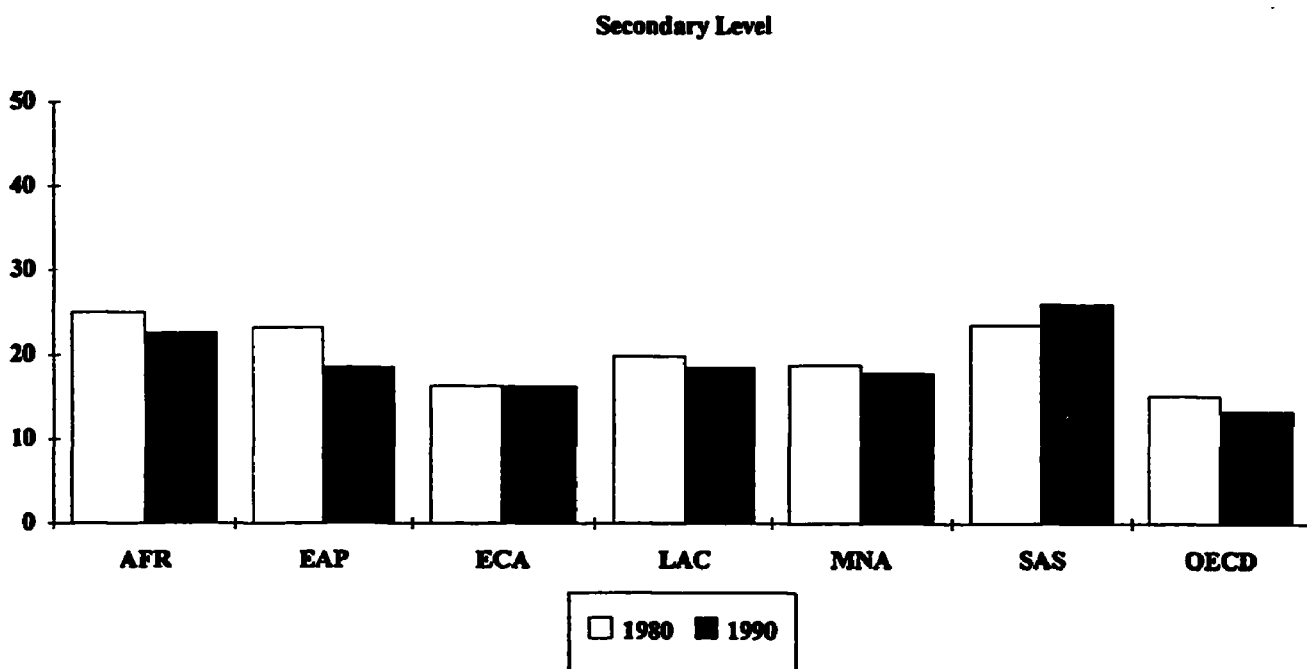
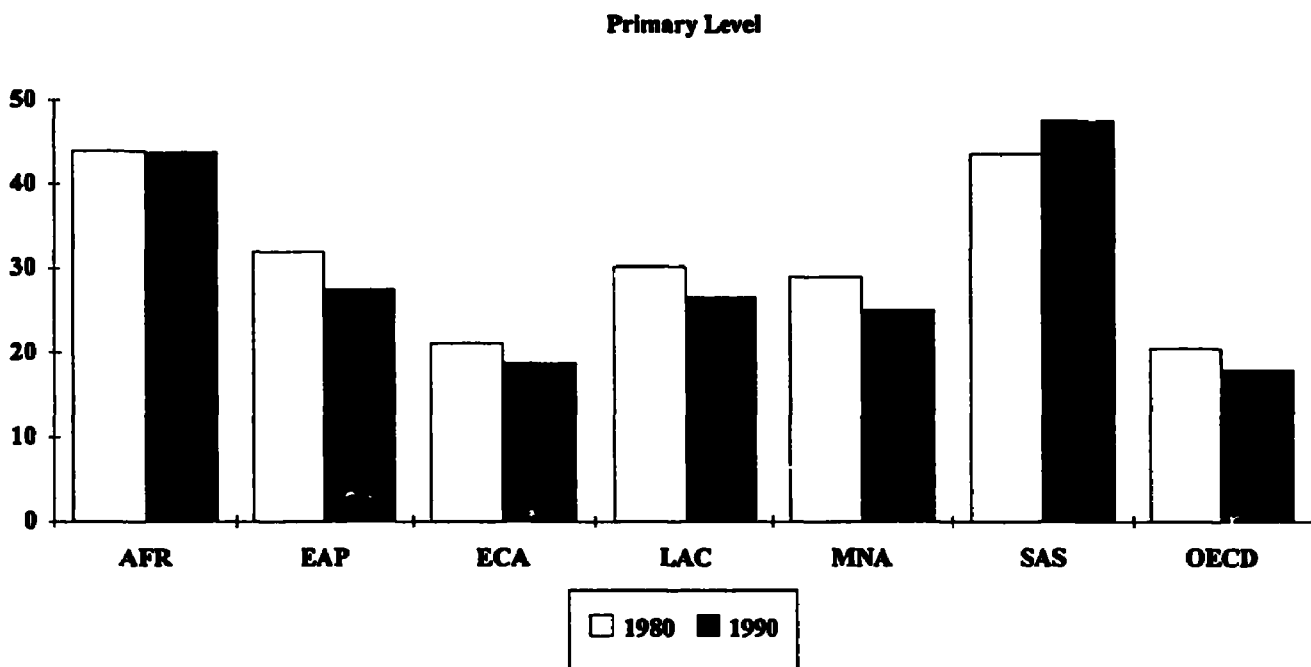
dropout rates. For effective learning, this input mix inevitably must vary from country to country and institution to institution, according to local conditions. Important broad guidance about the internal efficiency of education systems can come, however, from international comparisons and interschool comparisons, especially with regard to student-teacher ratios and school buildings.

3.10. The student-teacher ratio can provide one overall measure of staff efficiency, although it excludes nonteaching staff and does not provide a measure of actual class size but simply of the total number of teachers compared to that of students. In China, for instance, the student-teacher ratio is 25:1 at primary level and 17:1 at secondary level, compared with an average in Asia of 34:1 and 23:1. Moreover, Chinese teachers teach for only 12–18 hours per week, compared with 20–25 hours per week in other countries (Tsang 1993). Schools in low- and middle-income countries could save costs and improve learning by increasing student-teacher ratios, thereby using fewer teachers and allocating resources from teachers to other inputs that improve achievement, such as textbooks and in-service teacher training (see Chapter 4). In practice, any such savings are rarely allocated to other inputs. Yet in all regions except South Asia, primary and secondary student-teacher ratios are decreasing (Figure 3.2). In Africa, the number of teachers increased by 24 percent from 1985 to 1990, while the enrollment ratio declined by 3 percent (Donors to African Education 1994).

3.11. The scope for improving efficiency through modest increases in student-teacher ratios is enormous, because teacher costs typically account for about two-thirds of total spending on education (UNESCO 1993b). In Botswana, one year of learning gain per form could be achieved at junior secondary school by reducing class size and thereby needing more teachers at a cost of US\$9,414, or by introducing supplementary readers at a cost of US\$727, or by increasing in-service teacher training at a cost of US\$328 (Fuller, Hua and Snyder 1994). Of course, some countries—such as Bangladesh, Malawi and Namibia, where the first two grades often have more than 60 students per teacher—would benefit greatly not from increasing but rather from significantly reducing class sizes.

3.12. School buildings account for high proportions of education's capital costs for construction. These expenses are not entirely necessary to obtain desired academic outcomes. Indeed, the first "academe" in Europe was a public grove of trees where Plato taught; even today, learning occurs in the absence of buildings in many countries, including parts of rural India. However, school buildings are everywhere acknowledged as conventional locations for teaching and learning. There are many opportunities to increase efficiency in constructing and using buildings, thus saving resources for other purposes. Many countries, particularly those in Africa with colonial legacies, adopt expensive design standards and use imported construction materials. This is evident in comparative construction costs for World Bank postsecondary education projects in Africa and Asia in the early 1980s. For example, the estimated total construction cost per boarding place in nonuniversity level education in West Africa was nearly double that in South Asia and 50 percent higher than that in East Asia and the Pacific (Singh 1990). In some African countries, the annualized capital costs of new school facilities are as much as 80 percent of annual recurrent costs (World Bank 1988). Construction costs can be cut by simplifying designs and by using sensible materials and community labor, supervised by trained engineers to maintain safety standards (e.g., earthquake-proof buildings for certain regions in India). Cost-sharing with communities in school construction is common, especially at the primary level. These approaches have brought down costs in World Bank projects in Senegal, Mexico and India by up to 50 percent. Flexible floorplans can also improve space utilization by accommodating changes in enrollments. For example, "multi-purpose" school buildings in Bangladesh have removable partitions, which can permit different class sizes and also accommodate large school

Figure 3.2. Primary and Secondary Student-Teacher Ratios, 1980 and 1990



Note: Unweighted averages.

Source: Based on data in UNESCO 1993b.

and community gatherings. There are tradeoffs between flexibility and instructional effectiveness, however. It is also critical to maintain a building's physical plant and equipment, yet sufficient budget is often not allocated for this. This oversight has been a particular problem in Africa, where responsibility for school maintenance often rests with the central government rather than at the local level (World Bank 1988).

3.13. More intensive use of existing school buildings can also reduce the need for new school construction. In Jordan, a systematic program of school consolidation has led to the closing of about 1,000 schools. In Thailand, lower secondary classes are now provided together with primary classes in buildings that were previously used only as primary schools. Another way schools can be used more intensively is to adopt multiple shifts, which lower per student capital costs. For example, the per student costs of school construction and furnishing in Jamaica are J\$1,500 for single shift schools, J\$1,139 for overlapping double shifts, and J\$1,027 for end-on double shifts, where the second shift starts after the first-shift pupils vacate the premises (Bray 1990; Leo-Rhynie 1981). Project preparation estimates in Zambia show that the maximum use of multiple shifts in primary grades 1–7 can reduce per student construction costs by half (Bray 1990; Kelly et al. 1986).

3.14. Multiple shifts can reduce achievement, however, if they lead to reduced instruction time per student. To offset this, multiple shift schools often increase the number of days of school attendance per year, to compensate for a shorter number of hours per day. They have been used extensively and successfully in Korea, Malaysia and other East Asian countries. If annual instructional hours are maintained, there is no significant loss in quality compared with single shift schools (Bray 1990; Leo-Rhynie 1981).

3.15. Multigrade teaching, in which one teacher instructs more than one grade, can also be a cost-effective solution in rural areas, where teachers are often scarce and classes are often small due to a small number of children in a particular grade. A successful example is the Escuela Nueva program in Colombia (Thomas and Shaw 1992). Multigrade teaching can also reduce the costs of repetition and dropout if it results in students only repeating the parts of the curriculum they found difficult. Overall costs of multigrade teaching are higher than single grade, however, because of the need for special teacher training, study guides and teaching materials. In Colombia these needs raise unit costs by 5–10 percent compared with costs for single grade teaching, largely due to teacher training being three times as costly. Since learning achievement in language and mathematics is higher, however, the extra costs are justified in benefit-cost terms (Psacharopoulos, Rojas and Velez 1993). In Colombia and other Latin American countries, multigrade schools tend to perform better than single grade schools (Velez, Schiefelbein and Valenzuela 1993). Multigrade teaching is not successful, however, where it consists simply of applying single grade techniques to a multigrade class, as in Pakistan.

3.16. At the higher level, buildings can sometimes be dispensed with altogether. Open universities for motivated higher education students are much less costly than conventional universities, for instance. In Korea, the unit costs for distance learning are only 10 percent of those of residential students. Similar results were found in Thailand (14 percent), Pakistan (22 percent) and China (50 percent) (Lockheed, Middleton and Nettleton 1991). The lower costs result from the much higher student-staff ratios. Dropout rates are very high in distance higher education courses, however, typically 50 percent or more. This factor means that costs per graduate are double costs per student. In China, for instance, where dropout rates are 69 percent, the unit cost per graduate is higher than in a conventional university. A proper comparison of distance and conventional higher

education would involve calculating the returns to each. This comparison has not generally been done, largely because of the unavailability of graduate earnings data according to type of higher education institution. It has been calculated for Thailand, however, where the cost per student at open universities is only one-fiftieth of that at conventional ones, but the earnings of open university graduates are only 2 percent less on average than the earnings of private university graduates (Tan 1991).

3.17. Repetition and dropout are a further result of inefficiency, although their causes are complex and some repetition can even improve achievement. Repetition and dropout are most pronounced in Africa and Latin America, although declining in both regions. The simple solution to repetition is to introduce automatic promotion. However, this solution is frequently neither possible, when the repetition is a form of queuing for entry to the next level of schooling, nor desirable, when the repetition is because students have failed to master certain skills. Improving access and quality are in general more appropriate solutions to the problems of repetition and dropout.

Inequitable Public Spending

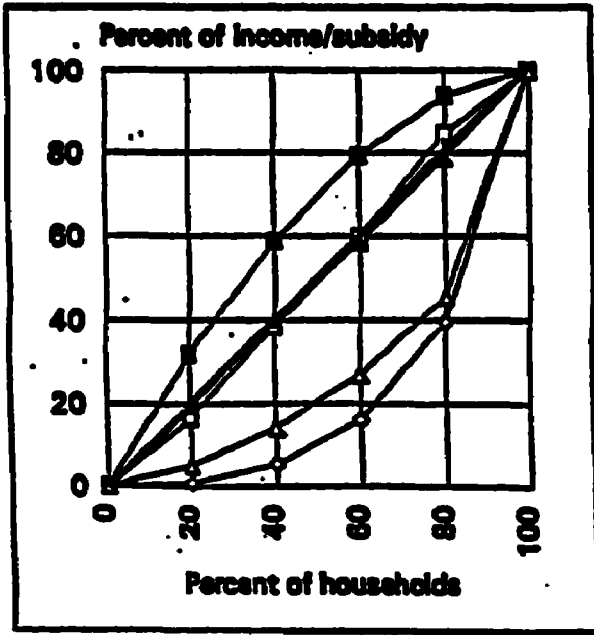
3.18. Although public spending on primary education generally benefits the poor, total public spending on education in low- and middle-income countries often favors the affluent, largely because relatively fewer poor children attend secondary and higher education institutions. In developing countries as a whole, 71 percent of school-age children (those with primary or no schooling) share only 22 percent of overall public resources, whereas 6 percent (those with higher education) get 39 percent of public resources (Mingat and Tan 1985).

3.19. Different criteria can be used to assess the equity impact of public spending. A weak technical criterion is whether the poor receive a share of the public financing subsidy larger than their share in national income. If so, the distribution of the subsidy improves the distribution of real income, and the relative size of the per capita subsidy expressed as a proportion of per capita income is larger for the poor than for the better-off. A stronger technical criterion is whether the poor receive a share of the subsidy larger than their share in the population; this circumstance means that the absolute size of the per capita subsidy is larger for the poor. A stronger, and better, criterion is that public expenditure, including loan guarantees, should be arranged so that no qualified student is unable to enroll in education at any level because of inability to pay. There is no simple measure of this criterion, which hinges on the existence of an appropriate selection mechanism at the post-compulsory level in order to define "qualified." In its absence, the weaker technical criterion can be used as a minimal criterion.

3.20. In Indonesia in 1989, Kenya in 1992 and Colombia in 1974, Lorenz curves for the distribution of the education subsidy compared to the distribution of personal income show the same pattern (Figure 3.3). The total education subsidy is more evenly distributed than personal income because its Lorenz curve lies above the income distribution curve. Overall, the education subsidy only weakly favors the poor, however, because it lies below the 45° diagonal indicating equal shares of the total subsidy. The only line above the diagonal in all three cases is the curve for primary education; it shows a strong pro-poor distribution: lower income individuals receive a larger share of the primary school subsidy than their share overall population. The secondary and tertiary education subsidies do not even remotely favor the poor because so few poor children are enrolled

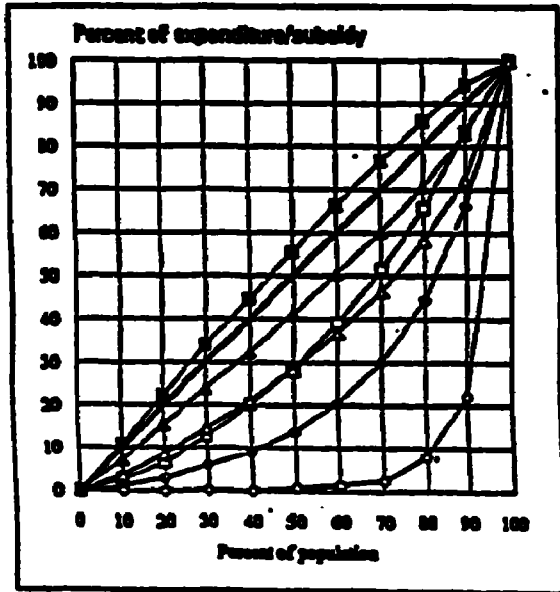
Figure 3.3. Distribution of Subsidies for Education in Colombia, Indonesia and Kenya

Colombia, 1974



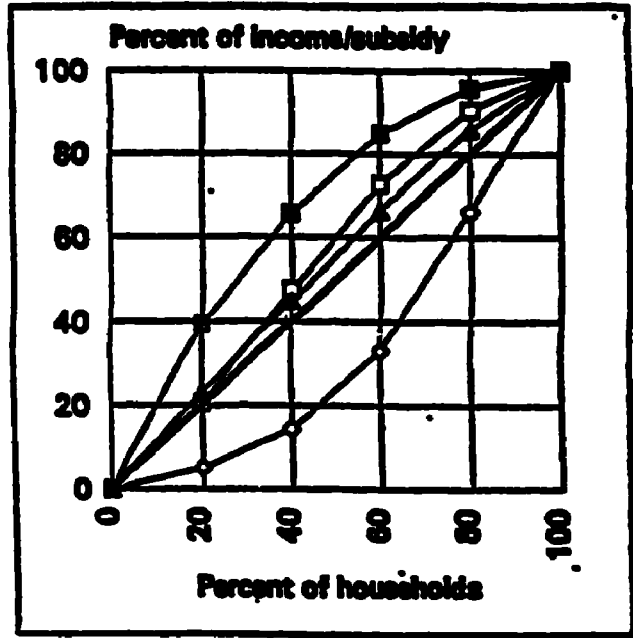
Source: Selowsky 1979

Indonesia, 1989



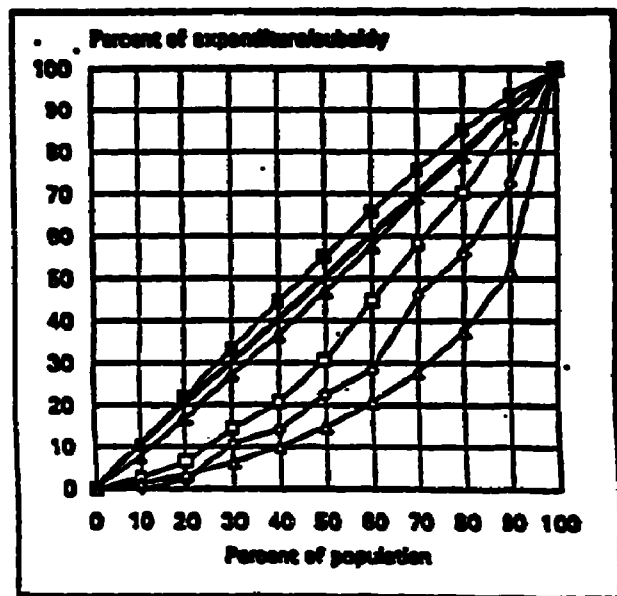
Source: World Bank 1993c

Colombia, 1992

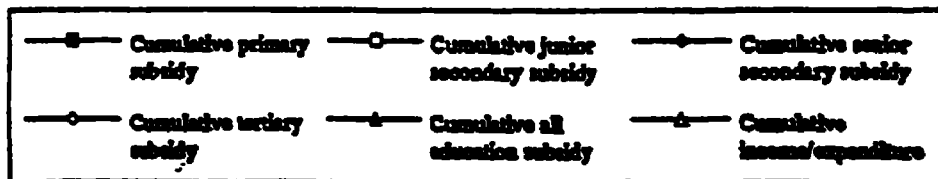


Source: World Bank 1994a

Kenya, 1992-93



Source: World Bank 1994f



at these levels. Not only does public spending on secondary and tertiary education favor the better-off in absolute terms, as their Lorenz curves lie below the 45° diagonal, it is less equal than even the distribution of personal income. Rich households receive a larger share of post primary education subsidies than their share of total income. Given these results in terms of the relatively weak technical criteria, it is clear that education spending by the public sector is very inequitable in terms of the more intuitive but unmeasurable criterion that no qualified person should be unable to enroll in education because of inability to pay.

3.21. It is possible to reallocate total public expenditure by encouraging the enrollment of the poor so that it is no longer biased in favor of the affluent. During the 1970s and 1980s, Colombia increased poor family enrollments and improved the targeting of its spending on secondary and tertiary education. As a result, education spending as a whole in 1992 benefited the poor, even though spending on tertiary education continued to favor the upper socioeconomic classes (Figure 3.3).

3.22. Public expenditure is also biased against the rural population. This pattern is consistent with the bias against the poor, as the incidence of poverty is usually greater in rural than in urban areas. In Indonesia in 1989, for instance, the monthly subsidy for all education programs averaged Rp.1521. The average for the urban population was Rp.1894, compared with Rp.1366 for the rural population (World Bank 1993c). In China, primary education in the rural areas that contain 70 percent of the population is financed mainly by parents and communities through in-cash and in-kind contributions to teachers' salaries and school construction. Urban primary and secondary schools are financed by provincial, town and district governments. Chinese universities charged no tuition until 1989 (Tsang 1993).

3.23. Spending on higher education also illustrates the bias against the poor. Spending more public funds per higher education student than per primary student is inefficient in most countries because the social returns are generally lower to higher education than to primary education, at least in countries with less than universal primary and secondary enrollments. It is also inequitable. Those students who gain access to higher education receive a larger absolute subsidy than those at lower levels. Moreover, higher education students come disproportionately from richer families (Table 3.4), which are better able to pay for higher studies. Yet public higher education is free, or almost free, to students in most countries. In only 20 developing countries do tuition fees account for more than 10 percent of recurrent expenditures. There are important regional differences in the pattern of fee-charging. Countries in Africa, in the Middle East and in Eastern Europe and Central Asia have little or no tradition of cost recovery in higher education. In half of Asian countries, however, and in a fifth of Latin American ones, cost recovery accounts for more than 10 percent of recurrent expenditures in public higher education (World Bank 1994e).

The Potential of Increased Efficiency and Equity

3.24. Increasing public spending on education is not necessary in many cases because of the enormous potential of efficiency gains at current levels. This can be seen through a simple comparison of regions. Public spending on education in Africa, which has the lowest enrollment ratios of any region, represents a greater share of GNP (4.2 percent) than in East Asia (3.4 percent) and Latin America (3.7 percent), regions which have largely achieved universal primary education (Figure 3.4). By 1990, an average 6-year-old in both East Asia and the Middle East and North

Table 3.4. Higher Education Students by Family Income
(percentage of total enrollment)

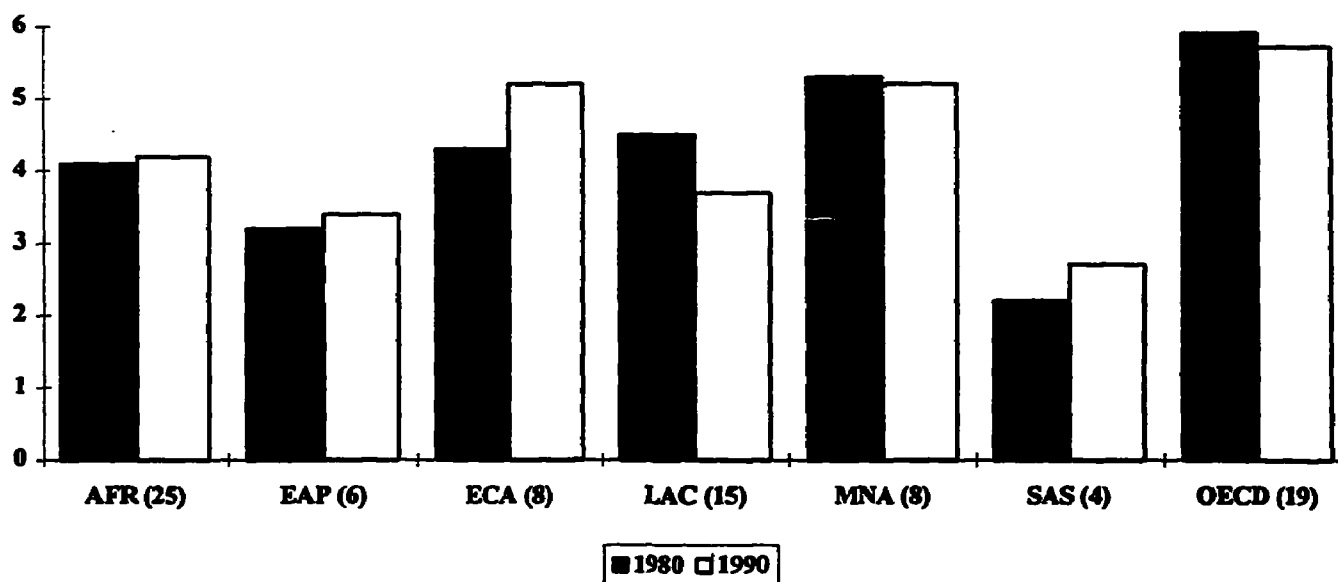
<i>Country</i>	<i>Year</i>	<i>Students from top 20 percent of households by income</i>
Chile	1987	63 ^a
Colombia	1979	67
India	1987	45
Indonesia	1989	92
Japan	1987	46
Malaysia	1979	48
USA	1987	37
Venezuela	1986	77

^a Top 25 percent of households by income.

Sources: Tilak 1989, 1994; World Bank 1993c, 1993e.

Africa could expect to complete over 9 years of school. Yet public spending on education by countries in the Middle East and North Africa represented 5.2 percent of GNP, compared with only 3.4 percent in East Asia. Some, but not most, of the difference is accounted for by different demographic structures.

Figure 3.4. Public Education Expenditure as a Percent of GNP, 1980 and 1990



Note: Unweighted averages; figures in parentheses refer to number of countries in regional sample.

Sources: IMF database and UNESCO database.

3.25. There is no theoretically appropriate proportion of GNP or public spending that should be devoted to education. In many countries, however, more educational attainment could be achieved with the same or even less public spending, particularly by following the East Asian pattern of focusing public spending on the lower levels of education and of increasing its internal efficiency (Table 3.5) while relying more on private financing at the higher levels. Figure 3.5 compares public spending on education as a percentage of GNP with gross enrollment ratios for a sample of countries. While net enrollment ratios would be a better measure, such an international comparison using gross ratios does help identify countries where public spending appears to stimulate relatively low levels of human capital formation. Morocco and Mauritania, for instance, show particularly poor results despite high levels of public spending on education. Their public spending on education is very inefficient, as compared with that of Jamaica and Jordan. Similarly, Cameroon, Thailand and El Salvador are inefficient as compared with Ecuador and Syria.

Table 3.5. Allocation of Education Benefits in East Asia, 1985

<i>Economy</i>	<i>Public Expenditure on Education as a Percentage of GNP</i>	<i>Public Expenditure on Primary and Secondary Education as a Percentage of GNP</i>	<i>Percentage of Education Budget Allocated to Higher Education</i>	<i>Percentage of Education Budget Allocated to Primary and Secondary Education</i>
Hong Kong	2.8	1.9	25	69
Indonesia	2.3	2.0	9	89
Korea, Rep. of	3.0	2.5	10	84
Malaysia	7.9	5.9	15	75
Singapore	5.0	3.2	31	65
Thailand	3.2	2.6	12	81

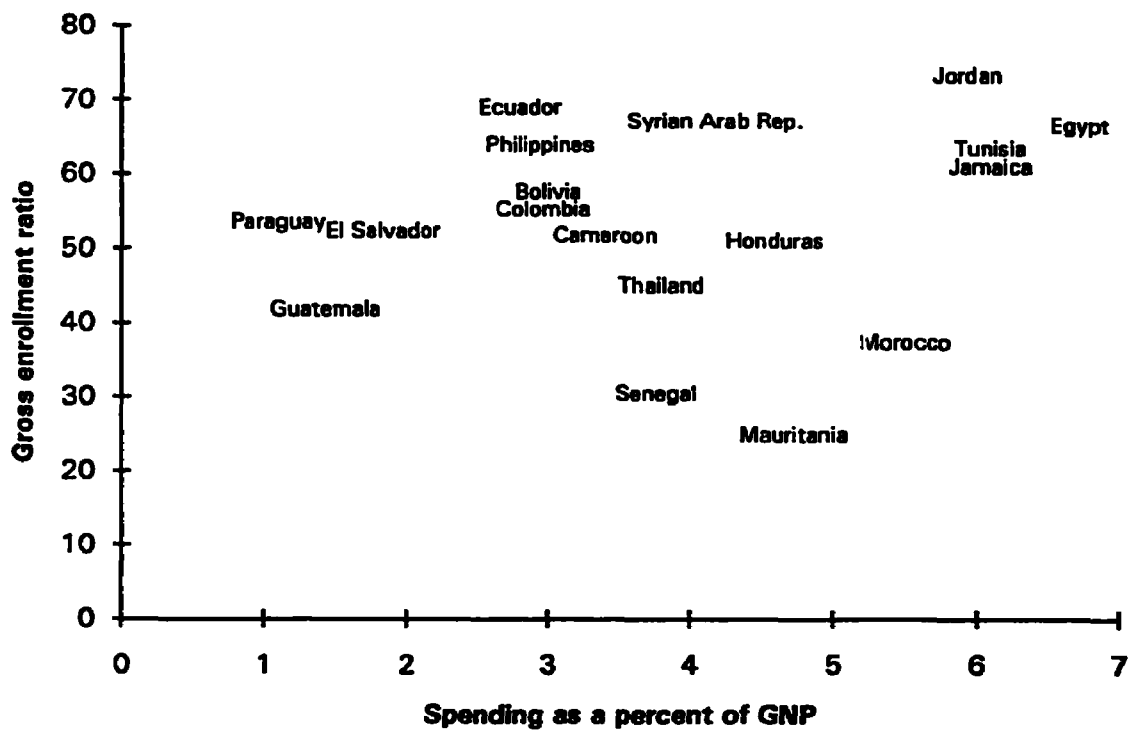
Source: World Bank 1993a.

3.26. Such comparisons also show how public spending is very low in some countries compared with international averages. In Paraguay, for instance, public spending appears to be relatively efficient compared with spending in Colombia and Thailand, which have the same outcomes but devote more than twice the share of GNP to public spending on education. Paraguay could probably increase educational attainment with more public spending on education.

Financing Education

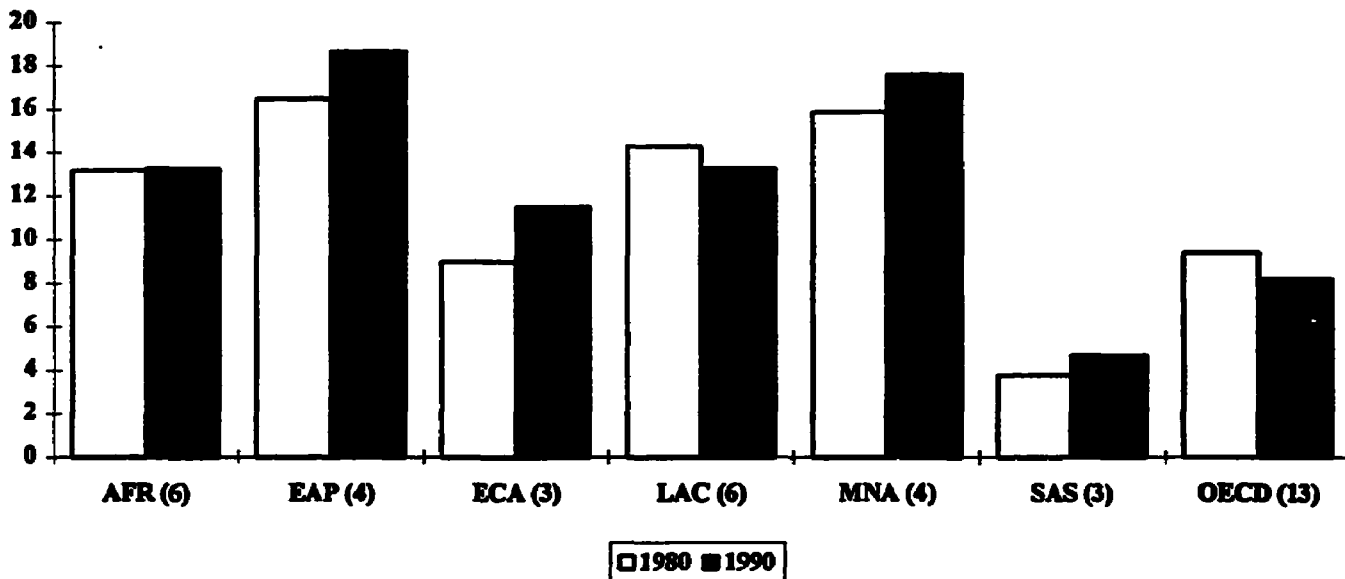
3.27. These frequent inefficiencies and inequities of public expenditure on education have combined with expanding public sector enrollments at all education levels to increase the share of public spending on education in GNP in many regions, particularly since unit costs are higher for secondary and tertiary students than at primary level (the exceptions are Latin America and the

Figure 3.5. The Relation Between Public Spending on Education and Gross Enrollment Ratio Among Population Ages 6–23, 1990



Source: UNESCO 1993b.

Figure 3.6. Education as a Percent of Central Government Expenditure, 1980 and 1990



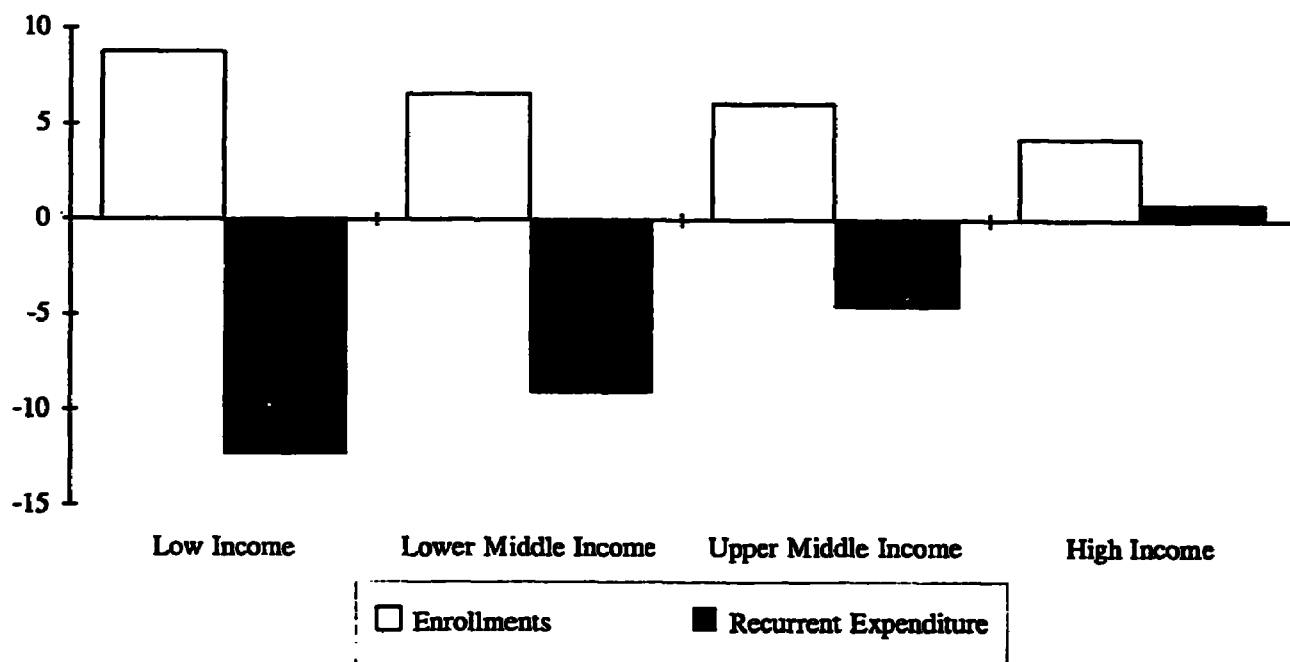
Note: Unweighted averages; figures in parentheses refer to number of countries in regional sample.

Source: IMF database.

Middle East). This trend has frequently put increasing pressure on public funds at the same time, since many countries, especially in Eastern Europe and Africa, have experienced general fiscal crises. Indeed some countries' macroeconomic difficulties have in part been driven by fiscal problems resulting from education spending. In Kenya, for instance, spending on education rose from 30 percent of the government budget in 1980 to almost 40 percent by 1990, largely because of a quadrupling in admissions to public universities.

3.28. During the 1980s, public spending on education increased or maintained its share of GNP and increased as a share of total central government spending in every region of the developing world, except in Latin America with its debt-induced recession (Figures 3.4 and 3.6). Even more significant than total spending is spending per student, although such data are particularly limited in availability and reliability. Real public expenditure per student fell at the primary level not only in 7 of the 9 Latin American countries for which data are available but also in 13 of 20 African countries. Real spending per student fell at the secondary level in Africa as well, by 18 percent. At the tertiary level, rapidly increasing enrollments in the 1980s combined with falling recurrent expenditure resulted in a decline in real per student expenditure (Figure 3.7), with a particularly acute fall in Africa of 34 percent. Among OECD countries, by contrast, all but one of the 14 for which data are available increased real expenditure per student at both the primary and secondary levels during the 1980s, and half increased spending at the tertiary level (Donors to African Education 1994; UNESCO database).

Figure 3.7. Higher Education Enrollment and Public Expenditure on Higher Education: Average Annual Percentage Growth Rates by Country Income Group, 1980-88



Source: Salmi 1991.

3.29. Measures to increase the efficiency of public spending on education can release funds for more productive investment in education. The share of higher education in central and state government spending in India, for instance, fell from 21 to 19 percent from 1976 to 1991, although primary education remains underfunded at 48 percent compared with secondary at 33 percent. Such reallocations may still not be enough and other sources of funds may be required, particularly when overall public spending is falling. In Burkina Faso, for instance, the share of education spending devoted to primary education increased from 23 percent to 42 percent from 1980 to 1990, but dropped in absolute terms, as spending fell from 2.9 to 2.3 percent of GNP. In these circumstances, some countries have chosen to switch further public expenditure into education and away from other publicly funded activities, such as defense and inefficient public enterprises that can be run better by the private sector. Other countries have decided their macroeconomic policies have the scope to expand spending on education by increasing the revenues of government. Military spending in many developing countries exceeds that for education, having quintupled in constant dollars from 1960 to 1991, twice the rate of increase of per capita income, and is only slightly less than the combined total for both education and health spending (McNamara 1991). Uganda reduced its defense spending from 3.8 percent of GNP in 1989 to 1.5 percent by 1992, increasing education spending from 1.4 to 1.7 percent of GNP and health spending from 0.5 to 0.8 percent (World Bank 1994m). Several Indian states increased spending on education from about 2.5 percent of state domestic product in the mid-1970s to above 4 percent in 1990. Ghana increased its share of education in public spending from 27 percent in 1984 to 36 percent in 1988.

3.30. Not all countries will be able to reallocate resources from other sectors, such as defense to education, or to raise revenues. Thus, some countries have sought to supplement public funds for education by the injection of private funds. Private funds can be encouraged either to wholly fund private institutions or to supplement the income of publicly funded institutions. As far as private institutions are concerned, some countries prohibit private schools and universities and others regulate them excessively. Since private schools are usually financed mainly by household payments of fees, such restrictions prevent private spending on education that could have substituted for public spending, in turn permitting more students to enroll at publicly funded schools. In Iran, for instance, private tertiary enrollments expanded since the Islamic Azad University was established in the private sector in 1983; they now number more than 300,000, or 40 percent of higher education enrollments. Students at the university pay tuition; those at the public universities do not. In addition, the very existence of private schools and universities promotes diversity and provides useful competition for public institutions, especially at the higher levels of education.

3.31. As opposed to enabling private funds to fund private schools, charging fees for students at publicly funded institutions raises difficult questions concerning equity, efficiency, access and taxation. If some fees are charged for all students attending public schools at all levels, the poor will be hit particularly hard, discouraging enrollment. Scholarship and other systems can be introduced to offset this blow, but they are inherently very complex to administer at the lower levels of education. At the upper secondary and higher levels of education, however, there is a much stronger case for the payment of fees by individuals attending public institutions. The gap between the private and the social return to education is generally much greater in higher education than in basic education, i.e. the subsidy to the student is greatest compared to future earnings (Table 1.1). This inefficiency can be overcome by charging the student, either from current family income or from future earnings by means of a loan scheme or through the tax system. Yet, too often, household financing of education is concentrated more on the lower than on the higher levels. In Kenya, for

instance, households absorb about 31 percent of the costs of primary education and 62 percent of those at secondary level, but only about 20 percent of those in higher education (Table 3.6).

3.32. Private funds can increase enrollments, whether they are used at private or publicly funded institutions. For instance, in Asia the more higher education costs are financed through student fees, the greater is the overall coverage of the education system (Figure 3.8).

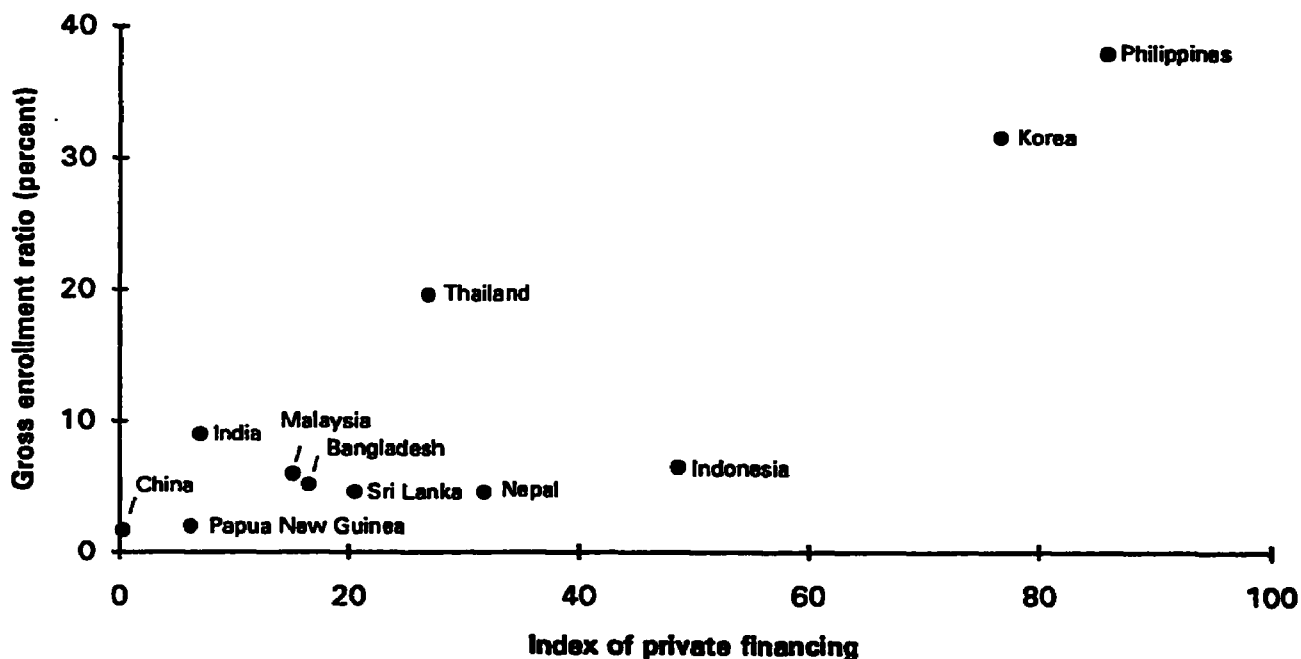
Table 3.6. Kenya: Government and Household Expenditure on Education, by Level, 1992-93 (percentage of GDP)

	<i>Government Direct</i>	<i>Household Direct</i>	<i>Deferred Cost Recovery^a</i>	<i>Total</i>
Primary	2.63	1.19	0	3.82
Secondary	0.78	1.26	0	2.04
Public University	0.79	0.06	0.14	0.99
Other/Unallocated	0.37	1.99	0	2.36
Total	4.57	4.50	0.14	9.21

^a Student loan scheme.

Source: World Bank 1994g.

Figure 3.8. Relationship Between Gross Enrollment Ratios in Higher Education and Extent of Private Financing, Selected Asian Countries, Around 1985



Source: Tan and Mingat 1992.

4.1. The quality of education is defined by both the learning environment and student outcomes. While resource availability significantly affects quality in most low- and middle-income countries, prevailing patterns of educational organization and governance are also responsible for the poorer quality of education in these countries in comparison with advanced countries. A wide variety of policies and inputs can all result in effective schooling. Indeed, the factors that are important in any one country, region, community or school are typically specific to that country, region, community or school. Educational research and experience do show, however, that the quality of education can be influenced by public sector policies and investments. The implications of these findings are not generally applied because of the prevailing patterns of education expenditure and management and the vested interests associated with them.

4.2. Education outcomes can be improved through four important actions: (a) setting standards for education outcomes; (b) supporting inputs known to improve achievement; (c) adopting flexible strategies for the acquisition and use of inputs; and (d) monitoring performance. This chapter illustrates the first three actions at the school level, principally primary education. The monitoring of performance is an essential complement to these three actions (see Chapter 6). Quality improvement at the higher level is most usually handled through funding mechanisms (see Chapter 10).

Setting Standards

4.3. Governments can improve academic achievement by setting clear objectives for learning outcomes and high standards for performance in core subjects. Standards constitute effective practice in good school systems, and they have achieved positive results in the school systems of such industrial countries as Japan, Germany, France and Australia (Tuijnman and Postlethwaite 1994). Performance standards are important for all levels of education, but have most often been neglected at the primary level. At the secondary and tertiary level in many countries, standards are embodied in certification examinations.

4.4. Many countries are moving toward establishing performance standards at the primary level. For example, India has established "minimal levels of learning" for subject areas in each of five primary level grades. In mathematics, for example, the competency statement for understanding whole numbers in Class 1 is that the student counts from 1 to 20 using objects and pictures; by Class 4 the competent student recognizes and writes numerals from 1,000 to 10,000 (National Council for Education Research and Training 1994).

4.5. Effective performance standards reflect the consensus of professional educators, parents, students and, often, the political process. Parents are typically best able to judge what knowledge and skills they wish schools to impart to their children, while professional educators can provide essential expertise in what are developmentally appropriate performance objectives and what is known about effective strategies for reaching these objectives. At secondary and tertiary levels, students' demand for skills need to be taken into account. Thus, in most countries with effective systems of performance standards, the standard setting exercise is one of consensus building. Jordan's education reform program, the preparation of which started with a General Conference on

Educational Development in 1987, included a participatory approach to the setting of national standards.

4.6. Standard setting may be a lengthy process in countries with heterogeneous populations that have distinct regional and ethnic cultures. The careful delineation of core academic subjects as the focus for performance standard setting may alleviate possible difficulties in resolving differences between groups. It is important also to avoid the danger that minimum standards can become the maximum aimed for by teachers (Madaus and Greaney 1985), a practice that appears to have resulted in the Philippines.

Support for Effective Inputs

4.7. Once learning objectives have been identified through performance standards, the "technology" of learning comes into play. Learning requires the following five types of inputs:

- (a) the student's capacity and motivation to learn;
- (b) the "subject" to be learned;
- (c) a teacher who knows and can teach the subject;
- (d) time for learning; and
- (e) the requisite "tools" for teaching and learning.

4.8. An extensive education literature shows that interventions to increase the learning opportunity provided by any of the inputs will contribute to the amount and speed of learning by a student, particularly at the primary and secondary level and where initial levels of inputs are low. This literature also documents an enormous variety in the specifics of each type of input and how it can be provided, beginning with the home.

Students' Capacity and Motivation to Learn

4.9. Students' capacity and motivation to learn is determined by the quality of the home and school environments, health and nutrition status, and prior learning experiences, including the level of parental stimulation. The principal source of children's capacity and motivation to learn is the family, through genetic endowment and the direct provision of nutrients, health care and stimulus. For children whose families are unable to provide necessary inputs, substitutions can be provided by early childhood programs and school health and nutrition programs. The long-run benefit of interventions during the preschool years are significant, and studies comparing the effects of schools and families on student achievement conclude that more than 60 percent of differences in achievement can be attributed to differences in individual and family characteristics (Lombard 1994; Bryant and Ramey 1987; Schaeffer 1987; Schweinhart and Koshel 1986).

4.10. ***Early Childhood Programs.*** Programs that focus attention on the physical, cognitive and emotional development of young children increase the likelihood of their subsequent enrollment in school, improve their performance in school and have wider benefits for the individual and society. Research evidence from Brazil, India, Peru, Turkey and the United States demonstrates that early childhood interventions can enhance school readiness and reduce dropout and repetition (Berg 1987; Chaturvedi 1987; Myers et al. 1985; Kagitcibasi, Sunar and Bekman 1987; Barnett 1992). As the

early years of life are crucial in the formation and development of intelligence, personality and social behavior, targeted integrated programs of health, nutrition and cognitive stimulation can provide disadvantaged children with an improved start in school. Early childhood programs need to monitor the child's health status along with supplying health and nutrition supplements when needed; provide age-appropriate curricula, activities and materials to encourage cognitive development; use safe, clean and well-lit facilities; select, train, motivate, retain and supervise staff; be structured so that every child receives attention every day; and promote parental and community involvement (Young 1994). World Bank-assisted projects are beginning to do this. In Colombia, for instance, a project helps women repair and renovate their homes so that they can establish child-care facilities for the community; in Bolivia a project helps expand home-based day care in poor urban and periurban areas; in Mexico a project supports a program of parental education targeted on rural and indigenous poor in the states with the lowest per capita incomes; and in India, health, nutrition and early education services are provided to more than 12 million children aged between 6 months and 6 years.

4.11. *Nutrition and Health Programs.* A child's ability to achieve in school is reduced by temporary hunger, chronic malnutrition, micronutrient deficiencies, parasitic infections and vision and hearing impairments (Levinger 1992; Pollitt 1990). Most children with a history of malnutrition and poor health, it is now known, are capable of successful school performance if they are compensated for their deficiencies. Exceptions to this finding are severe health and nutrition deficiencies that inflict gross changes in the brain or irreversible physical damage. For many of the poor nutrition and health conditions affecting children, there are effective, safe and relatively inexpensive interventions. For others, costs are higher, but interventions can be targeted on the needy poor.

4.12. Children in school who suffer concurrent malnutrition and poor health perform less well and attend less regularly, leading to grade repetition or dropout. Mass delivery of deworming drugs through schools and school-based vitamin A, iron and iodine supplementation are perhaps the most cost-effective approaches to improving children's readiness to learn via improved nutrition and health. Remedies are inexpensive and providers do not require medical training, though distribution and logistical infrastructure do need to be well-developed. Per child per year, deworming costs less than US\$1.50, vitamin A supplementation less than US\$0.50, ferrous sulphate tablets for iron deficiency between US\$2.00 and US\$4.00 and oral iodine supplementation less than US\$0.50 (Bundy et al. 1990; World Bank 1994c). Integrating programs can reduce costs further. Education programs designed to change specific nutrition and health practices, or to increase knowledge among school children, can both complement and sustain these shorter term interventions.

4.13. Children with impaired vision and hearing can be identified at negligible cost with simple eye charts and "whisper" tests. Such screening can either lead to the provision of glasses and hearing aids, or at least encourage teachers to move affected children to the front of the room or take other helpful measures. Temporary hunger also has a detrimental effect on learning through its effect on attention. Many governments support large and expensive school feeding programs. Such programs can be made more cost-effective by targeting them on the poor, by providing breakfast or snacks before school rather than a larger meal later in the day, and by selecting foods high in essential micronutrients or fortifying foods.

4.14. World Bank-assisted projects are increasingly designed to improve the quality of primary education through school nutrition and health interventions. A project in Brazil supports improvements in the school feeding program, screening for health and nutrition status among schoolchildren, the integration of health and nutrition into the curriculum, and pilot school-based programs of vitamin A and iron supplementation. In Guinea, a project is developing a national

deworming and iodine supplementation program through the schools. In the Dominican Republic, a project is assisting the implementation of a school snack program in poor urban areas, a national height census of first graders, a micronutrient deficiency survey, and pilot school-based iron and vitamin A supplementation programs.

4.15. Poor nutrition and health usually coexist with an impoverished environment. Socioeconomic status and the quality of the home and school environment clearly affect a child's readiness to learn. These factors may be less amenable to intervention, however. The school environment may have a particularly detrimental impact on the health and nutrition of the schoolchild if it increases exposure to such hazards as infectious diseases and unhealthy foods. More attention is needed to this aspect of children's readiness to learn.

Curriculum

4.16. The curriculum defines the subjects to be taught and furnishes general guidance regarding the frequency and duration of instruction; in some cases the curriculum is accompanied by a syllabus that specifies more precisely what is to be taught and what will be assessed. Curricula and syllabi that are closely linked to performance standards and measures of outcome are preferable to those with weaker links. The curriculum typically includes fewer subjects at lower levels and more subjects at higher ones. At the primary level, there are broad international similarities in the relative emphasis placed on approximately eight major subjects, of which reading, writing and mathematics are the most important; they account for about 50 percent of curricular emphasis (Benavot and Kamens 1989). Within each subject, however, the coverage, sequencing and pacing of subtopics may vary widely between and within countries. At the secondary level, countries differ with respect to the number of subjects taught, the balance between general and vocational subjects, the designation of mandatory and elective subjects, and the sequencing of subjects.

4.17. The range of national variation among relatively successful education systems shows clearly that there is no single curriculum that is appropriate to all or most low- and middle-income countries. Intended variation between and within countries results from differences in desired outcomes, in theories of instruction, and in local conditions. These differences can affect not only the choice of subjects taught but also when subjects are introduced and how long they are taught. For example, schools in Burundi offer relatively fewer hours of instruction and greater emphasis on language and mathematics in comparison with schools in Kenya where the school year is longer, covers more subjects and emphasizes science (Eisemon and Schwillie 1991; Eisemon, Schwillie and Prouty 1989). In Japan, finite mathematics, including statistics, is introduced in grade 6 and pre-calculus and calculus in grades 7–9, whereas these subjects are taught in grades 11–12 in the United States.

4.18. In practice, there are often two problems with the intended primary curriculum. First, many curricula include too many subjects, reducing the time available for teaching core language and number skills. Second, and related to the first, many curricula require the teaching of several languages (mother tongue, national or regional language of instruction, metropolitan language), which also reduces the time available for core subjects. Learning is more effective—and time is saved—if instruction in the first several grades is in the child's mother tongue. This approach provides time for mastery of the first language and the appropriate cognitive development as a basis for learning the second language (Dutcher 1994). A national, regional or metropolitan language can be learned in the higher primary grades to prepare for secondary education, once solid skills in the first language have been acquired. The production of textbooks in mother tongues may increase the costs of education, however.

4.19. One important aspect of human capital is "language capital," the speaking, reading and writing of one or more languages. Language capital, particularly spoken language, is partially developed during the course of a child's maturation, for example, the development of speaking fluency in one's mother tongue. Important investments are made in school and elsewhere in developing further one's language capital in the mother tongue. For most poor minority groups, however, the mother tongue is not the majority or dominant language spoken in the country, and not knowing that language may limit training opportunities and job mobility; hence earnings and the chances of escaping poverty are limited. There is, therefore, a labor-market incentive to acquire dominant language skills (Chiswick 1991; Chiswick and Miller 1995).

4.20. While the curriculum of primary education is relatively standard across countries, that of secondary education is not. Variations in duration (from 2 to 6 years), in use of residential programs, in differentiation by streams (science, teacher training, vocational), as well as in the number of courses offered (from 10 to 200), create diverse systems. Science education and vocational education are particularly complex issues because of their perceived importance and cost.

4.21. Science education is important for economic development, and it is increasingly incorporated in the curriculum. Advanced science education is expensive, however, because it requires laboratories and equipment and because science teacher training is costly. Many countries view all science education at lower and upper secondary level as "advanced." As a result, they restrict access to science education to only a few students at all levels, or only a few schools at all levels, or only senior secondary schools. In the Philippines, for example, science is limited to students in Science High Schools. This approach, which is only on a per-student basis and restricts access to a core curricular element, is not necessary. Laboratory-based instruction is not needed for science education at lower secondary or primary levels. OECD countries are moving away from laboratory-based science education at the lower levels of schooling. Once laboratory use is reduced or eliminated, the costs of science education are no longer significantly higher than those of non-science subjects. In Denmark, for instance, science teaching is no more expensive than humanities teaching at the secondary level. While there is little need for laboratory-based instruction at the lower levels of education, it is important for students to sense simple concrete objects and to be exposed to charts. Younger children need more help to conceptualize than older students.

4.22. Vocational and technical skills are best imparted in the workplace, with the direct involvement of the private sector in their provision, financing and governance, and preceded by general education. Vocational education at the secondary level is changing in the direction of more general education, as such subjects as science, technology, mathematics and English become more prevalent. Similarly, general secondary education is increasingly including basic technology education. This convergence of secondary general and vocational education toward a more general curriculum has yet to be evaluated in terms of labor market outcomes. It is consistent, however, with: (a) rapidly changing labor markets that place an increased emphasis on trainability; and (b) earlier comparisons of general and very specialized vocational secondary curricula that showed clearly that the social rates of return to investment in specialized vocational education were lower than those to general education, largely reflecting the much higher costs of the former (Psacharopoulos 1989).

4.23. Another type of curricular variation is unintended: the discrepancy between the official curriculum and the one implemented in real schools and classrooms. This variation has two main causes, the first technical. Educational systems, schools and classrooms in many countries are unable to deliver the key ingredients to learning noted above: a teacher who can teach the subject, time for learning, and the requisite "tools" for teaching and learning.

4.24. In addition, competing incentives (or disincentives) for implementing the curriculum can affect the number of hours the teacher or student spends in school and the attention paid to specific subjects. Opportunity costs of student and teacher time are the most important disincentive to maintaining official norms for instructional time. Student dropout in Ghana was highest when the direct and indirect costs to the family for child school participation were highest; direct costs were highest during "famine" times, and indirect costs were highest during peak agricultural seasons; in Jamaica, student absenteeism is highest on Friday market days. Teacher absenteeism can result from teachers holding multiple jobs and from distant postings that require a high investment in time to commute. Selection examinations provide strong incentives for ignoring certain subjects in favor of subjects that are tested. For example, in Jamaica, students in grades 5 and 6 spend disproportionately more time studying vocabulary lists and mathematics problems in preparation for the Common Entrance Examination (for secondary-level schooling) than studying other subjects in the primary curriculum that are not tested on this examination.

4.25. Curriculum reform policies typically focus on changing the intended curriculum: the types of courses to be offered, the level at which they are to be introduced and their duration. For example, Malawi's curriculum introduces health education as early as grade 2 and Kenya's mid-1980s curricular and structural reform introduced several new subjects, raising the number to be examined at the end of the first cycle to thirteen. However, curriculum reforms that focus on revisions of courses and timetables without concomitant revisions in standards and guidelines, instructional materials, teaching practice, and the incentives provided by tests and examinations are likely to have little impact.

4.26. Many countries have adopted a two-pronged approach to curricular reform. First, performance standards for learning are established and outcomes measured through examinations or national assessments. Second, local variation is encouraged in the implementation of the curriculum through materials, teaching and time. In Kenya, for instance, there is a national curriculum but schools determine the language of instruction in the first four primary grades. In India, the national department of education has developed a competency-based curriculum around the concept of "minimal levels of learning," but states and districts are responsible for adapting materials and teacher training to local conditions.

What Are the Necessary Inputs?

4.27. Once the curriculum is defined and performance standards established, appropriate educational policies and school-level practice are required to ensure the availability of necessary inputs. In fact, a wide variety of policies and practices can result in effective schooling, and the factors that are important in any one country, region, community or school are typically specific to that country, region, community or school. In low- and middle-income countries, school and classroom characteristics account for only about 40 percent of differences in learning achievement; the remainder is due to individual and family-background characteristics not typically amenable to school-level interventions.

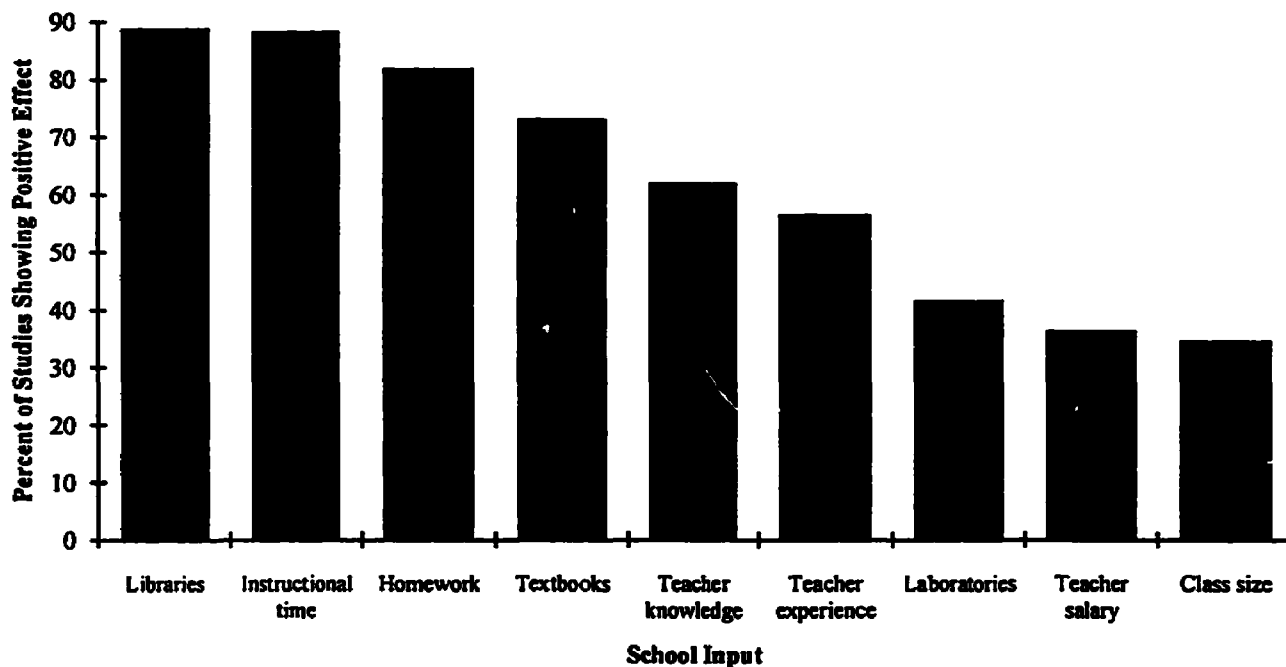
4.28. Recent reviews of the literature on correlates of learning in low- and middle-income countries show that the most consistently positive effects are found for teacher subject knowledge, instructional time, textbooks and instructional materials (Fuller and Clarke 1994; Lockheed and Verspoor 1991; Harbison and Hanushek 1992; Velez, Schiefelbein and Valenzuela 1993). Inputs in these categories would have the highest priority for expenditure. However, the exact composition of the basket of inputs and their relative importance for a given school will vary widely in accordance with local conditions. For example, a recent study of reading achievement in 25 countries—including

four low- and middle-income economies: Hungary, Indonesia, Trinidad and Tobago, and Venezuela— found that of 56 inputs examined, only 11 contributed to learning in at least 3 of the 4 developing countries (Ross and Postlethwaite 1992).

4.29. In many countries, education systems have made a practice of investing in inputs that expand access (for example, hiring more teachers to reduce class size) instead of those that have a demonstrable affect on enhancing learning (Hanushek 1994). Such inputs as smaller classes and higher teacher salaries due to seniority and formal qualification are cited less often in the research literature, however, and therefore probably deserve lower priority (Figure 4.1). In addition, expensive inputs, such as laboratories, are not effective.

4.30. *Teachers: Knowledge and Skills.* Teachers' subject knowledge, an intended outcome of preservice training, is strongly and consistently related to student performance. Teachers with a better knowledge of subject material and greater written and verbal language proficiency have better performing students (Lockheed and Verspoor 1991; Harbison and Hanushek 1992, for Brazil; Postlethwaite and Ross 1989, for Indonesia; Warwick and Reimers 1992, for Pakistan; Bashir 1994, for India). In both Brazil and Pakistan, teachers' own subject knowledge and formal education had more impact on student performance than preservice training (Warwick and Reimers 1992). At the primary level, research suggests that the overall level of relevant knowledge is insufficient in many countries. For example, in India, less than half of grade 4 teachers could correctly answer 80 percent of questions testing grade 4 mathematics knowledge (Bashir 1994). Preservice education for teachers may need to revise its curriculum to stress subject matter knowledge. Related to teacher subject knowledge is teacher pedagogical knowledge. While no specific teaching practice is universally effective, teachers with a wide repertoire of teaching skills appear to be more effective than those with a limited repertoire.

Figure 4.1. *Determinants of Effective Learning at Primary Level*



Source: Fuller and Clarke 1994.

4.31. The most effective strategy for ensuring that teachers have adequate subject knowledge is to recruit suitably educated teachers whose knowledge has been assessed. The assessment of learning outcomes for higher education—including teacher education—is as important as it is for primary and secondary levels. In fact, subject matter knowledge is routinely tested for secondary and tertiary level teachers, but not for primary level teachers. There are a few exceptions, such as Mexico, where teacher knowledge is related to pay at all levels of education. Harbison and Hanushek (1992) suggest a "national teacher examination," based on their findings for Brazil and other countries. At a minimum, the recruitment of primary and secondary teachers could resemble more the recruitment of higher education teachers, which is almost entirely based on subject knowledge, as in France and Japan, where teachers are recruited on a highly selective basis.

4.32. Well-designed, continuous inservice training is a second strategy for improving teacher subject knowledge and related pedagogical practices. Recognized effective elements of in-service training include exposure to new theory or techniques, demonstrations of their application, practice by the teacher, feedback to the teacher, and coaching over time (Joyce and Showers 1985, 1987, 1988; Joyce, Hersh and McKibbin 1993, Joyce 1991). As these elements suggest, in-service training is most effective when it is linked directly to classroom practice by the teacher (Walberg 1991; Nitsaisook and Anderson 1989) and provided by the headteacher (Raudenbush, Bhumirat and Kamali 1989). In-service training's impact on student achievement has been demonstrated for the Escuela Nueva program in Colombia (Colbert, Chiappe and Arboleda 1993), for science in the Philippines (Lockheed, Foncier and Bianchi 1989) and for mathematics in Botswana (Fuller and Hua 1993). Distance education programs for in-service (and preservice) teacher training are typically more cost effective than residential programs. For example, in Sri Lanka, distance education programs of up to four years in duration are more than five times as cost-effective as two-year programs in either colleges of education or in teachers colleges (Nielsen and Tatto 1993). In Botswana, in-service training is a more efficient way to raise achievement than reducing class size or providing supplementary readers (Fuller, Hua and Snyder 1994).

4.33. *Time.* The amount of actual time for learning is consistently related to achievement. More time on a wider coverage of the curriculum results in increased learning and less variation among achievement levels (Stevenson and Baker 1991; McKnight et al. 1971). International norms for the duration of the school year provide for an average of 880 hours of instruction annually at the primary level. The official primary school year is shorter in low- and middle-income countries in comparison with advanced countries, however. In addition, students in low- and middle-income countries spend much less time being instructed than students in OECD countries, a consequence of unscheduled school closings, teacher and student absences and miscellaneous disruptions (Lockheed and Verspoor 1991).

4.34. The first strategy for increasing the amount of instructional time is to increase the length of the official school year, if it falls significantly below the norm. This step, however, does not guarantee that schools will implement the official school year, particularly if it makes no accommodation for local conditions that may affect the participation of teachers or students. In many countries, schools or regions are permitted flexible scheduling of the instructional day, week or year, to accommodate variations in demand associated with weather, agricultural seasons, religious holidays, and children's domestic chores. This strategy has been effective in both nonformal programs of basic education and also in formal programs supported by the World Bank in Bangladesh, Colombia, Costa Rica and Ecuador. A second strategy is to increase learning time through the assignment of homework; this approach has been effective in OECD countries.

4.35. *Tools and Technology: Instructional Materials.* Instructional materials include the entire range of teaching tools, from chalk to computers. After blackboards and chalk, textbooks are the most common and most significant instructional material in most countries. In some countries textbooks are supplemented by libraries, other print and graphics materials, audiocassettes, films, radios, televisions and computers (Lockheed, Middleton and Nettleton 1991). Particularly critical in improving reading achievement is the provision of supplementary reading material, for voluntary reading and library usage, together with teacher education, are correlated with reading achievement (Lundberg and Linnakyala 1992; Postlethwaite and Ross 1992). Hence, the importance of libraries in Figure 4.1. The availability of teaching tools at all levels in low- and middle-income countries is limited, particularly at the primary level.

4.36. Almost all studies of textbooks in low- and middle-income countries show that the books have a positive impact on student achievement (Heyneman, Farrell and Sepulveda-Stuardo 1978; Fuller and Clarke 1994). In addition, interactive radio instruction has been found to have a positive and cost-effective impact on mathematics, science or English achievement in Bolivia, Honduras, Lesotho and Papua New Guinea at the primary level (Tilson 1991).

4.37. New technologies stand to improve the efficiency of education with software tools that improve student performance and through new means to provide instruction and educational resources to underserved populations. Computers improve student achievement and attitudes at all levels (Thompson, Simonson and Hargrave 1992) and small-scale experiments with computer-based instruction have been carried out in several low- and middle-income countries, including Chile, Mexico and the Philippines. In advanced countries at the primary and secondary levels, technologies are being innovatively combined to increase instructional effectiveness. Intelligent tutoring systems, CD-ROM, multi-media and other applications have improved student achievement in all disciplines (Sivin-Kachala and Bialo 1994) from early childhood programs through college preparatory classes. Broadcast and network technologies allow teachers with specialized skills (such as Japanese or Russian language teachers) or educational resources (such as on-line libraries) to extend beyond the traditional limits of classrooms and schools. Teachers reach students via interactive television, teleconferencing, computer conferencing, audiographics, voice and data transmissions systems, shared electronic blackboards and light pens, fax, voice-mail, computer bulletin boards and electronic mail. Transmission systems are satellites, microwave, fiber-optic, interactive cable systems, and microcomputers connected to local and international networks.

4.38. At the tertiary level, technology can substitute at least partially for teachers—examples are correspondence courses and open universities—which can result in greater cost-effectiveness. Satellite and computer technology allow high quality, interactive classes to be broadcast directly to places of work, in cooperation with firms that wish to maintain their stock of human capital. Students can save significant travel time to and from school and do not forego income by interrupting employment to earn a more advanced degree. For example, in the United States the National Technological University (NTU) offers 1,000 Master's level courses annually via satellite to over 100,000 regular and continuing education students. NTU's unique learning consortium includes 43 accredited universities and over 200 firms (National Technological University 1994). Its model is being copied to provide distance instruction in both developed and developing countries.

4.39. Even in advanced countries, many educational technology programs are still in the pilot stage and are dependent on grant funding. Initial costs are generally high and the costs of adding additional users low, but all costs are closely linked to idiosyncrasies of individual technologies and to the quality and availability of local telecommunications infrastructure. As a rule, these programs depend on reliable, high quality telecommunications connections (Derfler 1992),

seldom found in developing countries. Even where programs are technically feasible, low and middle income countries may lack the experienced pedagogical and technical human resource support necessary for successful implementation. The need to use scarce resources for other instructional materials and for the improvement of existing educational programs, combined with the lack of institutional support and information about appropriate, durable and cost-effective technologies, have limited widespread use of advanced educational technology in many low- and middle-income countries. Failing to increase the use of this technology runs the risk of further increasing the gap between these countries and the more advanced ones.

4.40. The World Bank has supported governments in their efforts to design, print and distribute textbooks "in-house." World Bank projects now routinely include textbooks; they accounted for 6 percent of all education lending in FY90–94, compared with 3 percent a decade earlier. Support for textbooks is now broken down into their development, production, distribution and use. Their development needs to be closely linked with curriculum development. Their production and distribution are best handled by the private sector, although governments need assistance with procurement policies and with measures to assure quality. Their effective use must involve training teachers in the use of new books and providing teacher guides. Some governments have also provided packages of instructional materials, such as wall charts, games, anatomic models and science kits. In Mexico, for example, such packages have been provided under two consecutive World Bank-assisted primary education projects, with modification of the second project's packages based on experience with the first project.

Flexibility in Providing Inputs

4.41. Setting standards and supporting effective inputs are important for raising learning achievement. Even more critical is the flexibility to decide locally how to combine and manage inputs to schools and other educational institutions. Governments can support this flexibility in the way that inputs are provided and the ways that they encourage and support the conditions that have been shown to influence student learning. Governments have employed principally two strategies for providing inputs to schools and institutions of higher education. The World Bank has supported both. The first has been the direct provision of packages of inputs. Experience shows that centrally provided packages are not used unless the inputs fit local conditions, teachers know how to use the inputs, and policies related to the use of inputs do not serve as disincentives. The second strategy has been to provide budget transfers to enable schools and other institutions to purchase what is most relevant to prevailing local conditions. Experience with this approach shows that local control over budget, curriculum and personnel does not improve student achievement without shared local agreement on the learning objectives of the school, teacher professionalism and full school-level authority to allocate instructional resources flexibly.

4.42. No single package of inputs can be considered "most effective" or most cost-effective for all schools or all preexisting conditions, and it is difficult to specify in advance what would "work" in a particular situation. School-level personnel have the closest knowledge of preexisting conditions, and they are best suited to select the package of inputs most suitable to local conditions. Even when school-level personnel have not been delegated authority for budgets, their knowledge can be employed to tailor packages of inputs to local conditions. In Jamaica, the World Bank is providing support for a comprehensive reform of secondary education, which includes curriculum revision for grades 7–9, teacher training in the curriculum objectives, provision of tools and technology for curriculum implementation and the assessment of student learning in the core curriculum areas. Prior to receiving a package of instructional materials necessary for the core curriculum subject, school personnel complete an inventory of materials already available in the

school, and only the residual materials are provided. The results are significant cost savings over the alternative of providing all schools with all materials.

4.43. In some countries, schools have authority over curriculum choices but not budgets and personnel. Thus, they are empowered to select textbooks, as in most OECD and high income countries where teachers and schools select books from an approved list. This practice is gradually being introduced elsewhere, notably in the transition economies of Europe and Central Asia. Only in a few cases do school-level personnel have full autonomy with authority over all critical aspects of school management: budget, curriculum and personnel. Even this practice does not necessarily lead to higher student achievement, however. Preliminary evaluations of school-based management in the United States and Canada do not demonstrate any effect of this reform on achievement, positive or negative (Summers and Johnson 1994; GAO 1994). A more promising approach, based so far only on experience in advanced countries, is school-based leadership that ensures an effective climate for learning (Box 4.1). Even easier to achieve is the appointment of the best principals to the neediest schools, such as rural multigrade schools and those in urban slums.

Box 4.1. A Promising Avenue: School Leadership

School level characteristics that are important for achievement center around each school's leadership. Effective learning institutions in advanced countries have leadership that ensures that resources are available, that communicates a vision for the school which includes high expectations for students and an orderly environment, and that provides pedagogic guidance and support to teachers. This support may not require full autonomy over budgets, curriculum and personnel.

Pedagogic leadership at the institutional level needs to support classroom conditions that are known to foster learning. As with leadership, the students of teachers who have high expectations for their students and who offer rewards and incentives for academic achievement learn more. Also, when teaching methods respond to the behavioral and learning styles of students and when classes are disciplined so that learning time is high, student achievement is usually higher.

Governments can foster school leadership and classroom conditions to encourage learning by ensuring that these factors are prominent in the selection and training of teachers, school principals and administrators and that they are central objectives of school supervision, inspection and support activities.

Sources: Brookover and Lezotte 1979; Brubaker and Partine 1986; Carter and Klotz 1990; Chubb and Moe 1990; Dalin 1992; Frederick 1987; Gibbs 1989; Hallinger 1989; Joyce, Hersh and McKibbin 1983; Levine 1990; Levine and Lezotte 1990; Lezotte et al. 1980; Lezotte and Bancroft 1985; Purkey and Smith 1983; Scheerens and Creemers 1989; Smith and Andrews 1989; Steller 1988; Wynne 1980.

4.44. Many education systems in low- and middle-income countries are rigid, run in a centralized manner with, for instance, central selection and purchases of textbooks and central direction about classroom instruction. Despite this, many schools have considerable de facto autonomy, at least about the method of instruction, if not about the deployment of teaching staff. However, management and supervisory links are often weak and teachers work in isolation, especially in small schools. The consequence of this isolation is that the curriculum is not implemented, instructional time is reduced and teaching tools are not used. What is needed to overcome this is shared local goals about desired outcomes, professionalism among teachers and school autonomy. These three factors combine to hold the school and its teachers accountable to parents and communities for outcomes in the context of national or regional indicators of performance, such as examinations and learning assessments.

Part III

Six Key Reforms

The education challenges described in Chapter 2 can be met if reforms are introduced based on changes to the financing and management of education along the lines suggested by Chapters 3 and 4. Six reforms will, taken together, go a long way to enable low- and middle-income countries to meet the access, equity, quality and pace of reform challenges that they face today. These reforms are a higher priority for education (Chapter 5), greater attention to outcomes (Chapter 6), greater concentration of efficient public investment on basic education coupled with more reliance on household financing for higher education (Chapter 7), greater attention to equity (Chapter 8), more household involvement in the education system (Chapter 9) and more autonomous institutions that will permit the flexible combination of instructional inputs (Chapter 10).

Figure III.1. demonstrates how these six key reforms can contribute to meeting the challenges that most low- and middle-income countries face. Since these challenges are present to varying degrees in individual countries, the six reforms will not all have the same priority in each country. Similarly, the definition of basic education, which has so far generally been used to describe primary and lower secondary education, also depends on country circumstances, particularly the level of enrollment at primary and secondary level (Chapter 7). Finally, while much of the discussion in Chapters 6–10 necessarily involves the setting of subsectoral priorities, it must never be forgotten that the education system is indeed a *system* and that changes and investments in one subsector will have implications for other subsectors and for the system as a whole.

The six key reforms called for in this report will help to improve education and, in the poorer countries, to reduce illiteracy in the future. They will not, however, contribute significantly to solving the problem of adult illiteracy today, with over 900 million illiterates in the world. For that purpose, programs of adult education are necessary. Such programs have a poor track record, with an effectiveness rate of just 13 percent in adult literacy campaigns surveyed over the past 30 years (Abadzi 1994). In addition, there is very little research into the benefits and costs of literacy programs. Several new approaches to adult literacy appear promising, however, in large part because they address the issue of motivation, the key factor in all successful programs. Experience has shown that adult literacy efforts tend to be effective mainly when they: (a) have an initial objective other than literacy, such as reading sacred literature like the Koran, acquiring information about health or assisting with children's education; (b) distinguish among teenagers and older adults, as adults learn in different ways from adolescents; (c) include women as well as men, since most unsuccessful campaigns have focused on male themes; and (d) use a participatory pedagogy sensitive to the local environment. One example is the REFLECT approach, which is being developed with the help of

the NGO ActionAid in Bangladesh, El Salvador and Uganda; poor communities are encouraged to construct maps, calendars, matrices and diagrams based on local circumstances and help them to analyze and systematize their knowledge. The alphabet and literacy then becomes a more elaborate way of representing this local knowledge. Literacy is linked much more tightly to other aspects of development in the local area. These new approaches will be reviewed in detail in a future World Bank paper, which has been prompted by challenges to the view that large scale literacy programs are generally unsuccessful. That paper will also analyze the costs and benefits of literacy programs and the factors that are important in the successful implementation of programs that have been expanded to scale. This issue is not further discussed in this report because of its focus on mainstream formal education.

Figure III.1. The Linkage of Key Education Reforms and Challenges

	<i>Access</i>	<i>Equity</i>	<i>Quality</i>	<i>Delays in Reform</i>
Higher Priority for Education	√	√	√	√
More Attention to Outcomes			√	√
Public Investment Focused on Basic Education	√	√	√	
More Attention to Equity		√		
More Household Involvement	√	√	√	
More Autonomous Institutions	√		√	

A Higher Priority for Education

5.1. Governments and peoples in almost all countries need to pay more attention to education. Education is usually the province of the Ministry of Education—or sometimes also of a Ministry of Higher Education—and other parts of government tend to leave it to this ministry. This method is short-sighted for four reasons:

- (a) Continuous change in economies and labor markets is now normal, the result of permanent economic reform and technological change, that necessitate renewed and permanent attention to investment in both physical and human capital.
- (b) The rate of return to investments in education is high compared with other investments.
- (c) There are important synergies among investments in education and other aspects of human capital formation, especially nutrition, health and fertility.

5.2. During the 1980s and early 1990s, many countries began restructuring their economies, driven by macroeconomic imbalances, excessive external debt and an increasingly competitive world economy. Economic reform programs have now brought positive results in the two regions where they were most necessary; economic growth has resumed in both Africa and Latin America. African countries have made much progress in many key areas of macroeconomic reform, but these efforts must be sustained and expanded, especially to include the achievement of fiscal balance. Increasing international trade and the increasing mobility of capital and technology have also made most economies more open and created a more competitive environment for attracting global investment. India and China are the two largest examples of countries with increasingly competitive and open economies; the record of East Asia was discussed in Chapter 1. Developments in the transitional economies of Europe and Asia are even more dramatic, as wholesale shifts occur toward market economic structures.

5.3. Now that economic reform is becoming a permanent process, it is important for governments to focus also on the factors, in addition to appropriate macroeconomic policies, that are necessary to sustain growth and reduce poverty. Investment in production and services is increasingly attracted to countries with the necessary physical infrastructure and flexible labor forces. All governments must therefore pay renewed attention to investment in infrastructure and to investment in people if they are to stimulate private sector investment and, hence, growth. The appropriate physical infrastructure and human capital investments will vary from country to country according to their level of economic and educational development. Investment in people is particularly critical because of the lags between education investments and the entry of new workers into the labor force. Delays in reforming education systems therefore risk reducing future economic growth.

5.4. Investments in all levels of education also yield high rates of return, above the opportunity cost of capital, which is usually thought to be around 8–10 percent, and comparable to

and, at the lower levels of education, higher than the rates of return to investments in agriculture, industry and infrastructure (Table 5.1). Moreover, these social rates of return to education are underestimates because they exclude benefits—such as improved health and reduced fertility—as well as external economies—such as threshold effects and technology acquisition and development. Physical and human capital investment are complementary; without investments in education, investments in physical capital will yield lower returns and vice versa.

Table 5.1. The Rates of Return to Investments in Different Sectors of the Economy

	1974–82	1983–92
<i>World Bank Projects</i>		
Agriculture	14	11
Industry	15	12
Infrastructure	18	16
All Projects	17	15
<i>Education Investments</i>		
Primary		20
Secondary		14
Higher		11

Sources: Psacharopoulos 1994; World Bank 1994n; World Bank Operations Evaluation Department database.

5.5. Increased understanding of the relationships among education, nutrition, health and fertility also warrant increased attention to education. It is now well established that parents, especially mothers, with more education provide better nutrition to their children, have healthier children, are less fertile, and are more concerned that their children are educated. Education, especially female education, is thus key to reducing poverty and must be considered as much a part of a country's health strategy as, say, programs of immunization and access to health clinics.

5.6. Education is thus both more important for economic development and poverty reduction than it used to be or was understood to be. It deserves a higher priority from governments as a whole, not only from ministries of education but also from ministries of finance and planning. This emphasis has long been realized by countries in East Asia, and it is increasingly coming to be understood elsewhere, especially in Latin America and India. It is important that other countries give education more attention, especially those in Africa, South Asia, the Middle East and the former socialist countries of Europe and Asia, most of which have until recently been appropriately preoccupied with shorter term issues of economic reform. The return to a longer term development and poverty reduction focus implies a higher priority for education, with specific policies and priorities within education varying according to country circumstances.

Greater Attention to Outcomes

6.1. A greater outcome orientation means determining education priorities more through economic analysis, through setting standards and measuring their achievement more through learning assessments.

6.2. A sectoral approach is key for setting priorities. While governments determine priorities for many reasons, economic analysis of education in general, and rate of return analysis in particular, is a diagnostic tool with which to start the process of setting priorities and considering alternative ways of achieving objectives within a sectoral approach. While the reasons for determining priorities vary country by country, and even government by government, this report's call for more attention to the impact of educational outcomes does not suggest that these other reasons are inappropriate. Rather it argues that insufficient attention is generally given to outcomes as defined in both labor market and learning terms.

Using Outcomes to Set and Monitor Public Priorities

6.3. Most governments typically define what education should be available for everyone implicitly through legislation regarding the school starting age, compulsory school attendance laws, minimum work age regulations, constitutional stipulations and nationally ratified international conventions. Countries fall short of their goals (Table 6.1), largely because they do not allocate sufficient resources to achieve them. Even where resources are available, however, the emphasis solely on years in school is misplaced. More appropriate would be an emphasis on knowledge and skills. School attendance is important, of course, but only because it contributes to the acquisition of skills, knowledge and attitudes. It is what students learn that is important.

6.4. Primary and lower secondary education are the top priority in all countries because they provide the basic skills and knowledge necessary for civic order and full participation in society as well as for all forms of work. The skills and knowledge acquired at the upper secondary and tertiary levels, by contrast, are applied more explicitly in the labor market; economic analysis can help to guide investments by the public sector at these levels.

6.5. Economic analysis applied to education focuses on the comparison of benefits to costs, for individuals and for society as a whole. For a given educational objective, the comparison is on the costs of alternative interventions to achieve the objective. The comparison of benefits to costs is usually measured by calculating the rate of return, taking enhanced labor productivity as the benefit, as measured by differential wages (Box 1.1). Both the social rate of return and the differences between the social and private rates of return can help in setting public sector priorities. Priorities for public investment determined by this type of economic analysis are those in which the social rate of return is highest and the level of public subsidization is lowest.

Table 6.1. Compulsory Education, Enrollment Ratios and Minimum Age for Employment, Selected Countries, 1990s

Country	Compulsory Education (Duration in Years)	Primary Gross Enrollment Ratio, 1990 (percent)			Minimum Age for Employment (1992)
		Total	Male	Female	
Bangladesh	5	77	83	71	12
Côte d'Ivoire	6	69	81	58	14
El Salvador	9	79	78	79	14
Guatemala	6	79	84	74	14
Guinea-Bissau	6	60	77	42	14
Malawi	8	66	73	60	14
Morocco	9	65	77	53	12
Senegal	6	58	68	49	14

Sources: ILO 1992; UNESCO 1993b.

6.6. The contrast between the social and private rate of return to investment in education, using wage differentials as the benefit measure, highlights the extent of public subsidization of education (Table 1.1). An index of public subsidization can be calculated (the percentage by which the private rate exceeds the social one). In most countries, higher education is the most heavily subsidized level of education. In Paraguay, for example, the private and social rates of return to primary education are 23.7 and 20.3 percent, while the private and social returns to higher education are 13.7 and 10.8 percent. The index of public subsidization in this case is 27 percent for higher education and only 17 percent for primary education (Psacharopoulos, Velez and Patrinos 1994).

6.7. These rates of return must be calculated in specific country circumstances and cannot be assumed. Methodological problems and the practical problems associated with the valuation of external benefits mean that it is prudent to exercise caution and use good judgement when applying cost-benefit analysis. For instance, rates of return are normally based on current average earnings differentials, which are known to remain stable over long periods of time. Where possible, however, earnings differentials at the margin should be used for workers in sectors with free entry. Estimates of rates of return are also slow to reflect new developments in the labor market, such as growing imbalances between employers' demand and the output of the education system.

6.8. Aside from these difficulties, the calculation of the private rates of return to education is relatively straightforward. That of the social rates is more problematic, however. No consensus exists on how to quantify and evaluate the social externalities of education. The common practice is therefore simply to calculate social returns by adjusting private returns downward to allow for the public sector's net expenditures on education and to ignore potential offsetting external benefits. Again, judgement must be used and the cost-benefit framework of economic analysis provides a key diagnostic tool that points policymakers in certain directions rather than a precision indicator for the setting of priorities.

6.9. Once priorities have been set, and financing arrangements put in place, it is necessary to pay close attention to the costs of educational investments and attempt to reduce unit costs by improving efficiency. Cost-effectiveness analysis is necessary for this, comparing alternative ways of achieving the same result. The most cost-effective technique is the one that produces the desired result at minimum cost or produces the largest gain in educational achievement for a given cost. Examples of cost-effectiveness analysis include science education, where it has shown that laboratories are not necessary for acquiring basic scientific competency (Chapter 4), and school consolidation programs, which can analyze the cost of instructing students at one or a number of schools.

6.10. Basic education provides the essential knowledge, skills and attitudes to function effectively in society and is hence the priority everywhere. These attributes include a basic level of competence in such general areas as verbal, computational, communication, and problem-solving skills. These competencies can be applied in a wide range of work settings and can enable people to acquire job-specific skills and knowledge in the workplace (Becker 1964). This basic level typically involves about eight years of schooling. Indeed, in many countries, lower secondary education is being combined with primary education to form a period of compulsory education known as "basic education."

6.11. Basic skills are increasingly important in all societies. The mastery of elementary mathematics in the United States results in a wage premium, and this premium increased between 1978 and 1986. The premium for men rose from US\$0.46 to US\$1.15 per hour, and for women from US\$1.15 to US\$1.42, for people with the same number of years of schooling (Murnane, Willet and Levy 1993). More literate and more numerate individuals in East Africa are more likely to enter the modern wage labor market and earn higher wages than are less literate and less numerate workers with the same number of years of schooling. Secondary school-leavers who scored in the top third on the school leaving examination earn 50 percent more than those in the bottom third in Kenya, and some 35 percent more in Tanzania (Boissière, Knight and Sabot 1985).

6.12. The high rates of return estimated for basic education in most developing countries strongly suggest that investments to expand basic education enrollments and improve basic education retention should generally be the highest priority education investments in countries which have not yet achieved universal basic education. In many cases, expanded basic education coverage will require investments to expand school capacity, to train qualified teachers and to provide suitable educational materials. But in other cases, where insufficient capacity is not the binding constraint, it will require investments to raise the demand for education through actions to improve education quality, to improve the school environment, or to defray the direct and indirect costs of school attendance. This is particularly likely in poor settings where children contribute more to the household than they consume (Lindert 1976).

6.13. Other education interventions may also merit a high priority. Investments to improve education quality or education efficiency will often have high rates of return. In some cases, these may be even higher than for investments to expand education coverage. The benefits of investments to expand education efficiency—for example, through improved student retention or more intensive use of staff and facilities—can typically be expressed in terms of reduced unit costs per student or per graduate. Although the benefits of improved educational quality—for example, in terms of prospective earnings—are more difficult to measure, they should nonetheless be weighed explicitly in considering the relative priority of such investments. In addition to these investments, some

requiring no specific investments. For example, more efficient assignment of existing teachers could reduce the need for recruitment of new teachers in some education systems.

6.14. Decisions about priorities for public spending on education beyond primary and lower secondary education have to be taken within a broad sectoral approach. A distinction needs to be made between countries that have achieved, or almost achieved, universal primary and lower secondary education and those that have not.

6.15. Countries that have achieved universal basic education are likely to consider upper secondary and higher education as the priorities for new public spending. Decisions about public priorities among these postcompulsory levels can be informed by the prudent use of economic analysis focusing on labor market outcomes and other social benefits. Economic analysis has shown, for example, that the average social rates of return to general secondary education are much higher than those to highly specialized vocational secondary education (Psacharopoulos 1987, 1994). This result is consistent with constant and rapid changes in technology and labor markets that call for flexible, "trainable" workers able to acquire new skills as technology changes, best achieved by emphasizing learning skills and attitudes, rather than specific job-related skills that are best taught in specific job settings. For example, in Indonesia, a rapidly industrializing country, while the returns to academic and vocational secondary education have both fallen from their respective levels of 32 and 18 percent in 1979, those to academic secondary still remained higher at 11 percent compared with 9 percent to vocational secondary in 1986.

6.16. The low returns to secondary vocational education signal that additional investment under current conditions would be inefficient. But it does not necessarily imply that reducing the provision of places is the correct policy response. Such a policy conclusion requires further confirmation. For vocational education, the low returns could be due to high costs rather than a lack of demand for technically skilled labor. Therefore, one alternative would be to reduce costs in order to raise the returns. Possible reforms would include shortening the duration of the course and reducing unit operating costs. If the returns do not increase significantly, then alternative arrangements for training skilled workers outside the formal school system (Mingat and Tan 1988).

6.17. Complementary tools for assessing investment priorities include tracer studies and annual routines (Mingat and Tan 1988; Sapsford and Tzannatos 1993). These can be used to collect data relating to school programs and to monitor labor market trends affecting recent school leavers. This type of information should be collected annually as it provides useful feedback on the effects of recent policies so that adjustments can be made in the system. The annual routine can improve the responsiveness of investment decisions to new labor market conditions. It increases the external efficiency of educational investments within the broad strategies that the rate of return analysis suggests.

6.18. The advantage of economic analysis is that assumptions must be stated at the outset. In the above example it is assumed that there is a demand for the output of the secondary vocational stream. But through empirical analysis this assumption can be checked. One direct method for this is through employer surveys. Employer surveys have been used in Indonesia and the results are revealing, showing that there is an inconsistency between the public and private perception of the skills development problem. In short, private companies do not view skill shortages as a problem (Dhanani 1993a). Most companies provide their own training.

6.19. Estimates of rates of return to investments in education are not very relevant when the labor market is not competitive—or does not exist, as was the case in the socialist economies of Eastern Europe. The collapse of the stationary state caused a disequilibrium of epic proportion. Such dramatic economic changes are expected to result in a premium on entrepreneurial ability as workers for the first time face a competitive labor market where success is rewarded. And as Nobel laureate T.W. Schultz argued entrepreneurial ability is complementary with education and work experience. Therefore, relative returns to education should rise in the newly emerging market economies relative to pretransition returns when entrepreneurial skills were not needed.

6.20. Empirical analysis of changes in the wage structure in Slovenia between 1987 and 1991 reveals that the returns to human capital rise dramatically during transitions (Orazem and Vodopivec 1994). Average private returns to years of schooling rose dramatically following the transition relative to earnings of the least educated group. Those with four years of university education gained the most in relative earnings, followed by those with two years of university. The educated group that gained the least, however, relative to those without education over this period was that holding vocational qualifications.

6.21. Major changes in the economy, therefore, such as transition to a market economy, restructuring, trade liberalization or new economic alliances (such as the North American Free Trade Agreement), should result in greater gains to those with more education and a more general education.

6.22. Vocational education in high income countries and in some upper middle income countries is thus increasingly less specialized; it now typically includes a very extensive general education component. At the same time, general secondary education now typically also includes technology education, designed to facilitate entry to the world of work. School-to-work programs are also increasingly being adopted, combining general education at school with one or two days per week of work on the job. The experience accustoms students to the attitudes required in the world of work. This convergence of vocational and general secondary education and the linkage of school and work in OECD countries has yet to be evaluated in economic analysis terms, but it seems likely to yield higher returns than narrowly vocational education.

6.23. Many low- and middle-income countries with universal primary and lower secondary education now have large, highly specialized vocational upper secondary programs. The most extreme are to be found in the transitional economies of Eastern and Central Europe. Reflecting their past command economies, the bulk of upper secondary schooling in Eastern Europe is narrowly specialized vocational and technical education. In Poland, for instance, only 20 percent of secondary students are in general education. Yet the labor needs of the emerging market economy are for general education (World Bank 1992). Labor markets themselves are only now emerging in Eastern Europe and Central Asia, and the relationship between them and the education system has still to develop.

6.24. Countries with such large vocational secondary programs cannot reduce their size quickly. Instead, the programs should increasingly be made more general and linked to the development of attitudes and general skills, rather than specific skills, necessary for the world of work. Over time, however, the use of labor market outcomes does indicate the advisability of reducing the share of secondary education that is vocational.

6.25. There are countries where the returns to some types of specialized vocational education have been found at some times to be higher than those to general secondary education. This finding reflects labor market shortages of certain skills. In Chile, for example, the returns to agricultural training, industrial skills and commercial skills are all currently higher than to general secondary education. Hence the central government subsidizes municipally-run vocational centers, with the amount of the subsidy varying according to labor market needs. In 1993, for instance, agricultural schools received 200 percent of the subsidy to general secondary schools, industrial schools 150 percent, and commercial schools 125 percent (Cox Edwards 1994).

6.26. Countries that have yet to achieve near-universal primary and lower secondary education face simpler decisions in determining priorities. Given the importance of achieving full coverage of primary and lower secondary education, economic analysis can help guide public choice about investments above these levels to those that will clearly have a greater impact upon labor productivity and other social benefits. This impact will be apparent when the social rate of return to investments at these levels is higher than to investments at the basic education levels. In most countries, this outcome will not usually be the case and the priority for new investment will clearly be basic education. One exception may be science at the upper secondary level and science and engineering at the higher level. If the social rate of return to these courses, or to specialized vocational courses, is higher than that to primary and lower secondary education, there will be a case for increased public investment. So far, few economic analyses have included this degree of specificity, but governments can use such analyses in specific country circumstances to guide investment decisions (McMahon and Jung 1989).

Setting Standards and Monitoring Performance

6.27. Once the public sector has made public resource allocation decisions, it is important for it to define the skills and competencies to be acquired at each level of publicly-financed education and to monitor their acquisition. There is much scope for broader use of mechanisms for standard setting and the monitoring of learning outcomes (Chapter 4) and ideally more use of internationally agreed definitions. The OECD, for instance, is proposing the continuous monitoring of three categories of standard outcome indicators for its member countries: student outcomes, system outcomes and labor market outcomes. Student outcomes include performance in reading, mathematics and science and gender differences in reading achievement; system outcomes include upper secondary graduation, university graduation, science and engineering degrees and science and engineering personnel; and labor market outcomes include unemployment, education and earnings (Tuijnman and Postlethwaite 1994).

6.28. More generally, once standards for performance have been established, performance needs to be observed and linked to incentives. A variety of performance indicators can be used, including but not limited to tests and examinations. Whatever the performance measure, however, what is tested tends to be what is taught. Public examinations, in particular, therefore have considerable potential to improve the quality of student learning (Kellaghan and Greaney 1992). At the same time, there can be serious problems if: (a) examinations are linked to instruction in such a way that the curriculum is narrowed, (b) an emphasis is placed on examination techniques and knowledge such as recall; and (c) past examinations start to dictate not only what is taught but how it is taught. Public examinations to raise quality cannot be the same as those for selection, as the latter do not take account of the needs of the majority of students who are not proceeding to the next level.

6.29. Performance measures have both policy and pedagogical applications. They can be used to monitor progress toward national educational goals, evaluate the effectiveness and efficiency of specific policies and programs, hold schools accountable for performance of students, select and certify students and provide feedback to teachers about individual students' learning needs. They can also be linked with incentives to drive a system toward higher achievement.

6.30. Internationally, there is greater experience with the use of performance indicators for individual accountability than for institutional accountability. Examinations for selection and certification, often but not always linked to the curriculum, are found worldwide (Eckstein and Noah 1993). As a pedagogical practice, teachers typically use tests and quizzes to monitor student learning.

6.31. The use of performance measures for institutional accountability is still fairly recent. Experience so far shows that such practice has potential, but also that this potential is limited. Holding schools fully accountable for the results of their students can be difficult because: (a) statistically valid distinctions among schools cannot always be made; (b) comparisons of schools may not correct for differences in student intakes, in terms of socioeconomic status, or the social and physical conditions under which the schools operate; (c) school rankings can vary according to the particular outcome measure that is used; and (d) the publication of results can lead to schools that are perceived to be doing well attracting students of high ability while those that are perceived to be doing badly, but may in fact be doing well for the intake and conditions that they have, may be avoided by such students (Greaney and Kellaghan 1995).

6.32. More recently, performance measures have been used to target resources and have been linked to incentives for improvement. In Chile, results from a national assessment system in four subjects have been combined with other social indicators to assist the national ministry of education target additional support to the poorest schools (Himmel 1992). Each potential school is reviewed according to the average student performance on the SIMCE (the national assessment test), the school's socioeconomic level, rural-urban dimension and number of primary grades offered; the test score counts 50 percent of the school score. On the basis of the score, the schools are rated as "high risk", "medium risk" and "low risk"; 46 percent of the available resources for school improvement are targeted at "high risk" schools, and another 46 percent are targeted at "medium risk" schools. Within risk categories, schools compete for funds by proposing school improvement activities for support. In 1995, school-level scores on SIMCE will provide evidence regarding the effectiveness of four different educational interventions, which will be tested on a pilot basis before widespread introduction; interventions that do not boost learning will not be eligible for a larger-scale implementation. Particularly important is the inclusion of socioeconomic status. Similarly, in New Zealand, schools are funded in part in reverse proportion to the socioeconomic status of their students' families. Such mechanisms ensure both incentives for higher achievement and the provision of resources to more needy schools.

6.33. In many countries, national learning assessment systems are enabling ministries of education to monitor their own progress, evaluate the potential impact of experimental programs and their cost-effectiveness and improve the quality of their educational planning. Information from national assessments can inform teaching and learning processes when this information is disseminated broadly. The World Bank, as well as other donors, is assisting many countries to strengthen the institutions responsible for national public examination and assessment systems. This strengthened capacity will enable donors to monitor the effect of their support on an important development goal: the learning achievement of children.

Public Investment Focused on Basic Education

7

7.1. Governments invest in education for many reasons. This chapter looks at public investment in education from the strictly economic viewpoint of maximizing both efficiency and equity. In practice, other objectives are always present in decisions about public investment. More attention to efficiency and equity in the allocation of new public investment on education would, however, do much to meet the challenges that education systems face today. Such attention would lead to new public investment being focused on basic education in most countries, although this focus will clearly be least applicable to those countries that already have achieved near-universal enrollment ratios at the primary and lower secondary levels.

7.2. To achieve efficiency, public resources should be concentrated in a cost-effective manner where the returns to investment are highest. To achieve equity, the government would need to ensure that no qualified student is denied access to education because of inability to pay. At the same time, and because the gap between the private and social returns is larger for higher education than for basic education, advantage should be taken of any willingness to pay for higher education by sharing its costs with students and their parents. Governments can also intervene. By bearing some of the risk, they can help correct the capital market failures that preclude financial institutions from lending for higher education.

7.3. Combining these principles would result in a stylized policy package of fees and efficient expenditure in the public sector usually consisting of:

- (a) free public primary education and free public lower-secondary education, combined with targeted stipends for households that cannot afford to enroll their children and with cost-sharing with communities;
- (b) selective charging of fees for upper secondary education, again combined with targeted scholarships;
- (c) fees for all public higher education, combined with loan, tax and other schemes so that students who cannot afford to pay the fees out of their own or their parents' current income may defer payment until they have income themselves, accompanied by a targeted scholarship scheme to overcome the poor's reluctance to accumulate debt against future earnings of which they are not yet confident;
- (d) ensuring quality primary education for all children as the priority for public spending on education in all countries;
- (e) improving access to quality general secondary education (initially lower secondary and later all levels of secondary) over time; and
- (f) efficient spending at the school and institution level in the public sector.

7.4. Korea is an example of a country that follows most of these policies. Fees (including Parent-Teacher Association dues) account for only 2 percent of recurrent costs at the primary level, but they recover 41 percent of recurrent costs at the middle school level, 73 percent at the high school level and about 77 percent at the tertiary level. Overall, the private costs of education account for about 50 percent of the entire education system's recurrent costs (Adams and Gottlieb 1993). Public expenditure is heavily concentrated on basic education: 44 percent for primary education, 34 percent for middle and high school education and 7 percent for higher education.

Pricing Policy for Public Education

7.5. ***Basic Education.*** A complete basic education is normally provided free of fees, since it is essential for the acquisition of the knowledge, skills and attitudes needed in society. The definition of basic education is country-specific, but it typically encompasses at least primary education and often lower secondary education also (though not always, as in Korea). The importance of primary education in particular is strengthened when externalities are taken into account. To obtain the maximum gain for society as a whole, the top public priority is the acquisition of basic competencies by all students. This goal means increasing demand and ensuring access for every child through free basic education. Indonesia, Kenya and Tanzania increased their enrollments significantly after abolishing primary school fees (Colletta and Sutton 1989; Lockheed and Verspoor 1991). Côte d'Ivoire made the mistake of introducing fees when the demand for primary schooling was already declining. Unofficial fees and charges can also be a barrier to enrollments in primary education, as in Ghana in 1992 when first-year intakes fell by more than 4 percent. Public schools should not, of course, be prohibited from mobilizing resources, in cash or in kind, from local communities when there is inadequate public financing and such extra resources constitute the only method of achieving quality.

7.6. Even when public primary and lower secondary education are free, there will be poor households that cannot afford to send their children to school or to keep them in school, because of the associated direct and indirect costs, such as buying books or losing production around the home. Targeted stipends can help these households offset the income lost when children attend school. Such a scheme operates in 13 Guatemalan communities for girls. Thailand provides bicycles to students in rural areas to enable them to reach distant schools (Lockheed and Verspoor 1991). Many World Bank projects have financed free textbooks and uniforms for poor families, and a few projects have included experiments with direct stipends at the secondary level.

7.7. Cost-sharing with communities is normally the only exception to free basic education. Even very poor communities are often willing to contribute toward the cost of education, especially at the primary level. In Nepal, for example, almost all primary and many secondary schools are built and maintained by local communities. Matching grant schemes may increase local involvement in schools, create a sense of ownership and encourage greater private contributions to education. Such schemes are increasingly common in Africa and in Latin America. Ghana, Tanzania, India and Brazil are experimenting with matching grant schemes for school construction, with World Bank support. In Brazil, public funding is conditional upon local communities achieving agreed targets in terms of contributing materials and labor for school construction. Many countries, including Bolivia, Cameroon, Ethiopia, Honduras, Senegal, Uganda and Zambia have set up social investment funds. These programs induce community participation and investment in employment generation and the provision of basic social services. World Bank projects support such funds in 22 countries. In Ghana, the government contributes up to two-thirds of the total project cost, and the communities

supply labor and local materials. This approach has cut the construction time for new schools to about three months (World Bank 1991a). In Malawi, self-help construction of primary school buildings costs only a third of conventional construction (Psacharopoulos and Woodhall 1985). Through tripartite arrangements, the World Bank-financed Ethiopia Social Rehabilitation Fund finances building materials and school equipment, the community contributes labor and the Ministry of Education provides a teacher. All these contributions are included in formal contracts.

7.8. *Upper Secondary Education.* Since upper secondary school graduates will have higher earnings than those who leave school earlier, the selective charging of fees for public secondary school can help to increase enrollments. Cost-sharing with communities can also be encouraged at the secondary level as well as the primary. Fees can be charged without affecting overall enrollments, except for the poor and for girls. There is considerable evidence that household demand for education is relatively price inelastic, i.e., unresponsive to increases in private costs (Jimenez 1987; World Bank 1986), except among the very poor. Indeed, inelasticity of demand could represent a useful criterion for decision making about the charging of fees. In Peru, household survey data show that the overall demand for secondary education is not affected by a moderate increase in fees, although it does discourage enrollments by the lowest income groups (Gertler and Glewwe 1989). Poorer families have difficulty meeting the direct and indirect costs of school attendance by their children. To offset this hardship, fees at secondary schools can be combined with targeted scholarships and stipends to ensure equity in enrollments. If scholarships equivalent to fees and the direct costs of schooling were provided to the poorest 20 percent of Indonesian households, for instance, dropout rates at lower secondary schools could be cut in half (World Bank 1993c). The Bank has supported such targeted scholarship schemes for girls in Bangladesh and Pakistan and for poor families in Colombia.

7.9. The charging of fees at one level can have an effect on enrollments by other family members at other levels. A poor family that has to pay fees for an upper secondary student may not be able to enroll other children at primary level because these children's work is needed in order to generate the income from which the fees are to be paid (Chernichovsky 1985). This dilemma is precisely why the charging of fees must be accompanied by targeted stipends to enable the enrollment of students from poor families. Fees alone will have a negative impact on the enrollment of children from poor families.

7.10. *Higher Education.* In general, fees are justified at public higher education institutions. Also acceptable is the elimination of subsidies for such noninstructional costs as student housing and meals, except where income taxation systems are very progressive or include a graduate tax (Colclough 1990); either one can permit recovering the costs of higher education from lifetime earnings. Most developing countries have neither an effective nor a progressive income tax, however, and either a graduate tax or a system of fees and loans represents a more equitable way of recovering costs. Few countries have tried to use graduate taxes.

7.11. As with upper secondary students, the demand for higher education is relatively price-inelastic. A 10 percent increase in fees in Thailand would result in only a 2 percent drop in enrollment (Chutikul 1986). An optimal policy would be full cost recovery by public higher education institutions, with students paying fees out of parental income and out of their own future incomes, through a loan scheme or a graduate tax. Such a policy is very distant in all countries, however, because fee levels are so low and because experience with loan schemes has been relatively disappointing.

7.12. A good start in the right direction would be to charge fees to cover 100 percent of the recurrent cost of student welfare services, such as food and housing and 30 percent of instructional costs. Several countries, such as Korea, Jamaica and Chile, have already almost achieved this level, and they will want to go further (Table 7.1). Others have very far to go. In Senegal, for instance, welfare payments to tertiary level students accounted for nearly half of total public spending on higher education in the mid-1980s. In the Sahel countries of West Africa, welfare services account for 57 percent of public spending on higher education, compared with 7 percent in Asia (Table 7.2). Malaysia, by contrast, has contracted out all student welfare services to private suppliers who recover all costs.

7.13. Student loan schemes are an essential complement to cost recovery and the charging of fees. Many students are unable to afford the cost of higher education out of their families' current income. Loan schemes permit them to pay out of their future earnings. About 50 countries, industrial and developing, have such schemes. More than half are in Latin America. Other developing countries with loan schemes include China, India, South Korea, Malaysia, the Philippines, Pakistan, Sri Lanka, Egypt, Jordan, Morocco, Ghana, Kenya and Malawi. In most countries, loans are repaid according to a fixed schedule; in a few, including Australia, Ghana and Sweden, they are repaid as a proportion of a graduate's income each year. Experience to date has been relatively disappointing. Heavily subsidized interest rates, high default rates and high administrative costs have led to very low recovery ratios (Albrecht and Ziderman 1991). Losses range from 30 percent in Sweden to 103 percent in Kenya, where the interest rate is heavily subsidized, administrative costs are high, and very few graduates repay their loans. In large part, this anemic performance is because loan schemes have been administered by government ministries and agencies rather than by financial institutions such as banks.

7.14. Loan schemes can be made financially sustainable, as the experiences of Quebec and Colombia demonstrate. They also require that the public sector bear some of the risk, since banks and other financial institutions are generally unwilling to accept students' likely future earnings as collateral. Public sector intervention is appropriate to offset this failure of the capital market. The World Bank is supporting loan-scheme reform in Kenya, Malawi, the Philippines, Tunisia and Venezuela. Sustainable loan schemes require an effective collection agency with incentives to minimize evasion and default. Interest rates must be positive in real terms. Income contingent and graduated annual payment schemes are needed to encourage repayment commensurate with the student's future earnings, which will rise over time.

7.15. Loan schemes alone will not suffice to enroll low-income students in higher education. Even though their future earnings will be high, students from poor backgrounds are understandably reluctant to take on debt against future earnings that may not seem certain to them. They also forego earnings while in higher education that may be important for their families' income. Targeted scholarships and work-study programs are needed to overcome this problem. Work-study in particular can help low-income students finance their living costs, if not their tuition. In most countries, students come from relatively well-off backgrounds and have high earnings prospects, and so the bulk of financial assistance should be provided by loans rather than scholarships.

7.16. Two alternatives to loan schemes are graduate taxes and national service. Graduate taxes are supplementary income tax payments made by university graduates. No country yet has

Table 7.1. Fees for Public Higher Education as a Percentage of Unit Operating Expenditure, Selected Countries

<i>Country</i>	<i>Percent</i>	<i>Year</i>
Algeria	no fees	1990
Argentina	no fees	1990
Bangladesh	no fees	mid-1980s
Benin	no fees	1991
Brazil	no fees	1991
Ghana	no fees	1990
Guinea	no fees	1990
Madagascar	no fees	1990
Malawi	no fees	1990
Mexico	no fees	1991
Morocco	no fees	1990
Niger	no fees	1991
Nigeria	no fees	1989
Papua New Guinea	no fees	mid-1980s
Peru	no fees	1991
Senegal	no fees	1990
Sudan	no fees	1987
Uganda	no fees	1991
UK	no fees	1990
Venezuela	no fees	1991
France	1	1990
Guatemala	2	1991
Hungary	2	1990
Bolivia	3	1991
Honduras	3	1991
Sri Lanka	3	mid-1980s
Egypt	4	1990
Pakistan	4	1990
India	5	mid-1980s
Thailand	5	mid-1980s
Malaysia	6	mid-1980s
China	9	1991
Japan	9	1991
Colombia	10	1991
Nepal	10	mid-1980s
Kenya	12	1991
Barbados	15	1991
Philippines	15	mid-1980s
USA	15	1985
Costa Rica	16	1991
Israel	20	1991
Spain	20	1988
South Korea	23	mid-1980s
Vietnam	23	1991
Indonesia	25	1989
Jamaica	25	1991
Chile	26	1991

Note: Expenditures on student housing are excluded.

Source: Ziderman and Albrecht 1995.

Table 7.2. Share of Secondary and Higher Education Budget Devoted to Student Welfare, Around 1985

<i>Country</i>	<i>Secondary</i>	<i>Tertiary</i>
Burkina Faso	35.0	79.0
Chad	0.0	32.9
Mali	19.0	66.8
Mauritania	18.6	56.9
Niger	22.7	59.5
Senegal	13.2	43.9
Sahel	18.1	56.5
Non-Sahel Africa		
- French Speaking	24.9	57.0
- English Speaking	7.5	23.2
Asia	5.1	7.2

Source: Jarousse and Mingat 1993.

such a scheme, and the assessment of their potential is therefore difficult. In national service schemes, students are subsidized to attend higher education institutions and then subsidize society by providing work for society at below market salaries. Nepal and Nigeria have had successful programs in which graduates went on to provide social services in rural areas. Several countries, including the United States, are considering introducing such programs. National service schemes can run the danger, however, of turning into schemes of guaranteed public employment for higher education graduates.

Priorities for Public Spending

7.17. Basic education is the priority for public policy, and hence also for public expenditure in all countries. The objective is usually to have all children enroll in and complete primary and, ultimately, lower secondary school. Of course the aim is to have the children learn effectively in school, so that they acquire basic skills. This goal is consistent with the objective adopted in 1990 by the World Conference on Education for All, and supported by the World Bank. It is both efficient and equitable, having the highest returns and increasing educational and earnings opportunities for all the population (World Bank 1990a). In order to achieve high enrollments and sustained performance, expenditure at the primary level may also need to be complemented with targeted expenditure on early childhood development for poor families.

7.18. As primary enrollment ratios go up, increasing public resources will be devoted to secondary education. Demographic change, in part fueled by primary education for girls, can help this process. Hence, Korea has been able to increase public secondary enrollments and increase spending per student at both primary and secondary levels, without increasing the share of national income devoted to public spending on education. By the late 1980s, lowered fertility rates allowed East Asian countries to spend a significantly lower share of GNP on primary and secondary education compared with countries with higher fertility rates (Table 7.3).

Table 7.3. GNP Allocated to Education Saved Due to Lower Fertility Rates in East Asia (percent)

<i>Economy</i>	<i>Expenditure on Primary and Secondary Education as a Share of GNP</i>	<i>GNP Saved Due to Growth Rates of School-Age Population That Were Lower Than</i>		
		<i>Kenya</i>	<i>Mexico</i>	<i>Pakistan</i>
Hong Kong				
1975	2.0	1.2	1.0	1.0
1980-81	1.7	1.5	1.7	1.2
Japan				
1975	4.2	4.0	3.8	3.8
1988-89	2.8	4.8	2.8	3.9
Korea, Rep. of				
1975	1.9	0.6	0.4	0.4
1988-89	2.8	2.8	1.4	2.0
Malaysia				
1980-81	4.4	1.3	0.4	0.4
1988-89	4.0	1.6	0.4	0.8
Singapore				
1975	2.1	1.1	0.8	2.0
1980-81	2.2	2.0	1.3	1.3
Thailand				
1975	2.8	0.6	0.0	0.0
1988-89	2.6	1.3	0.3	0.8

Source: World Bank 1993a.

7.19. Countries that have largely achieved universal primary and secondary education face different challenges in determining priorities for public spending on education. Higher education will take on a greater relative priority for public expenditure, as it does in OECD countries. It is important, however, that such attention to higher education not deflect spending from the basic levels, where quality remains relatively low in low- and middle-income countries and where economic restructuring threatens the maintenance of adequate funding. In Russia, for instance, it is important to ensure that such compulsory education remains adequately funded as financing responsibility shifts from the federal to the state governments. It is also important to ensure that essential preschool programs, previously provided by public enterprises, be funded, at least for poor children, as the enterprises withdraw from their provision.

7.20. For public investment at all education levels to be efficient, education systems can permit the flexible combination of inputs and institutional funding mechanisms can encourage cost-effectiveness (Chapter 10).

Greater Attention to Equity

8.1. Equity of access to education is important to many governments. Achieving equity often requires more attention than it has received in the past, particularly at the first level of schooling, which provides initial access—especially when systems include private schools and private financing. Equity has two principal aspects. The first is ensuring that everyone has a basic education—the basic competencies necessary to function effectively in society. Beyond basic education, the government has an obligation to ensure that qualified potential students are not denied access to institutions because they are poor, female, from ethnic minorities, live in geographically remote regions or have special education needs. No qualified student should be unable to enroll because of inability to pay. Determining who is qualified at the postcompulsory level means having a fair and valid means for determining potential students' qualifications for entry.

8.2. Importantly, increased attention to equity will also increase efficiency. Considerable evidence now exists that improving the educational status of the poor, of women and of indigenous people also increases economic growth and reduces poverty. Investing in the education of girls from poor backgrounds sets off a process of intergenerational poverty reduction; those educated become more likely to send their own children to school in the future. The efficiency arguments for improving girls' schooling are well known (Summers 1994); they apply also to indigenous people. Had Guatemala invested in education to raise secondary enrollment ratios from 7 to 50 percent in 1960, for example, the country's per capita growth rate from 1960-85 would probably have been 1.3 percentage points per year higher (Gould and Ruffin 1993; Barro 1991).

8.3. Achieving equity at the first level of schooling is a matter of increasing the demand for education (finance) and taking special measures (on both the supply and the demand side) to meet it. Finance is important at all levels for those who cannot afford to go to school, either because they and their parents cannot pay the associated costs, or because the household cannot afford to lose the labor services of those attending school. Special measures tend to be concentrated on the lower levels of education. They include recruiting more female teachers to provide role models for girls, providing special education, providing bilingual education in countries with linguistic diversity and providing health and nutrition programs. Taken together, these measures amount to providing universal access to learning (not just universal school attendance) at the primary level, which opens the way to equity at all levels of the education system.

Financial Measures

8.4. In most countries, public primary education is free. Lower secondary education is often free also. Even when tuition at these levels is free, however, the direct and indirect costs can be too high for poor families to ensure enrollment and learning. Direct costs can include transportation, textbooks, exercise books, pencils, uniforms and the like. It is important to ensure that poor children have these items, or they will either not attend school or will not learn. In Kenya, for instance, during the 1980s the government introduced a policy of parental responsibility for the provision of books. In the poor arid and semiarid areas, there was by 1990 frequently only one book

per class. The policy was reversed in 1992 for the poor areas of the country, supported by a World Bank adjustment operation. In Morocco, parents' reluctance to send daughters to school without proper clothing increases the direct cost of sending girls to school compared to boys. Funding assistance is also needed for the poor when the indirect costs of attending school are high compared to the child's contribution to the household economy. It is often more difficult for parents to send a girl to school than a boy because girls contribute more hours of work at home than do boys. In Burkina Faso, girls age 7 and over spend 3.5 hours a day on household tasks, compared with 1.5 hours for boys (Chowdhury 1993).

8.5. The use of child labor also reduces the demand for schooling, again resulting from poor families' need for income. Children work for a variety of reasons, the most important being poverty and the induced pressure upon them to escape from this plight. Though children are not well paid, they still serve as major contributors to family income in developing countries. For example, minors in Paraguay contribute almost a quarter of the total family income (Patrinos and Psacharopoulos 1995). In rural Java in Indonesia, a typical 13 year old boy from a poor household earns about US\$11 a month as an agricultural laborer, contributing on average about 40 percent to the household income. This income is more than two times the average per student direct expenditure on lower secondary education among poor households (Mason 1994). These figures of children's contributions to household income are underestimates since they do not include the value of children's contributions to home production.

8.6. Parents' demand for educating daughters is low in part because of the direct and opportunity costs in many countries, including Egypt, Guatemala, Mali, Yemen, Morocco, Peru, Tunisia and Bangladesh. Some projects have cut the costs by waiving or reducing fees, supplying free textbooks, providing scholarships and/or stipends for girls, offering flexible school hours and establishing child care centers. These approaches reduce costs to parents. They also improve school quality, reduce drop out rates, improve the efficiency of the school system and significantly increase girls' effective participation. Bangladesh and Guatemala both have girls' scholarship programs in which the tuition is free and stipends are paid to parents to compensate them for other direct costs, such as books and for the loss of their daughters' time. The Bank is supporting projects in Bangladesh that provide stipends for girls at secondary school (Box 8.1), in Mozambique and Morocco that provide scholarships for rural girls, and in the Gambia that provide incentives for girls to study science. More analysis is needed of the impact of these schemes on school quality and of their fiscal sustainability.

Box 8.1. Reducing the Household Costs of Girls' Education in Bangladesh

In Bangladesh, the Bank is supporting a Female Secondary Schools Assistance Project, which provides stipends to girls. Stipend rates are structured to reflect rising educational costs from lower to upper grades and to provide extra incentives for reducing high dropout rates in upper grades. Students must maintain a certain grade average to continue to earn stipends.

The project also supports a number of other measures to encourage female school enrollment, including increasing the proportion of women teachers and a community awareness program to promote public support for girls' education.

Source: World Bank 1993b.

8.7. Such targeted scholarship schemes can be used to increase the demand for education among all disadvantaged groups, not just women. Several middle-income countries are experimenting with targeted scholarship schemes for students who cannot afford fees. These schemes cover the cost of tuition but do not provide any compensation to the family for the loss of the child's time. Targeted vouchers are used in Puerto Rico and Colombia, combining targeted subsidies with student choice of institutions. Fees at higher education institutions must be combined with student loan and scholarship programs to ensure that all who wish to borrow for their education are able to do so and to guarantee necessary financial support to academically qualified poor students. When the University of the Philippines raised tuition fees in the late 1980s, for example, it also provided a special fund to support qualified students from low-income families.

Special Measures

8.8. Special measures are needed to increase the enrollments of girls, of the poor, of linguistic minorities and of special populations. Insofar as poor parents do not always appreciate the value of educating their children and many parents do not see the value of educating their daughters, investing in parents' education can be an important mechanism for increasing child schooling. This is one aspect of social capital, the set of resources inherent in family relations and in community social organizations useful for the cognitive or social development of a child (Loury 1977, 1987). The more social capital a child has, the greater the chance of school enrollment and achievement. Measures to increase social capital include social marketing or awareness campaigns to overcome lack of knowledge, or changes in the location, schedule, staffing, content or direct costs of education to make them more relevant to social and material conditions (Colletta and Perkins 1995). Examples of the first are the community female education awareness program in Bangladesh (Box 8.1), the Pacto Pela Infancia in Brazil for disadvantaged children and the program in Guatemala to promote daughters' education among fathers.

8.9. Changes in the organization of education to make it more relevant include such things as recruiting more teachers from the local community and more women teachers. Parents in many countries would like their girls to be taught by women, and a shortage of female teachers can inhibit school attendance. In the Indian state of Kerala, which has the highest female literacy and enrollment rates in that country, more than 60 percent of teachers are women, compared with less than 20 percent in Bihar and Uttar Pradesh, the two states with the lowest enrollment rates for girls. Not having a school within easy reach of home also deters girls' enrollment because of parents' concerns about girls' safety. In Morocco, a paved road increases by 40 percent the chance of a girl ever attending school, and reduces the probability of her dropping out by 5 percent. Too often, girls do not go to school because the school does not offer separate lavatories and common rooms. In some cultures, girls' participation in school depends on whether there are single-sex schools.

8.10. The basic policy instrument to expand girls' enrollments is to increase girls' school places. This can be done by reserving places and by expanding enrollments. If there are too few places, those available often are first allocated to boys. In Malawi, one third of all secondary school places are reserved for girls, and a Bank-assisted project to build secondary schools resulted in higher female enrollments than expected. Tanzania and Zambia have similar policies. Chad, Yemen, Pakistan, India, Senegal and Bangladesh have made special efforts to expand classrooms or build new schools for girls. In India and Bangladesh these improvements include women's colleges and polytechnics at the tertiary level as well as at primary and secondary levels. Evidence shows that girls' enrollment and performance improve if they attend single-sex schools rather than coeducational

schools in a variety of cultures (Lee and Lockheed 1990). Care should be taken, however, that there are no differences in curricula in such cases. Some projects in Bangladesh and Pakistan are also providing separate sanitary facilities, and constructing boundary walls around girls' schools. Locating schools within easy access of children's homes can also reduce parents' concerns about girls' personal safety and reduce direct costs of transportation and boarding. Morocco is providing small local schools for middle-level education.

8.11. Other ways to increase girls' enrollment are to provide female teachers and childcare centers and to adjust school hours to fit girls' schedules. Cross-country data suggest a strong positive correlation between the parity of enrollment for boys and girls and the proportion of female teachers (Psacharopoulos and Tzannatos 1992). Initiatives in World Bank projects to overcome the shortage of female teachers, especially in rural areas, include implementing a quota system to recruit more female teachers, removing age restrictions, recruiting and posting teachers locally and building teacher-training institutions in rural areas. Experience from Bangladesh, Pakistan and Nepal suggests that it is not hard to find good female teachers if required training is provided and teachers are posted near their homes. The combination of locally recruited and motivated women teachers and active in-service training and supervision can reduce the shortage of women teachers in rural areas. Ongoing Bank projects in China, Bangladesh, India, Nepal, Pakistan and Yemen are trying such strategies to increase the proportion of female teachers.

8.12. Child care centers at or near schools and flexible hours can free many girls to attend school. Child care provision relieves girls from sibling care during the day—and, when accompanied by nutrition programs, can also help improve the health and school readiness of younger siblings. In Colombia, where single mothers head one-fifth of the poorest households and where 44 percent of poor children between ages 7-11 do not attend school, the community day-care program has freed many girls and women to attend school or join the work force. Adjusting school hours so that girls can more easily combine schooling with chores has also worked well in many countries, particularly in Nepal (World Bank 1994b).

8.13. *Special Populations.* The principal policy instrument to reduce the high incidence of physical and learning impairments in developing countries is to improve child nutrition and health. Special programs to improve the nutrition and health of school children can play a role in increasing access to and equity in schools. For example, school feeding programs can be designed to have a differential impact on the enrollment and participation of girls, as in Ghana. Other programs, such as the treatment of parasites and micronutrient fortification or supplementation—which are relatively inexpensive and easy to implement—can significantly improve the disadvantaged child's ability to take advantage of educational opportunities. Beyond this, educating children with minor impairments does not usually require costly facilities or programs. In India, for example, an Integrated Education for the Disabled project led to the identification and education of more than 13,000 children with special educational needs at a unit cost comparable to regular education (World Bank 1994j). Disabilities affect about 140 million children, about 15 percent of whom could have their sight, movement or hearing enhanced at a unit cost of US\$25-40 (Mittler 1992). Unit costs for special education can be reduced by using community-based approaches, which also create better opportunities for children. Community-based rehabilitation programs exist in many countries, such as India, Indonesia, Jamaica, Kenya, Malaysia, Nepal, the Philippines and Zimbabwe. Costs can be shared with nongovernment organizations, as in Indonesia where the public education system provides 45 percent of the resources for special education and private voluntary agencies provide the other 55 percent (World Bank 1994j).

8.14. *Language Diversity.* In multilingual nations, reading comprehension is often greater for students taught in bilingual schools, who first learn to read in their native language, and then transfer their reading skill to the second language. More than 40 percent of Guatemalans entering school do not know Spanish. In 1979, Guatemala established a national bilingual education program, with USAID and World Bank support, to improve the quality of education for the indigenous population. The national curriculum was adapted and translated into four of the Mayan languages for the pre-primary through grade four levels. The program has led to an increase in student comprehension and has reduced student failure, repetition and dropout rates compared with a control group of Mayan children being taught only in Spanish. Bilingual program students score higher in all subjects, including Spanish, and have a promotion rate 9 percent higher (World Bank 1994d). Bilingual education also has the support of the children's parents, and so it increases the demand for education (Richards and Richards 1990).

8.15. Effective schools in multilingual societies may be those that are permitted flexibility in language of instruction (Eisemon 1989; Eisemon, Ratzlaff and Patel 1992). The implementation of language policies should not be prescribed by national authorities, at least at the primary level. At this level, national authorities should focus on language learning outcomes, and perhaps on establishing general objectives for the use of the mother tongue and other languages at particular grade levels and for particular subjects. Implementation should be a local, preferably school level, responsibility. Institutional autonomy makes local implementation easier, since local schools and communities know local circumstances best.

8.16. *Other Disadvantaged Groups.* Special attention is also needed to ensure equity of access to other disadvantaged groups, such as nomads, those who live in geographically remote regions, street children and refugees. Strategies must vary from country to country and nonformal methods will often be more appropriate than formal schooling. Particularly troublesome is the growing number of refugee children in Africa; many of them have no government to take the responsibility of providing education to them.

More Household Involvement

9.1. Education institutions may be more accountable for their performance when households are more involved in the institutions that family members attend. Most households are already involved since they contribute, directly or indirectly, to the costs of education. They—and their wider communities—can be further involved, however, when they participate in school management and oversight and when they can choose among schools. Parents involved with a school are more likely to be satisfied and, even more important, to help make it more effective.

School Governance

9.2. Around the world, parents and communities are becoming more involved in the governance of their children's schools, just as students are in their higher education institutions. School Development Boards established by recent legislation in Sri Lanka are to be chaired by the school principal and include representatives of the school staff, parents and past students (Box 9.1); the Boards of Trustees that manage schools in New Zealand are elected from parents of children at the school; Parent-Teacher Associations have been so successful in Mauritius that government funds are now being used to augment the partnership. Many countries have observed that communities that participate in school management are more willing to assist in the financing of schooling. Jamaica has set up a major program to stimulate this penchant, and Bangladesh's "Social Mobilization Campaign" involves the community in education and has been accompanied by a reactivation of school management committees throughout the country (Commonwealth Secretariat 1994). El Salvador has started to involve communities in rural school management, with significant results in improved teacher attendance and with student achievement levels comparable with those at traditional schools, even though the students tend to come from poor backgrounds.

9.3. Effective involvement in school governance does not come easily, however. New Zealand came to realize after it had embarked upon its reform that intensive training was necessary for the newly elected parent Trustees; Jamaica is training parents to help manage schools; and Botswana found it very difficult to attract sufficiently qualified people onto lower secondary school Boards of Governors, especially in rural areas. Training can be effective in literate communities, such as New Zealand, and relatively illiterate ones like parts of Uganda. ActionAid in Uganda is providing community training in two districts for Parent-Teacher Associations and School Management Committees.

School Choice

9.4. Increased experimentation with parental choice is also a hallmark of recent educational reforms, particularly in Australia, Chile, England, the Netherlands, New Zealand, Sweden and the United States. This trend reflects: (a) a more market-oriented perspective on education, in which consumers (parents and students) choose among suppliers (schools and institutions); and (b) the "choosiness" of a growing number of parents and students, who will no

Box 9.1 School Development Boards in Sri Lanka

Legislation enacted in 1993 established School Development Boards (SDB) in an attempt to shift state control over schools through the creation of a new organization to invite community participation in their management. Each SDB consists of representatives from the school staff, parents, past students and well-wishers and is chaired by the School Principal. Acting through ten subcommittees, the SDB decides upon and implements programs for the school's development. The ten subcommittees are:

- Educational Development—improvement of academic curricula and modes of teaching;
- Co-Curricular activities—promotion of extra-curricular activities;
- Moral Development—promotion of cultural, religious and moral activities;
- Physical Resources—infrastructure development;
- Library and Educational Equipment—facilities improvement;
- School Books, Mid-day Meal and Uniforms—ascertaining school requirements;
- Welfare and Community Relations—strengthen welfare activities;
- Communications—interaction with media and community;
- Finance—utilization and disbursement of school funds; and
- Student Personality Development—development of the personality of the pupils and the school.

Source: Commonwealth Secretariat 1994.

longer accept being assigned to a particular public school but want to make their own decisions (OECD 1994b). For choice to be an effective concept, the following factors are important in the arrangements.

- There must be either more than one possible school or institution that can be reached by the intending student or multiple programs within a single institution.
- The institutions should have some differing characteristics.
- Schools and institutions need to enjoy considerable autonomy in how they teach.

9.5. Having more than one potential school for the intending student makes school choice less relevant in those remote and isolated rural areas where there may be only one or even no school. Indeed, choice in such circumstances may be inefficient if it results in a multiplication of half-filled schools. In such cases, the priority would normally be to ensure that there is some education available of reasonable quality. However, low- and middle-income countries are becoming urban at a very rapid rate, with the exception of Africa and South Asia, and most people will live in urban and peri-urban areas in the twenty-first century. Choice is therefore an increasingly practical policy.

9.6. For effective choice, the second important factor is that alternative institutions or programs have some differing characteristics. These can include differing emphases on aspects of the curriculum, differing styles of teaching, differing course offerings at the higher level, and different ownership, i.e., public or private. By having a variety of types of programs and institutions, parents and students can exercise some choice, which in turn should give an incentive for providing quality education in a cost-effective way. This strategy is most relevant at the upper

secondary and higher levels of education, where choice among institutions can also help to meet the growing unmet enrollment demand.

9.7. At the higher education level, for instance, choice among institutions of different types will typically imply the development of nonuniversity tertiary institutions and also the encouragement of private and public institutions. Higher education institutions are much more varied in high income countries than in low- and middle-income ones. Differentiation among developing countries is most extensive and effective in Asia. In East Asia, for example, the average annual growth of university enrollments between 1980-88 was 6 percent, compared to 10 percent for nonuniversity institutions. The principal advantages of nonuniversity institutions are lower program costs, reflecting shorter courses, lower dropout rates and lower per student annual costs. In Bulgaria, average costs at universities are 15 percent more than at the higher institutes and 95 percent more than at the technical institutes. Nonuniversity institutions also offer training opportunities that respond flexibly to labor market demand rather than supply-side factors. World Bank-assisted projects support the differentiation of higher education. In Tunisia, for instance, a project is helping to establish a network of two-year technology institutions.

9.8. More separation of teaching and research will also promote differences among, and reduce costs at, public universities. Much scientific research requires expensive scientific equipment, and there are undoubted benefits from concentrating efforts at a few institutions. A shift is needed, therefore, away from the prevailing assumption that every public university should conduct research. Research could be carried out at some, but not all, public universities.

9.9. Effective choice also means having private schools available, as well as public ones, for those parents who wish to send their children to them. Most countries permit private schools, but some do not, including Algeria, Latvia, Syria and, until recently, Pakistan. Other countries excessively regulate the establishment and operation of private schools and universities. In Nigeria, for instance, the establishment of a private school requires a cumbersome bureaucratic process that takes well over a year. The process makes the proprietor responsible for meeting many ostensibly reasonable requirements (e.g., he must show that the school will be nonprofit, that there are sufficient resources to operate it for a specified period, post a bond, etc.); in truth the real purpose is to put difficulties in the way of establishing private schools. The ideal is a positive regulatory framework. Such structures are in place for higher education, for instance, in Colombia, Kenya and Romania. They provide an appropriate legal basis and accreditation system for private universities as well as public ones. In some countries, such as Chile, students may enroll at the primary and secondary level in public or private institutions of the parent's choice; the state provides the funds.

9.10. The third factor in ensuring effective household decision making is that the educational institutions enjoy considerable autonomy in how they teach. This freedom is related to the second factor, since this autonomy will permit different combinations of inputs that will in turn produce institutions with differing characteristics. Private schools are autonomous; public ones can be but are often not. Indeed, management differences at the school level are likely one reason that private secondary schools in a study of five developing countries appear to provide more learning per unit of cost than public ones (Table 9.1), even after controlling for the socioeconomic backgrounds of the students. Private schools per se are not necessarily more effective than public ones, however. In the Indian state of Tamil Nadu, government-aided schools are more cost-effective in raising student achievement in mathematics and reading, but fully private unaided schools are less cost-effective than public schools. School management practices in government-aided schools explain much of their

better performance, notably instructional management by the principal, the quality of textbooks and training for teachers in how to use them and the availability of instructional materials (Bashir 1994). It is school-level management that can affect outcomes, not private or public status, and hence provide real choice to households.

Table 9.1. Relative Average Cost and Efficiency of Public and Private Schools, Early 1980s

<i>Country</i>	<i>Ratio of Private Cost to Public Cost</i>	<i>Ratio of Relative Effectiveness to Cost</i>	<i>Ratio of Relative Cost to Effectiveness</i>
Colombia	0.69	1.64	0.61
Dominican Republic	0.65	2.02	0.50
Philippines	0.83	1.20	0.83
Tanzania	0.69	1.68	0.59
Thailand	0.39	6.74	0.17

Source: Lockheed and Jimenez 1994.

Risks

9.11. Most of the experiments with school choice are still relatively recent. As yet, no evidence exists that the competition among schools and programs implicit in the concept of school choice improves or worsens school performance. However, "the dynamic of competing for pupils typically enhances some school characteristics associated with effectiveness, such as strong leadership and sense of mission" (OECD 1994b). This finding points in the direction of further cautious experimentation in focusing increased household involvement on school choice. By contrast, no such ambiguity exists with regard to increased involvement in school governance.

9.12. Increased household involvement carries with it several risks. It makes more difficult the carrying out of systemwide education policies. Parents and local communities may not, for instance, all subscribe to any long-term goals that the government may have established for education or to any policy it may have to provide a common curriculum for all secondary students. Related, it may make more difficult the enforcement of broader national objectives. For instance, some types of private or community-run public schools may not permit the enrollment of children from certain ethnic backgrounds or of girls. Such a stand thwarts broader national policies to educate ethnic minorities and women. Social segregation can also increase, if the education system becomes polarized between prestigious schools for the academically able children of educated parents and schools with less impressive examination or other achievement results for the children of the poor and uneducated. Equity can be reduced if, for instance, schools and institutions start accepting students on the basis of their ability to pay rather than on academic entrance qualifications. These risks can to a large extent be mitigated by policies for the provision of public funding. Public finance for public schools or to assist private schools can be restricted to schools that follow certain overall policies, such as following a national curriculum and practicing nondiscriminatory enrollment policies, in addition to meeting basic health and safety requirements. Public finance for the education of children from poorer backgrounds can be provided at a higher unit level than for children from better-off socioeconomic groups, a practice in New Zealand, for instance. Public financing or provision of transport to school can be adjusted to make it no harder for a child to attend a school other than that nearest to the family home.

9.13. Another risk is of a different category. It is that parents may not have enough information available to make effective judgments about quality. This risk can never be overcome fully; many studies show that parents do not make decisions about schools principally on the basis of well-informed comparisons of educational quality (OECD 1994b). The risk can be mitigated, however, with the provision of open and independent information about school quality. The provision of such independent information is an appropriate role for the government, since there is an information asymmetry between the education system and households. School administrators know performance and financial data that is unavailable to students and parents. The British government provides inspection reports and examination results in a form that is designed to be meaningful to parents. In Massachusetts in the United States, the Boston school system has set up parent information centers to assist in decisions among public schools, since it broke the link between place of residence and the assignment of public school places. Since school choice was introduced in Sweden, schools have prepared information on curricula and finances. Governments in low- and middle-income countries may not be able to emulate all these practices but could make information available from national examinations and also the national assessment systems that are increasingly being introduced. The Ministry of Education in Kenya, for instance, publishes a league table of national examination results among secondary schools.

More Autonomous Institutions

10.1. Education quality can increase when schools are able to use instructional inputs according to local school and community conditions, and when they are accountable to parents and communities. Increased household involvement to increase accountability was discussed in Chapter 9. Effective use of instructional inputs results from autonomous institutions. Such strategy is relevant in all contexts, even remote rural areas. Fully autonomous educational institutions have authority to allocate their resources, not necessarily to raise them, and they are able to create an educationally-oriented environment adapted to local conditions inside and outside the school. It is important to note that school autonomy is not the same as either local financing or administrative decentralization, although the three are often confused. Local financing of education means that resources are raised locally, which can create problems of equity when different localities have different resource levels; and decentralization is simply assigning responsibility for education to an institution or level of government different from the central government. Institutional autonomy can be encouraged by both administrative and financial means.

Administrative Measures

10.2. To obtain the necessary flexibility, school managements (principals and governing bodies) must have authority to allocate resources, including the authority to deploy personnel and to determine such things as the timing of the school day and year and the language of instruction to fit local conditions. This authority will increase the efficiency of learning. Second, teachers must have authority to determine classroom practices, within limits set by a broad national curriculum, encouraged by examinations and monitored and supported by standards, learning assessments and school inspectors. Third, they must be accountable locally.

10.3. So long as schools are solely accountable to central bureaucracies, they will be organized in a management structure that limits school-level autonomy (Hannaway 1991). This framework reduces incentives to respond to parental and community concerns about school performance and costs, and it also curbs schools' capacity to respond because clearances must be sought before schools can proceed with changes in their operation. This outcome is true of schools in countries at all income levels. However, schools in low- and middle-income countries are much less autonomous than those in high income countries (Tables 10.1 and 10.2) with relatively fewer decisions being made by principals and teachers. Too often, decisions are made without appropriate input from local authorities (Lockheed and Verspoor 1991; OECD 1993).

10.4. Local financing and decentralization can contribute to autonomy and accountability, but this result is not automatic, as recent experience in Nicaragua, India, Chile and Russia demonstrates. As part of decentralization, the Nicaraguan Ministry of Education transfers funds to municipalities, which then hire, fire and pay teachers. The potential benefit of this move is nullified, however, by a law that stipulates a national teacher pay scale and by the insufficiency of funds transferred from the Ministry. Neither schools nor municipalities gain autonomy through such an

Table 10.1. The Locus of Decision-Making Authority in Primary Education Systems in Developing Countries (percent)

<i>Decision and maker</i>	<i>Korea</i>	<i>Philippines</i>	<i>Nigeria</i>
<u>Authorizing major expenditures</u>			
Central or regional body	9	66	42
School board	78	7	33
School principal	11	5	1
Teachers	0	0	0
<u>Selecting principals</u>			
Central or regional body	40	83	38
School board	39	3	45
School principal	0	0	0
Teachers	0	0	1
<u>Selecting Teachers</u>			
Central or regional body	6	63	37
School board	71	7	49
School principal	3	14	1
Teachers	0	1	0
<u>Determining the range or type of science courses</u>			
Central or regional body	61	82	82
School board	3	0	5
School principal	5	5	5
Teachers	28	5	5
<u>Choosing science texts</u>			
Central or regional body	89	76	59
School board	5	1	12
School principal	1	2	9
Teachers	1	0	6

Source: Lockheed and Verspoor 1991.

Table 10.2. Decisions Taken at the School Level as a Percentage of all Decisions Taken by Public Schools in OECD Countries, by Level of Education, 1991

<i>Level of Education</i>	<i>Primary</i>	<i>Lower Secondary</i>	<i>Upper Secondary</i>
Austria	44	44	47
Belgium	29	26	26
Denmark	39	39	42
Finland	41	38	59
France	17	35	35
Germany	32	32	32
Ireland	50	74	74
New Zealand	73	72	79
Norway	31	31	26
Portugal	33	42	42
Spain	26	28	28
Sweden	47	47	47
Switzerland	9	9	23
United States	26	26	26

Source: OECD 1993.

arrangement. They do gain autonomy under a more promising reform in Nicaragua. The nation is transferring public secondary schools to private associations. To date, 20 of the country's 350 secondary schools have been transferred. Amendments to the Indian constitution in 1992 shifted authority, including responsibility for education, to locally elected bodies (revived Panchayati Raj institutions) at the village, intermediate and district levels within states. In response, teachers in Andhra Pradesh state successfully petitioned to become state employees, in order to limit the authority that the panchayats will be able to exercise over them. The introduction of local financing resulted in a decline in public spending on education of 17 percent a year in Chile in 1985-90 and of 9 percent a year in Mexico in 1982-90 (Prawda 1993). Local financing is also lowering spending in Russia as the federal government transfers responsibility downwards.

10.5. As these examples show, it is critical to the improvement of learning not to reduce resources when local management and financing of schools are increased. Indeed, measures are needed to ensure that adequate resources are available to each school if local financing is adopted. The purpose of increasing school autonomy is to permit flexibility in the combination of inputs—and hence improve quality—and not to save resources. For this reason, institutional autonomy need not involve local generation of resources but only local control over their allocation.

10.6. Autonomy and accountability leading to flexibility also require that schools be allowed to manage themselves in ways that create the school-level conditions that promote learning. For example, flexible use of multigrade teaching, which has to be determined by the individual school, has been largely responsible for the success of the Escuelas Nuevas in Colombia, an application of flexible techniques to the formal education system. Also, with the program of the Bangladesh Rural Advancement Committee (Box 10.1), it has been effective on a large scale outside the formal system.

10.7. There is an important place for increased teacher involvement in decision making at schools, however. Teacher participation will improve learning quality, but only as long as it is explicitly focused on instruction (Smylie 1994). Such a focus requires some outside influence and direction (David and Peterson 1984; Shavelson 1981). In the absence of such direction, teacher energies are likely to be diverted to areas at best only tangentially related to instruction (Hannaway 1993). The best external direction to focus teachers on instruction is a national, or regional, curriculum.

10.8. Schools can join together into clusters to achieve effective decision making by teachers about instruction and for the efficient professional development of teachers. Individual schools are generally too small for this model. Clusters of schools, sometimes called nucleus or school learning cells, provide for professional teacher interaction and for decision making about instruction. Indeed, professional interaction may be more important than decision-making authority for the motivation, learning and social control of teachers' work (Hannaway 1993). Periodic conferences or workshops can provide opportunities for teachers representing different clusters to share what they are doing with other teachers. School clusters have been used successfully in Costa Rica to develop new curricular materials in local languages and in India and Sri Lanka to share demonstration lessons among teachers (Bray 1987).

Box 10.1. NGO Involvement in Education: The BRAC Story

In the context of diversifying the supply of education, the Government of Bangladesh has recognized the role NGOs can play in supplementing its efforts to expand access and improve quality of education for its children. NGOs already play a national role in Bangladesh in health and population programs.

The Bangladesh Rural Advancement Committee (BRAC), the largest NGO in Bangladesh, is well known for its rural development, credit and health programs. In 1985, in response to requests from participants in its rural development programs, BRAC started the 'nonformal primary education' (NFPE) program for eight- to ten-year-olds in 22 villages. Girls were given special emphasis. By late 1991, 6003 schools, serving 11- to 16-year-olds, as well as the NFPE age group, had been established. The program is free to students, except for community contributions to school construction.

In 1992, more than 8,000 schools were operating, and plans are now being developed to expand the NFPE program to 50,000 schools nationwide by 1995. Throughout, BRAC has been able to balance its expansion program with its quality goals.

Internationally, BRAC serves as a model on the potential of the nongovernment sector in educational expansion. It also depicts how a combination of targeting, school design, flexibility and follow through can increase girls' primary school participation rates dramatically. While national education systems worldwide have the formal mandate to provide quality education to their populaces, such NGOs as BRAC, which have greater flexibility than government bureaucracies, may sometimes be able to reach target groups more effectively. Furthermore, BRAC's expansion program illustrates that NGOs need not, necessarily, be limited to small pilot projects but may also carry out larger scale delivery programs.

Source: Ahmed et al. 1993.

Financial Measures

10.9. Public finance can be used to encourage autonomy and accountability. The standard pattern of public education financing is to raise revenues through general taxes and to allocate expenditure centrally, through direct payments for inputs, such as teachers' salaries and textbooks. The more that schools themselves can control the allocation of resources, however, the greater the possibilities of effective schooling. And the more that households are involved, the greater will be the incentives for the schools to improve quality.

10.10. Public finance mechanisms to achieve these purposes include the use of local rather than central government taxation and cost-sharing with local communities; the use of block grants; the charging of fees at the higher levels of education; the encouragement of revenue diversification; the use of "portable" capitation grants, vouchers and student loans; and output-based and quality-based funding. Different mechanisms are more appropriate to different circumstances and different levels of education.

10.11. *Local Taxation.* Local funding of education through local taxes can increase the accountability of local schools and institutions to parents and students. Local governments often use local taxes to fund school systems. In the United States, for instance, local property taxes are usually

the principal source of revenues for school districts. There are two principal drawbacks to the use of local revenues for education. First, local governments may have less capacity than national ones to administer tax systems. Second, different localities have different resource mobilization capacities, and this factor can result in different per student funding levels and hence inequalities in access, quality, retention and learning outcomes. The advantages of cost-sharing with local communities have already been discussed. This subject is particularly relevant at present in Eastern Europe, where responsibility for education at the primary and secondary levels is being transferred from central to state and local governments at the same time as fiscal federalism is being introduced. Revenue-sharing formulas could be adopted, as in Australia, to offset different state governments' different fiscal capacities. Local funding is not essential to increased accountability, however. Local control of centrally financed expenditure can have the same effect.

10.12. *Block Grants.* In Australia, primary education is principally a state responsibility. Central government funds are allocated redistributively to states and districts, however, on a per student basis in direct relation to the relative poverty of the district. In New Zealand, the central government provides grants for operating costs directly to the school; the funds are administered by a locally elected Board of Trustees. Such mechanisms permit local control of resources for education, without placing all the burden of resource mobilization on the local community or government. They can also offset differences in the socioeconomic status of students. In New Zealand, for instance, 80 percent of school funding is related to the number of students and 20 percent to the students' socioeconomic status. Poorer students thus attend schools with more funding per student.

10.13. *Fees.* Charging fees can create accountability between parents/students and school managements at the higher levels of education. Scholarships can be used to encourage student enrollment from low-income families. Even at primary level, the charging of fees need not be incompatible with the principle of free primary education, so long as those fees are regulated and are met by parents out of vouchers financed by the state. This is now the case in Chile.

10.14. *Revenue Diversification.* Encouraging public education institutions to diversify their sources of revenue, and allowing them to keep such revenues, can also encourage autonomy. The scope for this is greatest in higher education. Education institutions can attract resources from alumni and private industry. This practice is standard among private schools and universities, and it is now beginning to spread among public ones. The University of the West Indies, for instance, has in recent years obtained alumni funding to establish a scholarship fund. In Venezuela, Chile, Thailand and Indonesia, private industry provides scholarships or subsidized loans for talented university students. Tax regimes can encourage such donations. In India, 100 percent of individual and corporate contributions to universities are tax deductible; in Chile, 50 percent. Public schools and universities can also use their facilities to provide income. Universities in Uganda and Senegal generate 4-5 percent of annual expenditure by renting out facilities (Albrecht and Ziderman 1995). Mongolia, China and Vietnam encourage schools to rent out premises, run short courses and provide services to industry. Such income amounts to 5 percent of the Mongolian education budget, 12 percent of the Chinese higher education budget and 14 percent of the Vietnamese budget (Wu 1993; Tsang 1993; Albrecht and Ziderman 1995).

10.15. *"Portable" Student Funding.* Capitation grants, vouchers and loans have the potential to encourage autonomy and competition, but experience is limited. All operate under the same principle. The state makes available to the student a voucher or loan, which the student may then

use to pay for her education at any institution, public or private. These mechanisms thus finance the demand side of education, encouraging a marketplace in which suppliers must meet the demand. They establish a situation in which public subsidies increase the educational purchasing power of poor students and put them into the same situation relative to the providers of education as those paying for their higher education from their own or family funds.

10.16. Primary and secondary education in Chile is now financed publicly through the use of capitation grants; parents may enroll their children at any private or public school, which then receives funding from the government according to the number who enroll. Since the system was introduced in the early 1980s, it has led to a major increase in the number of private schools and to private school enrollment. Parents in the Netherlands have the right to a free primary and secondary education for their children at any public or religious private school of their choosing. The schools are funded by capitation grants on the basis of enrollments. Preschool education in New Zealand is funded by the state on the basis of a fixed sum per student; this sum can be received by any accredited institution or person. In the United States, Minnesota allows public high school students in their final year to enroll in postsecondary institutions (with tax funds being paid to the institutions) and permits enrollments outside the school district in which the student lives. A few experiments with voucher schemes have been tried in World Bank loans, such as in Colombia and Pakistan (for girls), but evaluation is still at an early stage.

10.17. In Hungary, Indonesia, Mongolia, Nigeria and Vietnam, public higher education institutions are funded on the basis of enrollment figures, with allowances for different unit costs for different courses. Unless accompanied by limitations on admissions or on the number of students who can receive such funding, such schemes—in theory—can lead to open-ended budgetary commitments. They also fail to provide sufficient incentives for efficiency. While relatively small in that it covers only 6 percent of the student body, the Colombian student loan scheme is available to low-income students, and the loans are portable; they may be used to finance education at public and private institutions, not just in Colombia but also abroad.

10.18. *Output-based and Quality-based Funding.* Output-based schemes fund institutions by the number of graduates they produce, rather than the number of students they enroll. This reduces wastage and improves overall efficiency. Such schemes are relatively rare and limited to higher education in Australia, Denmark, Finland, Israel and the Netherlands. No developing country yet uses such a scheme, although Brazil is moving in this direction. In the Netherlands, universities receive 4.5 years of annual unit cost-funding per graduate, regardless of how long it takes students to complete their studies. After the scheme was introduced, the graduation rate improved from 48 percent in 1980 to 80 percent by 1987. Quality-based funding has been tried in only one country: Chile. Higher education institutions receive a financial award from the government for each entering student who scored among the top 27,500 in the university aptitude test. The objective of this scheme is to stimulate competition among institutions to improve their quality and thus to attract the best students although it also runs the risk of favoring those institutions that attract students from the highest socioeconomic groups. In Hungary, the World Bank is supporting higher education reform through a "fund for new initiatives"; access to the fund is competitive on the basis of institutions' proposals to strengthen the quality, efficiency and relevance of their programs. Research has been funded in this way in World Bank-assisted projects in Brazil, China, Egypt and Korea.

Risks

10.19. Among the countries that have experimented most with increasing school autonomy in recent years are Britain, Chile and New Zealand. In all three, there is still little evidence available on the impact on overall quality of the increased school-level flexibility that has resulted from autonomy. As with school choice, therefore, some caution is in order as more countries experiment with increased school-level autonomy. The risks of school-level autonomy arise particularly with regard to overcoming inequalities in educational opportunities and adherence to national standards and the curriculum. They can largely be mitigated by: (a) clearly separating school-level management and control over resource allocation from exclusive reliance on local financing; and (b) ensuring that some functions are maintained external to the school, at the national or regional level. Particularly important are national or regional setting of standards, curricula and performance assessment mechanisms, such as public examinations and learning assessments, and national mechanisms to offset regional inequalities in resources if schools are funded locally. The curriculum and the financing of education have not been left to the school or even to the local level in any of these three pioneering countries.

Part IV

Implementing Change

In most countries, financial and managerial change will not be easy to implement because of the current pattern of vested interests. The World Bank will support change in its member countries' education systems through an increasing focus on sectorwide policy, coupled with increased selectivity in terms of the specific uses to which its loan funds are applied, and through continuing to increase lending that funds public investments in primary and lower secondary education.

The Role of Governments and the World Bank

11

A Sectoral Approach According to Country Circumstances

11.1. Priorities for change—and for World Bank support—differ according to country circumstances. A sectoral approach is key, both for countries setting their priorities and for the Bank in determining its support. A sectoral approach by countries implies achieving maximum efficiency in the allocation and use of resources so as to increase the quality and improve the quantity of education. A sectoral approach by the World Bank implies attention to the policy environment and institution-building, so that Bank support helps develop the sector as a whole in addition to those improvements in quality and quantity that Bank lending finances directly.

11.2. In all countries, therefore, Bank lending will be concerned with the policy environment and with the creation and strengthening of institutions. The subsectoral allocation of lending will also usually follow countries' own resource allocation priorities. Primary and lower secondary education will therefore continue to be the highest priority sectors in the Bank's education lending to countries that have not yet achieved universal literacy and adequate access, equity and quality at these levels. In some cases it may be necessary to adjust the rate of increase of enrollments in order to ensure that the quality of schooling keeps pace with them (Box 11.1). The Bank's sectoral approach means that its involvement in higher education in these countries which have yet to achieve universal literacy will continue to be mainly to make the financing of higher education more equitable and cost-effective, so that primary and secondary education can receive increased attention at the margin.

11.3. As the basic education system develops in coverage and effectiveness, more attention can be devoted to the upper secondary and higher levels. Bank lending for higher education will support countries' efforts to adopt policy reforms that will allow the subsector to operate more efficiently and at lower public cost. Countries prepared to adopt a higher education policy framework that stresses a differentiated institutional structure and diversified resource base, with greater emphasis on private providers and private funding, will continue to receive priority.

11.4. The transitional economies of Eastern and Central Europe form a special category, with high primary and secondary enrollment ratios, but the imperative of adjusting the entire education system toward the needs of a market economy. Particularly important is the effort to maintain funding levels for compulsory (primary and secondary) education, to shift away from overspecialization at vocational, technical and higher education institutions and to reform the governance and financing of higher education (Box 11.2).

The Political and Social Context of Change

11.5. Reforms of education, whatever their technical merit, will not take hold unless they are politically and socially acceptable. Education is intensely political because it affects the majority

Box 11.1. Tradeoffs Between Access and Quality

It is often asserted that the quality of schooling has suffered as a consequence of expanding enrollments, as evidenced by the poor academic performance of low- and middle-income country students, the high incidence of wastage and repetition, increasing reliance on untrained teachers and use of double shifts and lower investments in critical learning inputs such as textbooks. In many countries, enrollments have expanded more rapidly than the financial and other resources necessary to support greater school coverage while maintaining school quality.

This is particularly the case in Sub-Saharan African countries, with traditionally low gross enrollment ratios, which have given high priority to increasing access to schooling in the independence period. Enrollment growth has been 5 to 10 percent per annum at the primary level in some of these countries. In Kenya, for instance, primary school enrollments increased dramatically after 1974 when tuition and other fees were gradually abolished.

Each step taken in Kenya to increase participation and raise educational attainment—the most recent being the lengthening of primary schooling in 1984/85 that expanded enrollment by about 583,000 students in one year—has had deleterious implications for school financing and instruction. Ministerial task forces established to study the implications of the new eight year primary cycle urged caution and gradualism on the grounds of inadequate finance, lack of trained teachers and facilities and the need to prepare new curricula and textbooks. Nevertheless, the government hastily implemented the reform although few schools outside Kenya's principal cities and towns could marshal the teaching and other instructional resources necessary for the new program of studies when it was introduced. More than 18,000 untrained teachers were eventually employed to enable schools to extend instruction by an additional year, setting back the significant progress that had been made since 1963 in providing primary schools with trained teachers.

Educational access and attainment can be increased, with attention to school quality, when plans for expansion take account of implementation issues. In Thailand, a similar reform was announced in 1988; it would have lengthened compulsory schooling to nine years and integrated lower secondary and primary schooling. After more careful consideration of what was required to successfully implement such a reform, the government adopted a gradual strategy of introducing the nine-year schools on a pilot basis; 718 of these schools were initially established in 38 economically disadvantaged provinces. In 1990, the experiment was extended to 122 schools in 73 provinces, and by 1996 it is expected that the number of schools will increase to 4,187 with an enrollment of 750,000. The schools are experimenting with the new curricula and textbooks, new models of school management, including community involvement in designing the school program.

Sources: Eisemon 1988; Holsinger 1994.

of citizens, involves all levels of government, is almost always the single largest component of public spending and has public subsidies that are biased in favor of the elite. Prevailing systems of education expenditure and management often protect the interests of teacher unions, university students, the elite and central government relative to parents, communities and the poor.

11.6. Teachers are usually the single largest group of civilian public employees in developing countries. Moreover, because educational finance and management is usually the

Box 11.2. Priorities for Educational Reform in Eastern and Central Europe

In Eastern and Central Europe, strategies for educational reform must anticipate the establishment of competitive market economies and pluralistic, legitimate and stable political systems. These conditions hardly exist in many countries in the region. Large state-owned enterprises, for example, continue to provide most employment and frequent changes in governments have inhibited economic and educational reform.

Radical reforms are required in the management, financing and structure of education—including the introduction of new curricula and innovative ways of organizing instruction—to restore these countries to political and economic health. Comprehensive educational reforms will accelerate recovery, and provide a long-term foundation for growth, as well as support development of democratic political and social institutions. The benefits of an open economy and a participatory political system cannot be captured by individuals without market and citizenship skills. National income would be very much higher if education is restructured now and not delayed.

High priority should be placed on reform of compulsory education. The challenge is enormous. Real per pupil expenditures on compulsory schooling have been declining precipitously in most countries in the region while enrollment has been stable or increasing. For example, in Russia per student expenditures on compulsory schooling decreased 29 percent between 1991 and 1992 although enrollment slightly increased. Investment in physical facilities dropped by 23 percent during this period, supplies of textbooks by 16 percent, and teacher salaries fell to about two thirds of average industrial wages, prompting widespread teacher strikes that in 1992 accounted for the majority of all days lost to strikes.

In Russia and many other countries in the region, reforms are needed to protect compulsory education from fiscal instability—and ensure equity at least in nonsalary expenditures—as more responsibility for financing is devolved on to local government authorities. To promote democratization, local authorities and schools should have greater control of their budgets; i.e., for establishing teacher salaries and conditions of employment, for allocating expenditure between capital and recurrent costs and for obtaining textbooks and other learning resources.

To accomplish this, the functions of national and local educational authorities will need to be re-examined. At the national level, transfer payment schemes will have to be designed to take into account the different resource generating capacities of local governments, as well as to promote fiscal effort and local initiative. Mechanisms need to be developed at the national level to effectively manage compulsory education, allowing variation in implementation at the local level. The critical functions of national governments include setting curricular objectives for core subjects, formulating minimal standards for instructional facilities and the distribution of texts and learning resources, elaborating a regulatory framework to facilitate the development of private education, monitoring student performance and protecting the rights of linguistic and ethnic minorities.

Reforming the overspecialized programs of vocational, technical and higher education institutions will require even bolder initiatives. At the beginning of the transition, a very high proportion of students in secondary and higher education were enrolled in programs designed to supply state-owned enterprises and public services with graduates with specialized skills that the nascent labor market cannot absorb. In Poland, 76 percent of secondary school students were enrolled in vocational and technical programs in 1990 to 1991. The vocational orientation of secondary and higher education in Romania during the previous regime was particularly exaggerated. About

Box 11.2. (Continued). Priorities for Educational Reform in Eastern and Central Europe

two-thirds of all higher education students were enrolled in narrowly defined engineering programs in 1989 to 1990. Vocational and technical schools, which accounted for more than 80 percent of upper secondary enrollment, offered 354 curricular specializations. In 1991, 50 percent of students enrolled in secondary technical schools and 25 percent of those in vocational programs were training in machine trades and metal work, although job vacancies in these specialties represented only 5 percent of vacancy listings.

The number of students in specialized engineering, vocational and technical programs has dropped sharply during the transition, and the distribution of enrollment has shifted in response to student demand. For example, the proportion of students in engineering in Romanian universities declined from 65 percent to 38 percent between 1989/90 and 1992/93. Romania's higher education system has experienced rapid growth in recent years. The majority of students are now enrolled in foreign language programs, law, economics, management and other social sciences. But where little progress has been made in reforming the structure of secondary and higher education programs, total enrollments have usually declined, as has happened in Russia.

At the secondary level, governments in Eastern and Central Europe should give priority to expanding enrollment in general secondary education, to increasing the amount of academic instruction students receive especially in foreign languages and to introducing new subjects such as computer training that a competitive market economy requires. Above all, reforms should increase student choices through promoting curricular flexibility in general programs and in vocational and technical programs so that the system will react more rapidly to changes in employment opportunities.

The same priorities should guide reforming higher education systems. More diversity and flexibility is needed in the length and content of academic programs. Government policies should encourage private provision and increased private financing of public higher education to stimulate competition, innovation and responsiveness to the labor market. For the public higher education, the political freedoms universities obtained after the collapse of socialism should be accompanied by more autonomy in using public funds and in mobilizing additional resources. At the same time, governments should establish open, transparent mechanisms for allocating public funding with incentives to improve efficiency and restructure academic programs. New policy structures will also have to be created to ensure quality control of both public and private institutions and to guide the development of the higher education systems as a whole.

Sources: Eisemon et al. 1995; Heyneman 1994; Laporte and Schweitzer 1994; Sadlak 1993; Spagat 1994; World Bank 1992, 1994k, 1994l.

responsibility of central government, teacher unions become important actors on the national political stage. Teacher unions in Latin America, Eastern Europe and some Asian countries, for instance, have either established their own political parties or formed alliances with parties representing trade union movements. When governments fail to reach agreement with strong central unions over teacher conditions of employment, collective action can disrupt education and sometimes lead to political paralysis, which has happened in Bolivia, Peru and other countries in recent years.

11.7. The relationship between higher education students and the government can be oppositional as well. The opposition occurs because of the centralized nature of university financing and governance. It also occurs because higher education students come disproportionately from the

upper socioeconomic households and are a vocal and articulate political constituency. When students have grievances, it is usually only national governments that can address them. In Romania, for instance, university students besieged the national Ministry of Education and the parliament in 1993 to protest overcrowding in student hostels. In Africa, heads of state are usually university chancellors, institutionalizing the potential for political opposition when students have grievances. In Kenya and Uganda, for example, students have several times brought complaints about the food served in cafeterias and about the introduction of tuition charges to the attention of ministers and the head of state. Such action often precipitated political crisis and university closures. Changing the centralized pattern of university finance and government can reduce the oppositional relationship between students and government.

11.8. While teachers and higher education students are politically influential as a result of centralized patterns of education finance and management, parents and communities are relatively weak. In most developing countries since the end of the colonial period, national governments have taken responsibility for education systems, at least at the primary level. They have taken up this role with the best of intentions: to overcome the inequities that characterized the pre-independence pattern of private, voluntary and local education, to widen social access to education and to build "nationalism" through a single government-controlled curriculum. Emphasis on these goals has been at the cost of shifting responsibility away from communities and parents. Where there is a tradition of local responsibility, the education system can be very responsive to parents and communities. In the Indian state of Kerala, for instance, almost all schools have active Parent Teacher Associations that involve parents in school management, noon feeding programs, fund raising and facilities development.

11.9. The proelite bias of public spending on education, particularly tertiary education, also makes reform difficult. The relatively affluent are naturally loath to give up their privileges, as shown in many countries when governments have introduced or increased fees at public universities and other higher education institutions.

11.10. Successful reform of education finance and management requires a significant expansion of educational opportunities, extensive consultation with current and potential stakeholders, mechanisms to increase the say of parents and communities in the system and thorough design of the reforms that includes public finance.

11.11. Education financing and management changes are best introduced as education opportunities are expanded. Sometimes the change itself does this, as when prohibitions on the private sector are lifted. The expansion of cost-sharing in public higher education, for instance, is politically most feasible when it is explicitly linked to expanding opportunities for higher education. In both Chile and Hungary, the reform of higher education was successful because overall enrollments increased. In Chile, fees were introduced, and enrollments were increased through an expansion and differentiation of the higher education system and the introduction of student choice. A World Bank loan to Hungary is supporting a sweeping reform of the higher education system, in which public institutions will start to raise fees and opportunities will expand. The reform involves the encouragement of private institutions and the direct funding of students, at private and public institutions, through a state student-grant fund and through loans.

11.12. Education reform has succeeded or started well in countries as diverse as Bolivia, the Dominican Republic, Ghana, Guinea, India, Jordan, Mauritius, Mozambique, Romania and Thailand

because stakeholders have been involved in developing and implementing the reforms. In Bolivia and the Dominican Republic, UNDP has financed consultation mechanisms to encourage the development of national consensus around education reform. In both cases, a reform policy document and accompanying public investment program were endorsed by the teacher union, parents' representatives and the major political parties and successfully presented to donor meetings for financing, including by the World Bank. In Bolivia, the reform program prepared by the previous government has remained intact since the opposition came to power in the 1993 election. In Ghana, a process of national consultation stretched from the Head of State down to every community through a series of "town meetings." In Mauritius, a far-reaching education masterplan is being implemented, following an extensive process of public consultation (Box 11.3). Less extensive processes have also proved useful in Jordan and Thailand, where reform committees included representatives of teacher unions, education ministries and school and university administrators, although parent and student involvement was more limited (Haddad 1994). Effective collaboration between government and teacher unions to achieve reform has been demonstrated in several countries, including Ghana, Korea, Singapore and Zimbabwe.

Box 11.3. Stakeholder Partnership in Mauritius

In 1990, the Minister of Education embarked on a process of consultation about reforming the education system. Mauritius is a multiracial multilingual society, whose education system had not changed significantly since the colonial period. The government created a Steering Committee, a Working Group and Sectoral Subcommittees to collect opinions and hold public hearings to study options for transforming the system. Technical studies were commissioned and a strategy paper circulated for public debate. Special efforts were made to solicit the views of teachers on particularly contentious issues, such as their role in curriculum development and continuous assessment, in-service training and evaluating their performance. A televised national seminar was held on the reform plans to ensure island-wide participation and consultation.

The reform plan which emerged, and was adapted by the government with donor support from the World Bank and others, will increase attainment, reduce wastage and reduce quality variations by lengthening the cycle of compulsory education to nine years, revising curricula and assessment practices and strengthening school-level management. It will affect the powers and responsibilities of teachers and private schools, as well as many interests within the education bureaucracy including the examinations syndicate, teacher training institutions and various technical departments of the ministry of education.

"The intense internal struggle and strong opposition from some groups has not been reconciled," a recent evaluation of the reform process acknowledges. "The important shift introduced by this reform process, however, was to move educational policy-making from the close of professional educators (and government) to a more open forum involving parents, vested interests, lobbyists, unions and the community at large." It is, of course, still too early to assess the impact of the reform itself, which is ongoing, as opposed to the reform process.

Source: Bhowon and Chinapah 1993.

11.13. Reform is also successful when community and parent—and student—involvement is increased. Community and parent control, when accompanied by measures to ensure equity in the provision of resources, can offset much of the power of vested interests, such as teacher unions and the elite. Parent and community involvement can be increased by decentralization, school level

autonomy, and accountability of the school to local people. At least in urban areas, it can be enhanced by the use of market mechanisms that increase accountability and choice. In both urban and rural areas, it can also be enhanced by the case of participatory methods to design and implement reforms (Colleta and Perkins 1995).

11.14. It is important that reform efforts clearly define the new roles and responsibilities of the actors in the education system. Critically important here is the complementarity of policy reform and public finance. Half measures, consisting of policy reforms without financial mechanisms, do not work, as illustrated by decentralization in Ghana and the regulation of private institutions in Korea. In the colonial period, Ghana had strong local governments with independent tax bases that provided high quality primary education. Following years of centralized control after independence, recent reforms have returned the responsibility for financing basic education to local governments but without giving them the authority to raise revenue (Associates in Rural Development 1993). In Korea during the 1970s, the government tried to influence the level and distribution of enrollments in private educational institutions through the accreditation process. It attempted to limit total private enrollments and to shift their balance toward science and engineering. Since public finance was not available to the private institutions, the government had no effective instrument to enforce its policy, and the regulations were ultimately abandoned.

World Bank Support for Education since 1980

11.15. The World Bank is today the largest single source of external finance for education in developing countries, accounting for about a quarter of all external support (Table 11.1). Since its first education project in 1963, the Bank has continuously expanded its financing of education projects, in both absolute and relative terms, as part of its mission to reduce poverty. Total lending for education over the last 30 years through FY94 amounts to US\$19.2 billion through more than 500 projects in more than 100 countries. Lending commitments are currently around US\$2 billion each year.

Table 11.1. External Support for Education, 1975-90
(current US\$ million)

	1975	1980	1985	1986	1987	1988	1989	1990
Total	2,018	4,496	4,255	4,644	4,584	5,528	5,838	6,035
Bilateral	1,490	3,595	2,679	3,169	3,512	3,950	3,790	3,640
Multilateral	528	901	1,576	1,475	1,072	1,578	2,048	2,395
o.w. World Bank	224	440	928	829	440	864	964	1,487
<i>World Bank Share (percent)</i>								
Total	11	10	22	18	10	16	17	25
Multilateral	42	49	59	56	41	55	47	62

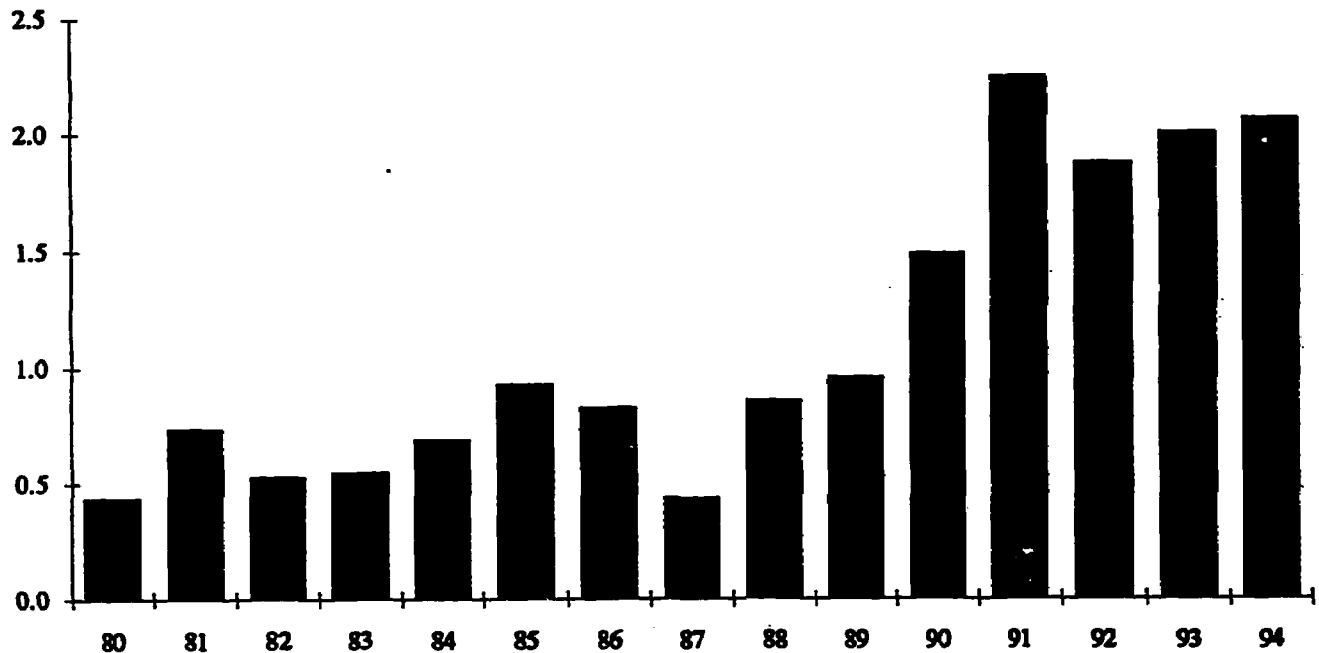
Source: UNESCO 1993b.

11.16. Six major shifts characterize the decade and a half since the last World Bank *Education Sector Policy Paper* in 1980. The total volume of education lending has tripled and its share in overall Bank lending has doubled. Primary and secondary education are increasingly

important, and in FY93 and FY94 represented half of all education lending. Lending is now significant in all regions, having previously been concentrated on Africa, East Asia and the Middle East. Girls' education is receiving explicit focus. Bank funds are today used less for buildings and more for other educational inputs. A narrow project approach is increasingly giving way to a broad sectoral one.

11.17. *Lending Volume.* Lending for education has increased significantly since 1980, both in absolute terms and as a share of total World Bank lending (Figures 11.1 and 11.2). In the early 1980s, lending commitments for education averaged about US\$0.6 billion a year and represented four percent of total Bank lending. They have now tripled in volume to about US\$2.0 billion a year, with annual fluctuations, and the share has doubled to more than eight percent. These figures exclude project-related training included in Bank projects in other sectors. The Bank is strongly committed to continued support for education. A particularly interesting development in FY94 was the first education loan by the International Finance Corporation to the private Rainbow Academy secondary school in Uganda.

Figure 11.1. World Bank Education Lending, FY80-94 (current US\$ billion)



Source: World Bank Annual Report, Various Years.

11.18. *Subsectoral Emphasis.* Lending for primary education has grown rapidly since 1980, and particularly since the late 1980s, reflecting the growing realization of the importance of this level of education for economic growth and the reduction of poverty, the influence of the 1990 policy paper on Primary Education and the Bank's commitment to the objectives of the 1990 Education for All Conference in Jomtien, Thailand (Figure 11.3). The Bank was one of the sponsors of the conference and continues to participate in Education for All follow-up activities. In FY90-94, a third

Figure 11.2. The Share of Education in Total World Bank Lending, FY80-94 (percent)

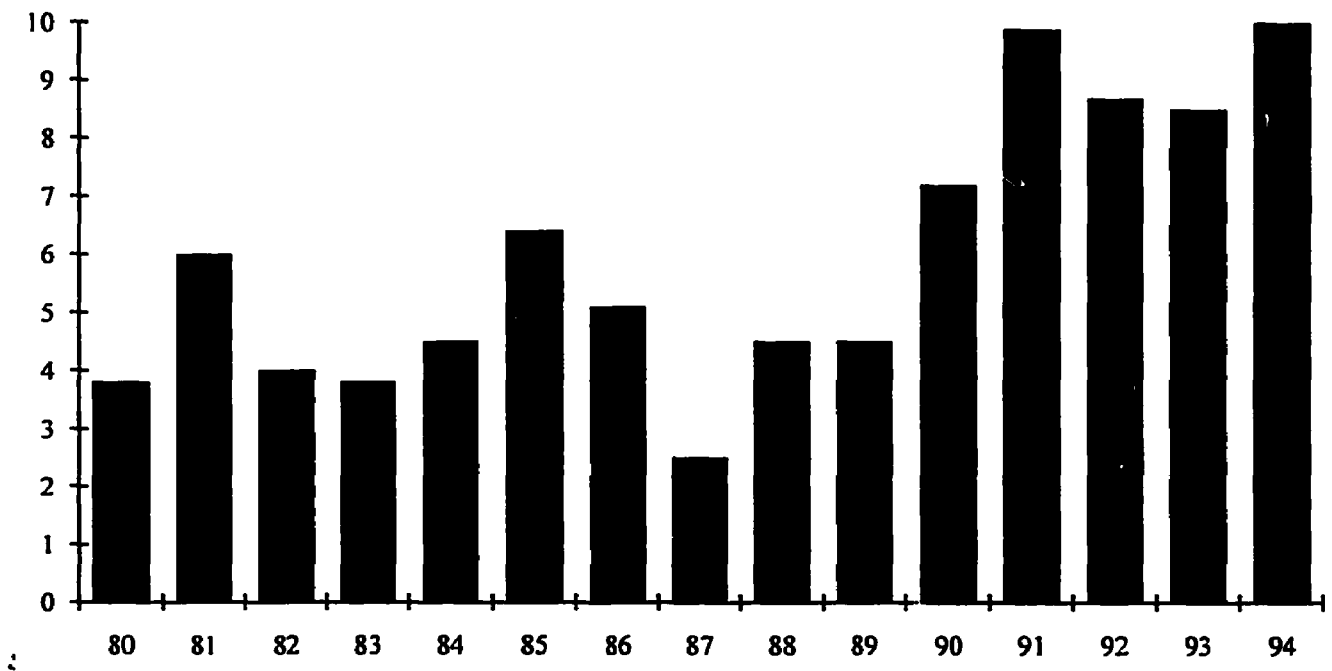
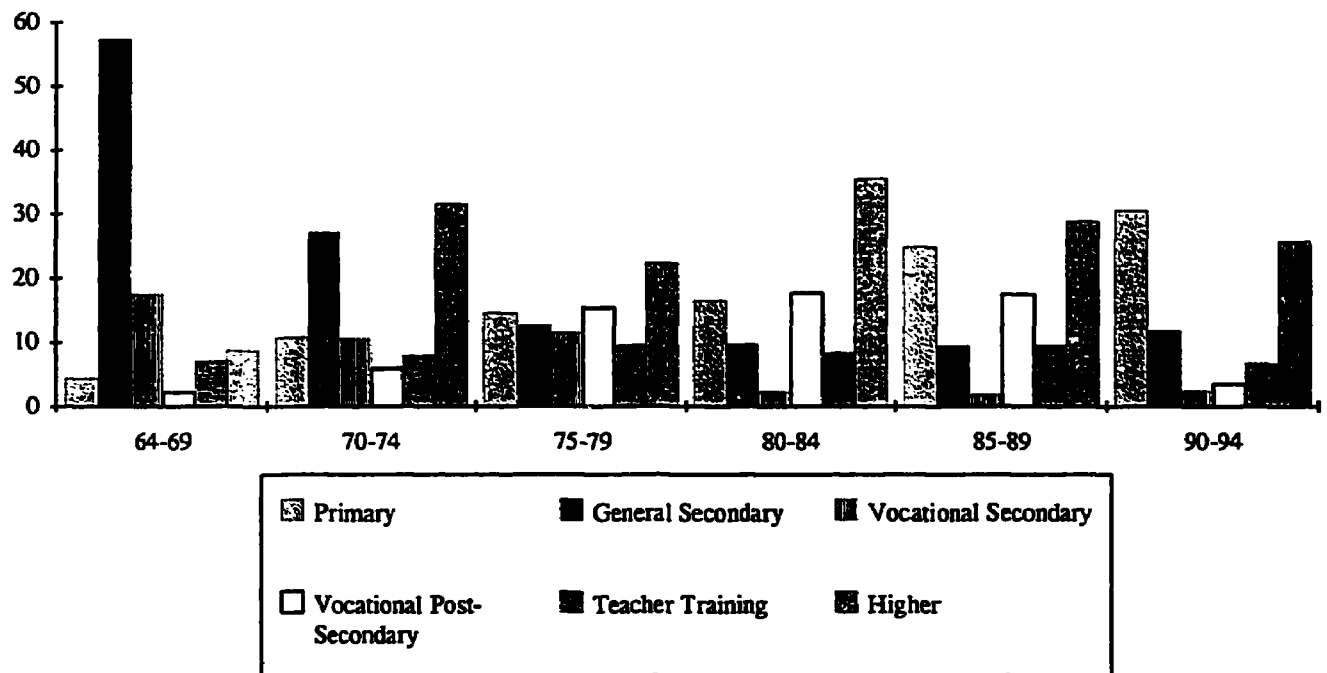


Figure 11.3. Sub-Sectoral Breakdown of World Bank Education Lending, FY64-94 (percent)



Source: Education and Social Policy Department (ESP) Education Database.

of all Bank lending for education was for primary education, more than double the share a decade before, with an emphasis on both access and quality. Future lending plans indicate a likely continuation of this trend and also an increase in the share of secondary education. The emphasis on primary and secondary education has led to a slightly reduced share for higher education in overall lending. In addition, the Bank has in the 1990s started to lend for early childhood development, including early childhood education, though these projects are too new yet to be evaluated. Though there have been major shifts in subsectoral emphasis, the overall increase in lending volume has led to an absolute increase in lending for all subsectors, except vocational education—which has declined in both relative and absolute terms.

11.19. Primary education projects have focused on access, equity, internal efficiency and quality. Access is being improved through projects that target poor regions, as in China and Mexico (Box 11.4), and girls and minority groups, as in Bangladesh, India, Mexico and Pakistan. Internal efficiency gains are the objective of projects that support increased student-teacher ratios (Barbados), multigrade schools (Colombia), double-shift teaching (Trinidad and Tobago), decentralization (Brazil) and community participation (Ghana). Quality improvements are supported by the development of national learning assessment systems, which are now included in 27 percent of primary school projects compared with only three percent 20 years ago, and by an increased emphasis on important inputs other than school buildings, such as textbooks, laboratory equipment and teacher training.

11.20. Secondary education lending declined from 1980 to 1990, when it represented 10 percent of education lending. Since 1990, however, lending for secondary education has increased modestly to 12 percent of all education lending, with 30 percent of education projects now containing a secondary education component (Demsky 1994). Secondary education lending is still low compared with the 1960s and 1970s when it accounted for more than half of all Bank education lending, but it is growing fast. Lending in recent years has reflected selective support for secondary education, particularly to improve equity for the poor and girls, to improve quality and to increase external efficiency. A secondary education project in Colombia, for instance, includes a voucher program to enable poor students to attend private schools. The first free-standing female education project is for secondary education in Bangladesh.

11.21. Bank support for postsecondary education shows a mixed pattern. Lending for postsecondary vocational education and training has declined, consistent with Bank policy that this is generally best provided on the job by employers (World Bank 1991c). Lending for teacher training remained roughly constant at about 9 percent of total sector lending until the last four years when it fell to 7 percent and shifted away from preservice toward in-service training. In FY70-74, for instance, 49 percent of Bank projects contained preservice training components and 35 percent in-service components. By FY90-94, the comparable figures were 39 and 65 percent. Teacher training projects now support the development of training curricula, the training of teachers and the development of instructional materials, whereas they were formerly mainly limited to the provision of teacher training facilities.

11.22. Lending for university and polytechnic level higher education peaked at 36 percent of total lending in the mid-1980s; it has since fallen to about 26 percent. Originally directed mainly toward institutions that train professionals and technicians for the economy (such as agricultural universities), higher education projects increasingly support universities and institutions responsible for advanced scientific training and research. Several recent projects have also supported the

Box 11.4. Massive Education Reforms in Mexico's Poor Southern States

While Mexico has made strides in national education over the last decades and recently adopted aggressive reform policies to boost school achievement, the poor states of the South remain seriously behind the national average. They lack the resources and administrative capability to exploit national advances.

Now the Mexican government is pushing its reform agenda farther south. With help from a US\$412 million World Bank loan—one of the largest ever Bank social sector loans anywhere—and with more than US\$200 million of its own, Mexico is launching an ambitious primary education project in 10 of the poorest southern states. Due to the project's targeted nature within the government's social compensatory program, project benefits will include a more equal distribution of economic opportunities among Mexican children, especially for underserved indigenous populations.

This Second Primary Education Project consists of three major components. A human resources development component will provide in-service training and assistance to upgrade the skills of primary school teachers, principals and supervisors, emphasizing the role of principals and supervisors in providing pedagogical assistance to teachers in classroom teaching. Second, an educational material resources component will provide educational materials for both teachers and students, supply classroom library and reference books and promote their use, rehabilitate, replace or build urgently needed educational facilities to replace inadequate schools and meet new enrollment demand and design and deliver bilingual textbooks and material for indigenous schools, designed with representatives of each indigenous community. Third, an institutional strengthening component will: strengthen education management capacity at both central and state levels by providing management training for planning and policy analysis, installing project monitoring, evaluation and information systems, conducting education studies to prepare future investments at the preschool and secondary education levels and supporting project promotion and diffusion activities; improve the supervision system; and strengthen the textbooks and materials distribution system. The project will also provide incentives for teachers to work in remote indigenous or hardship areas, and absenteeism will be monitored directly by the local community and school council.

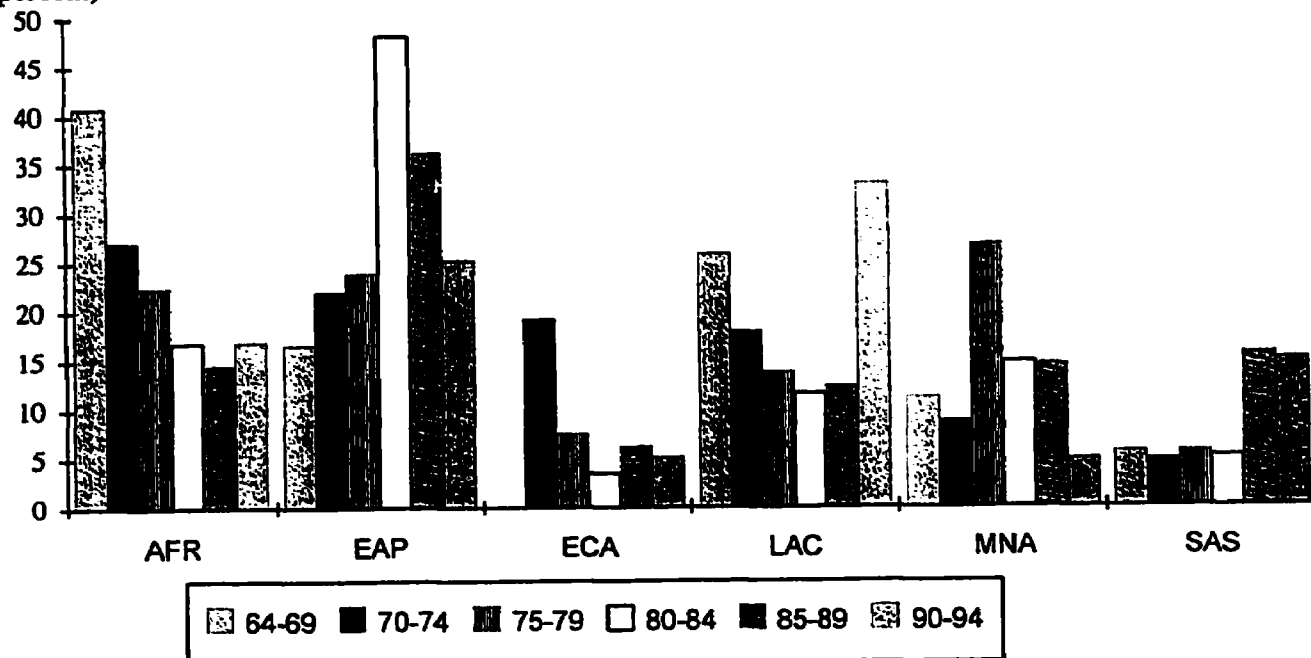
Source: World Bank 1994i.

improvement of links between industrial development and science and technology teaching and research (Korea, China), the expansion of cost-sharing at public universities and the development of student loan and scholarship schemes (Kenya, Philippines, Tunisia, Venezuela) and limiting access to public universities (Côte d'Ivoire, Morocco). The bulk of postsecondary education projects in all categories have been in Africa and East Asia and the fewest in Latin America. Postsecondary education is expected to be an important component of future Bank education lending for the transitional economies of Europe and Central Asia.

11.23. *Regional Composition.* Bank lending in the early 1980s was heavily concentrated on Africa, East Asia and the Middle East. These regions' relative shares have declined as lending has expanded for primary education in South Asia and Latin America (Figure 11.4). Absolute lending has increased in all regions, however. Lending is still relatively small in the Europe and Central Asian region. Human resource projects in the transitional economies in this region have tended to

focus on social safety nets, labor markets, and health system rehabilitation in the early years of Bank membership.

Figure 11.4. Regional Composition of World Bank Education Lending, FY64-94
(percent)



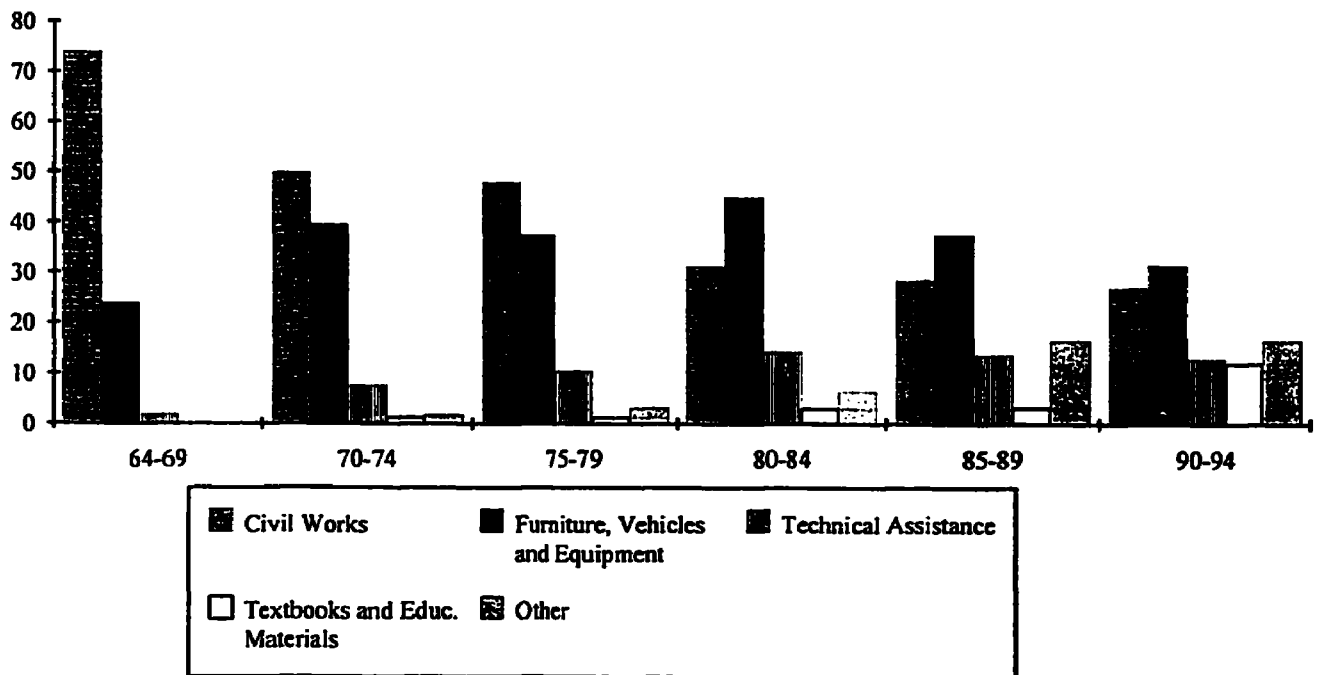
Source: ESP Education Database.

11.24. **Girls' Education.** Female education is receiving increased attention in Bank projects. Less than 15 percent of projects in the 1980s contained components to educate girls; since 1990 this number has increased to 22 percent and the trend is expected to continue. The regional distribution of female education components reflects regional differences in gender disparities. Lending has been concentrated on the Middle East (44 percent of all education projects that address female education), on South Asia (39 percent) and on Africa (16 percent). Gender gaps in education are much less significant in East Asia, Europe and Central Asia and Latin America, and hence there is little specific lending for girls in these regions.

11.25. **Use of Bank Financing.** In the early days of Bank lending for education and throughout the 1970s, more than half the funds lent by the Bank were used for civil works, to construct schools, colleges and administration buildings. Since the mid-1980s, this proportion has fallen to about a quarter (Figure 11.5). Bank loans increasingly finance inputs designed to improve the quality and the administration of education: textbooks, teacher training, laboratory equipment, learning assessments, examination systems, educational administration, technical assistance and research. Despite this shift, Bank projects were always concerned with quality, even when most finance went to buildings. A few loans also finance the demand for education, through vouchers for the poor, as in Colombia; scholarships for girls, as in Bangladesh; and student loans, as in Venezuela. Overall, however, almost all Bank lending is for the supply of education services.

11.26. **Sectoral Approach.** The use of Bank financing for inputs that improve quality as well as increase enrollments reflects a wider trend toward a sectoral approach to education. This trend

Figure 11.5. World Bank Education Lending by Expenditure Category, FY64-94 (percent)



Source: ESP Education Database.

is seen even more clearly in the inclusion of education within economic reform programs, in the emergence of education sectoral adjustment and sectoral investment loans, in the increasing inclusion of support for sectorwide reforms in specific investment loans, and in the Bank's continued attention to institution-building.

11.27. Economic reform programs supported by the World Bank now routinely include measures to ensure that primary education is protected during fiscal adjustment. Recent structural adjustment loans to Guatemala, India and Zimbabwe, for instance, support increases in public spending on primary education and other basic social services. There have been six education sector adjustment loans, the first in Morocco in FY86 and the others all in sub-Saharan Africa. These loans have tackled such sectoral issues as the allocation of public spending. In Guinea, for instance, a sector adjustment loan supports the redeployment of primary school teachers to underserved rural areas; in Kenya, a loan supports the introduction of fees at public universities and the reversal of a trend toward ever-lower student-teacher ratios at primary and secondary schools. Thirty-nine sector investment loans have been made since 1979, mainly in Asia and Latin America, where institutions are relatively strong. These loans focus on institutional and policy reforms, and use Bank finance to fund a share of an overall education public investment program. In the Philippines, a sector loan supports a policy shift from the expansion of primary education toward a focus on its quality, efficiency and equity. Procedures for efficient and equitable regional budget allocations in Colombia are supported by a sector investment loan. Specific education investment projects also include attention to sectorwide policies. The Fourth Education project in Burkina Faso includes agreements to reduce spending on secondary and higher education subsidies by 10 percent annually.

Future Bank Support for Education

11.28. The volume of its finance gives the World Bank a leadership role among donors. Compared to spending on education by low- and middle-income country governments and peoples, however, external financing is very minor. A conservative estimate of public spending at four percent of GNP and private spending at 2 percent yields a total annual education expenditure of US\$270 billion for all low- and middle-income countries. All external finance together amounts to only 2.2 percent of this total, and World Bank financing to only 0.6 percent. This low share in total spending means that the Bank's principal contribution must therefore be to provide advice designed to help governments develop education policies suitable for the circumstances of their own countries.

11.29. Future operations will therefore adopt an even more explicit sectorwide policy focus in order to support changes in educational finance and management. This strategy may increase both the resources and the elapsed time needed to prepare projects, as key stakeholders must be involved in preparation. In increasingly decentralized contexts, these stakeholders will include not only central government but also other levels of government, communities, parents, teachers and employers. The design of new operations will focus on the conditions needed to ensure successful implementation, which is the principal indicator of the Bank's development effectiveness. Effective implementation is especially important given the explosion in lending for education and the increased awareness of the importance of human resources.

11.30. There has been an apparent deterioration in the implementation performance of education projects since FY92, though it is too early to conclude whether this direction is a trend. The percent of education projects rated unsatisfactory or highly unsatisfactory has increased relative to the Bankwide total both in terms of implementation progress and development objectives (Table 11.2).

Table 11.2. World Bank Projects Rated Unsatisfactory or Highly Unsatisfactory, FY92-94 (percent)

	<i>Implementation Progress^a</i>			<i>Development Objectives</i>		
	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>
Education	12.40	13.60	15.50	11.80	10.50	17.50
All Sectors	17.60	16.90	18.30	12.50	13.90	15.20
Education/All Sectors	0.70	0.80	0.85	0.94	0.76	1.15

^a Implementation progress replaced the overall status rating in FY94.

Source: World Bank 1995.

11.31. In terms of implementation progress, education projects have deteriorated steadily since FY92 relative to the Bankwide total; however, the percent of projects in the sector rated unsatisfactory or highly unsatisfactory (15.5 percent) still remains below the Bankwide total (18.3 percent). In terms of development objectives, the performance of education projects has shown a marked performance decline in comparison with the Bankwide total; the percent of projects in the

education sector rated unsatisfactory or highly unsatisfactory fell in FY93 but increased sharply in FY94 (to 17.5 percent) to exceed the Bankwide total (15.2 percent).

11.32. Many factors combine to explain this implementation performance decline. Specific implications for the Bank's ways of doing business will be discussed in the forthcoming Board paper "Human Resources Development: Towards Effective Implementation." That paper will analyze implementation constraints and draw lessons from the Bank's ongoing and completed operations, based on Operations Evaluation Department studies, Annual Reports on Portfolio Performance, and sectoral and regional assessments. The paper will discuss main elements found to be crucial in improving effectiveness in project implementation. Issues will include:

- (a) project design (economic analysis; impact evaluation; participation/beneficiary involvement; and economic and sector work);
- (b) country conditions (the need to develop institutional capacity, local commitment and ownership; provision of counterpart financing/recurrent and local costs and sustainability); and
- (c) Bank-related matters (flexibility of Bank procedures, adaptability of lending instruments; and internal sector staffing).

11.33. Among initial findings are indications that education projects: (a) are often designed without the use of economic analysis, including a quantitative comparison of benefits and costs where possible, consideration and costing of alternative interventions to reach desired outcomes and risk analysis—partly due to weak country data and the fact that the social sectors are not formally subjected to cost-benefit analysis under Bank operational guidelines; (b) do not always have well-designed impact evaluations, such as instruments to examine whether the project results in effects that are different from what would have occurred either without the intervention or with an alternative intervention; (c) are increasingly complex and increasingly supporting decentralization and private sector involvement, requiring greater local participation to generate broad-based commitment and ownership; (d) are greatly affected by the level of national and local planning, management and implementation capacity; (e) are greatly affected by the pervasive problem of insufficient counterpart funding for project implementation and inadequate recurrent cost financing for operation and maintenance of facilities. The implementation paper will put forth recommendations to address these concerns and will highlight best practices in order to develop an agenda for action to assist in the design of new human resource sector operations with sustainable development impact.

11.34. Bank lending is already moving in the direction of the following six key areas of reform, described in Part III of this report.

- (a) The Bank will continue to encourage its low- and middle-income country clients to give a higher priority to education and education reform (Chapter 5), as an important complement to economic reform programs.
- (b) Education projects are taking more account of outcomes (Chapter 6) and their relationship to educational inputs and processes at the institutional level. This focus involves the more explicit use of: (i) participatory methods in sector work and project design to ensure that all relevant clients are involved and that there is

agreement on desired project outcomes and institutional-level conditions to produce the outcomes; (ii) of learning assessments to measure projects' impact on learning and on institutional environments; (iii) of attention to the collection of policy-related data; and (iv) of improved monitoring and evaluation during and after project implementation. In addition, cost-benefit and cost-effectiveness analysis will be more systematically used in both sector work and in the identification, design and appraisal of education projects.

- (c) The trend toward an increased share of lending being allocated to primary and lower secondary education is expected to continue (Chapter 7), with particular emphasis in the poorest countries that receive IDA funds and especially in Africa and South Asia. This emphasis will take place within the context of a sectoral approach that recognizes the importance of the various parts of the education system, the interdependencies among these parts, and the need to ensure that the focus as well as the nature of Bank assistance is based on a determination of where the Bank can be most useful in the particular circumstances of each country. Within basic education, quality is being more systematically encouraged, along with access and equity. In all regions, increased private financing and private provision of higher education are being encouraged.
- (d) Equity is also receiving more systematic attention (Chapter 8), to ensure a direct impact upon poverty reduction. Increasing attention to girls' education is now accompanied also by more attention to children from poor families and to disadvantaged groups, including ethnic minorities. Targeted early childhood development programs are becoming more important as a means of improving equity and improving later school performance.
- (e) Projects also support more household involvement in education (Chapter 9), including participation in school management and, so far only rarely, experimentation with school choice. Demand-side interventions are becoming more common, such as targeted scholarships for the poor, stipends for girls and higher education loan schemes. Since choice can run both equity and quality risks, experimentation requires more attention than in the past to the regulatory framework for education, including particularly quality-enhancing mechanisms, such as standard-setting, outcome monitoring, school inspection and, at the higher level, accreditation.
- (f) In order to enhance quality, projects are encouraging experimentation with the flexible and autonomous management of instructional resources (Chapter 10) at the institutional level, complemented with attention to incentives for performance, such as examination systems, and to quality-enhancing mechanisms.

11.35. These six key areas of education system reform will be supported by future World Bank projects in the context of the guiding principles that the Bank adopted in 1994 in *Learning from the Past, Embracing the Future* to guide its operations: selectivity, partnership, client orientation, results orientation, cost effectiveness and financial integrity. For example:

- *Partnership* will mean cooperation with other donors and agencies, particularly important as both multilateral and bilateral agencies increasingly focus their aid on

the human resource sectors. Already the Latin America and the Caribbean region of the Bank is working in close partnership with the Inter-American Development Bank on social sector projects, as are the two Asia regions with the Asian Development Bank. Also, the Education and Social Policy Department is working with UNESCO to improve the quality of international statistics on education.

- *Client Orientation* is reflected in this report's focus on stakeholder involvement in educational reform. Several regions, particularly Africa, Latin America and the Caribbean and South Asia, are enlarging their education presence in field offices to achieve such involvement. The Europe and Central Asia region has established a human resources "hub" in Hungary; in all regions, there is increasing emphasis on the participation of potential beneficiaries in project design and implementation.
- *Results Orientation* in the education sector will mean even more attention to project outcomes, involving more effort to help countries improve their education data, more learning assessment components, more links between sector work and lending, more use of benefit-cost analysis in project identification, design and appraisal and increased attention to monitoring and evaluation during and after project implementation.

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