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## Education and Training: The Task Ahead

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This book is about economic policy in Latin America during the next decade. It has a chapter on education and training. It does not have a chapter on the environment, on agricultural development, on infrastructure and roads, or on health. Why, then, does this book on economic policy have a chapter on education?

The answer is that it is a response to the three overriding economic changes in the world during the past 20 years—globalization, the growth of the knowledge economy, and the information and communications revolution. Globalization involves integration across national boundaries in such a way as to create a single world market. The knowledge content of traded goods and services is increasingly important, while in contrast traded primary goods are an increasingly marginal component of international trade; therefore economic development is more and more linked to a nation's ability to acquire and apply technical knowledge. Finally, rapid progress in electronics, telecommunications, and satellite technologies is resulting in the quasi abolition of physical distance, which will lead in the near future to near-zero costs for communication among people, institutions, and countries. That allows businesses increasingly to locate anywhere that offers good-quality human resources at a competitive price.

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Knowledge, and knowledge-induced technological change, is more than ever driving economic growth. The entire system of knowledge creation, dissemination, and usage is encapsulated in the idea of “national innovation systems”—the set of interrelated agents, institutions, and practices that constitute, perform, and participate in the process of technological innovation. By 1999, knowledge-based industries<sup>1</sup> share of GDP in industrial countries was already above 50 percent (Melo 2001). Within this area, information and communications technologies constitute the core of the knowledge-based economy. At the same time, the knowledge content of all types of industry and services—ranging from soybean growing to banking to manufacturing items from (robotic) toys to automobiles (with hundreds of computer chips in each car)—is growing.

These changes in the world economy require increasing numbers of workers with higher-level skills who need to update their knowledge and skills on a regular basis. “Higher-order learning”—involving methodological knowledge as well as skills such as creativity, communication, and the ability to work in teams—is increasingly valued relative to the learning of facts. In many other places throughout the world, just as in Latin America, the increased value of knowledge is resulting in a decline in the wages of unskilled or semiskilled workers compared with those of skilled workers (Heckman 2001). These changes in the relative value of skilled workers increase the potential for divergences in income distribution within countries. Political and economic modernization, as well as rapid changes in society, has also led to another set of goals that can be furthered by education: the development of a civic culture that stresses tolerance, cooperation, and a broader sense of national community.

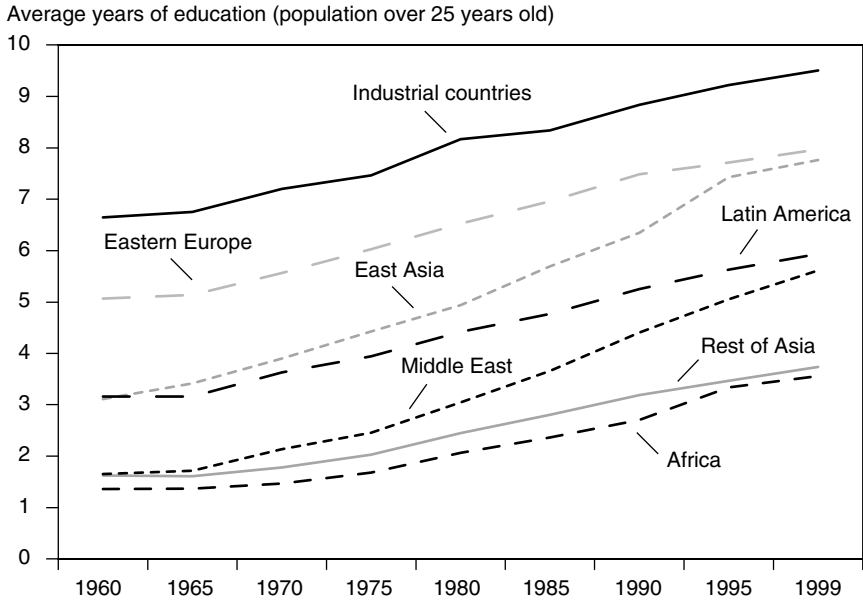
Globalization and the information and communications technologies revolution are transforming higher education. The difference between “virtual” and “in-person” education is disappearing. Virtual higher education and training courses are among the most rapidly expanding internationally traded services, and there are now promising pilot projects in providing virtual instruction at the secondary education.

Although the progress in many Latin American countries is impressive, the region still remains behind others in human resource development. Inadequate human resources continue to be a major impediment to economic growth. Young workers in the region on average enter the labor force with fewer years of education than workers in East Asia, and the gap was still widening through 1999 (figure 8.1). Enrollment ratios in most countries are lower than would be expected by the standard of countries at similar levels of development. It has been estimated that, if the region’s educational achievement were equivalent to that of countries in the Far

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1. These are defined as high and medium-high technology manufacturing industries and services, e.g., finance, insurance, and communications.

**Figure 8.1 Average years of schooling of the labor force, Latin America and other regions, 1960-99**



Source: Adapted from Barro and Lee (1999).

East, per capita income could grow 0.5 percent a year faster (Birdsall 1999). Quality, in terms of learning achievement, is low. Latin American students included in international test comparisons consistently score near the bottom.

As is documented in this book and elsewhere, income inequality in Latin America—the difference between the income of the richest and poorest members of society—is among the highest in the world. This inequity reflects and also perpetuates disparities in educational opportunities. The region’s richest 10 percent of people 21 years of age or above average about 11 years of education, compared with about 6 years of education for the poorest 30 percent (table 8.1).

Indirect measurements of the impact of education on the economy also show that the region is lagging behind. For example, productivity growth has been half the world average since 1973 (IDB 2000a). Patent applications, the share of high-technology exports to OECD markets, researchers per thousand workers, and linkages and external interactions by business all are lagging (Melo 2001). And while the region’s Internet connections are increasing rapidly, it still has only 2.6 per 1,000 people, compared with 177.3 in industrial countries and 10.4 in East Asia and the Pacific (Chong and Micco 2001).

**Table 8.1 Average years of education for people 25 years of age and above, selected Latin American countries, 1994-96**

Country	Richest 10 percent	Poorest 30 percent	Difference
Uruguay <sup>a</sup>	11.9	6.3	5.6
Venezuela	10.8	5.0	5.8
Chile	12.8	6.7	6.1
Argentina <sup>b</sup>	13.6	7.4	6.2
Nicaragua	8.5	2.3	6.2
Peru	10.8	4.3	6.5
Bolivia <sup>a</sup>	13.1	6.6	6.5
Costa Rica	11.5	4.8	6.7
Paraguay	10.7	3.6	7.1
Honduras	9.6	2.3	7.3
Ecuador	11.8	4.3	7.5
Brazil	10.5	2.5	8.0
El Salvador	10.3	2.1	8.2
Panama	13.6	5.3	8.3
Mexico	12.1	3.0	9.1

a. The surveys for Bolivia and Uruguay include only urban areas.

b. The surveys for Argentina include only greater Buenos Aires.

Source: Inter-American Development Bank, *Economic and Social Progress 1998-99*, appendix table 1.2.III, education. Based on household surveys conducted from 1994 to 1996.

## Four Challenges: Access, Quality, Equity, and Technology

The region has made significant progress during the past decade in improving education and training. Nonetheless, the task ahead remains formidable.

Improving education is a long-term endeavor. There are no quick fixes or simple solutions. The successful implementation of change in education requires a systematic approach and constant feedback, tinkering, and revision. Nor will the same prescriptions be valid for every country in a region as varied and vast as Latin America. Each country must design its own educational goals in accordance with its own level of educational development and economic resources.

### Increasing Access to Education

In the region as a whole, 82 percent of those 17 to 20 years of age now report that they have completed at least 6 years of primary education.<sup>2</sup> Students enter and remain in the school system for longer periods of time

2. This was based on household surveys. Estimates using reconstituted flow rates suggest lower completion rates.

**Table 8.2 Primary school completion rates for people 17-20 years of age, selected Latin American countries, various years**

Country	Year	Percent completing 6th grade	Year	Percent completing 6th grade
Argentina	—	—	1999 <sup>a</sup>	98
Bolivia	1990 <sup>a</sup>	86	1999	77
Brazil	1988	49	1999	68
Chile	1990	93	1998	96
Colombia	1990 <sup>a</sup>	86	1999	76
Costa Rica	1989	85	2000	88
El Salvador	—	—	1999	54
Honduras	1992	69	1999	70
Mexico	1989	83	2000	88
Nicaragua	—	—	1998	60
Panama	1991	92	1999	94
Peru	1991	96	2000	95
Uruguay	1992 <sup>a</sup>	97	1998 <sup>a</sup>	96
Venezuela	1989	87	1999	90

— = not available

a. This includes only urban areas. Enrollment ratios in the two time periods for Bolivia and Colombia are not comparable because they are for urban areas only in about 1990 and for the country as a whole in about 2000.

Note: Primary school completion is defined as completing at least 6 years of school.

Source: Social Information Service, Research Department, Inter-American Development Bank, based on household surveys.

and are able to advance more quickly to higher-level courses now than in 1990. Brazil has made especially significant progress; 68 percent of its youth reported that they had completed 6 years of education, compared with only 49 percent in 1990 (however, this figure is still among the lowest in the region). Other countries have had much less spectacular increases in completion rates (table 8.2), with an average improvement of only 4 percent during the past decade. In only Chile, Argentina, Uruguay, and Peru do 95 percent or more entering children complete 6 years of primary education.

Much progress has been made in reducing repetition, from 29 to 16 percent during the decade, yet the “culture of repetition” still leads teachers to require large numbers of students to repeat grades, resulting in many youths of 18 and above who are still seeking to complete primary school. Repetition rates remain higher than in other regions (it costs an estimated \$4.6 billion a year to educate these repeaters).

The region’s average gross secondary education enrollment ratio has increased significantly, from 54 percent in 1990 to 62 percent in 1997 (table 8.3). Again, Brazil has had the greatest increase. Its gross enrollment ratio in the 3-year secondary school system rose from 38 to 62 percent of the secondary school age cohort. The region’s higher education gross enroll-

**Table 8.3 Gross school enrollment ratio per country, Latin America and the Caribbean, 1990 and 1997 (percent)**

Region and country	Preschool		Primary		Secondary		Higher	
	1990	1997	1990	1997	1990	1997	1990	1997
<b>Central America and the Caribbean</b>								
Bahamas <sup>a</sup>	—	9	102	98	94	87	—	—
Barbados <sup>a</sup>	—	—	93	—	—	—	27	29
Belize <sup>a</sup>	24	27	112	121	41	49	—	—
Costa Rica	61	74	101	104	42	48	26	30
Cuba	101	88	98	106	89	81	21	12
Dominican Republic	—	33	—	94	—	54	—	23
El Salvador	21	40	81	97	26	37	16	18
Guatemala	26	35	81	88	23	26	—	9
Haiti	34	—	48	—	21	—	—	—
Honduras	13	14	108	111	33	—	9	10
Jamaica	78	—	101	100	65	—	7	8
Mexico	64	73	114	114	53	64	15	16
Nicaragua	12	23	94	102	40	55	8	12
Panama	53	76	106	106	63	69	22	32
Trinidad and Tobago	9	—	97	99	80	74	7	8
<b>South America</b>								
Argentina	50	56	106	111	71	73	38	36
Bolivia	32	—	95	—	37	—	21	—
Brazil	48	59	106	125	38	62	11	15
Chile	82	98	100	101	73	75	21	32
Colombia	13	33	102	113	50	67	13	17
Ecuador	42	59	116	127	55	50	20	—
Guyana <sup>a</sup>	69	89	98	96	83	75	—	11
Paraguay	27	61	105	111	31	47	8	10
Peru	30	40	118	123	67	73	30	26
Suriname	—	—	—	—	52	—	9	—
Uruguay	43	45	109	109	81	85	30	30
Venezuela	41	44	96	91	35	40	29	—
<b>Simple average for the region</b>	<b>44</b>	<b>54</b>	<b>99</b>	<b>106</b>	<b>54</b>	<b>62</b>	<b>17</b>	<b>19</b>

— = not available

a. Data are for 1996.

Sources: UNESCO World Education Report 2000; World Bank, World Development Indicators 2001.

ment ratio increased from 17 to 19 percent. Preschool enrollments increased from 44 to 54 percent of the target population (as defined by each country, usually children ages 4-5). An unknown but certainly increasing number of youths and adults are attending a wide variety of formal and nonformal training programs.

Let us now look at expenditures. In the region as a whole, public expenditures on education as a percentage of GNP increased from 4 to 4.6 percent in the period from 1990 to 1999 (table 8.4). Nearly every country increased this percentage. Adding private and nonformal expenditures on

**Table 8.4 Public expenditures on education in Latin America and the Caribbean, 1990-99**

Region and country	As a percent of GNP		As a percent of government expenditure	
	1990	1999	1990	1996
<b>Central America and the Caribbean</b>				
Bahamas	4.3	—	17.8	13.2
Barbados	7.9	6.4	22.2	19.0
Belize	4.8	5.4	18.5	19.5
Costa Rica	4.6	5.5	20.8	22.8
Cuba	—	7.7	12.3	12.6
Dominican Republic	1.4	2.6	8.9	13.8 <sup>b</sup>
El Salvador	2.0	2.4	16.6	16.0 <sup>b</sup>
Guatemala	1.4	1.7 <sup>a</sup>	11.8	15.8
Haiti	1.5	—	20.0	—
Honduras	4.1	4.2 <sup>c</sup>	—	16.5
Jamaica	5.4	6.3	12.8	12.9
Mexico	3.7	4.6	12.8	23.0
Nicaragua	—	4.0	—	8.8 <sup>b</sup>
Panama	4.9	6.3	20.9	16.3 <sup>b</sup>
Trinidad and Tobago	4.0	4.0	11.6	—
<b>South America</b>				
Argentina	3.4	4.7	—	12.6
Bolivia	—	5.8	—	11.1
Brazil	4.5	5.2	—	—
Chile	2.7	4.3	10.0	15.5 <sup>b</sup>
Colombia	2.5	4.4	16.0	19.0
Ecuador	3.1	2.5	17.2	13.0
Guyana	4.8	4.6	—	10.0
Paraguay	1.1	4.8	9.1	19.8 <sup>b</sup>
Peru	2.3	3.5	—	19.2
Suriname	8.3	6.7	—	—
Uruguay	3.1	2.8	15.9	15.5
Venezuela	3.1	5.2 <sup>a</sup>	12.0	22.4
<b>Simple average for the region</b>	4.0	4.6	15.1	16.0

— = not available

a. 1995 figure.

b. 1997 figure.

c. 1998 figure.

Source: UNESCO Statistical Yearbook 2002.

education and training would increase this percentage significantly.<sup>3</sup> Expenditures per pupil as a percentage of GNP per capita also went up in the region as a whole. The greatest increase in per-student expenditure was in secondary education, which went up from 14.5 to 16.2 percent of GNP per capita. Public and private investment in science and technology

3. If these elements were included, it is estimated that Brazil could be spending up to 10 percent of GDP on education and training (Wolff and Castro 2000).

**Table 8.5 Research and development expenditures in selected Latin American and other countries (as a percent of GDP)**

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>Latin America</b>										
Bolivia	—	—	0.37	0.39	0.39	0.37	0.33	0.32	0.29	0.29
Brazil	0.46	0.46	0.38	0.48	0.69	0.76	0.76	—	—	—
Chile	0.51	0.53	0.58	0.65	0.66	0.65	0.66	0.65	0.62	0.63
Colombia	—	—	—	—	0.37	0.39	0.41	0.41	—	—
Costa Rica	0.73	1.05	1.23	1.42	1.23	1.25	1.13	—	—	—
Cuba	0.72	0.65	1.13	0.93	0.82	0.77	0.61	0.70	0.87	0.83
Ecuador	—	—	—	—	—	0.08	0.09	0.08	0.08	—
Mexico	—	—	—	0.22	0.29	0.31	0.31	0.34	—	—
Panama	0.38	0.38	0.34	0.36	0.37	0.38	0.38	0.37	0.33	—
<b>North America and Iberian Peninsula</b>										
Canada	1.45	1.51	1.56	1.60	1.65	1.62	1.57	1.59	1.61	1.50
Portugal	0.54	—	0.66	—	—	0.56	—	0.62	—	—
Spain	0.85	0.87	0.91	0.91	0.85	0.85	0.87	0.86	0.89	0.90
United States	2.62	2.69	2.61	2.49	2.39	2.48	2.52	2.55	2.59	2.67

— = not available

Source: Red Iberoamericana de Indicadores de Ciencia y Tecnología, *Indicadores de Ciencia y Tecnología*, Buenos Aires, 2000, [www.riicyt.edu.ar](http://www.riicyt.edu.ar).

as a percentage of GDP has increased significantly in Brazil, Chile, and Mexico (table 8.5). Average primary student-teacher ratios have declined from 30:1 to 28:1, and 80 percent of primary teachers are now formally qualified (table 8.6).

The quantitative challenge is to increase enrollments and completion rates at all levels to meet both labor market and social demand. Some illustrative goals could include ensuring that all children in the region complete primary education (recommended as part of the UN Millennium Development Goals for 2015); increasing secondary enrollment ratios to 75 percent in 2010 (recommended by the participants in the Quebec Summit of the Americas); and increasing higher education enrollment ratios from 19 percent to perhaps 25 percent by 2010. The costs would be significant. For example, the target increase in the enrollment rate in secondary education would cost an estimated additional \$11 billion in capital costs and \$5 billion in annual recurrent costs. Public expenditures on education would likely increase from 4.6 percent of GNP in 1997 to at least 5 percent to meet these goals and to approach industrial countries' efforts.

The current environment in the region offers a window of opportunity, in the form of declining "dependency ratios" (i.e., the ratio of those outside the labor force to those in it). Through 2015, an increasing percentage of the population will be in the labor force. The secondary education level-age

**Table 8.6 Changes in measures of inputs to primary education in Latin America, 1990-92 and 1997-99**

Measure	1990-92	1997-99
Percent enrolled in preschool (15 countries)	29.3	40.1
Student-teacher ratio (12 countries)	30 to 1	28.3 to 1
Percent of trained teachers (13 countries)	76.0	80.0
Public expenditure on primary education as a percent of GDP (13 countries)	1.3	1.7
Expenditure per student as a percent of GDP per capita (20 countries)	9.5	9.8

Sources: UNESCO, *Informe Regional de América Latina de EFA*, 2000, for all items except expenditure per student, which is from the *UNESCO Statistics Report*, 2001.

population will grow a total of only 6 percent from 1995 to 2010, from 46 to 49 million. The overall school-age population will actually remain stable (figure 8.2) and children as a percentage of total population will decline from over 30 percent now to 20 percent by 2040 (figure 8.3).

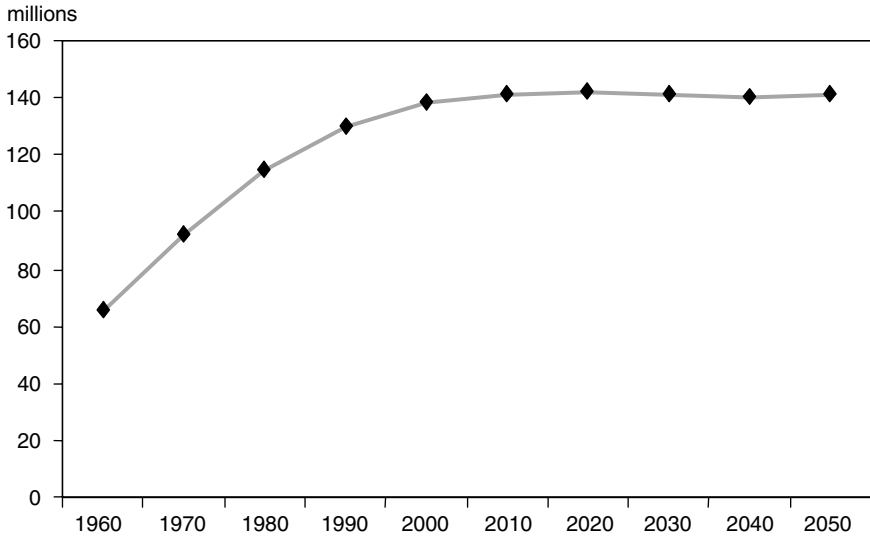
This window provides the opportunity for increased savings and therefore faster economic growth, and it likewise gives the opportunity to increase education spending per school-age child without prohibitive cost. At the same time, expenditures on adults for training and skills upgrading will have to increase. Of course, finance ministers will have to provide the needed funding, whenever adequate education policies are proposed to them, if the region is to take advantage of this window. In any event, especially at higher levels of education, the private sector will need to be encouraged to cover a major share of increased costs. This is already happening, because private higher education accounts for 65 percent of current higher education enrollments in the region.

## Improving the Quality of Education

In about 1990, the academic achievement of Latin American students, as measured in the few available comparative tests, was far lower than that of students in the OECD countries as well as most East Asian countries. There is now a richer body of learning indicators comparing Latin America with the rest of the world. These indicators, some of which are summarized in box 8.1, confirm the poor performance of the region's students.

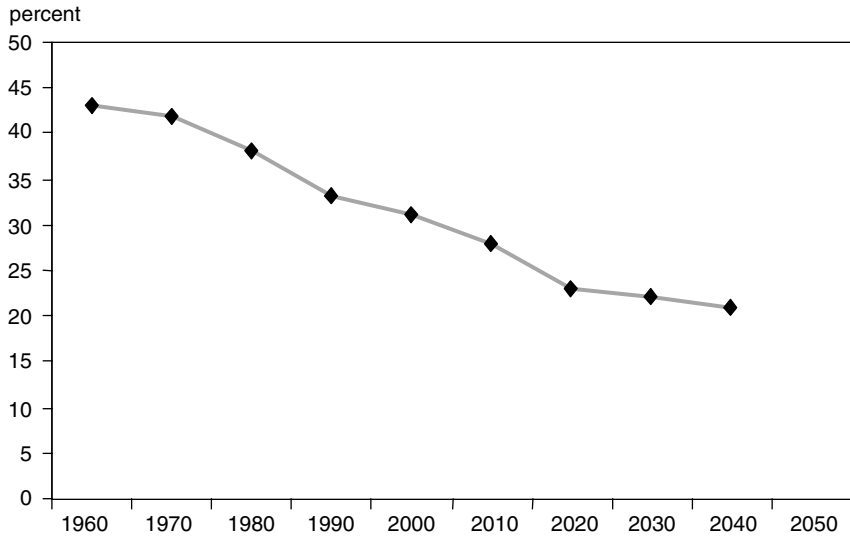
The qualitative challenge (raising educational standards) is, in many ways, more difficult to deal with than the quantitative one. It has to contend with the low educational attainment and literacy of parents, which makes

**Figure 8.2** Projected population of 6 to 18-year-olds in Latin America and the Caribbean, 1960-2050 (millions)



Source: World Bank estimates, 1998.

**Figure 8.3** Children (aged 6 to 18 years) as a proportion of the total population of Latin America and the Caribbean, 1960-2040 (percent)



Source: World Bank data, 1995; United Nations data, 1996.

### **Box 8.1 Evidence on the quality of education**

In 1995 Colombia—the only Latin American country to participate in the Third International Mathematics and Science Study (TIMSS) of the International Association for the Evaluation of Educational Achievement (IEA)—placed 41st out of 42 countries, higher only than South Africa. Mexico participated in the study, but at the last moment it did not authorize publication of the results. In 2002, Mexico's results, published by a news magazine, showed that its students had done worse than those of Colombia.

In 1999, Chile participated in a similar study named the TIMSS-Repeat, a replication of the test conducted in 1995. Chile, long considered among the regional leaders in educational achievement, scored ahead of only the Philippines, Morocco, and South Africa out of 38 countries, and comparatively no better than Colombia. Both Colombia and Chile scored significantly lower than countries at similar per capita levels of income. Chile also participated in an adult literacy study which found that 50 percent of its labor force was below the minimum level of reading to comprehend a simple text.

A UNESCO-Orealc study of learning in third and fourth grades in 11 countries in Latin America concluded that only in Cuba were children able to read and understand simple sentences and do arithmetical problems in a real-world context (UNESCO/Orealc 2000). Table 8.7 shows the scores of Latin American countries compared with the United States, which itself scores at the same level or below other industrial countries.

It appears clear that learning has increased modestly or not at all in the region during the past decade. Studies of learning in Chile, which have continued during a 10-year period, showed increases in achievement for the period 1990-97 but no statistically significant improvements since then. The latest studies, based on new curricula, and with better technical comparison of year-to-year progress, show no improvement in learning achievement. In Brazil, student achievement levels also did not change much during the period 1996-2000. The good news in Brazil is that repetition rates in primary education have declined dramatically, so that "internal efficiency" is improving.

the task of improving education a long-term endeavor. The additional students remaining in school are normally those who are most poorly prepared and have uneducated parents. Differential fertility rates mean that children from poorer families will be overrepresented in the educational system. It could therefore be considered some sort of a success if learning and achievement levels do no more than remain stable over the next 5 to 10 years.

A wide variety of efforts are being made to improve quality. There seems to be a growing regional consensus on the inputs and processes that are needed to improve the quality of education. This consensus includes high-quality teachers, who are paid relatively well in comparison with those in other professions; full-time teachers, open classrooms, and rigorous teacher evaluation; long school days; strong community involvement; universal preschooling; and quality in school inputs, including textbooks for all. Interestingly, Cuba (the country with by far the best educational attainment in the region; see table 8.7) has implemented all of these policies far more successfully than other countries in the region.

**Table 8.7 Comparison of the results of international academic studies as a percent of US scores, selected Latin American countries, various years**

Country	Tests, 1992				Tests, 1995-2000					
	IAEP, 1992: Grade 8		IEA, 1992: Grade 8 reading		TIMSS, 1995 and 1998: Grade 8 <sup>b</sup>		UNESCO, 1997: Grade 4 <sup>c</sup>		PISA, 2000: Age 15 years	
	Math	Science	Reading <sup>a</sup>	Math	Science	Reading	Math	Reading	Math	Science
Argentina			66				83			
Bolivia			52				69			
Brazil <sup>d</sup>	67	79					82		77	68
Chile			67		82		84			
Colombia					72		78			
Costa Rica			70							
Cuba							103		104	
Dominican Republic			56				68		69	
Ecuador			55							
Honduras							70		68	
Mexico							74		75	
Paraguay							74		73	
Venezuela			70				73		67	

IAEP = International Assessment of Educational Progress, Education Testing Service

IEA = International Association for the Evaluation of Educational Achievement

PISA = Progress in Student Achievement

TIMSS = Third International Mathematics and Science Study

UNESCO = United Nations Educational, Scientific, and Cultural Organization

a. The scores for the 1992 UNESCO study are expressed in relation to the US score in the IEA 1992 study, taking into account the fact that Venezuela participated in both studies.

b. The results for grade 7 in the TIMSS 1995 study are similar to those of grade 8 shown in the table.

c. The scores for the 1997 UNESCO study are expressed in relation to the US score in the TIMSS 1999 study, because Colombia and Chile participated in both studies.

d. Brazil's participation in the 1997 UNESCO study was restricted to the states of Rio Grande do Sul, Minas Gerais, and Ceará. Its participation in the IEAP study was restricted to the cities of Fortaleza and São Paulo.

Note: Blank cells indicate that the countries did not participate in the study.

Sources: For IAEP 1992, Education Testing Service; for IEA 1992, Elley (1992); for UNESCO 1992, Arancibia and Rosas (1994); for TIMSS, IEA (2000); for UNESCO 1997, UNESCO/Orealc (1998); for PISA, OECD (2001a).

Unfortunately, there is an immense gap between reaching a consensus on what needs to be done and actually doing it. For example, except in Cuba, Chile, Panama, and Uruguay, preschooling is rarely available to poor children, and even when it is, the providers are often virtually untrained.<sup>4</sup> As another example, while there is consensus on the importance of increased “time on task,” constant teacher strikes rob many children of the opportunity to learn. In rural areas in countries such as Peru and Bolivia, students often attend class for only about 100 days a year, and engage in learning activities no more than 2 hours per day. Chile has recently taken the lead in vastly increasing the time students spend in school through the elimination of double shifting. This approach, though costly, will eventually need to be adopted throughout the region (but it will work only if *active learning time* is also increased).

The most crucial element in good education—well-trained and highly motivated teachers—is generally absent. Training is inadequate, standards are low, management is poor, accountability is almost nonexistent, teachers have little autonomy, and incentives for good performance are minimal. It is almost impossible to dismiss a teacher. In many rural areas, teacher knowledge of mathematics is not much higher than that of students, and teachers are often absent from class. Many teachers spend much of their time in routine matters, or in keeping discipline, with actual active teaching time a small percentage of classroom time.

Recognizing the importance of improving the quality of teachers, a number of countries are beginning to try to create better working conditions, increasing the care given to selecting candidates, and providing more intensive subject matter training. Efforts are under way to identify and disseminate best practices in the region. Some notable examples include Uruguay’s system of intensive residential preservice training, Chile’s practice of rewarding schools for superior performance, and the city of Bogotá’s year-long “permanent training program for teachers.” Chile has taken the lead in increasing salaries for primary school teachers, which are among the highest in the world as a ratio of GDP per capita (1.84).

Enlightened educators also recognize that providing incentives for teachers to work harder, such as higher salaries, rewarding them when students score better, dismissing them if students do poorly, and creating teacher salary ladders that reward competence, though important, need to be accompanied by a broad set of complementary policies and programs. Teachers must be given the opportunities to learn if they are to respond to sharpened incentives. This means a program to give the tools of

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4. Although educators tend to focus on children of ages 4-6 years who could attend preschools, action to improve learning needs to begin at the prenatal stage, through good maternal nutrition and health care; for those from birth to age 3, multiple interventions (health, nutrition, social and cognitive development) are especially needed for at-risk children of poor families, especially where both parents have to work, or for single-parent families.

modern knowledge and pedagogy to new and current teachers, action to break down the isolation of teachers in their classrooms through creating within schools an environment for sharing experiences and learning, and giving teachers adequate time to prepare their lessons. Incentives or rewards given to schools and/or groups of teachers rather than individual teachers can encourage the teamwork and cooperation necessary for effective teaching.

There is also agreement, in principle, on the importance of coupling “standards-based reform” with teacher improvement. Unlike European educational systems, the region has few national achievement tests, and no country has implemented modern educational standards. Most assessment systems are weak and under the thumb of ministerial bureaucracies. The result (as was true in the United States until recently) is that there are no incentives at the classroom level to raise learning standards.

Standards-based reform seeks to define learning (and retention) goals that should be met by all children. To succeed, the tools to achieve these goals must be provided in the form of training, materials, time, and feedback. This type of reform focuses on what happens in the classroom—it seeks to measure and evaluate specific pedagogical practices and it measures learning increments. But setting standards is a complex process. They must be sufficiently detailed to be operationalized, yet not so detailed as to discourage innovation; they cannot be set so high that few students can reach them, nor so low that they offer no challenge to the average student. Recent developments in this area include a joint effort among Central American countries to agree on common standards, as well as programs under way in Chile and Brazil.

In most countries, enrollments in primary education will not grow during the next decade. This means that major capital investments in primary education will not be needed (unless other countries follow Chile’s lead in phasing out double-shift schooling). It also means that there are likely to be many newly trained teachers seeking jobs in primary schools. The result could be a reduction in student-teacher ratios. There has been controversy elsewhere in the world on the extent to which lower class sizes necessarily have an impact on learning (see Ehrenberg et al. 2001). In Latin America, the smallest class sizes are often in rural areas with untrained teachers, so it is easy to see why a simple correlation of class size with educational attainment might lead to a perverse result. The most cost-effective approach might be a combination of selectively lowering class sizes for disadvantaged children in grades 1 to 3, encouraging the best teachers to migrate to these grades, and implementing in-service training programs to increase teacher subject matter knowledge and change teacher classroom pedagogy.

As growing numbers of youths have completed primary education, they have been flooding secondary schools, which have inadequate physical facilities. Large numbers of students (especially in Brazil) now attend

night school, often in primary school buildings. Until recently, most secondary schools had little or no sense of identity, because it was common to have “taxi” teachers working in several schools and school directors with little authority. Teaching has been “lecture” style, and teacher knowledge and qualifications, especially in mathematics and science, have been inadequate. Repetition in secondary education is a more underappreciated problem than in primary education. The response to the explosion in the demand for secondary education has been belated. But in a number of countries, efforts are under way to update the curriculum, to create a sense of school “belonging” for teachers, and to strengthen the role of school principals.

Heckman (2001) has argued that cognitive skills as measured by achievement or IQ tests measure only one element of the skills needed in a modern economy. Social skills like self-discipline and creativity also help determine success in life. Informal on-the-job learning, as well as so-called tacit or implicit knowledge, is also critical for innovation in industry but is extremely poorly measured (Melo 2001). Latin America undoubtedly lags far behind on these more subtle measures of the quality of its human resources. International programs such as the OECD’s Progress in Student Achievement and Adult Literacy and Life Skills Study are now beginning to measure these skills.

Throughout the region, there is increasing recognition that a good education includes the encouragement of trustful social relationships and an increased awareness of the basic rules of citizenship in a modern society. But there are no studies in the region on the impact of schools on long-term behaviors such as marriage stability, civic participation, reduced delinquency, and employment. The region likely has some good experiences—such as *Fe y Alegría* (Catholic schools located in slum areas, which are privately run but publicly financed, in a number of Andean countries), as well as *escuela nueva* in rural Colombia, with its emphasis on student participation and school democracy.

## **Increasing Equity in Education**

The region continues to suffer from a grossly inequitable provision of educational opportunities. The greatest discrepancies by income can be found in Mexico, Central American countries, Brazil, and Ecuador (see table 8.1). An increasing awareness of this problem has led a number of countries to tackle the issue. For example, in the 1990s the Brazilian federal government changed its system of support to states to provide equal expenditures per student, which led to increased funds going to impoverished states in the Northeast. Chile has a 10-year-old program to identify and strengthen its poorest-performing schools. Mexico has a long-running program (Conafe) directed at at-risk students, especially indigenous populations in its southern states.

Argentina, Brazil, Colombia, El Salvador, and Mexico have programs that aim to help poor students remain in school by providing cash or in-kind payments to parents who keep their children in school (i.e., “demand-side” programs). Mexico’s Progresía program has increased entry rates to lower secondary schools in rural areas by nearly 20 percent, as a result of which educational attainment is estimated to have increased by about two-thirds of a year (IFPRI 2000). Mexico’s Telesecundaria, a 40-year-old television-based program, providing lower secondary education in rural areas, has been shown to increase retention and learning. Brazil’s accelerated schools program targets children who have repeated for two or more years, and places them in classes with specially trained teachers and materials (Oliveira 1998).

In spite of this wide variety of new programs, the region needs to do far more to provide equitable access to educational opportunities. The focus should be on urban slums and rural and indigenous populations, providing a range of equity-enhancing policies. Increased preschooling targeted to the poor and to rural areas should be a priority. Other programs that deserve to be mainstreamed include demand-based programs, mass media programs directed at out-of-school, overage, or rural youth, and expanded need-based higher education student loan schemes.

Naturally, all such programs need to be carefully evaluated for their effectiveness. For example, while demand-side financing has been shown to increase school attendance in Mexico, a recent study of Argentina (Herran 2001) showed that youths who returned to secondary school because of monetary incentives were unprepared for the academic challenges and, without additional learning support, quickly became discipline problems, repeated, and eventually dropped out. A similar study of Mexico has yet to be done.

## **Lifelong Learning and Technology**

The shift in the demographic pyramid and the growth of knowledge-based industry suggest that demands for lifelong learning will increase rapidly, as workers begin to require constant upgrading of their skills. As any casual big city observer can see, the private sector in Latin America has taken the lead in offering new training opportunities. Publicly supported training programs, once very effective in the region, are now reported to have become too costly and rigid (IDB 2001a). It is difficult to define public policy in this area because of the multiplicity of agencies involved. In any event, governments’ role should be to provide an environment encouraging effective collaboration between education, training, and public and private sectors. Government should also provide an environment for the rapid development of virtual and distance higher educa-

tion and training, which, interspersed with in-person guidance and collaboration, will likely be one of the main tools for out-of-school learning.

Another critical area of attention is that of access to and use of information technology. The digital divide—inequalities in access to understanding and utilization of information and communication technologies—is immense throughout the world. Such understanding is rapidly becoming part of the basic knowledge necessary for every citizen and worker. But half of US households own computers, compared with 5 percent in Latin America. A total of 78 percent of all Web sites are in English. Although attention is usually focused on the disadvantages of nonaccess to an individual, an equally important problem is the growing unattractiveness of underwired locations to business, which can lead to a concentration of poverty and a deconcentration of opportunity. At present, 96 percent of e-commerce sites are in English and 64 percent of secure servers are located in the United States. Moreover, inequalities in access to information and communications technologies may be as great within the countries of Latin America as they are across countries, although the statistics to prove this are not readily available. Fortunately, a number of countries in the region are rapidly increasing these technologies and Internet access.

Education and training can play a major role in helping to close the digital divide. While middle- and upper-class students have access to informatics at home, the school can introduce youths, probably at the secondary school level, especially those from poorer neighborhoods, to the basics of informatics—how computers work, how to use word processing and spread sheets, and how to use the Internet. Such knowledge increases students' interest in remaining in school and stimulates them to study technological subjects. Recent hardware cost reductions and evolving technology increase the feasibility of achieving this objective.

Many countries are also seeking to incorporate information and communications technologies into the secondary school curriculum, with Chile and Costa Rica taking the lead. Costa Rica's advances in educational technology are one of the reasons that it attracted a new Intel factory. Brazil now has an earmarked fund of more than \$1 billion to incorporate information and communications technologies into schools. To help make schools supportive of these technologies, one policy ought to require that all new graduating teachers be computer literate.

There is a danger of overinvestment and misinvestment in technology in schools, because of the temptation to plump for politically appealing but expensive programs, such as wiring all schools to the Internet, before defining educational objectives and retraining teachers. Buying computers and installing Internet connections are not the only technology options for improving quality and increasing equity. It should also be understood that throughout the world, improving learning in secondary schools via computers on a massive basis is a promising but still unproven approach.

A wide variety of well-evaluated pilot programs in the use of computers to enhance learning are needed before firm conclusions can be drawn.

Older technologies, like radio and television, can be further exploited to improve learning and reduce inequities. Mexico's Telesecundaria and Brazil's Telecurso already reach millions of rural and out-of-school youth. Radio is being effectively used to improve learning in primary schools in Central America and in Venezuela and to train early childhood caretakers in Bolivia. Several mostly private institutions—including the Technological Institute of Monterrey, Mexico, the Escola do Futuro of the University of São Paulo, and TECSUP of Lima—are moving rapidly to introduce Internet-based learning in higher education. One underutilized but cost-effective approach in urban areas may be to use existing private-sector networks (e.g., kiosks), whose use is rapidly growing there, to provide the hardware for such instruction, rather than to burden schools with maintenance and security.

## **How to Meet the Challenge: The Smart State**

Much of the focus of economic reform in the 1990s was on cutting back the bloated role that the state had assumed. Government had set itself up as producer of many goods and services that could be provided more efficiently by the private sector; government regulation of economic activity was oppressive, and government itself was far too centralized.

But cutting back government is not the same as ending the government's role in the economy. In fact, as the state pulls back from producing goods and services and from controlling and managing the economy, the public sector requires a "smarter" state with a far more competent (if smaller) cadre of public servants, resistant to the pressure of lobbies and aware of the subtleties and difficulties of encouraging elements such as competition, transparency, value added, and equity. The so-called second generation of reforms focuses on building the institutions that permit the state to perform effectively the tasks in which it clearly has an advantage over decentralized actors.

Education is one of those fields where the goal of improved performance demands changes in the role of the state. The state no longer simply finances and provides educational services. The "smart" state in education makes strategic investments to achieve its policy goals. It sets explicit targets for increased access, quality, equity, and response to technology, and then measures whether they are achieved. It becomes a knowledge generator and provider, and implements a wide variety of financial and other incentives to improve efficiency and effectiveness at all education levels. It plays a positive yet circumscribed role in encouraging technological innovation, establishing effective relationships with the private and nonprofit sectors in both the provision and the financing of education and related ser-

vices, offering a strong, open, and fair regulatory framework, and wielding adequate financial tools to reach those goals.

Using information appropriately, through identifying and implementing cost-effective approaches, can help countries to achieve access, quality, equity, and technology goals, which in principle are not incompatible. For example, reducing repetition will lower the age of students and thus reduces the opportunity cost of remaining in school. Reducing repetition also will free funds with which to pay teachers more, while increasing their commitment to the learning process. Inadequate learning at each level results in repetition, dropping out, and inadequate learning at the next level. Some low-cost policies, such as encouraging the best teachers to work in the early grades, or reducing school-year teacher turnover, can have high payoffs. Increased private-sector financing will mean that public funds can be used more flexibly.

The past decade has seen a wide variety of efforts in this direction. Many of these efforts are promising, and several have had positive impacts on learning. Chile has certainly gone the furthest, while some countries, particularly the poorer ones and those troubled with political instability, have hardly begun. But most countries have a long way to go before they can boast of a smart state in education. The path toward the smart state is neither easy nor short. Three of the most critical roles of the smart state are the generation, provision, and use of information; the design and implementation of a more decentralized, autonomous, and accountable educational system; and the redesign of the state's role in higher education.

### Generating, Providing, and Using Information

The smart state provides relevant “consumer information.” It helps to generate new knowledge, and it disseminates information on the effectiveness of programs. Unfortunately, educational systems throughout the world are notorious for widespread implementation of new ideas and programs without adequate testing or evaluation. In the United States, for example, less than 1 percent of the Department of Education's budget is devoted to research. Latin America is no different when it comes to a lack of research on what works in education. Too many programs are implemented as “fads,” and negative results are often suppressed. Although there has certainly been progress—there has been an increase in studies on “what works”—far more is needed. Areas of emphasis should include cost-effectiveness, measurement of the adequacy of teacher knowledge and pedagogy, continued analysis of factors affecting learning and achievement in school, an increased focus on the fit between schooling and labor market skills, and qualitative studies to identify effective school practices.

There has been progress in providing consumer information on learning. Seventeen Latin American countries now have programs to test and evaluate student learning and publish and utilize the results, compared

with only four in 1990 (PREAL 2001). Chile, the states of São Paulo and Minas Gerais in Brazil, and some states in Colombia are testing all students in selected grades. Most other countries have undertaken sample surveys of learning and are publishing the results; and on the basis of test results, many are developing teacher-training materials and curriculum revisions. An increasing number of analytical studies seek to measure the impact of school policy initiatives on learning.

In some cases, quantitative studies of factors associated with learning are linked to qualitative studies designed to identify the school and classroom characteristics of “effective” schools. An increasing number of countries are participating in international assessments of student learning and are exchanging information on best practices in testing and utilization of test results. The groundbreaking 1997 study by the regional office of the United Nations Educational, Scientific, and Cultural Organization (UNESCO, Oficina Regional de Educación de la UNESCO para América Latina y el Caribe, or Orealc) compared learning and factors associated with learning in the third and fourth grades of 11 Latin American countries (UNESCO/Orealc 1998). The ministries of education of Brazil, Chile, and El Salvador have released frank and well-documented reports on the strengths and weaknesses of their educational systems and the challenges ahead. Both Mexico and Peru have released test results that were suppressed by the previous regime.

But the region still has far to go in the provision of relevant test information. And the utilization of test results is, to say the least, inadequate. For example, Colombia has reported test results in long technical reports, but until recently had not devised a useful way of reporting the results to teachers. The smaller, poorer countries do not have the specialized technical capacity to develop reliable tests. Technical weaknesses in assessments have led to potentially false conclusions. Brazil experienced unexplained variations from year to year on its standardized examinations. The improvement in scores in Chile from 1990 to 1996 cannot be confirmed because of a lack of comparability in test results from year to year. The informed public, parents, and many teachers still do not understand the value of testing. And the linkage between setting higher standards, measuring the extent to which they are being met, and providing the tools to meet them more adequately (i.e., “aligning” the official curriculum, the curriculum as it is “implemented” or not in the classroom; textbooks; and teacher training) is far from complete.

## Decentralization, Autonomy, and Private Provision of Services

It must be recognized that well-managed centralized educational systems with high standards and strong accountability, such as those in Japan, Singapore, and South Korea, have yielded good results. But the “centralized” model has been an abject failure in most of Latin America, resulting

in incompetent bureaucracies and counterproductive incentives. Paradoxically, this model, which is based on a complex set of “formal” controls, has led de facto to extreme decentralization at the classroom level, where there have been neither controls nor feedback.

Recognizing the ills of their own centralized school systems, many countries or states have implemented a wide variety of programs of decentralization and school autonomy.<sup>5</sup> What does research tell us about the impact of these efforts? In some cases, the impact has clearly been positive. Local school autonomy in Guatemala and El Salvador has led, at the least, to increased retention of students in rural areas. The long-running *escuela nueva* in rural Colombia, based on carefully prepared and tested teaching-learning materials, community participation, student democracy, and structured in-service training, has improved learning in rural areas and is being replicated in other countries. In fact, Colombia is the only country in the region where performance on standardized tests is higher in rural than in urban areas (UNESCO 2001b). In other cases, the results have been less promising. When the central government abandons its regulatory and monitoring role (as happened in Argentina and, until recently, in Peru), decentralization may be worse than the system it replaces.

To succeed, the “decentralized” state needs a cadre of “smart” bureaucrats to manage the new system. Unfortunately, the lack of motivated and competent staff in ministries of education is a decades-old theme. Although the revolving door of ministers of education has slowed down and there is increased continuity of policy, the number of technically competent staff throughout the region remains thin. Without good management, local elites can capture and/or politicize the educational process and local government officials may lack the expertise to manage an educational system. Intensive training programs for educational managers, coupled with incentives for them to remain in their posts, are needed.

Overall, the consensus is that decentralization and school autonomy, when linked to central government oversight, training, standards, achievement tests, strong parent involvement, and constant or increased financing, will have a positive impact on learning (Espinola 2001 and Wolff, Schiefelbein, and Schiefelbein 2002). Yet definitions, issues, and results with regard to decentralization vary dramatically between large federal states like Brazil and Mexico and small countries such as Honduras and Uruguay.

The smart state also turns to the private sector for educational services whenever the private sector offers advantages in costs, quality, diversity, or equity. A recent set of case studies on private provision of primary and secondary education provides a deeper understanding of public-private relationships (Wolff, Gonzalez, and Navarro 2002). These studies confirm

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5. Decentralization of education is part of a larger political movement in the region of devolution of responsibilities to local and regional authorities and increased local democracy.

that private or communal programs such as PRONADE in Guatemala and Fe y Alegría in the Andean countries are cost-effective. However, government oversight of private education in a number of countries—including Argentina, Guatemala, Peru, and Venezuela—is sorely lacking in consistency and technical capacity. In Argentina, public subsidies have often gone to elite schools rather than to private schools serving poor communities. Private schools can constitute an unenlightened lobby; for example, private school directors in Guatemala have resisted publication of individual school examination results.

Chile's decades-old experiment in vouchers for primary and secondary education has induced some good research yielding important lessons. Private institutions now account for 45 percent of expenditures in primary and secondary education. The research has found that Catholic schools are cost-effective; and that private school costs are in general lower than those in public schools, which are still excessively constrained by bureaucratic rules. However, after controlling for social class, secular private schools in Chile do no better than public schools in achievement tests. There has been increased social stratification, with middle-class families moving to private subsidized schools while poor families remain in public municipal schools.

In short, private provision of educational services is an important, growing, and often positive option, but it is no panacea (there are *no* panaceas) for the ills of the region's educational systems. Transparent and consistent rules of the game, and thoughtful government oversight, are necessary if society is to benefit.

When all is said and done, publicly provided education will remain the norm, certainly for primary and secondary education, for the foreseeable future. Therefore, when the state does provide services, it must do so efficiently. The most promising approach is to give public institutions far more autonomy, linked to accountability, than they currently possess. And then the smart state needs to tackle the large numbers of "ghost" teachers, inflated bureaucracies, and counterproductive, often out-of-date, rules and regulations that remain throughout the region, as well as countering corruption in areas as varied as school construction and teacher selection.

## The Smart State and Higher Education

The smart state faces a particular challenge in higher education. Perverse incentives, especially to public institutions, continue to encourage inequity and discourage innovation, cost-effectiveness, and linkages to the productive sector. Traditionally, upper- and middle-class students have attended free public institutions, while poorer students have had to pay for their schooling in private institutions. Public funds are now increasingly spread thinly among large public institutions, with consequent reductions in quality, which has promoted a trend to abandon these institutions by

the classes that historically benefited from free tuition. Private higher education has expanded rapidly during the past two decades. Some private schools are of high quality, and many are more closely linked to the labor market; but too many are low-quality “diploma mills.” Inadequate or counterproductive government oversight often has the perverse effect of encouraging corrupt practices and false advertising in the private sector.

It has been argued by some that the state has overinvested in higher education and ought to shift its funding toward lower levels. Although this may have been a compelling argument a decade ago, when higher education enrollments were lower and expenditures per student higher, today no generalizations can be made for the region as a whole. Appendix 8.1 provides a review of this question.

A more important issue is that of widespread perverse incentives in higher education policies in Latin America, which encourage low quality, inefficiency, and inequity, and result in the state not getting an adequate return for its higher education investments, which have been documented in countries as diverse as Colombia (Brunner 2002), Brazil (Wolff and Albrecht 1992), and Venezuela (Navarro 1999). Policies and financial incentives to make public institutions more flexible, cost-effective, and better linked to the private sector include financing schools on the basis of outputs (e.g., number of students trained) rather than inputs (number of teachers); varying financial provision with the extent to which an institution has a research as well as a teaching function; publishing information on the quality of higher education institutions; and establishing and/or strengthening competitive grant funding on the basis of transparent criteria.

The state also needs to ensure a critical mass, albeit small in relation to total enrollment, of high-quality research and training institutions and programs in areas important for economic and social development that are linked to each country’s national innovation system. At the same time, cost recovery in public institutions, coupled with loans and scholarships, can boost equity, because most higher education students come from the high-income groups in society. Cost recovery can also improve governance and efficiency, because paying students are less likely to stay quiet when the quality of teaching falls or markets are saturated; and it can also provide extra resources for strained higher education budgets.

There has been some progress in higher education reform. Chile has a system of competitive grants to both public and private institutions based on quality measurements. Brazil has a long-running, well-managed grant program for graduate education and research and has set up an innovative system to test and publish the results of learning achievement in higher education institutions. El Salvador has developed a system for accrediting both public and private institutions. Many public institutions around the region have begun to diversify their programs and sources of income. Some state institutions in Mexico have increased tuition and established strong student loan programs. A regional student loan asso-

ciation provides technical assistance to 30 member institutions. But loans currently reach no more than 2 percent of all higher education students, so there is still scope for much expansion, provided student loan institutions are adequately financed, have competent staff, and are insulated from political pressures. Subsidized need-based student loans are probably the most cost-effective public investment in higher education, because, if well managed, such programs can simultaneously increase or improve equity, quality, and diversity and can also be targeted to areas with low private returns—such as teaching, nursing, and agricultural research—but that are critical for development.

The state also plays a key role in strengthening the overall national innovation system, which includes education and training. To strengthen science and technology, the state could devise tax incentives for research and development, directly fund precompetitive research performed by the private sector or in public-private consortia, build up a positive environment for venture capital, cofinance with industry technology diffusion and information centers, and provide incentives to link academic research institutions with the productive sector.

In the smaller and poorer countries, it would make sense to seek collaboration across national boundaries in areas such as the diffusion of technological information and precompetitive research in areas of common interest (e.g., “regional” public goods). However, state intervention to promote technological innovation can be counterproductive. When applied in the wrong institutional context, without flexibility and feedback mechanisms, it can open a Pandora’s box of rent-seeking behavior and related abuses, which are difficult to reverse even when the economic environment changes (Melo 2001).

Several Latin American countries are implementing new policy approaches and instruments to promote technological innovation in the productive sector, including fiscal incentives, grants, and loans; incentives for new linkages between research institutions and the productive sector; and infrastructure for information and standards. Brazil, Chile, Mexico, and Venezuela have taken the lead. Small countries, such as Guatemala, El Salvador, and Panama, have begun to pay attention to the ways public policy can fortify their competitiveness, including strengthening regional and subregional research and development centers in areas such as agricultural technology.

## **The Political Economy of the Smart State**

The backdrop for educational reform is the new public awareness of the importance of education. While in the 1980s economic crises kept the leadership of most countries from focusing on such long-term issues as human resource development, by the early 1990s there was an emerging

political consensus on the importance of improving Latin America's performance in education. Leaders and the informed public became aware of the region's relative deficiencies in the educational attainment of its labor force.

Leaders in government and civil society throughout the region increasingly aver that education is a key to economic development, in fighting poverty, in reducing income inequalities and, beyond that, in incubating and safeguarding contemporary citizenship and democratic values. Constituencies including parents, students, teachers, governmental authorities, businesses, nongovernmental organizations, and the media are demanding more resources, new policies, and better decisions for the education sector; and they want these policies to be good enough to enable educational systems to address the economic, social, and cultural challenges of the global economy.

In many countries, educational issues are now front-page news. For example, the results of standardized achievement examinations in Chile have led to a national debate on why scores were not improving. Education ministers and secretaries in many countries are now political and opinion leaders, and in a number of cases are among the strongest cabinet ministers. Brazil and El Salvador each had the same minister of education for more than 6 years, until now an almost unheard of occurrence in the region. Although Chile has often changed ministers, the architects of its educational reform have remained in office and its education policy has been consistent. Alejandro Toledo, the current president of Peru, declared that he would be the "education president" and has a doctorate in the economics of education.

It is nonetheless true that, for the most part, the children of politically influential people attend private primary and secondary schools rather than public schools. Thus they do not directly feel the deficiencies of the public school system, because their interests are not directly and immediately affected by the success or failure of public schools. This reduces the sense of urgency that might otherwise lead influential parents to press decision makers to make tough policy choices, and makes it harder to put together a political coalition willing to pay the high political costs that come with making basic changes in public schools. In this respect, a far-sighted public education policy includes not only targeting resources to underserved and at-risk populations but also methods of attracting the upper middle class back to the public sector through "magnet" and other high-quality institutions.

Although the public debate is very important, education is always a part of the larger economic, political, and social environment. With good economic management a "virtuous cycle" can be created, because increased economic growth leads to demands for a better-educated labor force. A more educated labor force leads to higher productivity and increased economic growth, creating an increased demand for a more

highly educated labor force. Education as much as any other sector depends on good economic management, including, as is discussed in this book, far more flexible labor market rules and regulations. Without economic growth, government will not be able to trade increased teachers' salaries and improved working conditions for increased responsibility and accountability.

Furthermore, political stability based on democratic processes is essential if politicians are to begin to take a longer view of the educational process. It is no coincidence that educational progress has been most rapid in countries such as Brazil, Chile, and El Salvador, which have been politically stable in recent years, but has been stagnant or even negative in Argentina, Guatemala, Peru, and Venezuela, which have been beset by continuing crises of political legitimacy.<sup>6</sup>

Public and opinion leaders must increasingly focus on consensus building if they are to achieve the collaboration of civil society and, in particular, of parents and teachers. Reforms will require transparency about the extent to which goals are being met, as well as effective feedback disseminated to the informed public so as to permit midcourse corrections. The feedback needs to focus on the critical outcome issues—how much children are learning, whether they are staying in school, and what kinds of jobs they are getting. Checks, balances, and incentives must encourage actors and stakeholders to behave in ways that strengthen the reform process. Opinion and business leaders must be convinced that the graduates of public institutions are those whom they are going to have to depend on for increased productivity.

Finally, key actors must have the capacity to implement reforms. This means effective training of administrators and teachers. Bad past practices, like the constant rotation of ill-prepared ministers of education (which continues in some but not all countries) and a plethora of multiple, usually short-lived "reform" programs with unclear objectives, need to end.

Education leaders and decision makers will need to convince finance ministers and officials that the educational system is effectively and efficiently managed if they are to press successfully for increased funding, especially in a time of overall fiscal constraints. At the same time, public funds should be forthcoming when effectiveness is demonstrated. Although many priorities, such as school construction and increased salaries, will require more funds, others will require mainly political courage and risk taking. Effective political leadership involves identifying and resisting rent-seeking behavior from wherever it may come, be it the productive

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6. Brazil and El Salvador began the decade far behind their neighbors and have made significant progress. Argentina and Venezuela decades ago had relatively advanced education systems, which have since deteriorated. Peru has high enrollment ratios but among the lowest achievement levels in the region.

sector, stakeholders in public and/or private higher education, and/or middle- and upper-class parents.

One very important example concerns teachers' unions, which in most countries have antagonistic relationships to government. Many teachers' unions have been captured by small groups with political agendas unrelated to the teaching profession; and governments have often treated unions with contempt. The result has been an excessive number of long strikes, and inadequate interest in issues such as the quality of learning and the professionalization of teaching. For historical reasons, Mexico's unions control critical policy decisions, such as the selection of staff in teacher-training colleges. The aim should not be to "break" the unions, which usually is a self-defeating endeavor, but rather to make teachers' unions at all levels of education positive partners in reform, by encouraging a new generation of leaders concerned with promoting the learning process through the professionalization of teaching. An obvious, but nonetheless brave, policy change would be to end the widespread practice of continuing to pay teachers when they are on strike!<sup>7</sup>

There are even more entrenched and articulate lobbies and pressure groups in higher education than at lower levels. The difficulties in implementing cost recovery in public institutions are symptomatic of this problem. In lieu of reform, the tendency has been for finance ministers to starve public institutions, which has had the perverse effect of destroying the few high-quality public programs but the positive effect of encouraging a wide variety of private-sector initiatives. Here, the debate needs to focus on the long-term social benefits of more flexible, results-based higher education financing.

Each country must design its reform package in accordance with its level of educational development and its economic resources. Using the United Nations Development Program's "education index," which is based on enrollment ratios and literacy,<sup>8</sup> the region's countries in the "lowest range" include Bolivia, most of Central America (with the exception of Costa Rica), and the Dominican Republic. One would expect their policies to focus on increasing access to lower secondary education, ensuring basic formal teacher qualifications, providing books to all students, targeted preschooling, and seeking cost-effective ways of encouraging some high-quality higher education.

For those countries in the "high" range, which include Chile, Argentina, Uruguay, and Costa Rica, the policies are likely to include giving an increasing proportion of their population access to 12 years of education

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7. When asked why he continued to authorize payment to teachers while they were striking, a leading political figure in a Central American country answered that teachers were an important bloc of potential voters that he could not afford to alienate.

8. This index is imperfect because it does not reflect quality issues.

and subsequently to postsecondary education; seeking universal preschooling; and improving quality at all levels. In larger countries, there is a great need to reduce disparities between regions; for example, the average number of years of schooling of the adult population in the Brazilian Northeast is 4.1, compared to 6.2 in the Southeast.

International coordination and cooperation can advance the agenda of education reform. But idealistic statements and quantitative targets set at summits are of limited value because of the complexity of the educational process and the different starting points of countries. Perhaps the greatest value of international cooperation is to be found where regional public goods can be identified and countries are willing to work together on a common goal, especially when individual small countries lack a critical mass of human resources. Some areas for fruitful cooperation—which already is occurring on a small scale—include regional and subregional (e.g., Central American or Andean) research and development centers, testing and measurement programs, efforts to develop software for virtual education, and study tours across countries to observe successful innovations.

In education, leapfrogging and “magic bullets” are myths, and there are no shortcuts. Improving education is a long-term process requiring commitment, continuity, and consensus. Furthermore, progress in education, far from being an autonomous process, depends greatly on economic policies inducing equity-based growth and on political stability.

## Appendix 8.1

### Does Latin America Invest Too Much in Higher Education?

Some critics have argued that public expenditures in higher education in Latin America are “too high” and that funding should be shifted to primary education. Data recently collected by OECD help to clarify the extent to which this assertion is true. In six Latin American countries with available data (excluding Brazil), average expenditures per student in higher education are equivalent to 44 percent of GDP per capita. This ratio is higher than in the OECD countries but lower than in East Asia (table A8.1), suggesting that the effort that Latin America makes in higher education is comparable (neither too high or too low) to that of competitors.

These same Latin American countries spend an average of 13 percent of GDP per capita per student on primary education, compared with 19 percent in OECD countries (see table A8.1). Only Chile approaches the industrial countries in the ratio of unit expenditures for primary education to per capita income. The critics therefore appear to have some justification when they say that Latin American countries make an inadequate effort, relative to their resources, in spending per primary education student (in spite of recent improvements).

Brazil is a seventh Latin American country with data in the OECD tables, but it is an extreme outlier. Its per student expenditures—in public higher education institutions only—in 1998 were \$14,618, or 210 percent of per capita income, higher in absolute terms than every OECD country except the United States and Switzerland. An unknown but very high proportion of these expenditures cover university hospitals, pensions for retired teachers, and other items that should not be included as teaching costs.<sup>9</sup>

One argument has been that the region should increase private-sector enrollment and expenditures. Again, using OECD data, the public sector in OECD countries accounts on average for 82 percent of expenditures (ranging from 99 percent in Austria and Switzerland to 52 percent in the United States and only 17 percent in South Korea; see table A8.2). In the six Latin American countries for which data are available, the public sector accounts for 67 percent of higher education expenditures (ranging from 100 percent in Uruguay to 31 percent in Chile). Overall, private higher education is relatively important in Latin America, especially compared with Europe, but less important than in some Asian countries. The tendency throughout the world has been for the private sector to increase

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9. Brazil's high public expenditures per student, low percentage of enrollments in public institutions (less than 35 percent of total higher education enrollment), and lack of cost recovery have been regularly documented by researchers and the media. Efforts at reform have not yet been successful, although it is reported that unit costs have decreased since 1998.

**Table A8.1 Expenditure per student in 1998 US dollars (purchasing power parity) and as a percent of GDP per capita, selected regions and countries**

Group or region and country	Primary		Secondary		Higher		Ratio of higher to primary
	In US dollars	As a percent of GDP per capita	In US dollars	As a percent of GDP per capita	In US dollars	As a percent of GDP per capita	
<b>OECD countries (29 countries), of which</b>							
Germany	3,940	19	5,294	26	9,063	44	2.3
Japan	3,531	15	6,209	27	9,481	41	2.7
United States	5,075	21	5,890	24	6,356	41	1.3
	6,043	19	7,764	24	19,802	61	3.3
<b>East Asia and Pacific</b>							
Indonesia	—	15	—	20	—	123	—
Malaysia	116	4	497	19	6,840	259	59.0
Philippines	919	11	1,469	18	—	—	—
South Korea	689	18	726	19	2,799	75	4.1
Thailand	2,838	20	3,544	25	6,356	44	2.2
	1,048	19	1,177	21	6,360	116	6.1
<b>Latin America (7 countries)</b>							
Argentina (public only)	—	12	—	18	—	71 <sup>a</sup>	—
Brazil (public only)	1,389	12	1,860	16	2,965	25	2.1
Chile	837	12	1,076	16	14,618	214	17.5
Mexico	1,500	17	1,713	20	5,897	67	3.9
Paraguay (public only)	863	11	1,586	20	3,800	48	4.4
Peru	572	13	948	22	2,511	58	4.4
Uruguay	479	11	671	15	2,085	48	4.4
	971	11	1,246	14	2,081	24	2.1

— = not available

OECD = Organization for Economic Cooperation and Development

a. The figure is 44 percent excluding Brazil.

Source: OECD, *Education at a Glance*, 2001, table B 1.1.

**Table A8.2 Percent of public and private expenditures by level, selected Latin American and OECD countries, 1998**

Country or region	Primary, secondary, and postsecondary		Higher	
	Public	Private	Public	Private
<b>OECD mean, of which:</b>	91.3	8.7	82.1	17.9
Germany	75.9	24.1	92.1	7.9
South Korea	79.7	20.3	17.4	82.6
United States	90.8	9.1	52.5	47.5
<b>Latin America</b> (mean for 5 countries)	79.8	21.2	67.5	32.5
Argentina	89.4	10.6	74.3	25.7
Chile	68.7	31.3	30.9	69.1
Mexico	86.2	13.8	87.9	12.1
Peru	61.8	38.2	44.6	55.4
Uruguay	93.1	6.9	100.0	0

OECD = Organization for Economic Cooperation and Development

Source: OECD, *Education at a Glance*, 2001, table B 3.2.

its percentage of overall expenditures on higher education, as appears to be happening in Latin America. The increased social demand for higher education coupled with limited public funds is likely to further increase private-sector funding throughout the world.

On average, about 22 percent of the public education budget in 17 countries in Latin America goes to higher education (see table A8.3), a proportion that is roughly the same as the OECD average. The question of whether this amount is too high can only be answered after breaking down and analyzing, on a country-by-country basis, all the elements that go into it—the costs per student at all levels, enrollment ratios and school-age population at all levels, and public-private ratios; then estimating expected and/or desirable changes in these elements.

The knowledge economy is demanding increased higher-level skills and raising the rate of return for higher education; therefore, we can expect enrollment ratios in Latin America, which are currently 19 percent, to increase. Because capital markets in education are notoriously imperfect, the region will not be able to rely solely on more investment by the private sector in higher education. As more youths with disadvantaged backgrounds seek higher education, there will be a need for increased publicly subsidized student loan programs, as well as scholarships in cases of extreme need.

Higher education also has important elements, that require a strong public presence, including training teachers at all levels, supporting graduate education and research in areas important for economic development, encouraging the study and development of new technologies, and strengthening postsecondary nonuniversity training linked to the labor

**Table A8.3 Percent of public education expenditure on higher education, selected OECD and Latin American countries, various years**

Group or region and country	Percent
<b>OECD average, 1998, of which:</b>	22.1
Canada	29.1
Germany	25.8
Japan	13.4
South Korea	12.2
Netherlands	27.9
United Kingdom	19.6
United States	23.9
<b>Seven Latin American countries, average, 1998</b>	22.0
Argentina	23.6
Brazil	25.6
Chile	17.6
Mexico	20.6
Paraguay	21.4
Peru	22.5
Uruguay	23.2
<b>Ten additional Latin American countries, average<sup>a</sup></b>	22.2
Bolivia, 1996	27.7
Colombia, 1996	18.8
Costa Rica, 1996	28.3
Dominican Republic, 1996	13.0
Ecuador, 1996	21.3
Guatemala, 1996	15.2
Honduras, 1995	16.6
Panama, 1997	26.1
Paraguay, 1996	19.7
Venezuela, 1995	36.2

OECD = Organization for Economic Cooperation and Development

a. Note that the information from these countries comes from the United Nations Economic, Social, and Cultural Organization rather than from the OECD and therefore is not strictly comparable.

Sources: For OECD and seven Latin American countries, OECD, *Education at a Glance*, 2002, table B 21b; for additional Latin American countries, *UNESCO Statistical Yearbook*, 2001.

market. Furthermore, higher education, unlike primary and secondary education, is an internationally traded service. The best teachers will migrate out of their country to other countries where salaries, teaching conditions, and opportunities for research are better.

Cost recovery and more private higher education certainly help to reduce the strain on public higher education budgets. But the increasing demands of the knowledge economy for more highly trained workers, the need for a minimum quality standard, research in areas critical for national development, considerations of equity, and the risk of losing the best higher education teachers and researchers to other regions all require the state's continued financial participation in higher education.