

This working paper examines issues related to financing the expansion of education systems in the Latin American and Caribbean region, drawing on data provided by Member States of the UNESCO Institute for Statistics. Balancing the goal of expanding educational opportunities, particularly at higher levels of education, while ensuring equity and quality throughout the system is closely linked to how governments and societies invest in education. The paper compares countries across the Latin American and Caribbean region in terms of educational provision and costs using the perspective of an average school career. This approach can help policy-makers assess whether financial resources are used in the most effective, efficient and equitable manner. The paper also looks forward to the next generation of school graduates and identifies some of the challenges that countries face in order to attain regional enrolment targets by the year 2010.



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Investing in the Future: Financing the Expansion of Educational Opportunity in Latin America and the Caribbean



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By Michael Bruneforth, Albert Motivans and Yanhong Zhang



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By Michael Bruneforth, Albert Motivans and Yanhong Zhang



UNESCO Institute for Statistics, Montréal, 2004

UNESCO

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Table of Contents

	Page
1. Introduction.....	7
2. Changing patterns of educational attainment	8
3. Financing the expansion of educational opportunities	15
4. Exploring the links between spending and student achievement.....	30
5. Forecasting demand for education and associated costs.....	34
6. Conclusions	38
7. List of figures and tables.....	40
8. References	41
9. Statistical annexes.....	43

1. Introduction

Education is therefore not only another means of achieving development, but also the master key and the priority strategy for overcoming poverty, strengthening democracy and increasing regional integration.

- John Daniel, UNESCO

The challenges for governments and societies in promoting economic and social development in the Latin American region are considerable. They need to realign systems in order to meet changing social and economic demands while at the same time they face growing levels of public debt, economic instability and pervasive social disparity. Rapid technological change and the move towards knowledge societies have meant a reassessment of the role of the education system in meeting these future challenges. Education is indeed a master key to unlocking the future potential of the region, but policy-makers seek to address a wide-ranging agenda: broadening access to education, improving the efficiency of the education system and guaranteeing education quality and good learning outcomes for all children.

The demand for educational opportunities is growing in Latin American and the Caribbean (LAC). An important sign of progress has been the steady increase of participation in secondary and tertiary educational programmes during the 1990s. However, these gains have been compromised by education systems that work less efficiently. Moreover, access to opportunities remains stratified by socio-economic status, perpetuating disparities among the population. Although policy efforts to promote a more equitable distribution of educational opportunities have had positive results, for example, in Brazil, Colombia and Mexico, there is a further need for reform and investment.

Balancing the goal of expanding educational opportunities, particularly in higher education, while at the same time ensuring their equitable distribution and quality throughout the system, is inextricably linked to how governments and societies invest in education. This paper looks at issues related to financing the expansion of education systems in the LAC region, drawing on data provided by Member States of the UNESCO Institute for Statistics (UIS). One important issue is how much governments and citizens currently invest in education and how these roles are changing. The paper focuses on cross-national comparisons of education provision and costs that help policy-makers to judge whether financial resources are used in the most effective, efficient and equitable manner. It also looks towards the next generation of school graduates and identifies some of the challenges in attaining regional enrolment targets for 2010.

The measurement of expenditure on education has benefited from the use of international frameworks, such as that developed by the Indicators of National Education Systems (INES) programme in OECD countries, which have been also used in the joint UIS/OECD World Education Indicators (WEI) programme.¹ While national estimates have become more comparable in countries which implement this framework, this is an area where considerable work is still needed in methodology and data quality.

2. Changing patterns of educational attainment

How have overall patterns of educational attainment and participation changed in the LAC region and what will they look like in the next 20 years? How are such trends related to patterns of student progression and completion? The answers to these questions provide an important context for understanding both the challenges and opportunities related to financing educational expansion.

Early childhood care and development and access to pre-primary education are key to preparing children for basic education. Pre-primary education is generally well developed in Latin America and the Caribbean. About one-third of the relevant child population participates in formal early childhood education and development in most countries, and in Cuba, almost every child participates. The regional gross enrolment ratio grew from 40% in 1990 to 55% in 1998 (UIS, 2001). At the last year of pre-primary education (at 5 or 6 years of age) in 1998, net enrolment rates were highest in Argentina (100%), Cuba (90%) and Mexico (81%) (ibid).

Table 1 provides the net and gross enrolment ratios for primary education in the LAC region. It shows that since 1990, primary net enrolment rates have increased from 85% to 96%, suggesting that coverage of primary school-age children has improved and the region is nearing universal primary education. For the 2000 school year, net primary enrolment rates are at least 90% in most countries, although rates fall to the 80% range in Grenada, Guatemala and Nicaragua. While enrolment rates expressed as national averages may generally be high, in some rural or remote areas within countries, participation rates may be considerably lower.

Table 1. Primary enrolment rates, 1990 and 2000

	Net enrolment rates (%)		Gross enrolment rates (%)	
	1990	2000	1990	2000
Latin America and the Caribbean	85	96	104	126

Source: UNESCO Institute for Statistics, 2003.

¹ Countries participating in WEI are Argentina, Brazil, Chile, Jamaica, Paraguay, Peru and Uruguay.

At the same time, gross enrolment rates have increased sharply, which suggests that a much larger proportion of children who are older than the official or intended age range for primary school are enrolled. This is the result of both late entry into the system and high rates of grade repetition. Almost 26% of all primary students in the region are over the intended age range. While net enrolment rates are practically equal among boys and girls in Latin America, gross enrolment rates are higher among boys (128%) than girls (125%). In countries where the difference is the greatest, boys have greater difficulties in terms of progressing in school than girls.

At the secondary education level, net enrolment rates range from a regional low of 26% in Guatemala and 36% in Nicaragua to rates near or above the 70%-80% range (the 2010 enrolment target is 75%) in Barbados, Cuba and Jamaica.

Figure 1 shows the distribution of students enrolled in primary and secondary education by age. Data on net enrolment rates by single year of age are useful in highlighting the patterns which underlie the overall participation rates and highlight problems related to repetition, late entry and drop-out. The observed enrolment patterns, indicated by the bars, can be compared to the formal or intended ages of schooling, as indicated by the lines at the bottom of each chart. It should be noted that the difference between the net enrolment rate and 100% does not represent the proportion of out-of-school children, since they can be enrolled in other education programmes (e.g. pre-primary or post-secondary).

Figure 1. Net enrolment rates by single year of age and level of education, 2000

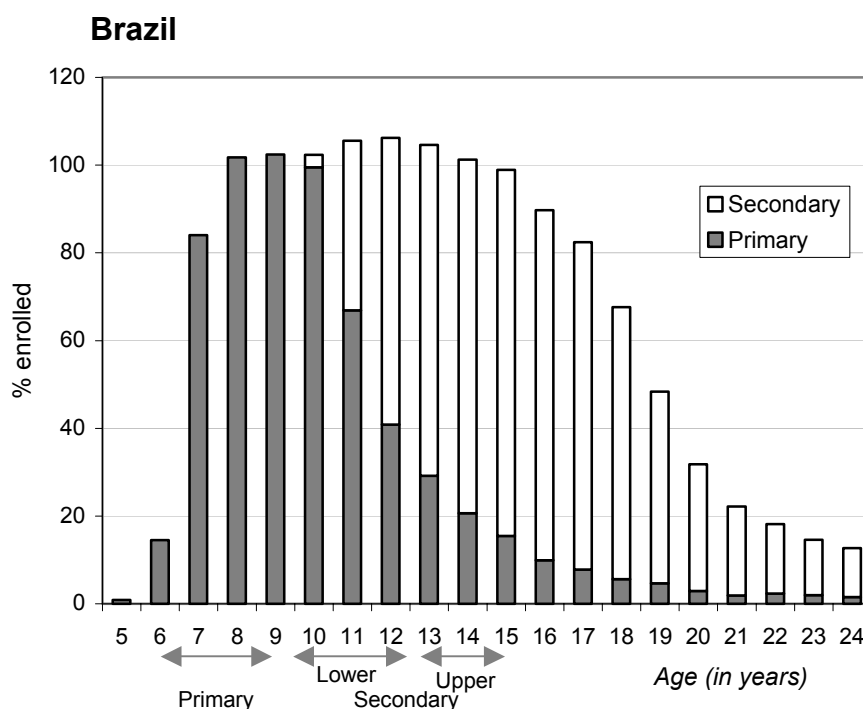
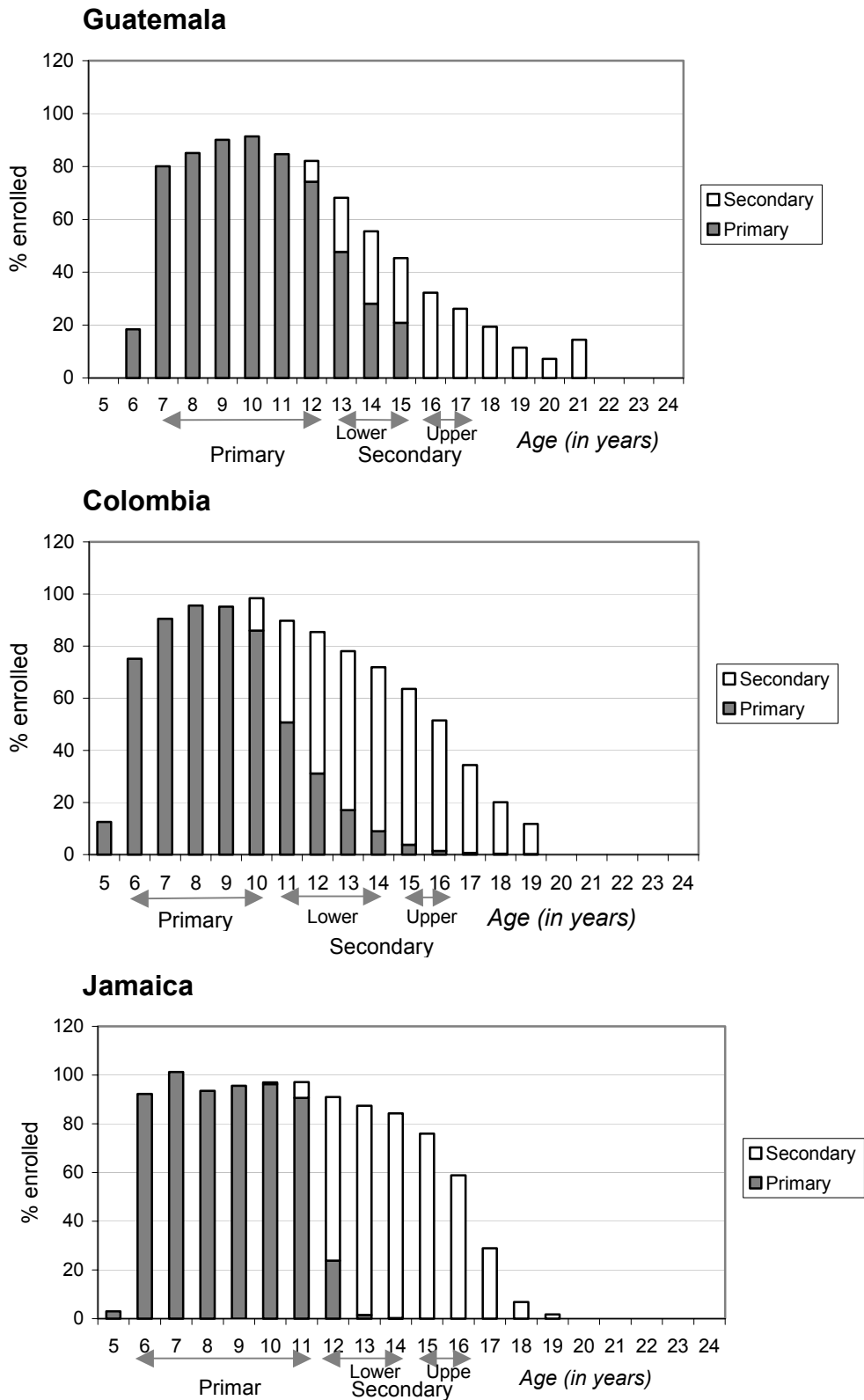


Figure 1. continued



Source: UNESCO Institute for Statistics.

These data show the extent of the coverage of educational systems. When counting the ages at which participation is universal or practically universal, enrolment rates in Brazil exceed 90% for nine years in sequence, indicating that the system keeps all or almost all students in school for a long time. On the other hand, in Guatemala, enrolment rates only reach 90% for students aged 9 and 10 years. The number of years that students stay in school is the main determinant of the volume of educational provision and thus its overall costs.

These data also show whether educational systems meet the goal of enrolling students at the official entry age. In Brazil, Guatemala and Jamaica, enrolment rates are near to or exceed 80% at the official school entry age and over 90% at the second year, while in Colombia and Guatemala, the number of children starting school later than the official age is higher. According to data for the 1999/2000 school year, 20% of primary students in Colombia and 15% in Guatemala are outside of the official entry ages.

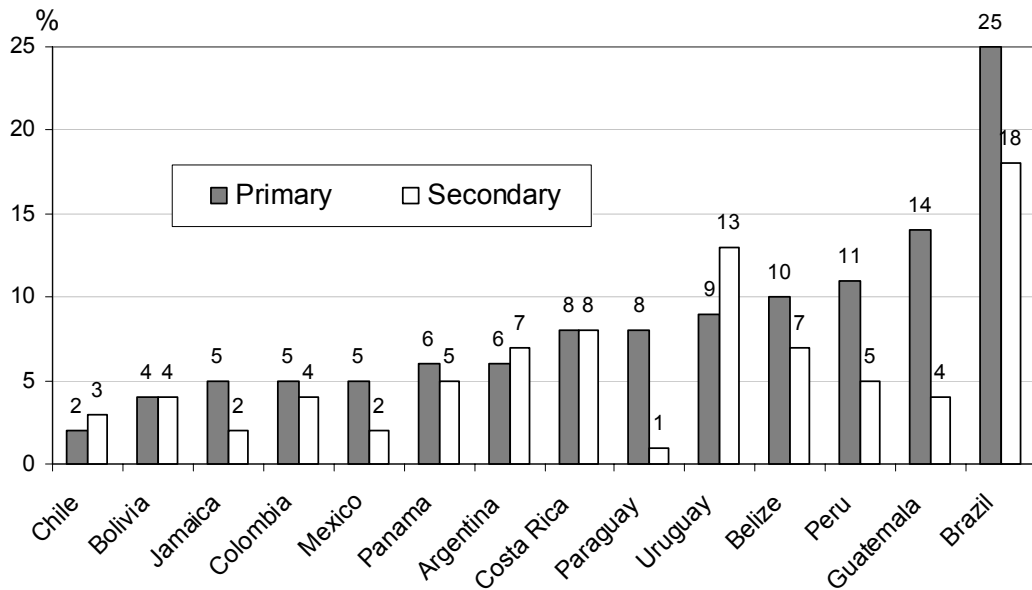
The differences in the transition from primary to secondary education are even more striking. In Jamaica, most students at the intended or official age at the first year of lower secondary education are enrolled in this level. But, in Brazil, Colombia and Guatemala, most children beyond the official age for primary education are still enrolled at the primary level. The especially long “tail” of primary enrolment in Brazil extends from ages 11 to 17 years and clearly shows the consequences of high repetition rates.

Thus, financial resources that are targeted towards children of the official entry or enrolment age may not reach them. Instead, older students still in the system reduce the amount of resources available per student of the intended age. The same phenomenon is also found in secondary education. In Jamaica, education mainly reaches the intended age groups, while the situation is more blurred in Brazil and Colombia. Guatemala is an exception, partly because secondary participation rates are so low.

The generally high net enrolment rates, which reflect little gender imbalance, are a measure of the wide access to primary education in the region. However, it does not capture levels of educational attainment, as there are still many school-age children who have difficulties in progressing or who have left school before completion. An estimated 18% of pupils do not complete primary schooling (Wolff and Schiefelbein, 2003). In the case of Guatemala, cumulative drop-out over the primary school cycle equals 48% (Guadalupe and Louzano, 2003).

Figure 2 shows that the proportion of repeaters in primary education in 2000 was highest in Brazil at 25%, followed by 14% in Guatemala and 11% in Peru. Rates are also high at the secondary level in Brazil (18%) and Uruguay (13%). Some studies have reported that Brazil has made significant efforts towards reducing repetition rates. According to one estimate, the rate for the region fell from 33.9% to 23.4% during the 1990 to 1999 period (Wolff and Schiefelbein, 2003). Despite this progress, there are still significant problems in student progression and completion in many countries.

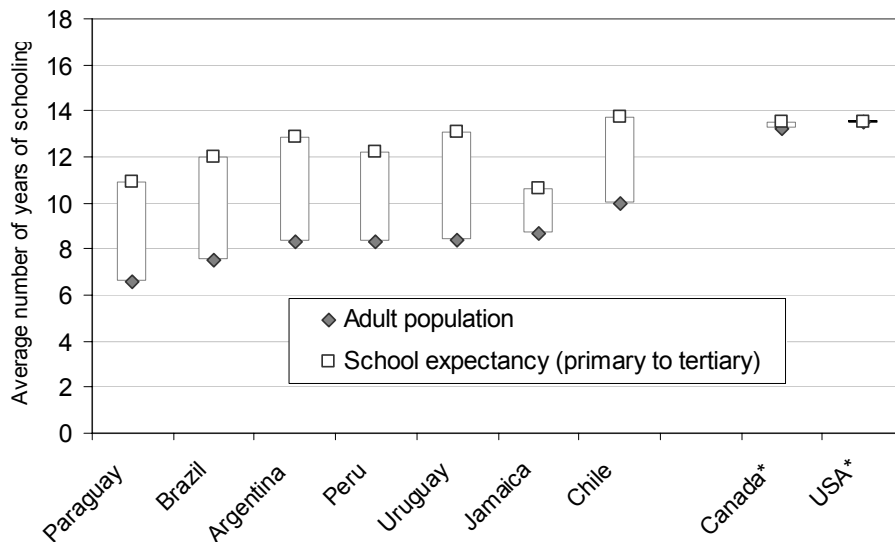
Figure 2. Proportion of students repeating a grade by level of education, 2000



Source: UNESCO Institute for Statistics.

How do enrolment patterns throughout the educational system contribute to levels of educational attainment? **Figure 3** provides an indication of future change in terms of the average number of years of schooling among the adult population and the average number of years of schooling that a child entering the first grade of primary could expect. These current and projected levels of educational attainment exclude repeated school years and years accrued in pre-primary or adult education.

Figure 3. Current and projected levels of educational attainment, 2000



Sources: UNESCO-UIS/OECD/WEI, 2003; OECD, 1999 (Data: Annex Table A).

Note: Adult educational attainment is based on the 1995 population in Canada and USA.

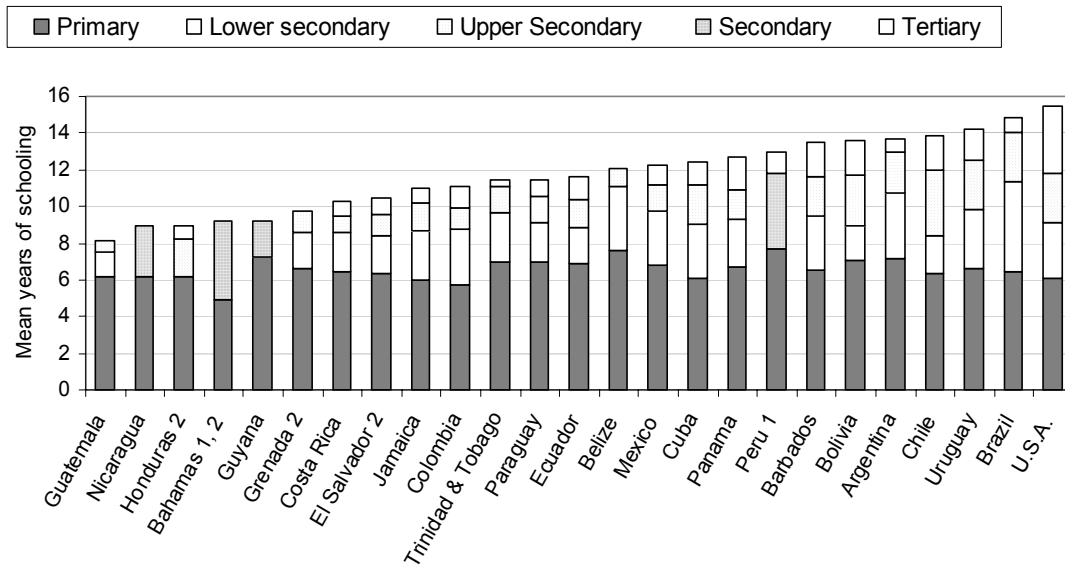
Thus, the figure shows that the average adult in Chile has attained about ten years of education, and a child at age 4 in Chile could expect to attain an average of almost 14 years of education, holding current levels of participation constant. These data provide evidence of the significant progress that countries are achieving in widening access to education over the course of a single generation. In Uruguay, Argentina, Peru and Brazil, the increase in school expectancy is about 4.5 years of schooling, potentially increasing the average number of completed school years to about 12 years.

At the individual level, the benefits from the increased volume of schooling are associated with socio-economic status. A study by the Inter-American Development Bank (IDB), based on household surveys conducted between 1994 and 1996, showed that the richest 10% in Brazil and Paraguay averaged attainment levels of 10.5 and 10.7 school years, respectively, while the poorest 30% in these countries attained only 2.5 and 3.6 years, respectively (Wolff and de Moura Castro, 2003). This may partly reflect differential access to secondary and tertiary education in rural areas, as well as differences in population characteristics. Moreover, attaining a higher level of education in itself brings returns such as higher earnings. Nevertheless, in 9 of the 15 Latin American countries studied, the educational attainment of the poorest 30% of the population was still below five years of (primary) education. This example of the great inequality in educational achievement illustrates the challenges facing the region.

Figure 4 provides school expectancies for a wider group of countries in the region. It shows the contribution that different education levels make to the total number of expected school years. While the number of years attributed to primary education is similar across all countries, the countries with the highest total number of years are those with the highest participation rates in secondary and tertiary education.

Unlike the data presented in Figure 3, these figures include added years due to repetition. Thus, it represents the volume of educational provision in years rather than the potential educational attainment of the population. From this perspective, Brazil can expect to provide a mean number of years of education which nears the level of the United States. Of course, there are differences between the levels at which education is provided, not to mention other characteristics related to the efficiency and quality of education provision. But it shows that in terms of the “quantity” of education, countries like Brazil, Uruguay, Chile and Argentina show considerable capacity.

Figure 4. Expected number of school years by level of education, 2000



Sources: UNESCO Institute for Statistics; UNESCO-UIS/OECD, 2003 (Data: Annex Table A).

Notes: 1) 1999 data.

2) Estimated from gross enrolment rates. School expectancy excludes years spent repeating grades and years spent in pre-primary or adult education.

Table 2 looks at the role that repetition plays in the number and share of expected primary and secondary school years. It shows that repetition accounts for more than one-quarter of the total number of school years in Brazil. Other countries where repetition accounts for a large share of the total volume of school years are Uruguay (10.5%), Costa Rica (8.7%) and Peru (6.8%).

Table 2. Number and share of expected school years due to repetition, 2000

Country or territory	School expectancy, primary to secondary	Expected years repeating grades, primary and secondary	Adjusted school expectancy (less years due to repetition)	Years due to repetition, %
Brazil	14.0	2.8	11.2	25.2
Uruguay	12.5	1.2	11.3	10.5
Costa Rica	9.4	0.8	8.7	8.7
Peru	11.8	0.8	11.1	6.8
Argentina	13.0	0.8	12.2	6.3
Paraguay	10.5	0.6	10.0	5.6
Panama	10.9	0.6	10.3	5.6
Trinidad & Tobago	11.1	0.6	10.5	5.5
Colombia	9.9	0.5	9.4	5.0
Mexico	11.2	0.4	10.8	4.1
Jamaica	10.1	0.4	9.8	4.0
Bolivia	11.7	0.4	11.3	3.5
Ecuador	10.4	0.3	10.1	3.0
Chile	12.0	0.2	11.8	1.9
Cuba	11.1	0.2	11.0	1.4

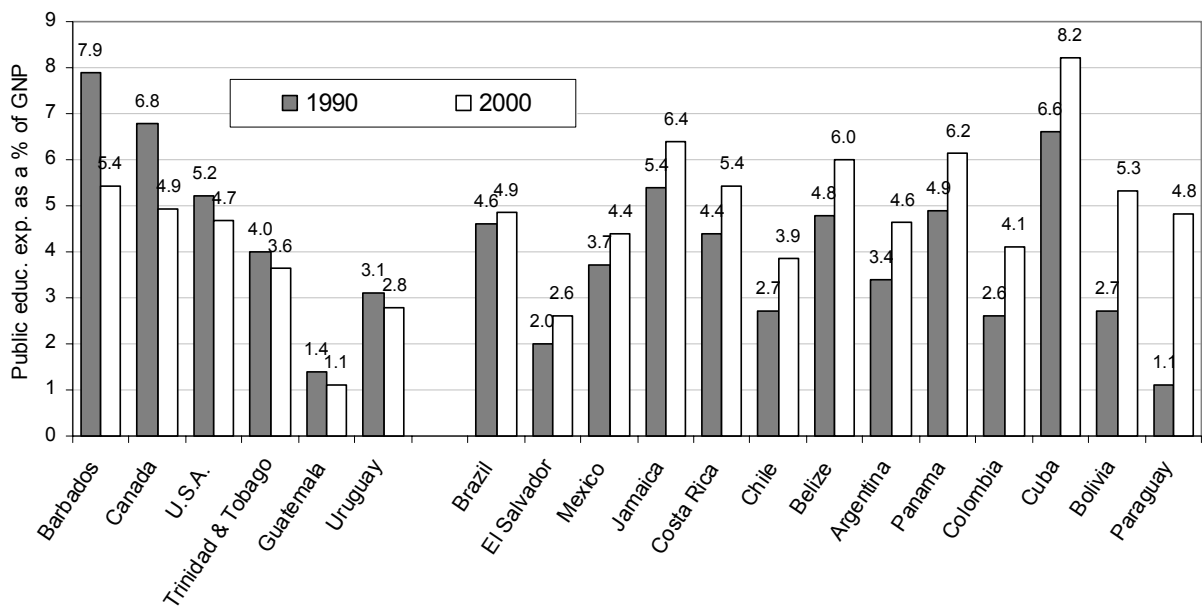
Source: UNESCO Institute for Statistics.

3. Financing the expansion of educational opportunities

This section addresses two key policy issues related to education finance: namely, how much is spent on education both overall and by level, and the main sources of funding for education.

The most commonly used indicator for comparing education spending levels across countries takes public expenditure on educational institutions as a percentage of national income. In the region as a whole, public expenditure on education as a percentage of national income (here reported as a share of gross national product or GNP) has increased in the last decade (see **Figure 5**). Among a group of 19 countries, the share increased from around 4.1% to 4.7% over the period from 1990 to 2000. This proportion increased in the majority of countries, particularly in Paraguay and Bolivia. However, some portion of this increase may be due to changes in the definition of public expenditures in education and to changes in economic background data.

Figure 5. Public expenditure on education as a % of GNP, 1990 and 2000



Source: UNESCO Institute for Statistics.

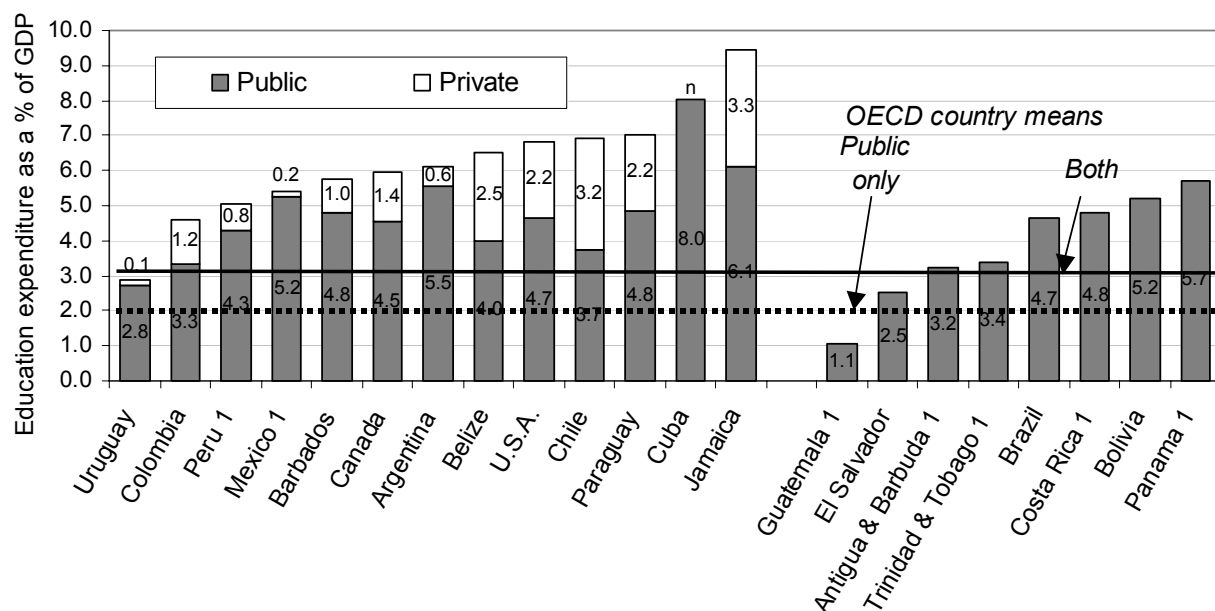
Note: Ranked by the level of change over the period, from negative to positive growth.

The combined presentation of public and private spending in **Figure 6** goes beyond the traditional concept of what a *government* invests in education towards one that looks at what a *society* invests in education. This is especially important in LAC countries, where private contributions can represent a considerable proportion of overall spending.

In 2000, about one-third of the countries in the region reached or exceeded the OECD average for public spending on education, equal to 4.9% of GDP. The reported level of public spending is markedly low in several countries, most notably in Guatemala, where the level hovers around 1% of GDP.

A different picture emerges if we account for estimated private contributions to educational institutions. While the average level of public spending in the region is just below the OECD average, the level of private spending on education often exceeds that found in most OECD countries. In many countries, private expenditure accounts for a significant proportion of total spending and helps to close the gap with the OECD benchmark created by lower levels of public spending. In fact, combined public and private expenditure expressed as a share of GDP exceeds the OECD country mean in Paraguay, Chile and Argentina.

Figure 6. Public and private expenditure on education as a percentage of GDP, 2000



Sources: UNESCO Institute for Statistics, UNESCO-UIS/OECD/WEI; OECD mean: OECD, 2002 (Data: Annex Table B).

Notes: The OECD country mean for combined public and private spending is 5.5% and the public-only figure equals 4.9% of GDP. Expenditure from foreign sources is excluded due to lack of data. In some countries, this can represent an important source of funding, e.g. 1.1% in Barbados, and 0.3% in Bolivia.

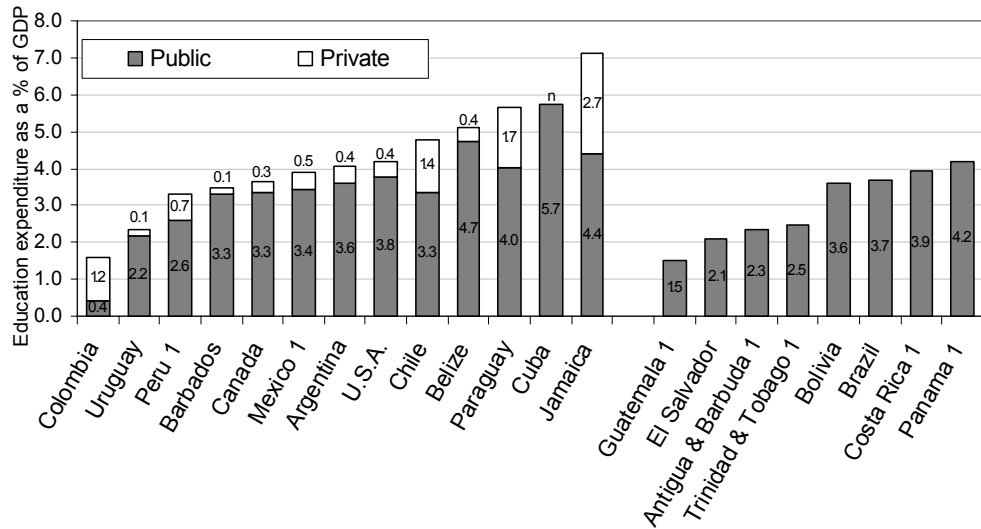
1) 1999 data.

Variation in levels of education spending are partly due to the different sizes of youth populations which are served. They are also due to differences in the duration of schooling, the quality of educational services and their cost. Education systems have different policy priorities and allocate different amounts for a range of educational services, such as school resources, teaching and non-teaching staff, transportation, grants and loans, healthcare and other services. Differences in the share of public expenditure may also be related to the prevalence of independent private institutions at secondary and tertiary levels which do not receive any public support.

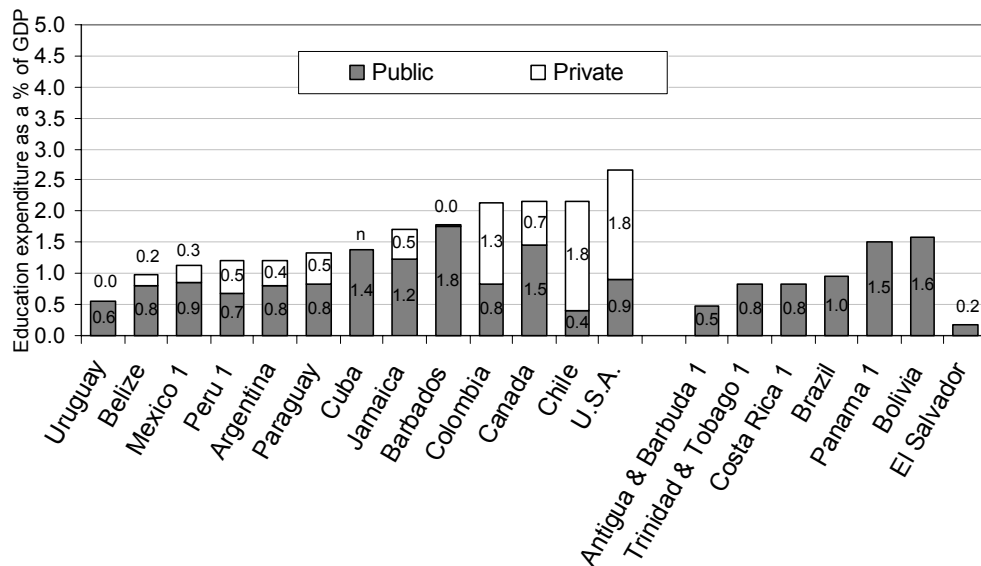
Figure 7 presents public and private expenditure by education level, showing considerable variation both in terms of spending levels and in terms of the relative contribution by public and private sources. It shows that levels of private spending, particularly at the tertiary level, account for a majority of total expenditure in four countries. Expenditure on pre-primary programmes is also substantial, up to more than 0.5% of GDP in Chile and Jamaica. Similar to those at the tertiary level, pre-primary programmes rely substantially on private sources of funding.

Figure 7. Expenditure on educational institutions by level as a percentage of GDP, 2000

Pre-primary, primary and secondary education



Tertiary education



Source: UNESCO Institute for Statistics; UIS/OECD/WEI.

Note: 1) Data refer to 1999.

Private spending on education includes direct payments to educational institutions that take several different forms: student tuition or fees; other fees charged for educational services; and fees paid for lodging, meals, health services and other welfare services provided to students by and at educational institutions. While most expenditure goes towards fees and other costs related to private schools, a certain proportion is spent on public schools.

The level of household expenditure often depends on the type of school, as public schools require fewer fees than government-dependent or independent private schools. For example, in Paraguay, as in other LAC countries, students and households play only a small role in the financing of education in public schools. By contrast, in government-dependent private schools, private households pay tuition and fees at all levels since the state does not pay the salaries of all teachers. In independent private schools, private households and other private entities pay tuition and fees that must cover the full cost of provision where the state does not subsidise independent private schools.

Table 3 presents the relative share of expenditure by private sources for education by level. There is considerable variation among LAC countries in terms of the mix of public and private sources of funding by level. Private expenditure at the pre-primary, primary and secondary level of education amounts to 30% or more of the total expenditure in Chile, Jamaica, and Ecuador.

Table 3. Private expenditure on educational institutions as a percentage of total public and private expenditure, 2000

	Pre-primary, primary, secondary	Tertiary	Total
Argentina	11.1	33.8	23.7
Barbados	3.1	0.9	2.6
Bolivia	7.3	17.6	10.9
Canada	7.7	32.2	16.8
Chile	30.0	81.7	46.2
Colombia	27.4	60.8	38.4
Cuba	n	n	n
Ecuador	48.5	84.7	51.1
Jamaica	38.4	28.5	35.0
México ¹	14.8	32.2	17.4
Paraguay	29.4	37.4	31.0
Peru ¹	22.8	45.5	28.4
U.S.A.	9.9	66.1	31.8
Uruguay	6.2	0.3	5.0

Sources: UNESCO Institute for Statistics; UIS/OECD/WEI (Data: Annex Table B).

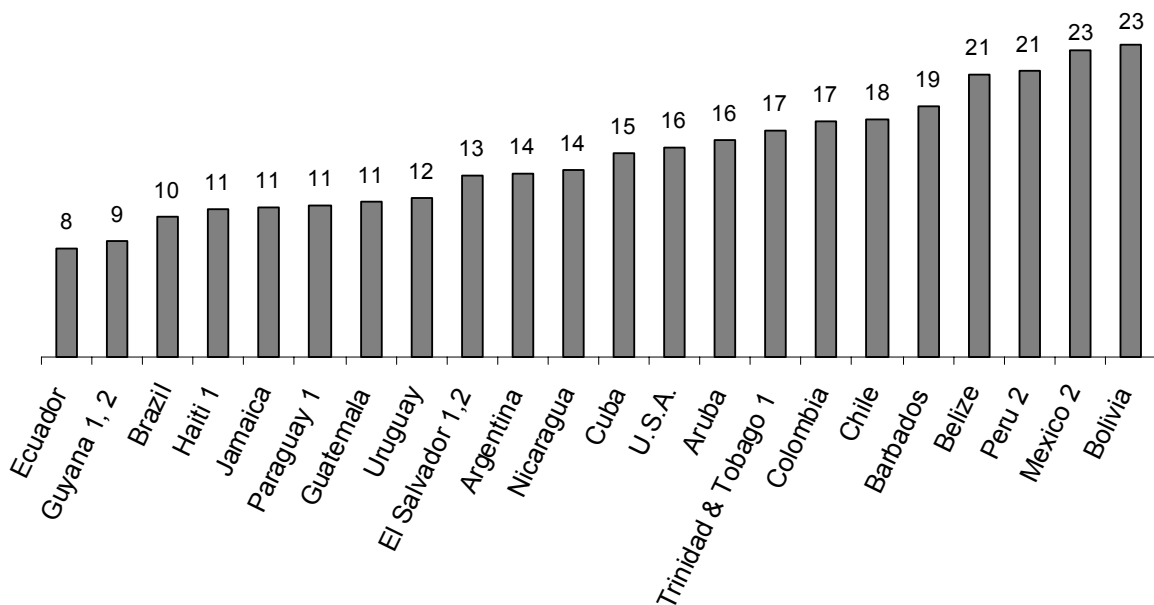
n = negligible

Note: 1) Data refer to 1999.

In most LAC countries, individuals and families take on greater responsibility for education at higher levels of the educational system - in particular, tertiary education. In 7 of the 14 countries reporting data, more than a third of funds are private, with a high of 81% in Chile. In some countries, the importance of private funds sharply increases at the tertiary level. For example, compared to the primary and secondary level, the proportion doubles in Chile and Peru and is three times larger in Argentina. In Canada and the United States, the proportion of private spending in tertiary education is almost five and six times higher, respectively, than at other levels of education.

Based solely on levels of public expenditure, it is difficult to judge whether the overall level of education funding is sufficient to provide children with an adequate education. However, public funds remain the most important source of funds, and their level and how they are spent are key aspects of education policy. Therefore, the level of educational spending in relation to the total government investment in education represents an important indicator. It can be an indication of how well the education sector competes for governmental funding. **Figure 8** provides available data on the relative size of educational budgets compared to the total public budget.

Figure 8. Total public expenditure on education as a percentage of total government expenditure, 2000



Source: UNESCO Institute for Statistics.

Note: 1) UIS estimate.
2) Refers to 1999.

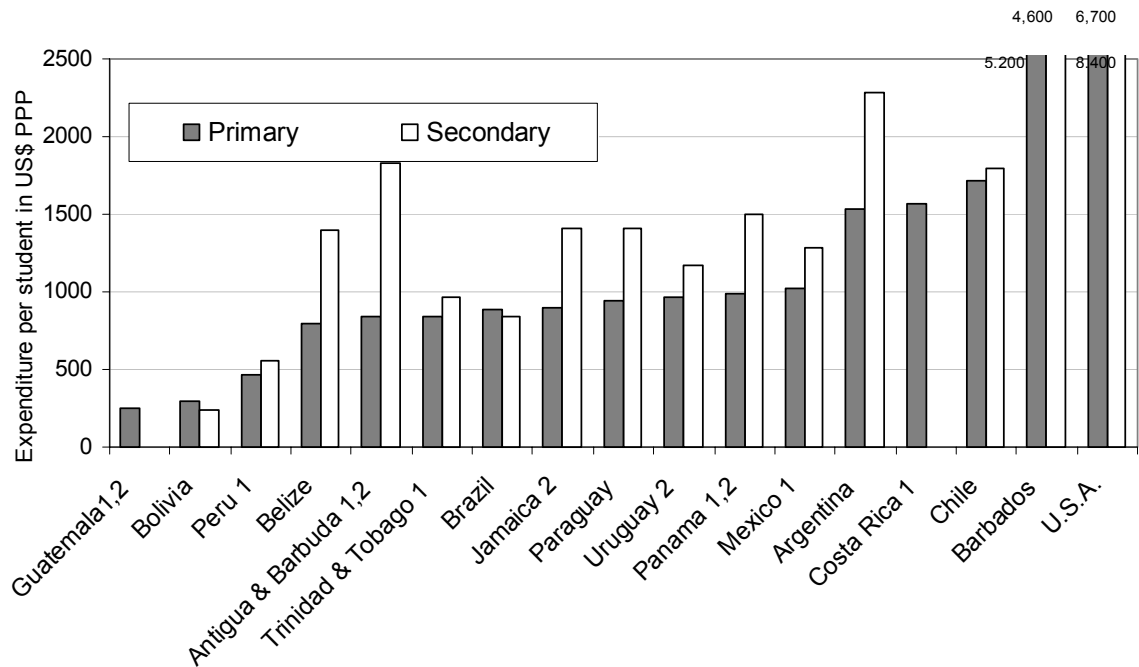
Some of the variation is due to differences in economic resources and student populations. However, it is notable that the differences across countries in the proportion of total public expenditure attributed to education are greater than those related to the overall level of spending as presented earlier. Bolivia spent 23% of the public budget on education in 2000, a proportion three times higher than the level in Ecuador (8%).

Another way to look at educational spending is from the perspective of the individual student. The amount spent per student directly determines the quality of the educational services provided. The amount spent by level of education is an important equity issue in countries where students frequently drop out after primary education. This paper presents expenditure per student from two different perspectives. First, expenditure is presented in terms of absolute spending, converting local currencies to US\$ using *purchasing power parities* (PPP) in order to compare directly the value of the educational goods purchased per student. As a second indicator, expenditure per student is expressed as percentage of GDP per capita, presenting the level of spending in relation to national income.

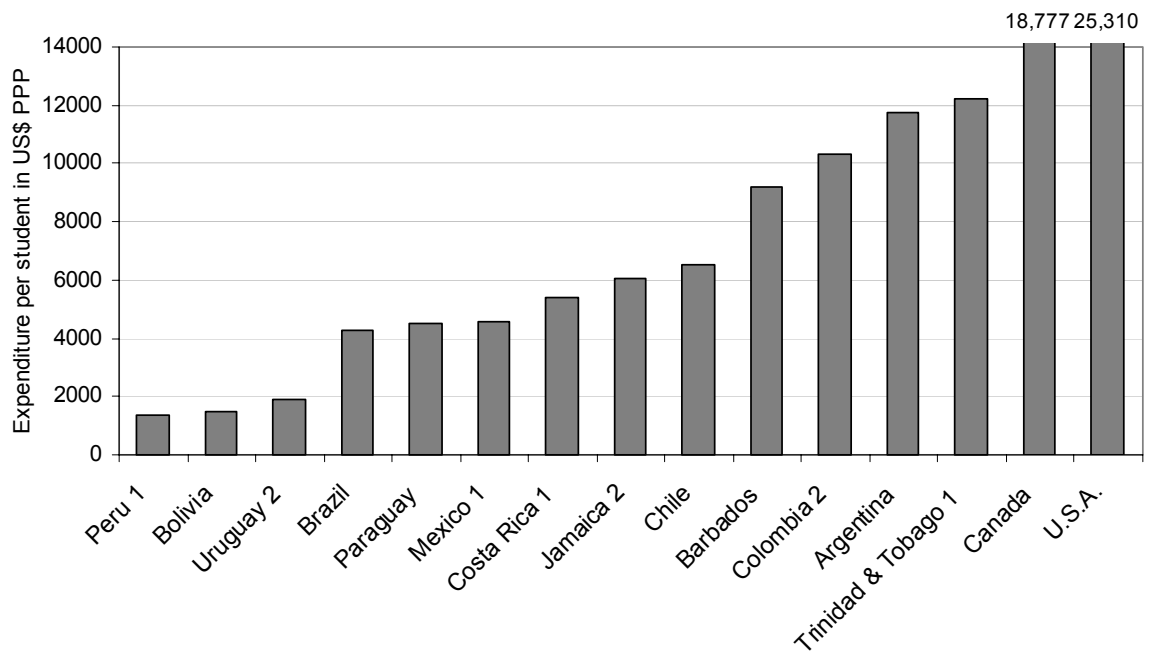
Expenditure per student in a school year differs by level of education. These differences in costs per student can also influence overall proportions of spending. **Figure 9** shows the cost per student by level of education related to the cost per primary student. The cost of a secondary student can be twice as high as a primary student, and for a tertiary student, the cost can be eight times as high. The relative difference in costs per tertiary student are highest in Trinidad and Tobago where they represent more than fourteen times the cost of a primary student. Differences in costs between primary and other levels of education are more moderate in Uruguay and Peru.

Figure 9. Expenditure per student by level of education in US\$ PPP, 2000

Primary and secondary education



Tertiary education

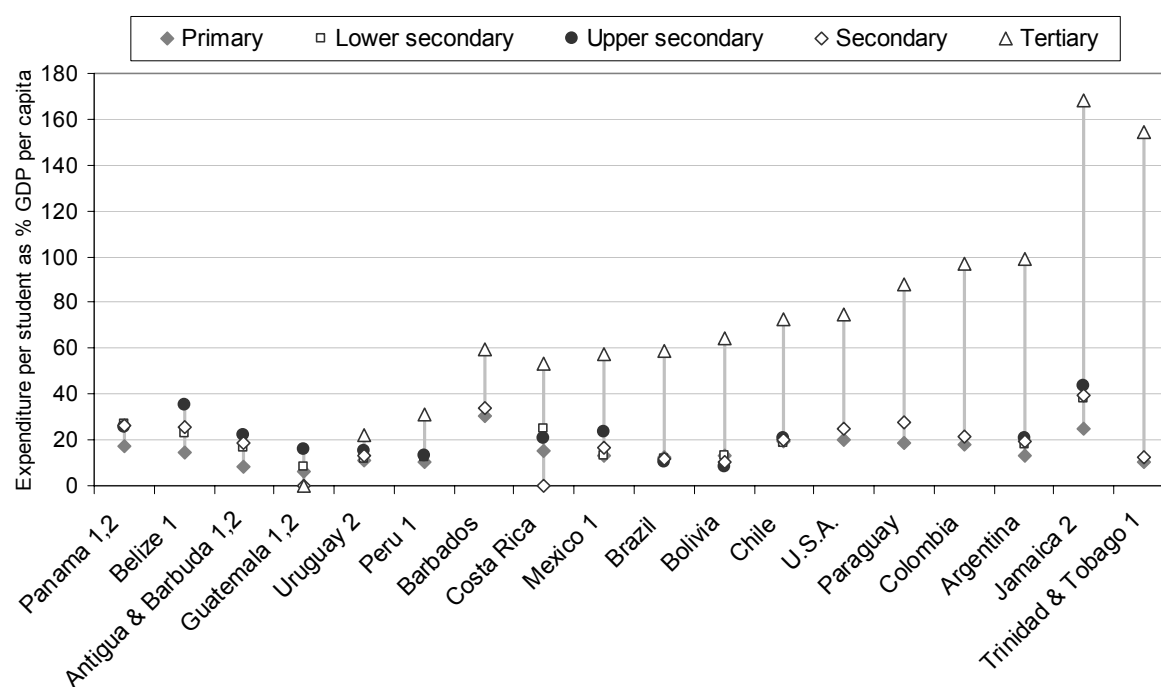


Source: UNESCO Institute for Statistics (Data: Annex Table D).

Notes: 1) Refers to public schools only.
2) 1999 data.

Another important education finance policy concern relates to the mix of investment across different levels of the educational system. Some countries may choose to invest resources for education more heavily at the secondary level, with the goal of expanding access to education for a broader segment of the population, and others may focus resources at the tertiary level, where benefits of this investment are less progressive. As shown in **Figure 10**, the expenditure per student increases significantly by level of education, especially with the tertiary level, a fact that needs to be considered when balancing the distribution of funds by level.

Figure 10. Expenditure per student by level of education as a percentage of GDP per capita, 2000



Source: UNESCO Institute for Statistics (Data: Annex Table D).

Notes: Countries are ordered by increasing difference between the primary and tertiary level.

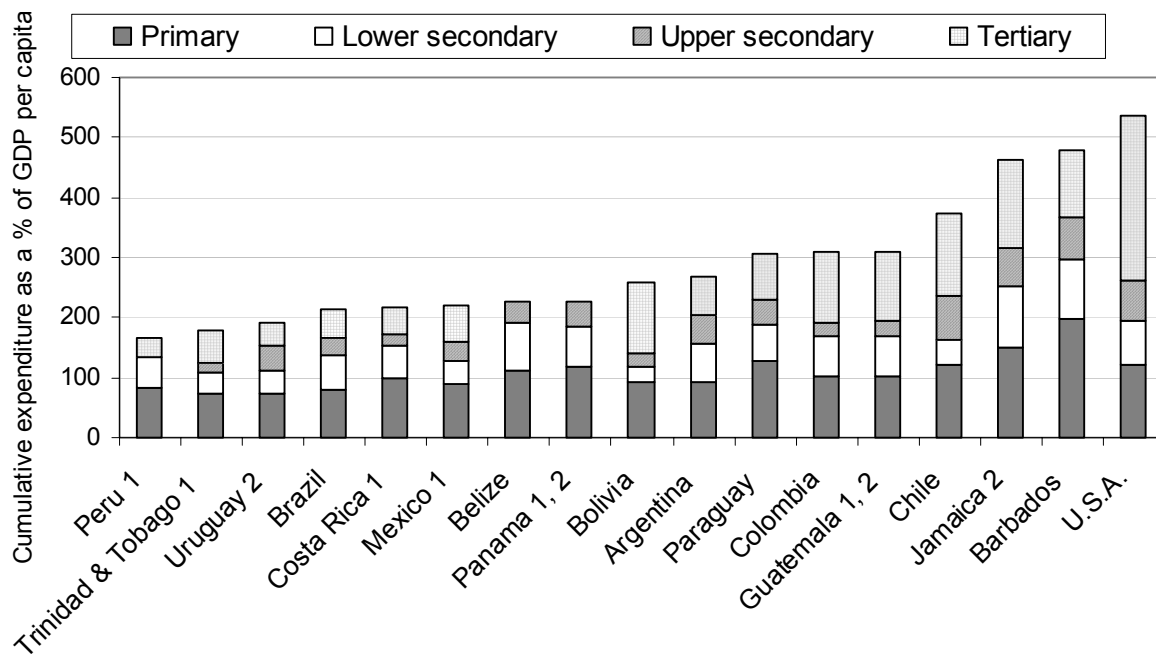
- 1) Refers to public schools only.
- 2) 1999 data.

Policy-makers face difficult decisions in balancing limited public funds and societal needs. In principle, public funds should be used to provide goods and services that benefit the general public. These goods and services benefit society as a whole, not just those individuals who are able or willing to pay for them. Basic education is often considered a public good because it results in many economic and social benefits for all of society.

However, levels of annual average expenditure can often conceal the actual level of investment per child. With students dropping out after primary or lower secondary, fewer students benefit from increasing expenditure at higher levels of education. Moreover, educational programmes differ in duration across countries. A summary measure of cumulative spending on students over their school career can be calculated based on the average number of years that children can expect to be enrolled at a certain level of education. Then for each level of education the expenditure per year is multiplied by the number of years that students stay, on average. The cumulative amount represents the total funds that are invested in children over their school careers.

Figure 11 reveals substantial differences in the resources each child can expect to receive. In terms of expenditure relative to GDP per capita, for children in Barbados and Jamaica, more than three times the GDP per capita level has been spent on their participation in primary and/or secondary education. On the other hand, this amounts to less than 1.5 times the GDP per capita in Peru and Trinidad and Tobago.

Figure 11. Expenditure per student over the school career as a percentage of GDP per capita, 2000



Source: UNESCO Institute for Statistics (Data: Annex Table D).

Notes: Countries are ranked in descending order of expenditure at the primary and secondary level combined.

The school expectancy indicator which underlies the calculation averages the duration of schooling at each level for all children, including those who do not enter a certain level of education. In the same way average expenditure also includes students who never benefit from funding.

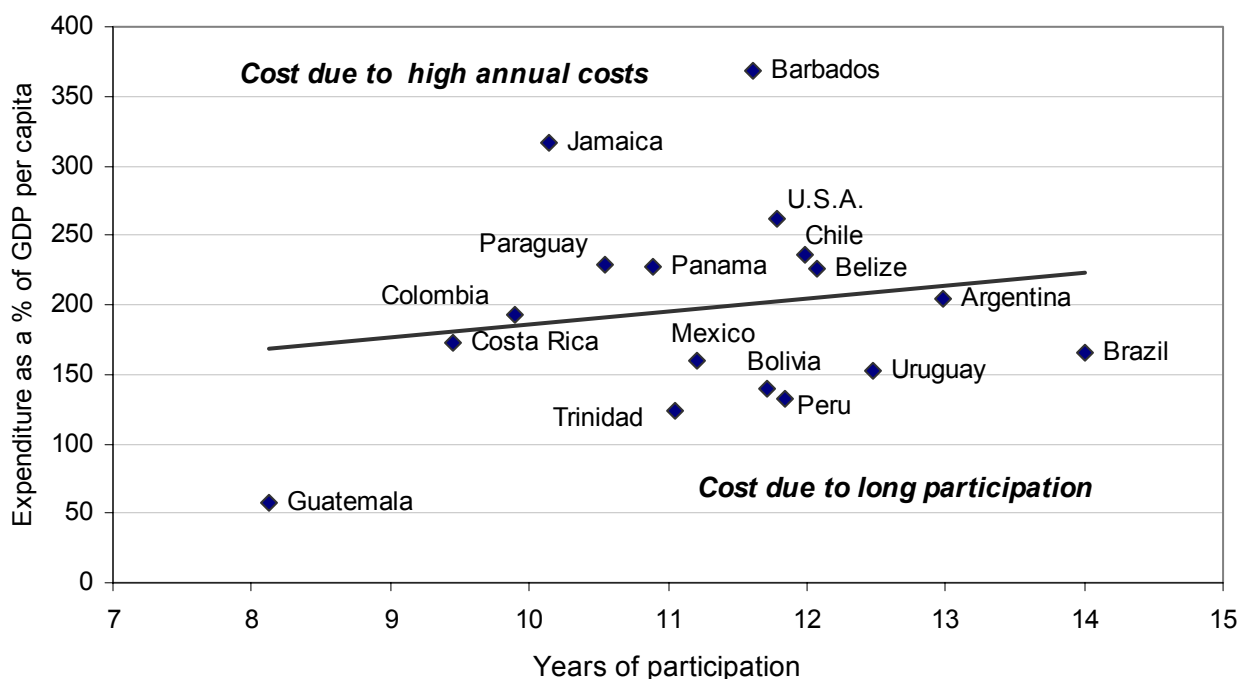
1) 1999 data.

2) Public institutions only.

The amount invested over the duration of a child's education depends mainly on two factors: the level of spending each year, which has an impact on the quality of educational services provided; and the expected duration of educational participation. Policies that keep students longer in school can add to these costs, as well as policies that put more resources into schools, e.g. by decreasing student-teacher ratios.

Figure 12 presents the total average costs for a child's primary and secondary education with the number of years that a student stays in school. Countries with similar levels of investment can have very different patterns in terms of duration of schooling. Brazil and Trinidad and Tobago both spend 150% of GDP per capita to educate a single child. However, in Trinidad and Tobago, this amount is spent over an average of 11 school years and, in Brazil, over an average of 14 years. Thus, Brazil spends relatively less per year. A similar pattern can be observed for Chile and Costa Rica or Peru and Jamaica. Given limited resources, countries have to find the right balance between keeping students in school longer and providing a good quality education.

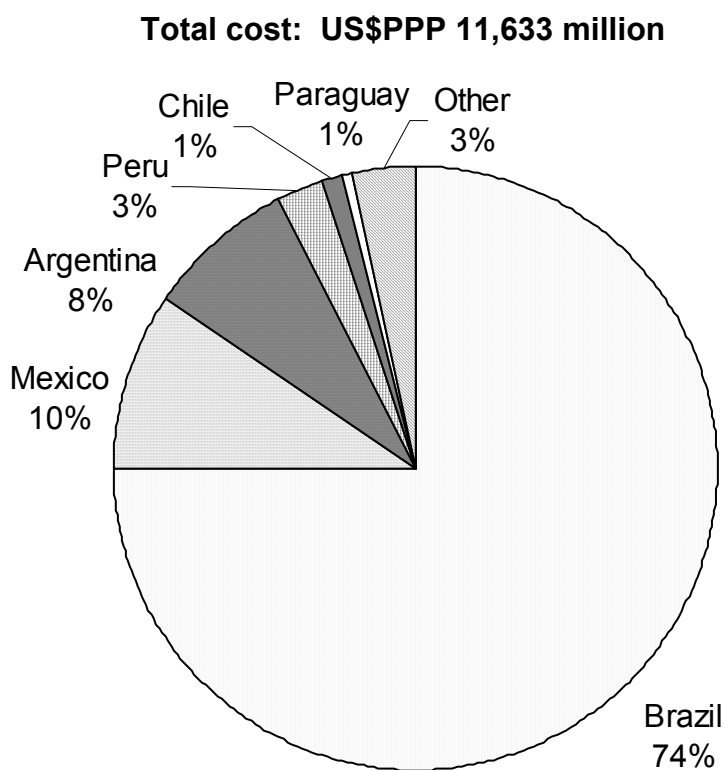
Figure 12. Expenditure per student over the duration of primary and secondary education and expected number of years of participation, 2000



Sources: UNESCO Institute for Statistics; UIS/OECD/WEI (Data: Annex Table C).

One of the chief factors underlying the longer duration of schooling, reflected both in expected number of years of schooling and the associated costs, is grade repetition. The total cost of repetition to educational systems can be enormous. Among 14 LAC countries, which represent over 90% of repetition incidence in the region, the total cost is over \$PPP 11 billion each year. As shown in **Figure 13**, the brunt of these costs, over \$PPP 8 billion in absolute terms, is faced by Brazil, where repetition rates are the highest in the region. The share of costs attributable to repetition is also high in Mexico and Argentina.

Figure 13. Estimated cost attributed to student repetition and its distribution among 14 LAC countries, 2000

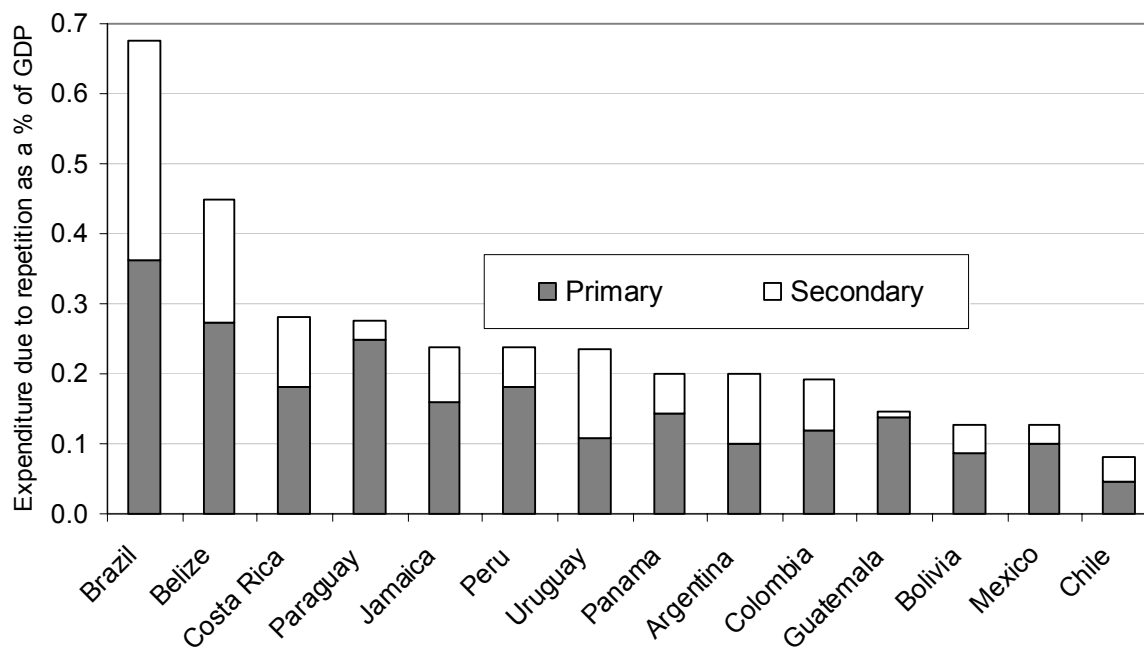


Source: UNESCO Institute for Statistics (Data: Annex Table E).

Note: The estimate for costs covers expenditure on 93% of primary and 95% of secondary repetition in the LAC region.

The cost of repetition for primary and secondary education by individual countries, expressed as a percentage of GDP, is provided in **Figure 14**. Again, Brazil faces the greatest challenge, as repetition is prevalent at both levels. They contribute to a cost equivalent to 0.7% of GDP or roughly one-fifth of total public expenditure on primary and secondary education. The cost is also considerable for Belize, although representing a much smaller proportion of education spending than in Brazil.

Figure 14. Expenditure on students repeating grade in primary and secondary education as percentage of GDP, 2000



Source: UNESCO Institute for Statistics (Data: Annex Table E).

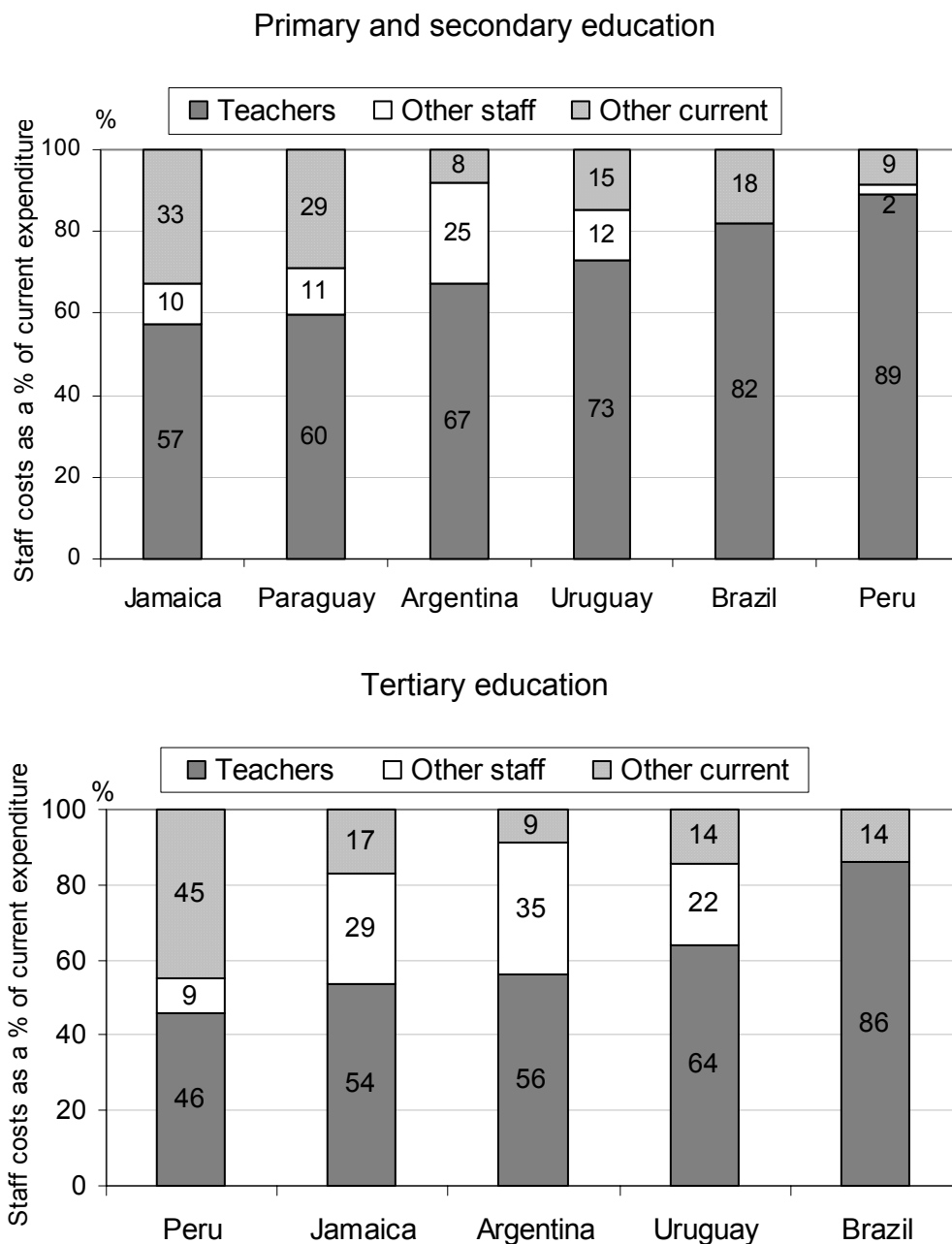
Another policy issue relates to the use of resources. The mix of recurrent costs and capital investment is similar across the region, largely favouring the former. The bulk of education expenditure in 2000 went towards covering recurrent costs. Capital investment, which may vary from year to year, represents only a small proportion of total expenditure or it may not even be evident, as in the case of Costa Rica.

A considerable proportion of the recurrent expenditure is devoted to teaching and other staff costs. Despite the high share of expenditure, some feel that it is not at levels adequate to maintaining a well-qualified and well-motivated teaching force.

There has been renewed recognition of the role of the teacher in ensuring the goal of quality learning outcomes for all at the level of the instructional setting. Expanding access to learning opportunities and improving quality in classroom-level instruction depends largely on a qualified and motivated teacher.

Figure 15 shows the proportion of the current expenditure that is attributed to staff compensation and especially teacher salaries. At the primary and secondary level of education, up to 90% of recurrent expenditure in Peru is devoted to teacher salaries, leaving very little for other educational resources. At the tertiary level, the proportion spent on other types of costs is naturally higher; even so, staff compensation is the most important budget item.

Figure 15. Staff costs as a percentage of total current education expenditure by level of education, 2000



Source: UIS/OECD/WEI (Data: Annex Table F).

Balancing the use of these resources for teachers and staff implies a range of policy trade-offs. **Table 4** presents data on the basic structural characteristics of education systems for primary and lower secondary levels in six LAC countries. These characteristics can translate into lower or higher teaching costs per student. They are also amenable to policy change, meaning that efforts to change instructional hours, student hours or class sizes can have an impact on teacher costs. But these

characteristics also imply certain limitations and policy trade-offs. For example, there is a threshold at which tertiary graduates no longer find long hours and low wages a good career choice. Another trade-off is that expanding class size can come at the expense of learning outcomes.

Table 4. Teacher salaries, teaching hours per year and class size, 2000

	Statutory salary after 15 years	Student hours of instruction	Teachers' hours of instruction	Student-teacher ratio	Class size	Statutory costs per teaching hour	Statutory salary per student
Primary							
Argentina	12,545	729	765	22.7	21.6	16	554
Brazil	10,176	800	800	26.6	26.6	13	383
Chile	12,038	1060	860	34	41.9	14	354
Peru	5,523	783	783	26.8	26.8	7	206
Paraguay	8,874	753	720	18	18.8	12	493
Uruguay	6,891	455	732	20.4	12.7	9	337
Lower secondary							
Argentina	21,188	928	850	13.2	14.4	25	1603
Brazil	16,240	800	800	34.2	34.2	20	475
Chile	12,038	990	860	33.4	38.5	14	360
Peru	5,462	914	626	m	M	9	m
Paraguay	13,911	1011	801	m	m	17	m
Uruguay	6,891	913	489	11.9	22.3	14	578

Source: UIS/OECD, 2003.

At the primary level in Uruguay and at both levels in Peru, the educational system offers low salaries to teachers, which tends to reduce educational costs. Teachers in Argentina receive the highest statutory salaries which, along with moderate class size, translates into the highest costs per teaching hour. At primary levels in Paraguay and Uruguay, class sizes tend to increase educational costs.

4. Exploring the links between spending and student achievement

This section examines the link between education spending and student performance, first in terms of national income and second in terms of per student expenditure. Studies show that both overall financial resources and school inputs are important influences on the level of student learning outcomes. Comparative assessment data also suggest that investing in both quality and equity for all students is a characteristic of the best-performing countries. Those countries that invest in raising achievement among all students achieve the best overall results.

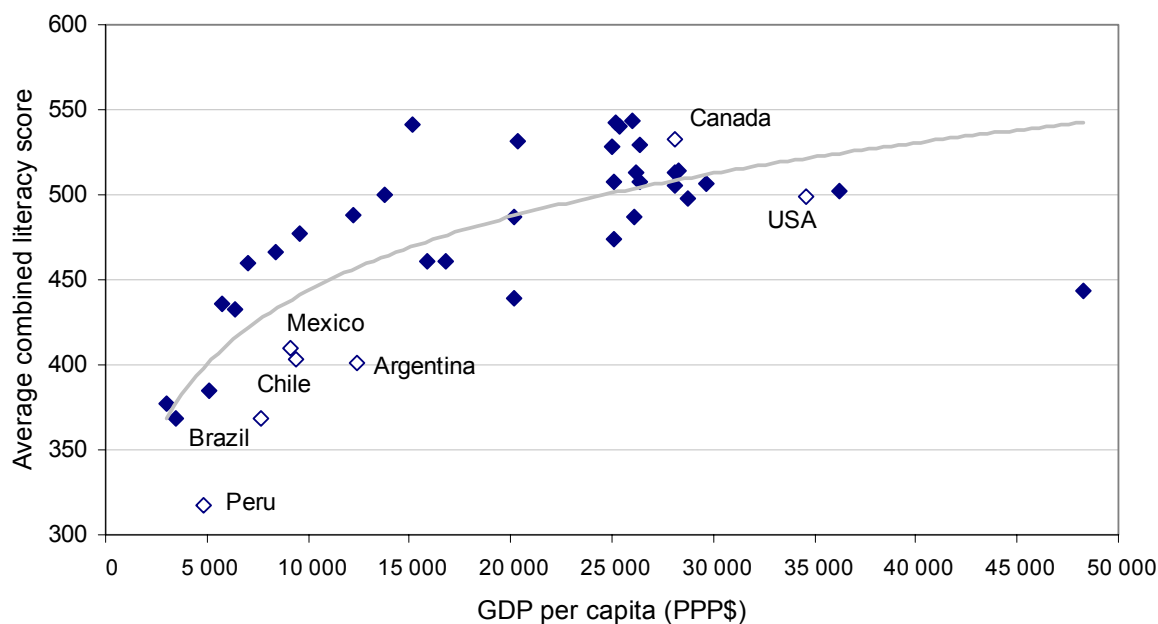
In international comparisons of learning achievement, Latin American countries tend to lag behind countries in other regions, especially high-income countries. For example, among the 43 countries that participated in the Programme for International Student Assessment (PISA) in 2000 and 2002, 15-year-olds in Argentina, Brazil, Chile, Mexico and Peru achieved some of the lowest average scores in reading, mathematical and scientific literacy (OECD/UNESCO-UIS, 2003). Three LAC countries – Argentina, Belize and Colombia – participated in the Progress in International Reading Literacy Study (PIRLS) for fourth-graders in 2001. They were among the seven lowest performing countries out of a total of 35 countries (Mullis, Martin et al, 2003).

Regional assessments point to a large variation in scores among LAC countries. The *Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación* found that third- and fourth-graders in Cuba far outperformed their peers in the other 11 countries in the study of language and mathematics skills (UNESCO, 1998; UNESCO, 2000).

In interpreting the differences in international achievement results, it is important to take account of countries' economic circumstances and the resources that they can devote to education, along with other factors.

Based on the results of the PISA study, **Figure 16** plots national mean scores in reading, mathematical and scientific literacy along with national levels of GDP per capita. It shows that 15-year-old students from countries with higher national income tend to perform better in than their peers from countries with lower national income. The per capita GDP in the five Latin American countries that participated in PISA – Argentina, Brazil, Chile, Mexico and Peru – ranges from PPP\$ 4,799 in Peru to PPP\$ 12,377 in Argentina, all significantly below the OECD country mean of PPP\$ 24,358. Indeed, there is a strong relationship between levels of per capita GDP and average levels of performance in literacy. The data suggest, keeping in mind the small number of observations, that 69% of the variation between countries' mean scores can be predicted on the basis of their GDP per capita.

Figure 16. Combined literacy mean scores from PISA and GDP per capita (PPP\$)

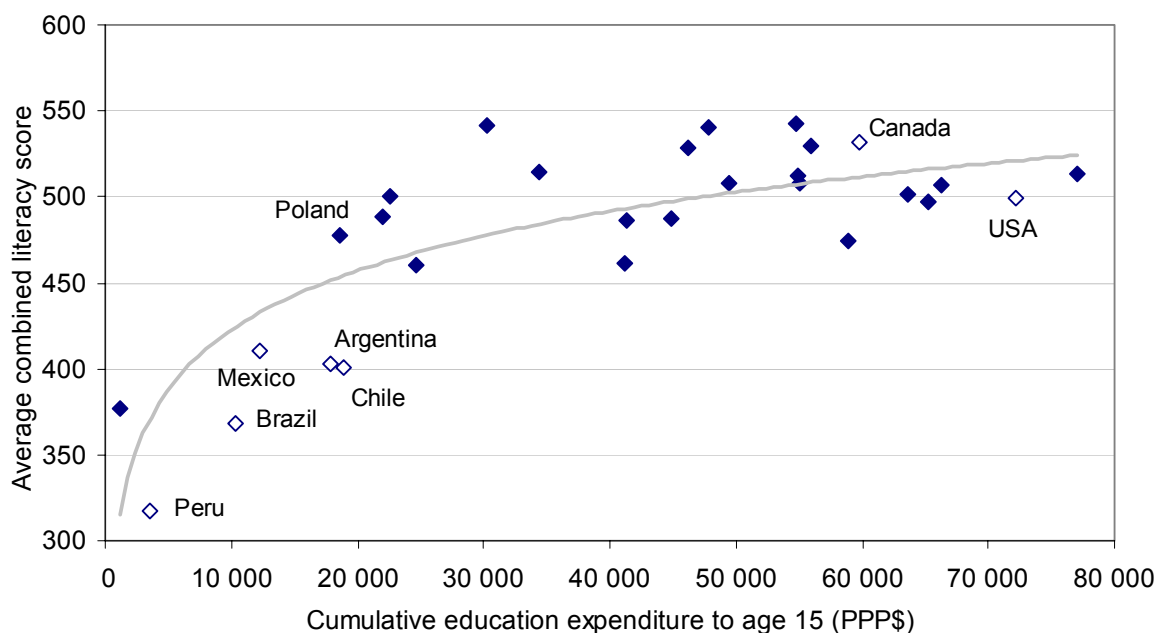


Source: Based on OECD/UNESCO-UIS, 2003 (Data: Annex Table G).

All LAC countries, especially Peru, under-perform in terms of student achievement compared to the performance levels that are predicted by their level of GDP per capita. This also holds true in the United States, but in Canada, achievement scores exceed the predicted value. This also shows that more than national wealth is behind countries where achievement is above the trend. For example, Hungary has a similar level of GDP per capita as Argentina, but a mean achievement score that is 100 points (one standard deviation) higher than Argentina.

While the level of GDP per capita provides a rough measure of a country's ability to pay for education, it is not a direct measure of the financial resources actually invested in education. **Figure 17** provides a new perspective on the relationship between investments and outcomes, which looks back to the cumulative spending figures presented earlier. This figure compares the average amount of money that countries have spent per student from the beginning of primary education until the age of 15 years with mean student performance in reading, mathematical and scientific literacy.

Figure 17. PISA combined literacy performance and cumulative education expenditure to age 15 years, 2000/2001



Source: Based on OECD/UNESCO-UIS, 2003 (Data: Annex Table G).

Per student expenditure in the five Latin American countries, as in other middle-income countries, is lower than in most OECD countries. The results show that as expenditure per student on educational institutions increases, so does national mean performance in literacy achievement. In fact, expenditure per student roughly explains 75% of the variation between countries in mean performance.

Deviations from the trend line, however, suggest that modest spending per student cannot be automatically equated with poor performance by education systems. Among the Latin American countries, although Argentina, Chile and Mexico perform at very similar levels in the three literacy domains, Mexico spends about PPP\$ 12,189 per student, compared to PPP\$ 17,820 in Chile and PPP\$ 18,893 in Argentina. Similarly, Poland spends an amount similar to Argentina and Chile but performs statistically significantly better than either. Even among some of the richest countries, the trend line would predict higher performance than what is actually achieved in the United States of America.

These data suggest that, as much as sufficient resources for educational institutions are a necessary prerequisite for the provision of high-quality education, spending alone is not sufficient to reach high levels of achievement and that other factors, including the effectiveness with which resources are invested, play a crucial role. However, in the case of Peru, it may suggest that increasing resources for education could potentially lead to a considerable predicted increase in student achievement.

Within countries, schools with higher levels of resources tend to have superior performance. Analysis of data from *Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación* shows that the most effective schools, gauged by their schooling outcomes after controlling for students' family background, are those with: 1) high levels of school resources, including a low pupil-teacher ratio, more instructional materials, a large library, and well-trained teachers; and 2) teachers who are satisfied with their salaries (Willms, 2000).

Available resources in schools, however, is not the only factor leading to high achievement levels. The data also show that students who attend schools with high levels of parental involvement and with a supportive classroom environment tend to have better schooling outcomes. This indicates that support by parents in students' academic activities and effective instructional policies also lead to better student learning outcomes (ibid).

The cross-national studies have also shown large gaps in learning outcomes between students from well-to-do families and those from disadvantaged backgrounds. Using an index of family wealth, PISA data shows that the five Latin American countries are among a group that has the largest gaps in performance between students from wealthier families and those from poorer families (OECD/UNESCO-UIS, 2003).

These results show that high levels of performance do not have to occur at the expense of equity. Some of the highest-performing countries in the study, such as in those in Asia (Hong Kong-China, Korea and Japan), Europe (Finland, Ireland, Norway and Sweden), Canada and Iceland, display high levels of performance in reading literacy and also relatively small gaps in reading performance between students from well-to-do families and those from disadvantaged backgrounds.

Data from *Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación* also suggests that Cuba has the highest average scores in language and mathematics among the 12 countries participating in the study, and that the achievement gaps between students from different socio-economic backgrounds are also the smallest (UNESCO-OREALC, 2000).

On the other hand, all of the low- and middle-income countries in the study fall below OECD mean scores of reading literacy performance. In most of these countries, the gaps in reading scores associated with students' socio-economic backgrounds are smaller than the OECD average. Among them, Indonesia, Latvia, the Russian Federation and Thailand have the smallest gaps. The other low- and middle-income countries, by contrast, have relatively low average reading scores and large gaps among students from different socio-economic backgrounds. These include the Czech Republic, Bulgaria, Hungary and Peru (OECD/UNESCO-UIS, 2003).

Thus, this finding suggests that the average level of performance and the extent of inequality in performance between students are not directly related. There are countries where the performance gaps between different groups of students (poor and well-off families, boys and girls) are small and the average reading scores are high. There are also countries where the inequalities in reading performance are relatively pronounced, yet average levels of performance remain low. High levels of performance do not necessarily occur at the expense of equity. On the contrary, it is possible for educational systems simultaneously to achieve high average levels of learning outcomes and to reduce disparities among students. In order to achieve this goal, educational policies need to consider the learning needs of different students and to provide the learning experiences that are appropriate to all students.

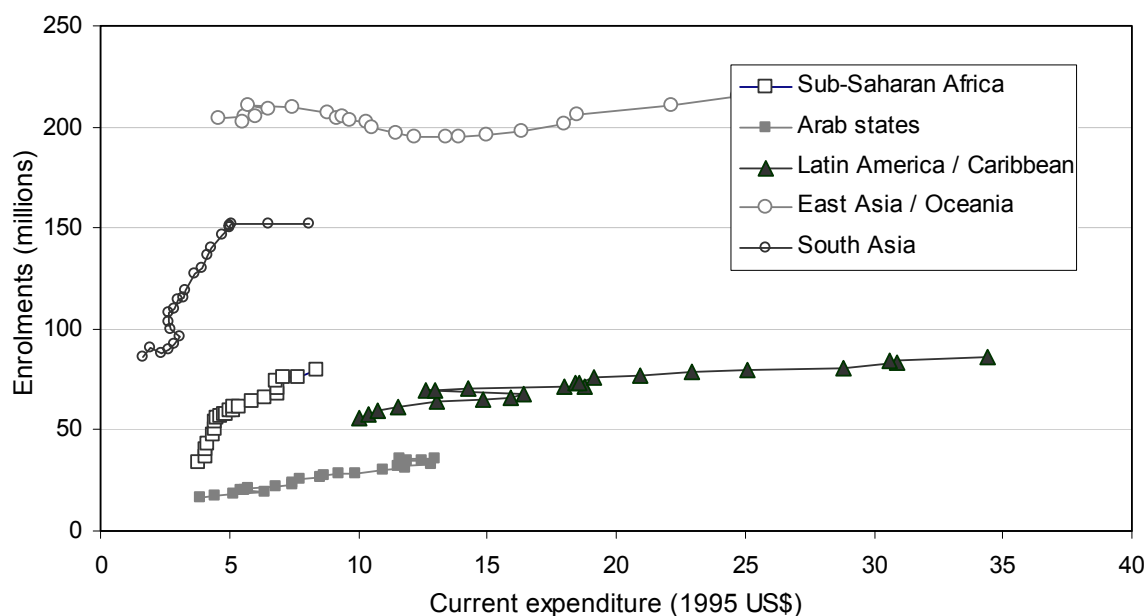
5. Forecasting demand for education and associated costs

Despite the progress that has been achieved in access to and completion of education, additional efforts are still required in order to meet the goal of universal primary enrolment and the secondary enrolment target of 75% by the year 2010. While primary enrolment rates are high in the region, in most countries there remains a 'hard-to-reach' population that is not in school, including those living in remote or disadvantaged areas.

The aim to further expand participation in secondary and tertiary education cannot be reached without a significant increase in investment. Moreover, the costs of providing education for the 'hard-to-reach' children are considerably higher than for the average student.

Some have pointed out a window of opportunity related to declining school-age populations and dependency ratios (ibid; UNESCO-UIS/OECD, 2001). For example, it has been reported that for the overall LAC region the secondary-age population will grow only 6% from 1995-2010, from 46 to 49 million, and the overall school-age population will actually remain stable (ibid). The opportunity is to reallocate funding from certain parts of the educational system to other parts, or to invest these savings into enhancing education quality.

But it is a window that, due to high rates of repetition and other factors, has proved difficult to take advantage of in the past. **Figure 18** charts global trends from 1975-1997 in terms of primary enrolments and investment in primary education in different regions. It shows that as a region, LAC has benefited from relatively slower rates of population growth and more than a threefold increase in current expenditure which would translate into more resources per student.

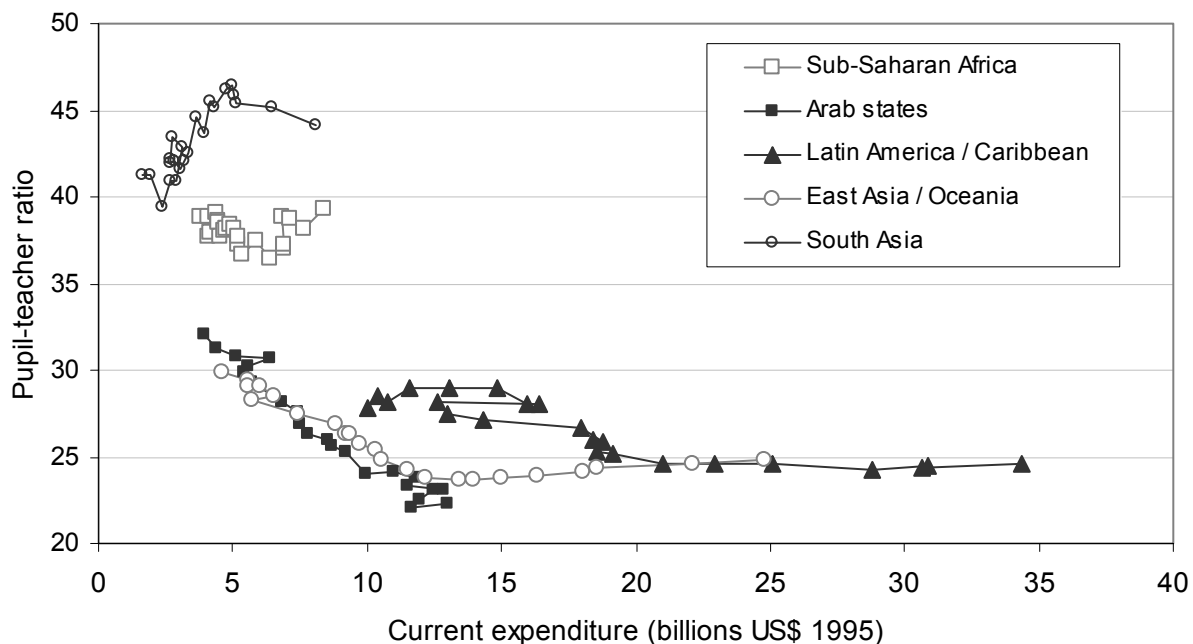
Figure 18. Current expenditure and primary enrolments, 1975-1997

Source: UNESCO Institute for Statistics, Brossard (2000) (Data: Annex Table H).

The pattern for the LAC region is also similar to the case in the East Asia and Pacific region. The patterns in South Asia and Sub-Saharan Africa reflect another tendency, which is investment in quantity. They also reflect the difficulty in keeping pace with a fast-growing youth population. In addition, more enrolments without proportional increases in expenditure mean fewer resources per pupil.

Although the increase in financial resources over time has translated into more resources in the classroom, **Figure 19** shows that the LAC region was not as effective as other regions in using these resources. The regional mean for the primary pupil-teacher ratio declined from 27 to 25 students per teacher between 1975 and 1997. However, during the same period, East Asia and the Pacific and the Arab States regions were able to achieve even smaller ratios, from 30 to 25 students per teacher and 33 to 23 students per teacher, respectively, with considerably lower investment.

Figure 19. Current expenditure and the pupil-teacher ratio, 1975-1997

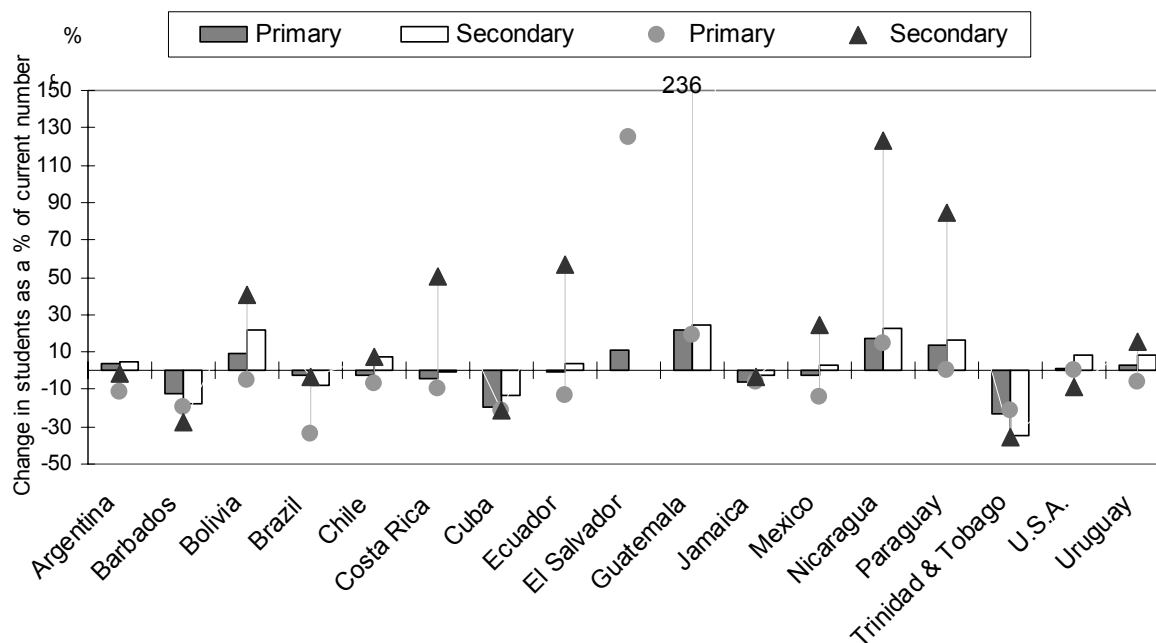


Source: UNESCO Institute for Statistics, Brossard (2000) (Data: Annex Table H).

At the same time, the demographic window of opportunity is not open for all countries in the LAC region. There are still countries or areas within countries with high rates of population growth which deviate from this general regional pattern financially (per pupil expenditure) and in terms of human resources (pupil/teacher ratio).

Figure 20 shows a projection of the expected change in enrolment at primary and secondary levels due to changes in student populations up to the year 2010. It presents two different scenarios: the first assumes that enrolment patterns, as observed in 2000, are held constant, while the second assumes that, by 2010, the enrolment goals of 100% at primary level and 75% at secondary level are reached. At the same time, it assumes that repetition has decreased; in other words, that only children at the intended school ages are in primary or secondary levels respectively.

Figure 20. Change in the projected number of students and 2010 enrolment targets



Source: UNESCO Institute for Statistics (Data: Annex Table I).

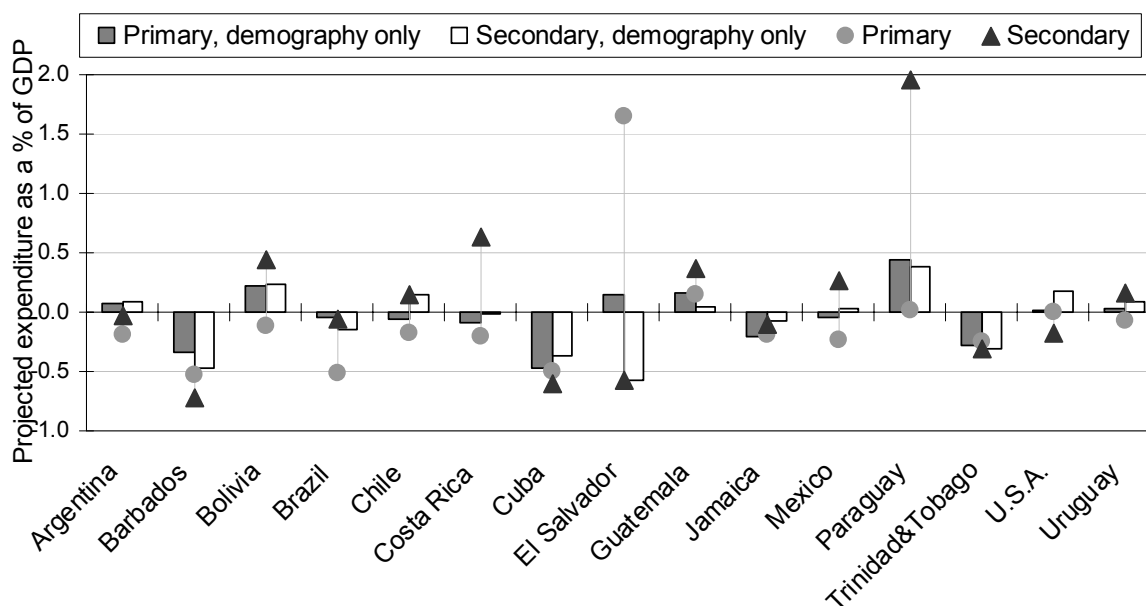
When assuming no change in current levels of participation, but taking demographic change into account, the student numbers will still grow by more than 10% in primary and secondary education in Bolivia, El Salvador, Guatemala, Nicaragua and Paraguay.

The projection clearly indicates that the goal of 100% enrolment at the primary level by 2010 is within reach. Current enrolment patterns indicate that all countries have the necessary resources to enrol all students in primary age in 2010. Here the key problems are to target the resources to the proper age group and to reduce repetition to make the resources available to those still out of school.

The enrolment goal for secondary education places a much higher burden on school systems, especially in terms of human and financial resources. To reach the goal, half of the countries have to extend the number of places by over 10% until 2010; four of them - Ecuador, Guatemala, Nicaragua and Paraguay – have to extend the number of places by more than 50%.

The costs of meeting the targeted increase in secondary education are substantial. **Figure 21** shows an estimate of the costs expressed as a percent of today's GDP, assuming the level of investment observed in 2000.

Figure 21. Changes in expenditure as percentage points of current GDP due to changing number of students due to demographic effects and in order to reach 2010 goals



Source: UNESCO Institute for Statistics (Data: Annex Table I).

These figures represent a low estimate at best as they are based on the assumption that repetition is reduced and marginal costs are not higher than average costs in 2000, which would potentially exclude improvements needed in the quality of education. However, for some countries presented in the chart, the enrolment targets can be reached with given financial resources, when resources are reallocated and school systems are reformed. For other countries, additional expenditure seems unavoidable; for example, up to more than 0.5% of GDP will be needed in Paraguay, Guatemala and Costa Rica.

6. Conclusions

The financing of education expansion works within broader economic and social contexts. Dramatic changes in economic conditions and resulting fiscal adjustments, such as those occurring in several LAC countries in the last few years, can have an immediate impact on available resources for education and the distribution of public and private spending. The economic repercussions that influence public spending patterns are also felt at the individual and household level. In periods of economic instability, household resources and thus private contributions for education may recede as a result of declining real wages and unemployment. The opportunity costs of education can also increase as families look to supplement income sources. From either perspective, public or private, economic instability constrains the available resources for education

Costs related to repetition limit the expansion of education systems in many LAC countries. Much progress is being made in increasing the volume of education provided in LAC countries, but it has been compromised by the scope and the costs of the losses related to efficiency. This underscores the importance of maintaining and improving the quality of primary education while seeking to expand opportunity at higher levels of education. While policies that seek to reduce repetition will allow better targeting of resources at the intended school-age population, they should not come at the expense of learning outcomes. The performance in international achievement studies suggests that quality in LAC countries is lagging behind countries with similar levels of national income.

Equity issues are important in terms of educational expansion. While expansion would seem to imply greater access and thus improved equity, the survey data cited earlier suggest that the impact is limited at higher levels of education. As tertiary education has been shown to provide greater returns at the individual level in the form of enhanced earnings, the balance between public and private funding can often change. To reflect this shift in benefit, some governments assign greater responsibility for funding tertiary and even secondary education to individuals and households. However, over-reliance on private contributions risks exclusion. To reduce this risk and to enable higher education opportunities for the poor, governments have introduced a range of mechanisms to lower cost barriers. At the same time, this raises issues about diminished equity of access and problems associated with efficient targeting of disadvantaged students.

7. List of figures and tables

- Figure 1. Net enrolment rates by single year of age and level of education, 2000
Figure 2. Proportion of students repeating a grade by level of education, 2000
Figure 3. Current and projected levels of educational attainment, 2000
Figure 4. Expected number of school years by level of education, 2000
Figure 5. Public expenditure on education as a percentage of GNP, 1990 and 2000
Figure 6. Public and private expenditure on education as a percentage of GDP, 2000
Figure 7. Expenditure on educational institutions by level as a percentage of GDP, 2000
Figure 8. Total public expenditure on education as a percentage of total government expenditure, 2000
Figure 9. Expenditure per student by level of education in US\$ PPP, 2000
Figure 10. Expenditure per student by level of education as a percentage of GDP per capita, 2000
Figure 11. Expenditure per student over the school career as a percentage of GDP per capita, 2000
Figure 12. Expenditure per student over the duration of primary and secondary education and expected number of years of participation, 2000
Figure 13. Estimated cost attributed to student repetition and its distribution among 14 LAC countries, 2000
Figure 14. Expenditure on students repeating grade in primary and secondary education as a percentage of GDP, 2000
Figure 15. Staff costs as a percentage of total current education expenditure by level of education, 2000
Figure 16. Combined literacy mean scores from PISA and GDP per capita (PPP\$)
Figure 17. PISA combined literacy performance and cumulative education expenditure to age 15 years, 2000/2001
Figure 18. Current expenditure and primary enrolments, 1975-1997
Figure 19. Current expenditure and the pupil-teacher ratio, 1975-1997
Figure 20. Change in the projected number of students and 2010 enrolment targets
Figure 21. Changes in expenditure as percentage points of current GDP due to changing number of students due to demographic effects and in order to reach 2010 goals
- Table 1. Primary enrolment rates, 1990 and 2000
Table 2. Number and share of expected school years due to repetition, 2000
Table 3. Private expenditure on educational institutions as a % of total public and private expenditure, 2000
Table 4. Teacher salaries, teaching hours per year, and class size, 2000

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9. Statistical annexes

Table A. School expectancy by level of education, 2000

Country or territory	Pre-primary (ISCED0)	Primary (ISCED1)	Lower secondary (ISCED2)	Upper secondary (ISCED3)	Secondary (ISCED2+3)	Primary to tertiary	Avg. number of years of schooling among adults
Argentina	1.8	7.2	3.5	2.3	5.8	13.6	8.3
Aruba	M	6.7	2.3	2.6	5.0	13.1	m
Bahamas ^{1 2}	M	4.9	x	x	4.3	m	m
Barbados	1.6	6.6	2.9	2.1	5.0	13.5	m
Belize	0.6	7.6	3.5	1.0	4.5	m	m
Bolivia	0.9	7.1	1.9	2.8	4.6	13.5	m
Brazil	1.8	6.4	5.0	2.6	7.6	14.8	7.5
Chile	1.5	6.3	2.1	3.6	5.6	13.9	9.9
Colombia	1.1	5.7	3.1	1.1	4.2	11.1	m
Costa Rica	0.9	6.4	2.2	0.9	3.0	10.3	m
Cuba	3.3	6.1	2.9	2.1	5.0	12.4	m
Dominican Rep. ^{1 2}	1.1	5.8	3.7	2.2	5.9	m	m
Ecuador	0.7	6.9	2.0	1.5	3.5	11.6	m
El Salvador ²	M	6.4	2.0	1.1	3.2	10.4	m
Grenada ²	M	6.6	1.9	1.2	3.1	m	m
Guatemala	1.0	6.2	1.3	0.6	1.9	m	m
Guyana	M	7.2	x	x	2.0	m	m
Honduras ²	1.0	6.1	x	x	2.1	9.0	m
Jamaica	2.5	6.0	2.7	1.5	4.2	11.0	8.7
Mexico	1.5	6.8	3.0	1.4	4.4	12.3	m
Nicaragua	1.1	6.2	x	x	2.8	m	m
Panama	0.9	6.7	2.5	1.6	4.2	12.7	m
Paraguay	0.9	6.9	2.2	1.4	3.6	11.4	6.6
Peru ¹	M	7.7	x	x	4.2	12.9	8.3
Suriname	1.8	2.0	x	x	0.0	m	m
Trinidad & Tobago	1.3	7.0	2.7	1.4	4.1	11.4	m
U.S.A.	1.8	6.1	3.1	2.6	5.7	15.5	13.5
Uruguay	1.9	6.6	3.2	2.6	5.9	14.3	8.4

Source: UNESCO Institute for Statistics

1) 1999 data.

2) Estimations based on gross enrolment ratios.

m = missing data

x = included in other column

Table B. Public and private expenditure on educational institutions as a percentage of GDP by level of education, 2000

Country or territory	All levels of education			Pre-primary			Primary and secondary			Tertiary		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Antigua & Barbuda ^{1 2}	3.2	M	m	0.1	m	m	2.2	m	m	0.5	m	m
Argentina	4.5	1.4	5.9	0.4	m	m	3.2	0.4	4.1	0.8	0.4	1.2
Barbados	5.2	0.2	5.4	x	x	x	3.3	0.1	3.5	1.8	0.0	1.8
Belize	5.5	0.6	6.1	n	m	m	4.7	0.4	5.1	0.8	0.2	1.0
Bolivia ²	5.2	M	m	0.4	m	m	3.2	m	m	1.6	m	m
Brazil ²	4.7	M	m	0.4	m	m	3.3	m	m	1.0	m	m
Canada	4.8	1.0	5.8	0.2	n	0.2	3.1	0.3	3.4	1.5	0.7	2.2
Chile	3.7	3.2	6.9	0.3	0.1	0.1	3.0	1.3	4.6	0.4	1.8	2.2
Colombia	4.0	2.5	3.7	0.0	0.2	0.2	3.2	1.0	1.4	0.8	1.3	2.1
Costa Rica ^{1 2}	4.8	M	m	0.2	m	m	3.8	ne	m	0.8	ne	m
Cuba	8.0	0.0	8.0	0.6	n	0.6	5.2	n	5.2	1.4	n	1.4
El Salvador ²	2.5	M	m	0.2	m	m	1.9	m	m	0.2	m	m
Guatemala ^{1 2}	1.1	M	m	0.1	m	m	1.4	m	m	m	m	m
Jamaica	6.1	3.3	9.4	0.3	0.2	0.2	4.1	2.5	6.9	1.2	0.5	1.7
Mexico ¹	4.3	0.9	5.2	0.4	0.1	0.5	3.0	0.5	3.5	0.9	0.3	1.2
Panama ^{1 2}	5.7	M	m	0.2	m	m	4.0	m	m	1.5	m	m
Paraguay	4.8	2.2	7.0	x	x	x	4.0	1.7	5.7	0.8	0.5	1.3
Peru ¹	3.3	1.2	4.6	0.3	0.1	0.4	2.3	0.6	2.9	0.7	0.5	1.2
Trinidad & Tobago ^{1 2}	3.4	M	m	x	m	m	2.5	m	m	0.8	m	m
U.S.A.	4.7	2.2	6.8	0.3	n	n	3.4	0.4	4.2	0.9	1.8	2.7
Uruguay	2.8	0.1	2.9	0.3	n	n	1.9	0.1	2.3	0.6	0.0	0.6

Source: UNESCO Institute for Statistics

1) 1999 data.

2) Total public expenditure, i.e. public expenditure on institutions can include public subsidies to households.

Note: Expenditures from foreign sources are excluded due to lack of data in most countries. They can be significant; for example, they represent 1.1% of total education expenditure in Barbados and 0.3% in Bolivia.

m = missing data

Table C. Public expenditure on education at all levels as a percentage of GNP

Country or territory	% of GNP	
	1990	2000
Argentina ¹	3.4	4.6
Barbados	7.9	5.4
Belize	4.8	6.0
Bolivia	2.7	5.3
Brazil ²	4.6	4.9
Canada	6.8	4.9
Chile ¹	2.7	3.9
Colombia	2.6	4.1
Costa Rica ³	4.4	5.4
Cuba	6.6	8.2
El Salvador	2.0	2.6
Guatemala ³	1.4	1.1
Jamaica	5.4	6.4
Mexico ³	3.7	4.4
Panama ³	4.9	6.2
Paraguay	1.1	4.8
Trinidad & Tobago ³	4.0	3.6
U.S.A.	5.2	4.7
Uruguay	3.1	2.8
Average	4.1	4.7

Source: UNESCO Institute for Statistics

Note: 1) refers to 1991.
 2) refers to 1989.
 3) refers to 1999.

Table D. Expenditure per student by level of education, 2000

Country or territory	Annual expenditure per student						Cumulative expenditure over the average duration of schooling			
	US\$ PPP			as % of GDP per capita			as % of GDP per capita			
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	All levels
Antigua & Barbuda ^{1 2}	841	1825	M	8.6	18.7	m	m	m	m	m
Argentina	1533	2286	11724	12.9	19.2	98.7	92.8	111.4	65.4	269.6
Barbados	4632	5168	9178	30.2	33.7	59.8	198.2	170.0	111.6	479.8
Belize	801	1393	m	14.6	25.5	m	111.1	114.6	m	m
Bolivia	300	237	1495	13.0	10.3	64.7	92.1	47.1	118.4	257.6
Brazil	886	836	4263	12.2	11.5	58.8	78.3	87.6	49.0	215.0
Chile	1720	1799	6528	19.2	20.1	73.0	122.2	113.7	138.8	374.6
Colombia	1263	1516	6782	3.6	4.3	19.3	102.6	90.9	115.3	308.9
Costa Rica ¹	1570	2	5402	15.5	m	53.4	99.2	72.7	44.4	216.3
Guatemala ^{1 2}	252	m	m	5.9	m	m	36.9	m	m	m
Jamaica ²	902	1409	6039	25.1	39.3	168.2	150.2	166.0	145.7	461.9
Mexico ¹	1019	1284	4554	12.9	16.3	57.8	88.0	72.1	60.2	220.3
Panama ^{1 2}	994	1499	m	17.5	26.3	m	117.4	109.8	m	m
Paraguay	947	1414	4484	18.5	27.7	87.8	128.6	99.7	76.7	305.0
Peru ¹	471	553	1379	10.7	12.5	31.3	82.1	50.6	33.6	166.3
Trinidad & Tobago ¹	846	965	12239	10.7	12.2	154.1	74.4	49.4	55.0	178.9
U.S.A.	6719	8410	25310	19.8	24.8	74.5	120.0	141.7	274.9	536.6
Uruguay ²	967	1166	1925	11.2	13.5	22.2	73.9	79.1	39.3	192.3

Source: UNESCO Institute for Statistics

1) 1999 data.

2) Public institutions only.

m = missing data

Table E. Estimated additional cost attributed to student repetition, 2000

Country or territory	US\$ PPP converted (millions)					
	US\$ PPP converted (millions)			as % of GDP		
	Primary	Secondary	Primary and secondary	Primary	Secondary	Primary and secondary
Argentina	446	433	879	0.10	0.10	0.20
Belize	4	2	6	0.27	0.18	0.45
Bolivia	17	8	25	0.09	0.04	0.13
Brazil	4,481	3,839	8,320	0.36	0.31	0.67
Chile	62	49	111	0.05	0.04	0.08
Colombia	353	217	72	0.12	0.07	0.02
Costa Rica	70	39	108	0.18	0.10	0.28
Guatemala	70	5	74	0.14	0.01	0.15
Jamaica	15	7	22	0.16	0.08	0.24
Mexico	829	227	1,056	0.10	0.03	0.13
Panama	24	9	33	0.14	0.06	0.20
Paraguay	70	8	78	0.25	0.03	0.28
Peru	218	66	284	0.18	0.06	0.24
Uruguay	31	37	68	0.11	0.13	0.24

Source: UNESCO Institute for Statistics

Table F. Staff costs as a percentage of total current education expenditure by level of education, 2000

	Teachers	Other staff	Other current
Primary, secondary and post-secondary non-tertiary			
Jamaica	57.40	10.00	32.70
Paraguay	59.60	11.30	29.10
Brazil	81.90	←	18.10
Uruguay	72.90	12.30	14.80
Peru	89.30	2.00	8.70
Argentina	67.10	24.90	8.00
Primary, secondary and post-secondary non-tertiary			
Argentina	56.20	34.90	8.90
Brazil	86.30	←	13.70
Jamaica	53.60	29.20	17.30
Peru	46.00	9.00	45.00
Uruguay	64.00	21.60	14.40

Source: UNESCO Institute for Statistics

Table G. PISA combined literacy performance, cumulative education expenditure to age 15 years and GDP per capita, 2000/2001

Country or territory	Cumulative education expenditure to age 15 years (PPP US\$)	GDP per capita (PPP converted US\$)	Combined literacy mean scores (reading, mathematics and science)
Argentina	18893	12377	401
Brazil	10269	7625	368
Chile	17820	9417	403
Indonesia	1164	3043	377
Peru	3479	4799	317
Australia	55987	26325	530
Austria	77027	28070	514
Belgium	49489	26392	507
Canada	59808	28130	532
Czech Republic	22606	13806	500
Denmark	65244	28755	497
Finland	47854	25357	540
France	55086	25090	507
Germany	44800	26139	487
Greece	24671	15885	460
Hungary	21997	12204	488
Ireland	34329	28285	514
Italy	58868	25095	474
Japan	54737	26011	543
Korea, Rep.	30246	15186	541
Mexico	12189	9117	410
Norway	63599	36242	502
Poland	18586	9547	477
Portugal	41166	16780	461
Spain	41267	20195	487
Sweden	54845	26161	513
Switzerland	66214	29617	506
United Kingdom	46175	24964	528
United States	72119	34602	499

Source: OECD/UIS 2003

Table H. Current expenditure, primary enrolments and the pupil-teacher ratio, 1975-1997

Year	Enrolment (million students)					Expenditure (millions 1995 constant US\$)				
	Sub-Saharan Africa	Arab States	Latin America / Caribbean	East Asia / Oceania	South Asia	Sub-Saharan Africa	Arab States	Latin America / Caribbean	East Asia / Oceania	South Asia
1975	34	17	56	204	86	3,814	3,897	10,030	4,580	1,664
1976	37	17	58	205	90	4,075	4,409	10,388	5,601	1,904
1977	40	18	59	203	88	4,052	5,143	10,742	5,541	2,372
1978	43	19	62	205	90	4,122	6,415	11,542	6,028	2,684
1979	47	20	64	209	93	4,356	5,577	13,072	6,540	2,886
1980	50	21	65	211	96	4,427	5,438	14,865	5,739	3,085
1981	54	21	66	210	99	4,451	5,749	15,926	7,425	2,721
1982	56	22	68	207	103	4,543	6,817	16,424	8,802	2,640
1983	57	23	69	204	108	4,649	7,439	12,643	9,190	2,676
1984	58	24	70	205	110	4,778	7,473	12,985	9,366	2,836
1985	58	25	70	203	114	4,872	7,772	14,294	9,701	3,046
1986	59	26	71	202	115	5,012	8,543	17,980	10,287	3,205
1987	59	28	72	199	119	5,170	8,697	18,760	10,516	3,328
1988	61	28	73	197	127	5,158	9,234	18,436	11,480	3,671
1989	62	29	74	195	130	5,368	9,919	18,547	12,199	3,926
1990	64	30	76	195	136	5,865	10,955	19,133	13,401	4,167
1991	66	31	77	195	141	6,371	11,821	20,966	13,922	4,330
1992	68	32	78	196	146	6,886	11,533	22,951	14,980	4,721
1993	71	33	80	198	150	6,904	12,839	25,078	16,353	4,999
1994	75	35	81	202	151	6,808	12,505	28,790	18,017	5,033
1995	76	35	83	206	152	7,116	11,929	30,877	18,526	5,084
1996	76	35	84	210	152	7,679	11,622	30,631	22,150	6,491
1997	79	36	86	215	152	8,387	12,994	34,375	24,757	8,073

Source: UNESCO Institute for Statistics, Brossard (2000).

Table I. Changes in the number of students and expenditure due to demographic effects and in order to reach 2010 goals

i) Change in number of students (2000=100)

	2000			2010			2010		
	Change to reach Regional goals			Change due to demography			Change in order to reach regional goals (incl. demographic effects)		
	Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total
Argentina	85.0	94.3	88.7	104.2	104.6	104.4	88.5	98.7	92.5
Barbados	91.4	88.3	90.1	87.7	82.2	85.4	80.6	72.6	77.2
Bolivia	88.1	115.7	96.1	109.5	122.1	113.1	95.0	140.8	108.3
Brazil	66.4	104.6	84.3	97.2	91.8	94.7	66.0	96.3	80.1
Chile	95.8	100.6	97.7	97.4	107.5	101.4	92.7	107.4	98.5
Costa Rica	93.6	152.0	109.8	96.1	99.1	96.9	90.2	150.6	106.9
Cuba	98.1	89.5	94.2	80.5	86.6	83.3	79.0	78.3	78.7
Ecuador	87.1	150.6	105.8	99.7	104.1	101.0	86.6	156.9	107.3
El Salvador	209.0	x	352.5	110.7	x	110.7	224.9	x	384.7
Guatemala	97.9	270.4	126.4	121.6	124.2	122.0	118.8	336.0	154.7
Jamaica	100.4	99.0	99.9	93.5	97.9	95.2	93.8	96.8	95.0
Mexico	88.4	120.8	99.5	97.5	102.7	99.3	86.0	124.7	99.2
Nicaragua	96.6	183.2	116.6	117.7	122.6	118.8	114.3	223.1	139.5
Paraguay	88.7	158.8	107.9	113.5	116.5	114.3	100.4	184.8	123.5
Trinidad & Tobago	101.5	98.9	100.4	76.8	65.4	72.1	78.4	64.7	72.8
U.S.A.	99.0	84.1	92.1	101.0	108.4	104.4	99.9	91.3	95.9
Uruguay	91.8	106.7	97.5	102.7	108.2	104.8	93.5	115.1	101.7

Source: UNESCO Institute for Statistics

x = included in other column

ii) Change in expenditure as percentage points of GDP (2000=0)

	2000			2010			2010		
	Change to reach regional goals			Change due to demography			Change in order to reach regional goals (incl. demographic effects)		
	Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total
Argentina	-0.26	-0.11	-0.37	0.07	0.09	0.16	-0.20	-0.03	-0.22
Barbados	-0.24	-0.31	-0.54	-0.34	-0.47	-0.80	-0.53	-0.72	-1.25
Bolivia	-0.28	0.17	-0.11	0.22	0.24	0.46	-0.12	0.44	0.32
Brazil	-0.51	0.08	-0.43	-0.04	-0.15	-0.19	-0.52	-0.07	-0.59
Chile	-0.10	0.01	-0.09	-0.06	0.15	0.09	-0.17	0.15	-0.03
Costa Rica	-0.13	0.65	0.52	-0.08	-0.01	-0.09	-0.21	0.63	0.43
Cuba	-0.04	-0.29	-0.34	-0.46	-0.37	-0.84	-0.50	-0.60	-1.11
El Salvador	1.44	-0.57	0.87	0.14	-0.57	-0.43	1.65	-0.57	1.08
Guatemala	-0.02	0.26	0.25	0.16	0.04	0.20	0.14	0.36	0.51
Jamaica	0.01	-0.04	-0.02	-0.20	-0.07	-0.28	-0.19	-0.11	-0.30
Mexico	-0.19	0.22	0.03	-0.04	0.03	-0.01	-0.23	0.27	0.03
Paraguay	-0.37	1.36	0.99	0.44	0.38	0.82	0.01	1.96	1.97
Trinidad & Tobago	0.02	-0.01	0.01	-0.27	-0.31	-0.58	-0.25	-0.31	-0.57
U.S.A.	-0.02	-0.32	-0.34	0.02	0.17	0.19	0.00	-0.18	-0.18
Uruguay	-0.08	0.07	-0.01	0.03	0.09	0.12	-0.07	0.16	0.10

Source: UNESCO Institute for Statistics