Education Financing in Developing Countries: Level and Sources of Funds

February, 2002

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In all countries, a large portion of national resources, both public and private, are devoted to education. The rationale sustaining this fact is compelling. A quality education, beginning with primary education, is fundamental to endow individuals with the capacity to successfully pursue their private goals, while at the same time equipping them with the knowledge and skills, as well as the values and attitudes, necessary to contribute effectively to the economic, social and political development of their societies. Education not only empowers individuals to live a better life, and one of their own choice, but also makes an enormous contribution to the development of a country by, among several other things, reducing illiteracy, poverty and fertility, while at the same time improving nutrition and health, the productivity of labor and the quality of governance (see World Bank, 1995).

Although there is no *a priori* adequate level of resources that a country should devote to education, the actual level of resources a country invests helps determine the quantity and quality of education received by its children. A good education financing system generates an adequate level of funding while promoting efficiency and equity aimed at optimizing the distribution of education quality and its benefits among the members of society. Adequate levels of expenditure lead, all other things being equal, to optimum educational outputs and outcomes, while allowing for a balanced pursuit of other, competing social goals.

Increasing educational expenditure, nevertheless, is not a panacea. Increments in education spending do not translate automatically into improved outputs and outcomes. Under conditions of low system efficiency or high inequities or poor system organization, increasing spending may well prove to be the wrong medicine for the country’s educational ailments. Indeed, based on empirical analyses of expenditure and student achievement data, some authors have shown that increases in conventional measures of educational expenditure are not necessarily linked to any significant improvements in student outcomes (Hanushek and Kim, 1995). When spending more resources in education, other factors also need to be in place for the system to respond properly so the intended educational goals are actually achieved.

The main purpose of this background paper is to offer an introduction, tailored to education officials and policymakers in developing countries, to the analysis of education financing. Specifically, the paper explores the level and sources of education finance, understood as instruments for education reform and the bettering of education. The paper provides conceptual and analytical tools, and when appropriate some discussion of policy options, for the more informed discussion of education finance policy reform issues. The international comparative data presented throughout the paper serves as the factual matter by which to introduce tools and ground education policy discussions.

This background paper is not intended to be prescriptive or to provide ready-made answers to complex educational challenges. There are no simple recipes. Plus, national and local conditions place practical constraints to desirable policies. Identifying and implementing education finance policy reform is the responsibility of national and local educational authorities as well as society, and reforms need to be owned by key
stakeholders. Reforms should also be tailored to specific national and local conditions, as well as directed to meet nationally and locally owned goals. Concrete finance policy decisions also need to be supported by expert analyses of reliable national and local data, using adequate analytical tools.

But even the best technical reform designs cannot overcome the fact that in all countries education stakeholders are endowed with different types and levels of political resources, and thus policymakers confront legitimate disagreements regarding the goals of education and education finance reform priorities and implementation. These disagreements, as they include values, cannot necessarily be reduced to common grounds through rational debate. Therefore, moving forward with an effective education reform program may require a capacity, in part provided by the institutional environment, for accommodation and compromise so as to agree on educational goals that are acceptable to diverse stakeholders, as well as on a reasonable distribution of costs and benefits. Thus, the availability of reliable data and the utilization of adequate analytical tools, are all necessary but never sufficient conditions for effective education finance policy reform.

Serious limitations in the availability, reliability and comparability of international data, require that the reader be cautious and always skeptic about any generalizations presented here or anywhere else on the basis of such data. International comparisons may serve, however, to provide a “benchmark” against which to assess the general performance of national education systems and identify potential, general areas where education reform, after additional analysis based on detailed national data, may be profitably undertaken.

**Sources of Education Finance**

Education funding comes from many different sources. The total level of funding a country dedicates to education is the result of the total level of funding provided by each one of these sources. The main sources of education finance are the following:

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1 For an in depth discussion of these and other topics see the background papers by Marc Roberts, “The Education Sector Reform Cycle,” Judging Education Sector Performance Ethical Theory,” and “Political Analysis and Political Strategies,” as well as Corrales (1999), which provides a useful analytical framework, based on country experiences from LAC, to understand the political conditions and related strategies that support or hinder concrete education reforms.

2 Institutions and organization matter—and they matter a lot. Institutions are the “rules of the education reform game” and as such provide an incentive framework that helps shape stakeholder and policymaker behavior, and thus helps determine reform outcomes. Adequate institutions, that support efficient behaviors, are critical to meeting the efficiency challenge in education. Organizations, on the other hand, including schools and universities, ministries of education and other government agencies, national, regional and local governments, teachers unions, student groups, etc, are groups of individuals with different human and material capabilities in pursuit of some common objective. (For a classic economic definition of institutions and organizations see Douglas North, 1990.) Organizations are not simply stakeholders. The capacity of organizations to carry out education policy and policy reforms determine the efficiency and effectiveness limits of the education system. (See Ariel Fitzbein (2001) for a stimulating application of institutional analysis to education reform, in this case to decentralization of education in the ECA; and Elie Orbach (2000) for a practical application on how to carry out an organizational analysis to assess the capacity of a Ministry of Education to implement an education reform project.)
• **Public finance.** They represent, on average, the bulk of national educational expenditure or about 80% or so of the total. Refers to the total of the resources allocated and spent in education by the various levels of governments (central, regional and local) as well as by public educational institutions. In different countries, the participation in total public education financing of the various government levels varies widely. For example, in the Czech Republic the central government allocates and spends 79% of public educational expenditures while the local government 21%. In the United States, only 7% is allocated by the central level, while regional (state) and local levels allocate (more or less equally) the other 93%; but uses of funds are a local responsibility. Public financing includes both direct public expenditure on education and subsidies to (mostly) households, such as tax reductions, scholarships and loans, living allowances, etc. In tertiary education, direct subsidies may represent a large share of public financing (about 19% in OECD countries).

   **Box 1. Comparative Educational Indicators.**

_**Educational indicators** are individual statistics that convey useful information about relevant aspects of an education system. Properly used and interpreted, they provide extremely valuable information to education policymakers. Educational indicators help reformers (a) obtain information about the main aspects of a system; (b) identify ‘standards’ against which to judge or measure national education systems to help identify potential areas for reform; and (c) monitor progress. These indicators also allow for international comparisons that place individual countries in broader contexts, allowing for identification of areas for improvement that otherwise might not be noticed. Identification, design and implementation of concrete reforms require, however, a detailed analysis of specific national conditions.

In education financing, a number of indicators are used to describe, among other things, the level of educational expenditure, such as the share of GNP countries devote to education or measures of per student expenditure; the sources of education financing, such as share of private or public expenditure, or foreign aid, in total educational expenditure; the uses of education financing, such as student-teacher ratio, capital vs. recurrent expenditure or teachers’ salaries as share of total recurrent expenditure. Caution is always necessary when interpreting international data as it may not always be reliable and system comparability may be problematic. (For a more extensive explanation of key education indicators, see OECD 2000.)

• **Private sources of finance.** They represent, on average, close to 20% of total national educational finance. In some countries, however, they represent a significant share of resources and even the larger portion of total educational expenditures. Private sources include, in general, mostly households, but also communities, civil society organizations and the private sector. With few exceptions, households pay for the overwhelmingly largest share of total private financing. They do so by incurring both direct and indirect costs. **Direct costs** include tuition fees, transportation to and from school, uniforms, teaching materials, and so on. **Indirect costs** are costs that are not directly incurred by the household, but instead indirectly as the opportunity cost of having their daughters and sons in schools instead of working and earning an income. In effect, education implies foregoing an income that would be available if
the student instead used his or her time in a productive employment. This income
forgone represents a substantial and very significant cost of public education to
households, and particularly burdensome for low income households. It is also an
important policy factor explaining the behavior of low income families towards
education. (Notice that societies also incur a significant economic indirect cost by
having a large share of their population in school instead of studying. Both societies
and families expect to recover this investment in human capital through increased
earnings through higher work productivity leading to higher salaries, employment and
economic growth.) Research shows a significant willingness of households to pay for
education (see Bray, 96), although both the level and actual capacity to pay by
families enjoying different income levels, makes the question of charging for
education problematic, particularly at lower levels of education where the poor tend
to concentrate.

- **International sources.** International sources of finance, including loans, represent,
according to data of 1997, about 2% of total educational expenditure by developing
countries. In 1997, the sum of all educational resources provided by international,
bilateral and multilateral agencies, including loans (which actually account for about
close to half of this total), was between 6 and 6.5 billion dollars, while developing
countries spent about 290 billion. Countries thus need, generally, to look inwards to
search for more abundant sources of funds. There are some exceptions. Small
economies and least developed countries may benefit from more significant external
sources of finance. Still, with few exceptions, national resources are the key to
educational spending.

**Private Expenditure**

Private expenditure represents a very significant share of total expenditure in many
countries. Figure 1 shows that such is the case in the Republic of Korea, Chile, Vietnam,
the Philippines, and many others. In some cases, like for example Lesotho, private
expenditure is close to half of total expenditure. In the case of Haiti, over 80% of
education financing is private—in this case, more the result of the general inability of the
state to finance public schools.

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3 For the family, the opportunity cost of education is the after-tax income foregone, because if the student
had instead been working, he or she would have received only an after-tax income, as the tax is collected
by the government. From society’s perspective, on the other hand, the opportunity cost is the before-tax
income foregone, since the contribution to society’s income (or product) includes both the after-tax income
received by the individual and the tax collected by the government.

4 Foreign aid and loans represents, on average, only a minimum share of educational expenditure in
developing countries. In 1997, developing countries spent about 290 billion dollars in education. Total
foreign educational aid was only about 6.6 billion or 2% of total educational expenditure in developing
countries. Still, foreign aid and loans may represent a significant share of total educational expenditure in a
few countries, as well as an important source of funds for some particular items, such as school building,
computers, or projects with special components such as girls education, etc. In spite of their marginal
relevance in terms of total educational expenditure, international and bilateral organizations may have
significant influence over national education policies.
In most countries, nevertheless, private financing represents less than 20% of total financing. This is still a very significant share. The importance of private financing of education is such that, without it, educational resources would be seriously reduced in most countries and the outputs and outcomes produced by the education system significantly diminished.

Countries that have been effective in mobilizing private sources of funds enjoy more resources per student per dollar spent by taxpayers than those who have not and rely exclusively on public sources. Observe, for example, that Mexico and Chile both spend around 6% of their GNPs in education, in spite of the fact that the Mexican government spends 4.9% of its GNP in education, while its Chilean counterpart spends only 3.6%. Chile has mobilized private sources to a larger extent than Mexico.

**Figure 1. Public and Private Expenditure as a Share of Total Educational Expenditure in Selected Countries (circa 1995).**

Private sources can and should make a fundamental contribution to education financing in all countries. The lesson for policy-makers is clear: efforts must be made to mobilize private sources of finance so as to increase availability of much needed funds. This is specially urgent in countries where governments already spend a relatively large portion of the public budget in education. The caveat is, however, equity consideration. Primary education should generally be free, as agreed by all Education for All signatories, since one of the main obstacles to education access for the poor is the cost of education. Unfortunately, indirect costs (foregone income), among other factors (such insufficient
supply of accessible school places and as low quality education), may discourage many parents from sending their children to school. Having said this, charging tuition fees and other direct costs to families need to be weighed carefully for their consequences over equity, but also over access to education.

**Public Expenditure**

In spite of the crucial importance of private sources in several countries, public expenditure is still the main source of educational funds in most countries. In most of countries for which data is available, public financing represents about 80% or more of total education financing, and in almost all countries over 50%. Still, private sources, as we know, make a very significant contribution to education, a source that in many countries may be underutilized.

**Box 2. Indicators of Total Educational Expenditure.**

*Total public educational expenditure as a share of GNP* shows the proportion of total national resources a country devotes annually to education. It serves as a comparative measure of ‘national effort’ in support of education. The indicator is calculated by dividing a country’s total public annual expenditure in education by its GNP. Total public expenditure as a percentage of GNP is commonly used instead of total (public and private) expenditure, as data on private expenditure is not readily available in many countries. Public expenditure, of course, underestimates total expenditure and distorts international comparisons, as in all countries private sources play a role in education finance, and sometimes a very significant one. Finally, when comparing total expenditure it is critical to include expenditure by all levels of government, i.e., central, regional and local, as well as by public schools, if applicable. In many countries, regional and local governments allocate and spend a significant portion of total educational outlays and in several the largest portion, such as in Brazil and India.

*Total public educational expenditure as a share of total government expenditure* describes the proportion of its total annual expenditure that a government spends on education. It provides a comparative measure of ‘government effort’ in support of education. The indicator is calculated by dividing the total annual public expenditure in education in a country by total public expenditure by all levels of government. Although the indicator measures ‘public effort,’ notice that governments are complex organizations whose various levels and agencies enjoy diverse degrees of autonomy to raise, allocate and spend educational resources. Thus, central governments or Ministries of Education might in practice have little control over the share of public resources spent in education—e.g., in the United States the federal government controls less than 10% of total public educational expenditure. Finally, observe that governments devoting a relatively larger share of their budgets to education make a relatively larger educational effort, but also have less room for increasing educational expenditures through public financing. Finally, when carrying out international comparisons it is crucial to include expenditure by all levels of government. Another important limitation results from the different accounting practices and classifications used by countries.
There is a strong economic rationale for government intervention in the financing (although not necessarily in the provision) of public financing based on the notion of ‘market failure.’ Indeed, educational free markets fail to produce the amounts and distribution of education that may be socially optimum. First, paying for educational services, and particularly so for higher education but also for secondary and primary, is beyond the means of many families. The government is thus the key to ensure educational opportunities for all, irrespective of family income. Consider also that capital markets fail to provide affordable credit to those families that cannot afford education. Moreover, even if that credit was available, families may not be willing to take advantage of it, either because due to lack of information they may underestimate the future economic returns of this investment.

Finally, educational investments provide benefits for society that exceed those benefits received by individual families, such a widespread literacy, fertility control and health, and so on. These ‘externalities’ also constitute an important argument in favor of public financing of education. Notice that although these arguments support public finance of education so society may reap its benefits to the fullest extent, the same arguments do not imply that governments should finance all education in a country. Private financing is crucial in developing countries and without it many children would simply not be able to enjoy the benefits of schooling. Governments, to conclude, should concentrate in providing education where the private sector will fail on level, efficiency or equity basis.

In this section we use some of the most conventional comparative indicators of level of expenditure to compare the level of resources countries devote to education. We will subsequently explore both total expenditure level as well as level of per student expenditure. Again, we will generally focus on public expenditure, but we will private expenditure on occasions.

**Total Educational Expenditure**

It is remarkable how stable the level of educational expenditure as a share of world income has remained during the last two decades. Since 1980 the governments of the world have spent yearly about 4.8% of their collective gross national products (GNP)\(^5\) in educating their citizens. If one assumes that, roughly, about one quarter of total educational expenditure is private expenditure, during the last two decades the world has spent annually about 6% of its GNP in education. (Average annual per student expenditure in all levels of education has remained stable at a level of about 22% of world per capita GNP or, in absolute terms, a little more than US$1,200 per student in 1997.) This remarkable stability, however, hides the fact that the level of educational expenditure varies significantly between individual countries and regions, both in absolute and relative terms.

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\(^5\) The gross national product (GNP) is the market value of all goods and services, including education, produced annually by the residents of a country and is identical to the total income received by the residents of the country (i.e., all residents living in the country or abroad). In contrast, the gross domestic product (GDP) is the market value of all goods and services, including education, produced within the borders of a country (i.e., by the residents of that country and by residents of other countries as well).
Total Educational Expenditure as a Share of GNP

Across world regions, total educational expenditure has varied substantially in the last two decades (see figure 2). When measured in terms of public educational expenditure as a share of GNP (private expenditure in education is not available at a regional level), the Middle East and North Africa (MNA) and Sub-Saharan Africa (AFR), have sustained, on average, the highest education finance efforts in the world—about 5% of their national GNPs have been invested in education. In MNA, efforts boosted by the high economic growth of the 1970s and early 1980s, led to a significant expansion of access at all levels of education. In MNA, enrollments have grown steadily since the early 1970s, from rates of about 60% in primary and 20% in secondary to close to 90% and 60% respectively.

Until the 1980s, Eastern Europe and Central Asia (ECA) enjoyed the highest educational expenditure as a share of GNP among the world regions. But after the collapse of the Soviet Union the share declined dramatically, from well above 6%, in the 1980s, to 4.3% in 1990. Since then it has bounced back. It reached 4.8% in 1997. Today, the main challenge facing ECA consists on trying to preserve the educational achievements of the past while adapting educational systems to new market economies and democratic polities in a context of stagnant public resources.

Figure 2. Public Educational Expenditure as a Share of GNP by World Region.

In Latin America and the Caribbean (LAC), public spending as share of GNP grew from around 4% during the recessive 1980s to 4.6% in 1997. East Asia and Pacific (EAP) and the South Asia Region (SAR) show the lowest indicator. SAR has seen that share decline from about 4.1% in 1980 to 3.3% in 1997. The extraordinary success of SAR in expanding student enrollments has, however, led to significant reductions in the resources available per student. In EAP, public educational expenditure as a share of GNP has remained at about 3% for the last two decades. This relatively low share reflects the great weight of China, country that spends about 2.3% of its GNP in education.
Since 1980, annual public educational expenditure in more developed countries has represented around 5% of their combined GNP. While for less developed countries, excluding the transition economies of ECA, the same indicator is a bit less than 4%. The world least developed countries have seen their already relatively low level of public educational expenditure decline steadily from 2.8% of GNP in 1980 to about 2% in 1997. Most countries spend between 3% and 6% of their GNP in education.

Among the countries represented in Table 1, total expenditure as a share of GNP varies from about 2% in Tajikistan and China to above 8% in South Africa and Lesotho. During the first half of the 1990s, some countries, such as Hungary, saw their share of GNP devoted to education greatly reduced. The most dramatic example of this trend is, however, Tajikistan, which due to a profound economic recession and internal conflict reduced education expenditure as a share of GNP from 9.7% in 1990 (at the time one of the world highest) to 2.2% in 1996. Other countries increased or maintained their ‘national educational effort’ in the same period.

### Table 1. Public Education Expenditure as Share of GNP and of Government Expenditure.

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<tr>
<td>AFR</td>
<td>4.6</td>
<td>5.1*</td>
<td>LAC</td>
<td>4.0</td>
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<tr>
<td>Ethiopia</td>
<td>3.4</td>
<td>9.4</td>
<td>Argentina</td>
<td>3.4</td>
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<tr>
<td>Ghana</td>
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<td>24.3</td>
<td>Brazil</td>
<td>4.5</td>
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<tr>
<td>Lesotho</td>
<td>3.7</td>
<td>12.2</td>
<td>Chile</td>
<td>2.7</td>
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<tr>
<td>Nigeria</td>
<td>3.3</td>
<td>12.2</td>
<td>Cuba</td>
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<td>South Africa</td>
<td>6.5</td>
<td>8.0</td>
<td>Mexico</td>
<td>3.7</td>
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<tr>
<td>EAP</td>
<td>3.0</td>
<td>2.9*</td>
<td>MNA</td>
<td>4.9</td>
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<tr>
<td>China</td>
<td>2.3</td>
<td>12.8</td>
<td>Algeria</td>
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<tr>
<td>Indonesia</td>
<td>1.0*</td>
<td>3.8</td>
<td>Egypt</td>
<td>3.8</td>
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<td>Korea, Rep.</td>
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<td>22.4</td>
<td>Iran</td>
<td>4.1</td>
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<tr>
<td>Philippines</td>
<td>2.9</td>
<td>10.1</td>
<td>Morocco</td>
<td>5.5</td>
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<tr>
<td>Singapore</td>
<td>3.0</td>
<td>18.2</td>
<td>SAR</td>
<td>3.7</td>
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<tr>
<td>Thailand</td>
<td>3.6</td>
<td>20.0</td>
<td>Bangladesh</td>
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<tr>
<td>Vietnam</td>
<td>2.1</td>
<td>7.5</td>
<td>India</td>
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<tr>
<td>ECA</td>
<td>4.3</td>
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<td>Nepal</td>
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<td>Hungary</td>
<td>6.1</td>
<td>7.8</td>
<td>Pakistan</td>
<td>2.7</td>
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<tr>
<td>Poland</td>
<td>5.4§</td>
<td>14.6§</td>
<td>Others</td>
<td>5.0</td>
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<tr>
<td>Russian Fed.</td>
<td>3.5</td>
<td>3.5</td>
<td>France</td>
<td>5.4</td>
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<tr>
<td>Tajikistan</td>
<td>9.7</td>
<td>24.7</td>
<td>Japan</td>
<td>5.4</td>
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<tr>
<td>Turkey</td>
<td>2.1</td>
<td>3.4†</td>
<td>Spain</td>
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<td>Ukraine</td>
<td>5.0</td>
<td>19.7</td>
<td>U.K.</td>
<td>4.9</td>
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<td>Uzbekistan</td>
<td>9.5</td>
<td>20.4</td>
<td>U.S.A.</td>
<td>5.2</td>
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\( \text{§ 1991; † 1994; ‡ 1995; * 1997; ♠ includes only expenditures by central government.} \)

Source: UNESCO, World Bank, OECD.

Among the countries of the world, Jordan (not in the table) was one of the countries that invested the greatest share of its GDP in education or 11.6% in 1995. This was the consequence of a explicit policy effort by Jordan, initiated in the mid-1980s, to sustain a sufficiently high level of public funding to enable Jordanian children to match the best international student achievement standards (OED, World Bank, 2000). The policy, was
not only successful in mobilizing public resources, but also, the same time, Jordan was effective in mobilizing private sources of financing (see figure 3, below).

**Total public educational expenditure as a share of total government expenditure**

The level of public educational financing also varies as a share of the government budget (see Box 2). Some governments give a higher priority to education within their national budgets than other countries. Table 1 shows that several governments spend close to one quarter of their total annual budget in education, including Poland, South Africa, Mexico and Singapore. Others spend around 10% or less, such as Spain, France, Japan and Pakistan. Most of the states represented in Table 1, spend between 12% and 18% of their public budgets in education, but variations are important.

Observe that the larger the public sector, the more the resources devoted to education for an equal share of total government expenditure devoted to education. For example, in 1996 the Cuban and the Indian governments spent a similar proportion of their total expenditures in education, 12.6% Cuba and 11.6% India. But this represented only 3.3% of the Indian GNP while 6.7% of the Cuban one. Singapore, on the other hand, spent 23.4% of its public expenditure in education (i.e., double the share of Cuba and India), but only 3% of its GNP (i.e., similar to India but less than half the share of Cuba). The reason is that the Singaporean public sector, when measured as a proportion of GNP is about half the Indian public sector, which in turn is about half the Cuban.

**Figure 3. Total Public and Private Expenditure as a Share of GNP (circa 1995).**

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6 On average, the size of the public sector relative to the total national economy tends to increase as income per capita increases.
Figure 3 shows total public and private expenditure in education as a share of GNP for 35 countries. The figure also underlines the importance of private financing for education. For example, notice that public expenditure as a share of GNP is very similar in both the Republic of Korea and the Russian Federation, but due to the contribution of private sources of finance (mostly in higher education), Korea spends significantly more in education than Russia as a share of GNP.

**Box 3. Public Expenditure Reviews.**

An exclusive focus on the education sector or on individual reform projects, ignores the greatest picture of government finance. Just as it is important to allocate resources efficiently across levels of education and between educational inputs, it is fundamental to pay attention to the allocation of resources across public sectors. Public expenditure reviews (or PERs) are used to assess the desirability of changes in the current composition and size of public spending in the different sectors on which public resources are spent. A PER does not answer all of our questions and, at best, helps in the difficult task of identifying an adequate level of resources for a country to spend in education. This alone, however, is of great value to policymakers struggling to maximize the social return of public investments.

The analysis of government expenditure consists of three steps process, which is best summarized by three questions (Pradhan, 1996): (1) Is there a rationale for government intervention and public expenditure? (2) If the market fails, what is the gap between private and social outcomes and to what extent can the government help close that gap? (3) What is the impact on the poor? (1) Government expenditure varies widely between countries, from less than a fifth to two thirds of GDP, and there is no such a thing as an ideal level of expenditure. But the level of expenditure needs to remain below the point where the budget deficit of a country becomes ‘unmanageable’ (an issue we will not discuss here) so expenditure is sustainable and does not hurt the performance of the economy in the long-run. (2) An analysis of expenditure across sectors or intersectoral analysis helps us know how resources are allocated among the various public sectors, including education. (There is no conclusive evidence linking various allocation patterns and economic growth.) The Table below (Pradhan, 1996) shows average sectoral government expenditure by world Region (during the late 1980s)

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<tr>
<td>General Services (Defense)</td>
<td>34% (10%)</td>
<td>33% (13%)</td>
<td>39% (12%)</td>
<td>39% (21%)</td>
<td>31% (15%)</td>
</tr>
<tr>
<td>Social Services (education, health, social security) (Education)</td>
<td>30% (16%)</td>
<td>39% (24%)</td>
<td>37% (17%)</td>
<td>33% (12%)</td>
<td>33% (27%)</td>
</tr>
<tr>
<td>Economic Services (agriculture, transport, industry, energy) (Agriculture)</td>
<td>25% (9%)</td>
<td>30% (10%)</td>
<td>23% (5%)</td>
<td>22% (5%)</td>
<td>25% (10%)</td>
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</table>

Public resources should be dedicated to those areas where private resources fail to produce desired social outcomes, including level of expenditure and equity. Devoting scarce public funds to those areas where the private sector has a comparative advantage and will provide the resources diverts valuable funds from social priority areas. Once we understand how resources are allocated between sectors, we need to explore how they are allocated within each sector. This requires an intrasectoral analysis. In education, policymakers need to know how resources are allocated across levels of education as well as, within each level, between educational inputs. (3) A benefit incidence analysis allows us to examine the distributional impact of alternative government expenditure and thus assess its effects over the poor. (For more on PERs see Pradhan, 1996).
A note regarding sustainability. Desired improvements in national educational outcomes will only follow from financial commitments that are sustained during very long periods of time—although even this may not be sufficient without efficiency and equity improvements. Just as ‘one flower does not bring spring,’ sporadic efforts at investing in education will not bring about long-term educational improvements. Short-term commitments can only accomplish limited, short-term goals. Sustainability is thus a key criteria to determine the adequacy of the level of educational funding.

**Income and Educational Expenditure**

The main constraints countries confront to the expansion of *total* educational expenditure is their fiscal capacity (the ‘fiscal constraint’). The fiscal constrain is correlated to the income per capita. (Factors such as the tax-base and public sector efficiency also matter.)

*The Fiscal Constraint*

A country’s level of public expenditure in education as a share of GDP is correlated to its GDP per capita. Figure 4 shows the correlation for 121 countries for which data was available.

**Figure 4. Public Educational Expenditure as a % of GNP and GNP Per Capita (1996).**

![Graph showing correlation between public educational expenditure as a % of GNP and GNP Per Capita](image)


Public expenditure as a share of GDP tends to be higher, on average, in more economically developed countries than in less developed ones (i.e., the income elasticity of public education is greater than one, i.e., as the income of a country increases, public expenditure in education grows as a share of national income.)

So far, we had been discussing only total levels of expenditure as a share of GNP or of the government budget. But we know turn to measures of per student. expenditures.
Per Student Expenditure

The impact of total educational expenditures depends on the resources that reach each student in the classroom. Higher per student expenditure normally leads to higher teacher salaries and more training, more and better teaching materials per student, better school facilities, and so on. All of these are factors that tend to correlate positively with desired educational outcomes. Nevertheless, unfortunately, there is no automatic connection between per student expenditure and improved educational outputs and outcomes. The relationship is highly complex. To begin with, improving access to quality education requires an efficient allocation and use of scarce educational resources as well as their equitable distribution. This point is critical. Eric Hanushek, for example, showed that while per student expenditure in the United States increased two-fold between 1970 and 1990, student achievement as measured by national tests remained almost constant, with an initial decline and posterior increase and leveling to achievement levels of the 1970s over the whole period (Hanushek, 1998). Hanushek’s arguments generated a serious questioning of educational policy in the United States and led to a series of reform efforts and experiments, which continue today, aimed at improving student achievement.

Box 4. Indicators of Per Student Expenditure.

*Total per student expenditure* provides a measure of the total current resources per annum a country spends on average in each student enrolled in school. It thus also represents the unit cost (or average cost) of the education system as a whole. The indicator is calculated by dividing total annual educational expenditure in all levels of education by the total number of students enrolled that year. It is normally calculated for each level—primary, secondary and tertiary—since per student expenditure (or unit costs) increases with the education level. The calculation typically considers only current expenditures and not capital expenditures. Per student expenditure not only reflects the physical quantities of resources (teachers, schools, textbooks, etc) spent per student, but also the prices of these resources. Higher prices imply less resources per student for dollar spent. For example, an efficient system of textbook development, production and distribution can provide substantially more textbooks of comparable quality per student than an inefficient one. At the same time, higher prices, particularly higher teachers’ salaries and teaching materials, may also reflect better quality of educational resources. Finally, one needs to include expenditure by all levels of government, as in many countries regional and local governments allocate and spend a significant portion of total educational resources.

*Per student expenditure as a share of income per capita* (or of per capita GNP) provides a measure of how much a country spends annually on average in each student enrolled in school in relationship to that country’s per capita income. It is calculated by dividing the total annual per student expenditure by the national per capita income. This indicator places total per student expenditure in a comparative perspective, that is, as a proportion of the availability of resources in each country. In this sense, it is also a measure of relative ‘national educational effort.’ Finally, it is important to keep in mind that per student expenditure is a measure of average expenditure and therefore does not say anything about the distribution of educational expenditure among the student population.
**Per Student Expenditure as a Share of GNP per Capita**

The most common indicators used to compare levels of per student expenditure between countries are: total per student expenditure and total per student expenditure as a share of GNP per capita (see Box 4).

During the 1990s, the World spent about 22% of its per capita GNP in education. (In 1997 this represented an average annual per student expenditure of US$1,224.) But regions and countries greatly differ in the level of resources they spend per student, both in terms of absolute dollars and as a share of per capita income. Figure 5 compares developing regions in the late 1990s in terms of unit costs (per student expenditure) in total dollars and as a share of regional income per capita.

**Figure 5. Public Per Student Expenditure by Region in All Levels of Education (1997).**

When public current per student expenditure is measured as a share of per capita income, ECA with 26% holds the higher indicator, followed by MNA with 22.1%. Observe that this is in spite of the fact that ECA spends less per student in absolute dollars than MNA. Since the average per capita income for ECA is lower than for MNA, its lower absolute dollar expenditure still represents a relatively larger share of its per capita income. SAR follows ECA and MNA in per student expenditure as a share of GNP. Its lower absolute per student expenditure represents a higher effort than that of AFR EAP, and LAC.

Per student expenditure measured as a share of per capita GNP remained fairly stable during the 1990s in EAP, LAC and MNA and, if anything, tended to increase. But AFR and SAR have saw unit costs decrease significantly during the same period, mostly due to large increases in absolute numbers of students enrolled in primary and secondary education. In the case of AFR, a protracted recession and a number of internal conflicts have contributed to this downward trend. In other words, during the 1990s, AFR and...
SAR have been spreading thinner and thinner their scarce educational resources among a rapidly rising school population. The persistence of high fertility rates in these regions add to the challenge of continuing improving education.

Table 2. Per Student Expenditure in Dollars PPP and as % of Per Capita GNP (1996).

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Per pupil expenditure as % GNP per capita</th>
<th>Per pupil expenditure in dollars (PPP)</th>
<th>Country/Region</th>
<th>Per pupil expenditure as % GNP per capita</th>
<th>Per pupil expenditure in dollars (PPP)</th>
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During the 1990s, the transition economies of ECA have been the only ones where per student expenditure as a share of per capita income has increased. In 1997 the indicator was 26%, compared to 20.5% in 1990. At first sight, a positive development. On closer look, however, the consequence of some very negative developments. ECA has suffered a severe contraction of its per capita GNP and at the same time declining student enrollments—in 1997, about 3 million less students were enrolled in all levels of education than in 1990. Unit costs have remained very high, to a large extent due to resilient inherited inefficiencies preserved during the transition. The most obvious is the extremely low student-teacher ratio—about 12.4 in 1997, down from an already very low ratio of 13.4 in 1990.

Table 2 shows per student expenditure (also called unit costs) both as a share of a country’s GNP per capita and in international dollars for primary, secondary and tertiary education. Observe that per student expenditure varies greatly across country as well as within each country by educational level.

Compare, for example, Malawi and Namibia. At the primary level Namibia spends twice as much as Malawi as a share of per capita income, but at the tertiary level the relationship reverses dramatically, with Malawi spending 13 times as much as Namibia. In 1996, Bhutan, a low income country, had the higher public per student expenditure as a share of per capita GNP in primary education in the world (30%). The figure

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represented over three times the average for South Asia. Bhutan’s high indicator is the result of having also some of the lowest gross enrollment rates in the world, that is, in 1995, 18.2\% for primary education, 6.4\% for secondary and 0.2\% for tertiary. If the ‘kingdom in the clouds’ were to quickly expand access to education, the currently high unit costs would rapidly become unsustainable.

Observe that variations in per student expenditure between individual countries are overwhelming when measured in absolute dollars. The case of Bhutan, again, provides a good example. In 1996, in spite of spending almost as twice as much as Japan per primary student as a share of per capita income, Bhutan spent only US$129 dollars per primary student compared to $6,487 for Japan, that is, 50 times less. But Bhutan spent 7 times more dollars per student than Bangladesh and 10 times more than Kyrgyzstan.

Finally, observe that governments spend, on average, several times more resources per student at the tertiary level than at the primary level. This is explained mostly by the higher costs of tertiary education when compared to primary education. Teachers, learning materials, equipment and facilities are all significantly more expensive at the university level. Although almost all countries spend more public resources per student at the tertiary than at the primary level, some spend many times more than others. Compare for example, Brazil, that spends 10 times more resources per student at tertiary than at the primary level, or Malawi, that spends 175 times more resources, with Argentina and Thailand, that spends only twice as much.

There are several policy options available to reduce unit costs at the tertiary level, including increasing enrollments and recovering costs by charging fees to those who have access to the benefits of higher education. In the Republic of Korea, a late twentieth century educational success story, the government spends three times more resources per student in primary than in tertiary education. Only in very few other countries public per student expenditure in primary is higher than in tertiary education. The Republic of Korea is able to give priority to primary education while securing a high-quality tertiary by extensively tapping private sources of finance for tertiary education.

**Income, Population and Per Student Expenditure**

The main constraints to the expansion of per student expenditure are, again, the fiscal capacity of a country (the ‘fiscal constraint’) and their dependency rate, or the proportion of its school-age population to its active-age population (the ‘demographic constraint’). Both are correlated to the income per capita of a country.

**The Demographic Constraint**

The age distribution of a country’s population matters. The dependency ratio is an indicator of the distribution of a country’s population between school-age and active-age. This ratio can be measured in various ways. Here we measure it as the proportion that the total basic school-age population (0-14 years of age) represents of the total active-age population (15-64
years of age). The size of its school-age population is a measure of a country’s potential demand for education.

The dependency ratio tell us that for similar levels of per capita income, a country with a higher dependency ratio will have to spend a higher proportion of its GDP to provide the same amount of per student expenditure than in other countries with lower dependency ratios. To preserve per student expenditure levels, countries with relatively low gross enrollment rates and high dependency ratios will need significant increments in their total educational expenditure or reallocation of inputs, such as increased class size and hence higher pupil-teacher ratios.

Figure 6 shows that the dependency ratio decreases with higher levels of per capita income, which are associated with lower population growth and an aging of the national population.

**Figure 6. Demographic Constraint: Dependency Ratio and GNP Per Capita (1996).**

![Graph showing the relationship between dependency ratio and per capita GNP (at US$ PPP).](source: UNESCO (2000))

*The Fiscal Constraint*

A country’s level of public per student in absolute dollars is closely correlated to its GDP per capita. Figure 7 shows that among the 122 countries for which data was available, national income per capita correlates almost perfectly with per student expenditure in PPP dollars in primary education. (The Pearson correlation coefficient is +0.95!) Another useful comparison is that between a country’s per student spending as a share of per capita GDP and its income per capita (see Figure 8).

Figure 8, based on data for 122 countries, shows that per student expenditure in primary education as a share of GNP per capita increases slightly with per capita income. Some low income countries tend to spend relatively more per primary student as a share of GNP than middle income countries and even than high income countries—we know for example that, as a result of very low enrollment rates, educational unit costs in Bhutan represent 30% of its per capita GNP at the primary level.
Figure 7. Income Per Capita and Unit Costs in Primary Education (1996).

Figure 8. Per Student Expend. in Primary as % of Per Cap Income and GNP Per Cap (96).

Figure 9. Per Student Expenditure in Tertiary as % of Income and GNP Per Capita (96).
When per student expenditure is measured as a share of income per capita, the level of per student expenditure tends to be slightly higher in more developed countries than in less developed countries. Since the 1980s, more developed countries have been spending over 20% of GNP per capita per student, while less developed countries about 16%. The least developed countries have been spending less than 15%.

Figure 9 shows the same correlation depicted in figure 8, but this time for tertiary education. Observe that per student expenditure in tertiary education as a share of GNP per capita tends to decrease at higher levels of national per capita income.

To conclude, there is no theoretically optimum level of expenditure a country should devote to education. Some useful analytical tools to try to identify desirable levels of educational expenditure include ‘benchmarking’ by comparing with other countries of several levels of income or with other similar contexts, as well as public expenditure reviews that place the education sector within the broader context of general public expenditure priorities (see Box 3).

Whenever considering the amount of resources a country should spend in educating its children, policy-makers should keep three basic principles in mind. First, the level of expenditure needs to be adequate to achieve whatever education sector objectives and broader national goals have been set, within national resource constraints. Further, levels of expenditure need to be sustainable. Unsustainable increases in the level of educational expenditure tend to reduce efficiency and hurt access to quality education. Expenditure must be sustained over the long run for education policies to bear fruit and have a lasting impact. (As we will see, typical problems in this respect include inefficient allocation of resources, as well as capital investments that fail to take into account associated recurrent costs). Finally, let us emphasize once again that the provision of additional educational resources should never be used as a substitute for efficiency, an instrumental goal that, together with equity, should always be assigned priority.