A New Social and Economic Agenda for Latin America

Education Finance in Latin America

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INTRODUCTION

The finance of education concerns how monies are raised and spent to deliver educational services. The policies and mechanisms used to raise educational revenues and to spend those revenues have important consequences for the quantity, quality, and equity of educational services. These in turn affect economic growth, income distribution, and the level of poverty. Thus, education finance policy directly affects the very issues of greatest concern in Latin America.

A country's education finance policy reflects the choices a country makes about [a] the educational output mix, i.e., the types of educational services and outputs produced by the educational system, [b] the distribution of educational services across socioeconomic groups and geographic regions, and [c] the role of the public and private sectors in both funding and delivering educational services. The choices countries make in these three areas directly influence the quantity, quality, and equity of educational services. This paper is organized around these three sets of policy choices.

Challenges. As a region, Latin America faces challenges with respect to each of these policy choices.

Educational Output Mix. Through its funding decisions—both public and private, a country determines the mix of educational outputs. These decisions determine not only the enrollment rates of students at the various levels of education but, also, the mix between quality and quantity. As a region, Latin America provides nearly universal coverage of primary education and a high level of coverage of secondary education, especially lower secondary. Most countries in the region have progressed quickly in terms of providing access to primary and lower secondary education. In 2004 Latin America had an average primary education net enrollment rate [NER] of j95.3 and an average secondary education NER of 65.5.[1] The challenge here lies with reaching the hard to reach—the poor, those with learning difficulties, and those living in remote, rural locations—and further expanding access at the upper secondary and tertiary levels to further catalyze the region's economic evolution to the knowledge economy.

In addition, as a region, Latin America provides a high level of coverage at the primary-secondary level at the expense of quality. Latin American countries have performed poorly on international tests of student knowledge, with most participating countries achieving results significantly below those of Europe and the rapidly growing economies of East Asia. While Latin America clearly has some good primary and secondary schools as well as research universities, these disproportionately serve the elite. The average quality of instruction at all levels of education is low and a major source of comparative disadvantage in world trade.

[1] World Bank, World Development Indicators Database.

Distribution of Educational Services. Again, through its funding decisions—both public and private, a country determines the distribution of educational resources among its citizens. These decisions concern both the supply of education—the ease with which children of different backgrounds are able to easily access schooling—as well as the quality of education—qualified teachers, instructional materials, and adequate infrastructure across children. Leakages and the inefficient use of resources mean that additional money does not necessarily translate into improved access or quality of schooling.[2] Nonetheless, the distribution of educational resources is an important determinant of, and constraint on, the supply of schooling.

Of all the major world regions, Latin America has long laid claim to having the least equal distribution of income. As shown in the following table, not only does Latin America have high income inequality as measured by the Gini coefficient of income, but inequality has been increasing at a more rapid rate than that found in other regions. Using another measure of inequality, the bottom two quintiles—or 40%--of households in Latin America receive only 13.2 percent of total household income; this compares with 18.1 percent of total household income in East Asia and 21.7 percent of total household income in South Asia.[3]

Table 1: Gini Coefficients of Income Equality Over Time

Region	1970s	1990s
Latin America	48.4	52.2
Asia	40.2	41.2
OECD	32.3	34.2
E. Europe	32.8	32.8

Source: World Bank Database.

Income inequality is both the product of and the cause of inequality of educational opportunity. Household income is derived from two sources—income from earnings or wages and income from assets or wealth. Unequal education directly contributes to unequal income from employment and, thus, unequal total household income. On the other hand, high income

[2] For example, Bruneworth, et.al. (2004) estimate that grade repetition at the primary and secondary levels costs between 0.02 and 0.67 percent of GDP in Latin America.

[3] Brazil is a significant exception to this trend, at least recently. Since 1997 the Gini coefficient has decreased consistently and significantly, with households in the two bottom quintiles of the income distribution showing rapid income growth. One of the causes of this improvement is the increased equality in the distribution of education, according to Paes de Barros, Foguel and Ulyssea (2007).

inequality translates into unequal educational opportunities. Relative to poor households, high income households have access to both more and higher quality schooling.

Role of Public and Private Sectors. The appropriate roles of the public and private sectors in financing and providing education is controversial in almost any country. Relying on households to finance education often has adverse consequences for the equitable distribution of education spending and educational opportunities, except at the tertiary level where the consequences may be positive due to the limited access by poor households to university education. On the other hand, by relying on private finance, governments can leverage their own public funding to further increase access or to improve the quality of public provision. Given the realistic constraints on public funding of education, governments must at least look at increased private finance as an option to consider.

Context. The economic and social context of Latin America and the individual countries in the region seriously affects the possibilities to increase spending to improve coverage, quality, and equity. Clearly, those countries experiencing rapid economic growth have better capacity to increase spending—both public and private—on education. In addition, the demography of countries affects educational spending. Countries still experiencing rapid growth in the school-age population will by necessity need to put priority on funding an increased supply of schooling, while those further along the demographic transition will find it easier financially to put priority on funding quality improvements.

As shown in Table 2, for most LAC countries, the size of the school-age population has stabilized. Most countries will have approximately the same number of 5-14 year olds in the year 2015 as in the year 2000. This is similar to World Education Indicator [WEI] countries but stands in contrast to OECD countries generally, where the school-age population decreases by 15 percent over the same time period[4]. However, the size of the university-age population [age 20-29] continues to grow in both LAC and WEI countries, with the number increasing 18 percent in WEI countries and decreasing 6 percent in OECD countries between 2000 and 2015.

[4] WEI refers to World Education Indicators, which the OECD and UIS [Unesco Institute of Statistics] collect on nineteen middle-income countries, which are candidates to join OECD. Since WEI data are relatively comprehensive and current, and since a high percentage of Latin American youth live in countries covered by WEI, these data are used extensively in this report.

TABLE 2: CHANGE IN SCHOOL AGE POPULATION AGE 5-14
[Base Year 2000 = 100]

Country	1998	2015
Argentina	98	106
Brazil	104	98
Chile	87	97
Mexico	98	97
Paraguay	78	122
Peru	95	100
Uruguay	99	102
WEI Average	93	100
OECD Average	105	85

Source: OECD/UIS/WEI

Another important element in the context within which studies education finance is the decentralization of both the finance and provision of primary and secondary education in the region. While it is the central government that is ultimately responsible for funding education in most countries, sub-national governments play an important role in both funding and spending in countries [Argentina, Brazil, Chile, Colombia, Mexico] serving a high percentage of school-aged children. Perhaps the most important aspect of decentralization for the education finance is the role of the central government in setting the ground rules, and the incentives, that guide the funding and spending decisions of sub-national governments.

PUBLIC POLICY AND EDUCATION FINANCE.

This study analyzes education finance in Latin America from a social, as opposed to only a government, perspective. Education is funded from both public [i.e., government] and private [i.e., household] sources. Education revenues are expended in both publicly and privately managed educational institutions. Given the importance of the private sector in Latin American education, both in terms of funding and provision, it is essential that it be included in any analysis of education finance. Governments continue to provide most the funding for education and, also, continue to do most the provision, at least at the primary and secondary levels, but the private sector role strongly affects the capacity of the region to meet the challenges noted above.

LEVEL AND ALLOCATION OF EDUCATION SPENDING.

TABLE 3: LATIN AMERICA: ESTIMATED PUBLIC AND PRIVATE EDUCATION EXPENDITURES, 2000

Level	Public: Percent GDP	Public: Amount US $ billions	Private: Percent GDP	Private: Amount US $ billions
Preprimary	0.23	4.4	0.11	2.1
Primary	1.65	31.3	0.21	4.0
Secondary	1.15	21.8	0.26	4.9
Tertiary	0.74	14.4	0.48	9.1
Total	3.90	73.9	1.06	20.1

Source: Wolff and Gurria (2005).

As shown in Table 3, Latin America currently spends almost 5% of GDP on education, with government funding accounting for about 4% of GDP. This is somewhat lower than the OECD average of about 6% of GDP, as shown in Table 3. Is the LAC region spending the appropriate amount on education? This is an extremely difficult question to answer, as societies differ in the value they put on education as well as their preferences for consuming today versus investing in education so the next generation can consume more in the future. This question of the appropriate amount of education spending must be answered in the context of the educational goals which countries set out for themselves. If LAC countries wish to build up their human capital stock to compete with the emerging knowledge economies of Europe and East Asia, one would expect LAC to be investing more, not less, in education. As shown in Table 4, some countries—e.g., Chile and Mexico—are already investing more than the OECD average, but even they lag behind countries like Korea and Malaysia. Table 4 also illustrates that the sources of education finance vary widely within Latin America. In particular, Chile's policies of cost-recovery at the tertiary level, privatization of technical education, and encouragement of private finance and supply at the primary-secondary level have resulted in high private funding of education.

TABLE 4: PUBLIC AND PRIVATE EDUCATION FINANCE AS PERCENT OF GDP

Country	Public	Private	Total
Argentina	3.5	1.2	4.7
Brazil	4.4		
Chile	3.5	3.3	6.8
Mexico	5.6	1.2	6.8
Paraguay	4.3	1.6	5.9
Peru	2.9	0.9	3.8
Uruguay	2.3		
WEI Average	4.0	1.6	5.6
OECD Average	5.2	0.7	5.9
Korea	4.6	2.9	7.5
Malaysia	7.4	na	

Source: OECD/UIS/WEI

Allocation by Level of Education. Aside from the aggregate level of investment in education, is LAC allocating what it does spend appropriately? This is another extremely difficult question to answer with any degree of precision. Studies carried out by Psacharopolous and Patrinos in the 1990s showed primary education to yield the highest returns and provided the empirical basis for the priority multilateral and bilateral donors gave to grants and loans to increase access to primary education. By the year 2000, this picture had changed dramatically. Mirroring a worldwide trend of increasing wages for jobs requiring sophisticated cognitive tasks, the private rate of return for tertiary education increased significantly in a number of countries: Argentina-42%, Mexico 28%, Peru 56%, Uruguay 35%.[5] Thus, there is at least some argument for more rapidly increasing coverage at the post-basic level, which translates into higher expenditures at the secondary and tertiary levels.

The argument for additional spending to increase coverage at the tertiary level receives additional support by comparing higher education enrollment rates in Latin America with those for OECD in Table 5. Two facts are worth noting in Table 5. First, LAC countries lag considerably behind OECD countries in terms of the percent of population having higher education. This is true if looking at the entire 25-64 age group or if only looking at the youngest age group, age 25-34. Second, some countries [e.g., Argentina] show little if any increases in higher education enrollment rates over the past three decades, while OECD countries have on average shown consistent increases[6]. Even those countries showing relatively high growth in terms of coverage still lag considerably behind OECD countries in terms of access today [as measured by the percent of the 25-34 age population with higher education].

[5] InterAmerican Development Bank (2004).
[6] The most recent household survey data for Brazil suggest a higher growth indicator.

TABLE 5: PERCENT OF POPULATION WITH TERTIARY EDUCATION BY AGE GROUP

Country	25-64	25-34	35-44	45-54	55-64	Growth
Argentina	14	15	15	14	9	1.1
Brazil*	8	8	9	9	4	0.9
Chile	13	18	13	11	9	1.6
Mexico	16	19	18	15	8	1.3
Paraguay	8	10	8	7	5	1.4
Peru	13	16	13	11	7	1.5
Uruguay*	10	9	12	11	8	0.8
WEI Average	17	19	17	15	11	1.3
OECD Average	25	31	27	23	18	1.3
Korea	30	49	33	16	10	3.1
Malaysia*	12	17	12	8	5	2.1

Source: OECD/UIS/WEI

Note: Growth is the ratio of the 25-34 age group to the 45-54 age group having tertiary education.

Another way of trying to answer the question whether Latin American countries are spending their education budget appropriately, is to look at and index of per pupil expenditures by level of education relative to per capita GDP as shown in Table 6. Since teacher salaries are highly correlated with per capita income, and since teacher salaries are by far the most important component of unit costs of education, this index permits a comparison of spending priorities across countries of different income levels. The figures reported in Table 6 show that on average OECD countries spend more on education [again, relative to GDP per capita] than do Latin American countries, excepting Chile, which is about at the OECD average, and two East Asian countries spend significantly more than do LAC countries. These results partly reflect the higher percentage of all OECD students enrolled at the tertiary level, which is considerably more costly than lower levels of education. However, comparing expenditures at the primary and secondary levels, one finds a much larger discrepancy between Latin America and OECD. Relative to OECD countries, and especially Korea, Latin American countries spend considerably less per pupil at the primary and secondary levels. In short, compared to Latin American countries, OECD countries, and especially Korea, put higher expenditure priority on education overall and especially on primary and secondary education.

TABLE 6: INDEX OF ANNUAL EXPENDITURE PER PUPIL RELATIVE TO GDP PER CAPITA, 2003-2004

Country	Pre-Primary	Primary	Secondary	Tertiary	Total
Argentina	13	11	14	26	15
Brazil	12	11	14	127	16
Chile	21	18	19	60	25
Mexico	22	17	20	60	22
Paraguay	16	15	18	58	20
Peru	8	8	11	24	10
Uruguay*	11	9	8	29	11
WEI Average	9	13	16	58	18
OECD Average	18	20	26	43	26
Korea	14	21	33	37	30
Malaysia*	5	19	31	113	32

* Public expenditure only.

Source: OECD/UIS/WEI Database.

Allocation Across Inputs. Latin America spends less on primary and secondary schooling than do OECD countries on average, but do they differ in terms of *what* they spend the money on? Table 7 below shows how Latin America and OECD spend their public sector budgets. In general, Latin American countries spend more on recurrent (vs. capital) outlays and, within the recurrent category, more on personnel (versus non-personnel) outlays. However, Chile and Uruguay look much more like OECD and much less like other Latin American countries. In short, Latin America still spends too little on the complementary inputs that teachers require for effective teaching.

TABLE 7: EXPENDITURE BY CATEGORY OF EXPENDITURE FOR PRIMARY-SECONDARY EDUCATION, 2003-2004

Country	Recurrent as % of Total	Capital as % of Total	Personnel as % of Recurrent	Other as % of Recurrent
Argentina	99.2	0.8	89.4	10.6
Brazil*	87.3	12.7	84.6	15.4
Chile	84.1	15.9	74.9	25.1
Mexico	97.2	2.8	93.6	6.4
Paraguay	95.5	4.5	87.1	12.9
Peru	97.4	2.6	92.9	7.1
Uruguay*	91.0	9.0	58.5	41.5
WEI Average	91.4	8.6	86.1	13.9
OECD Average	91.8	8.2	80.2	19.8
Korea	81.1	18.9	70.8	29.2
Malaysia*	66.2	33.8	78.8	21.2

Source: OECD/UIS/WEI

Quality vs. Quantity. Another important question to ask about the allocation of education spending is whether LAC countries are investing enough in the quality, as opposed to the quantity, of education. As shown in Table 8, on international tests of student knowledge, LAC countries in general lag far behind OECD countries and score just above poorer countries in Africa.[7] Furthermore, the low quality of Latin America schools is not only a problem of schools serving the poor. The average score of the top quartile of Latin Ameridan students participating in PISA 2003 is below that of the bottom quartile of OECD students participating in that test.[8]

The "gap" in learning between most Latin American countries and their OECD and East Asia counterparts is not news[9]. The question is, is it important in terms of economic growth and international competitiveness? This question is answered two different ways in what is a newly emerging literature. One approach is to use panel data on individuals to estimate the independent impact of higher academic achievement (measured by standardized test scores) on future individual income. The results of this research are somewhat mixed with academic achievement strongly related to future income in the analysis of US and developing country data bases and only weakly related to future income in some analyses of other OECD countries.[10]

The second approach to this question is to use cross-national data bases to examine the relationship between national average academic achievement and economic growth. Hanushek and Kimko (2000) used a composite index of national academic achievement to estimate this relationship and found that a change in the index of one country level standard deviation results

[7] The Hanushek-Kimko (2000) composite index of national academic achievement puts Brazil (34.91) and Chile (26.30) just above Mozambique (24.26) and just below Nigeria (34.15).
[8] See Inter-American Development Bank (2006).
[9] For example, see Organization of American States (1998).
[10] See Hanushek and Woessman (2007) for a comprehensive review of the research literature.

in a one point increase in the rate of economic growth.[11] In a subsequent study, Hanushek and Woessman (2007) use more recent international assessment results to again estimate the quality-economic growth relationship[12]. This analysis found that a one standard deviation improvement in quality results in a more than two point increase in the rate of economic growth for low-income countries and a smaller magnitude for high-income countries. .

TABLE 8: RESULTS OF INTERNATIONAL ASSESSEMENTS OF LEARNING

Country	PIRLS (2001) Grade 4	TIMSS Math (1995) Grade 8	TIMSS Math (1999) Grade 8	TIMSS Math (2003) Grade 8	PISA Math (2000) Age 15	PISA Math (2003) Age 15
Argentina	419				415	
Brazil					396	356
Chile			392	387		
Colombia	422	385				
Mexico					422	385
Peru					327	
Uruguay						422
OECD						500
Korea		607	587	589	546	540
Malaysia			519	508		
Spain					478	485

Source: World Bank EdStats and OECD/PISA Database.

In summary, there is by now reasonably solid evidence of high economic returns to improving the quality of primary-secondary education. Unfortunately, there is also solid evidence that simply increasing spending on education does not in and of itself improve quality. However, to the extent specific investments can be shown to improve the quality of instruction and student cognitive achievement, there is a very strong economic argument for making those investments, even at the expense of further increasing enrollment rates.

[11] Subsequent research by Ramirez, et.al. (2006) using the same Hanushek-Kimko index find average national test scores to be only weakly related to economic growth when East Asian countries are excluded from the data set. Hanushek and Woessman (2007) respond to this finding by including regional dummies and, also, by deleting the sample of East Asian countries in their most recent empirical work; while the magnitude of the quality-economic growth relationship is reduced, it remains large and significant.

[12] One finding, consistent with earlier research, is that adding a measure of the quality of education to a regression model of economic growth results in a statistically insignificant coefficient on the average years of education.

EQUALITY OF SPENDING.

Equality of Outcomes. As enrollment rates have increased for primary-secondary education over the past forty years, the equality of educational attainment as measured by years of education has improved, as shown by the decreasing education Gini index in Table 9. Overall, the education Gini index has decreased from 0.51 to 0.42, but this overall trend masks large differences between countries. Some countries (Brazil, Guatemala, Mexico, Peru) have made large gains in equity over time, while others (Chile, Colombia, Uruguay) have stagnated or in some cases even worsened since 1980. To some extent these patterns reflect the ease of increasing access when enrollment rates are low and the difficulty of doing so when enrollment rates are already high. In addition, some countries (Colombia, Guatemala, Nicaragua) still have high degrees of inequality at the end of the century.

TABLE 9: EDUCATION GINI INDEX FOR THE POPULATION AGE 15 AND OVER.

Country	1960	1980	2000
Argentina	0.34	0.29	0.27
Brazil	0.63	0.48	0.43
Chile	0.41	0.37	0.37
Colombia	0.53	0.47	0.48
Ecuador	0.51	0.39	0.43
Guatemala	0.75	0.63	0.59
Mexico	0.56	0.50	0.36
Nicaragua	0.69	0.62	0.52
Peru	0.56	0.41	0.36
Uruguay	0.39	0.36	0.35
Latin America	0.51	0.44	0.42
Korea	0.55	0.33	0.19
Spain	0.38	0.39	0.35

Source: Thomas, Wang, and Fan (2003).

While aggregate data for OECD countries are not available, it's instructive to compare Latin American experience with that of two OECD countries—Korea and Spain. In 1960, Korea had inequality of education on a par with Colombia, Mexico and Peru and considerably higher inequality than Argentina, Chile and Uruguay. By 2000, Korea had much lower inequality than any Latin American country. Meanwhile, Spain started off in 1960 with a Gini index similar to that of Chile, and Uruguay and ended up in 2000 with an index similar to those countries.

TABLE 10: AVERAGE PISA SCORES ON MATHEMATICS BY SOCIOECONOMIC QUARTILE (2003)

Country	Bottom Quartile	Second Quartile	Third Quartile	Top Quartile
Brazil	317	346	372	410
Mexico	357	374	394	424
Uruguay	388	415	430	478
OECD	455	493	516	548
Spain	454	475	496	519

Source: OECD/PISA Database.

Table 9 measures only the inequality of the quantity of education, but inequality also exists with respect to what children learn. Table \10 shows the average mathematics scores by socioeconomic quartile for three Latin American countries participating in PISA 2003. In general, the average score for the top socioeconomic quartile is 20 percent above that of the bottom quartile, about the same as for OECD countries. Perhaps more surprising, only in the case of Uruguay does the average score for the top quartile exceeds that of the average of the bottom quartile for OECD countries. In short, inequality of quality in Latin America is a serious problem, but the low average quality of education in the region is an even more serious one.

Equality of Expenditures. That the distribution of educational outcomes is not equal across income groups is hardly surprising—in Latin America or any other region. However, the important question for education finance is: Does the allocation of public spending contribute to this result? Data are not available for a large number of Latin American and OECD countries to provide a comprehensive answer to this question. Hence, we look at data for just one country, Ecuador in the late 1990s. What data exist for other countries in the region suggest the pattern of expenditures in Ecuador may hold more generally.

Distribution of Public Expenditure in Education

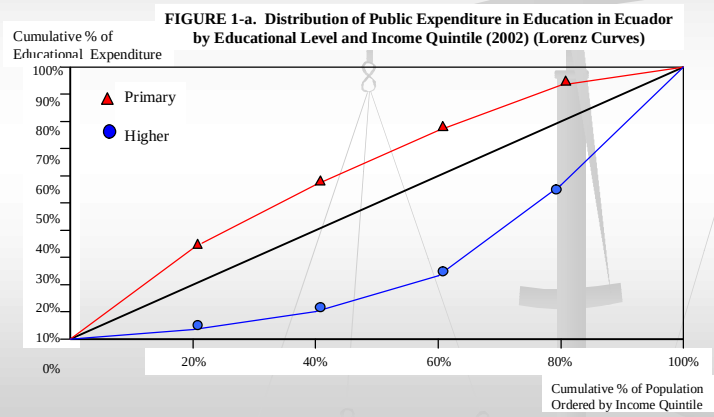


Figure 1 shows Lorenz curves depicting the distribution of public expenditures on primary and higher education. As can be seen, public spending on primary education is pro-poor, with the lowest income quintile receiving larger than 20 percent of total primary education spending, and public spending on higher education is pro-rich, with the lowest income quintile receiving considerably less than 20 percent of total higher education spending.

Distribution of Household Expenditure in Education

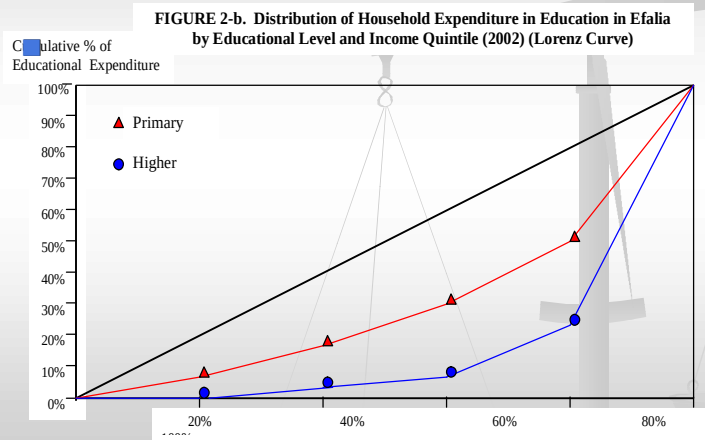
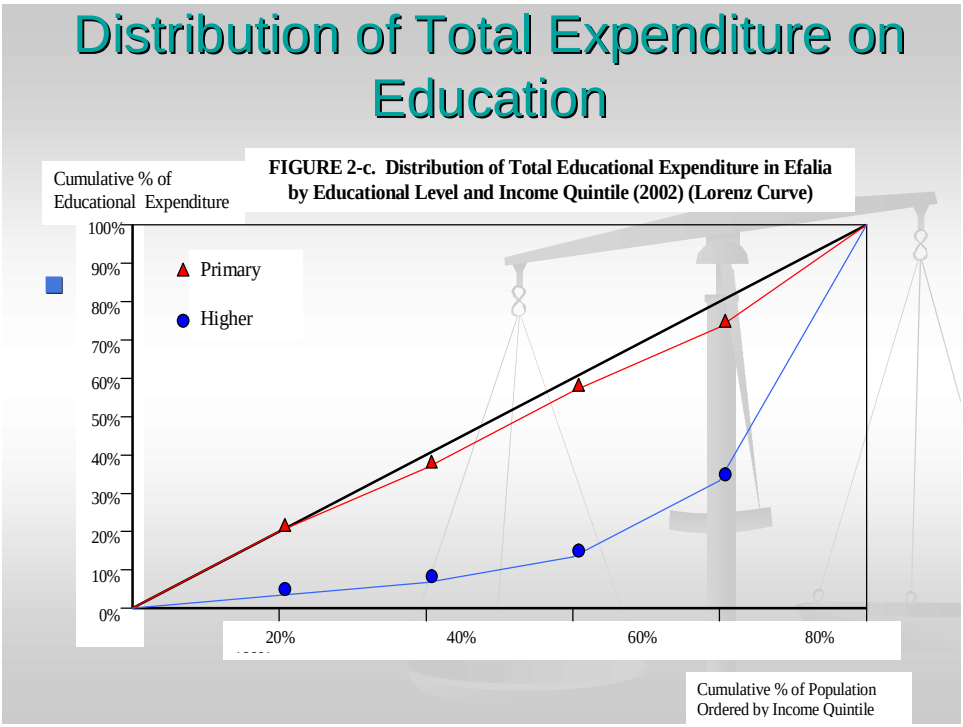


Figure 2 shows the distribution of household expenditure on primary and higher education—both public and private--in Ecuador. As might be expected, household expenditures on education are highly correlated with household income, resulting in a highly unequal distribution of household expenditures at both the primary and tertiary levels.

Finally, Figure 3 shows the distribution of total—public plus household—expenditures on primary and higher education in Ecuador. The unequal distribution of household expenditures on primary education offsets the pro-poor distribution of public expenditures on primary education resulting in an approximately neutral distribution of spending across households by income quintile. Meanwhile, the distribution of total spending on tertiary education is less equal than was that of public spending alone.

Data for Ecuador cannot be extrapolated to all of Latin America, but the general conclusions follow: [a] public spending on primary education is distributed relatively progressively, due to near universal coverage and richer households choosing to send their children to private schools; [b] public spending on higher education is distributed regressively, due to low gross enrollment rates in general, a disproportionately high proportion of richer children successfully graduating from secondary school and gaining entrance to higher education, and a policy of zero or low tuition rates for students in public universities irrespective of student ability to pay; and [c] while in aggregate public education expenditures are only slightly regressive in distribution, public plus private education expenditures are highly regressive and contribute to a highly unequal income distribution.



Equalizing Education Expenditures. Perhaps as a result of the serious problem of inequality in educational opportunities, the Latin America region has been especially innovative in designing programs to target public education spending on the poor. Table 11 below lists compensatory education programs which have been adopted in Latin America and the Caribbean over the past decade. The structure, scope and even the names of these programs often change with some frequency. The table and the program description provided in the annex to this paper illustrate the different targeting mechanisms and types of interventions and targeting mechanisms used in compensatory programs.

Type of intervention. Compensatory education programs address either supply-side problems or demand-side problems[13]. Supply-driven interventions are those programs whose emphasis is on improving the quality of and access to education by increasing the number of schools, the number of student places, and the inputs required for learning. Demand-driven interventions target specific groups or individuals who have a need for in-creased access to education by providing them with the means to obtain it. These interventions include vouchers, stipends, loans, and scholarships. Both of these types of interventions attempt to increase coverage and/or improve the quality of education.

Policy interventions that have improvements in quality as the primary goal aim to improve the quantity and quality of inputs in the classroom either directly or by creating incentives to bring about more effective use of school resources. In practical terms, improving inputs means upgrading dilapidated classrooms, strengthening curriculum and pedagogical techniques, procuring new textbooks and instructional materials, hiring better-trained teachers, investing in educational equipment and even providing meals, nutritional supplements, and health screenings. Alternatively, programs can provide teachers with a monetary inducement to improve their skills, reduce absenteeism, or otherwise effect an improvement in student performance. Some programs simultaneously improve inputs and incentives by, for example, providing teacher in-service training while at the same time rewarding more committed teachers with additional compensation.

Policy interventions that aim to improve educational opportunities through increased access may be either supply side or demand side in their orientation. There remain large populations of children, particularly rural children, in Latin America who lack access to school, especially at the secondary level. Sometimes access is lacking in the conventional sense of a school not being within physical proximity of the child. Alternatively, schools may be nearby but of such low quality that the household judges the benefits of schooling to be insufficiently large to warrant sending the child to school. The solution to these problems of low quality and poor physical access is most often found on the supply side—constructing schools and classrooms and providing the inputs necessary to raise quality and attract students.

Other children live within close proximity to a school of reasonable quality but still choose to not attend. Here the problem is one of insufficient household demand for education, either because it puts low value on education or because the costs—fees, books,

[13] See Winkler (2000) for further discussion of this typology.

transport, uniforms, etc.—of schooling are high or because the opportunity costs of attending school are high. Policies to address insufficient demand must stimulate that demand by either reducing price and/or increasing the household's ability to pay. Price reductions take the form of providing free textbooks, subsidized transport, eliminating school fees, etc. Alternatively, demand side policies (e.g., Bolsa Familia in Brazil, Oportunidades in Mexico, and PRAF in Honduras) can pay families to send children to school by using cash transfers to the family conditional on the child regularly attending school. Free school lunch programs can work on both sides, reducing a cost of schooling while simultaneously providing an immediate benefit to households sending their children to school.

Targeting. Compensatory policies and programs by their very nature serve only a segment of the population. To design a program to serve only the needy population requires a targeting mechanism, the method of identifying eligible candidates for the program.

Three basic targeting mechanisms are commonly used in compensatory education programs. G*eographic targeting* sends benefits to specific regions with the qualifying characteristic usually being average welfare. No member is excluded (according to this characteristic) once the geographic area is established, so the accuracy of the target depends on the group's relative homogeneity. Therefore, the more homogeneous the region, the smaller are the number of unintended beneficiaries. Furthermore, because smaller geographical groups are more likely to be homogeneous, the accuracy of the target generally decreases as the size of the region increases. For example, while targeting poor communities is fairly efficient, their larger income variation means targeting states creates beneficiaries who would not be eligible as individuals.

The second form of targeting mechanism is to send benefits to particular ***groups.*** This mechanism identifies groups whose members tend to exhibit a certain qualifying characteristic. Gender and ethnic groups commonly serve as a basis for group targeting as both can be easily identified. For example, if there are areas in which girls enjoy far fewer educational opportunities than boys, it may make sense specifically target them. Also, indigenous students are frequently much worse off than even the poorest native Spanish speakers, so a rationale exists for targeting benefits to them. A group of schools that are performing below national standards may also be targeted using this mechanism. Group targeting can also include ages or grade levels as specific targets.

The final mechanism, ***self-targeting,*** leaves the participation decision entirely to the individual, relying instead on program design to discourage more well-off consumers. For example, some programs require participants to wait in long lines. Because the opportunity cost of waiting rises with the size of one's wage higher wage earners will often forgo the compensatory service. Other opportunities for self-targeting derive from the stigma surrounding these services or from their poorer quality. That is, wealthier people will either experience or perceive low quality and thus choose to not participate in the program.

Evaluation of Compensatory Education Programs. Excepting the conditional cash transfer programs introduced in several countries in recent years, few of these interventions have been rigorously evaluated to determine their benefits and costs. Conditional cash transfer (CCT) programs have been evaluated, perhaps due to their budgetary impact. CCT programs

are perhaps particularly difficult to evaluate as they have multiple objectives. They serve to transfer income to the poor while providing incentives to families to send their children to school. In a meta-analysis of CCTs, Reimers, et.al. (2006) conclude that CCTs increase student attendance and attainment in terms of years of education but that increased attendance does not appear to translate into more learning. In addition, they are a very costly means of increasing enrollment, with Mexico's Oportunidades program representing one-fifth of education ministry non-salary expenditures. Schwartzman (2005) and Gove (2005) reach similar conclusions for Brazil's Bolsa Familia—that it is a very expensive program to achieve small increases in school enrollment and attendance.

As illustrated by Tokman's (2004) re-evaluation of Chile's P-900 program to target additional resources on under-performing schools, the evaluation of compensatory education programs are seldom done well. The targeting mechanisms, the non-random selection of beneficiaries, make unbiased evaluations difficult. In addition, even when the evaluations of impact provide reliable results, they almost never provide information on costs that would permit comparisons across different types of programs.

TABLE 11. EXAMPLES OF COMPENSATORY EDUCATION PROGRAMS IN LAC

	Geographic Targeting	**Group Targeting**	**Self Targeting**
Supply Side	• Telesecundaria (Mexico) • MECE-RURAL (Chile) • Escuela Nueva (Colombia) • PRAF (Honduras) • PROHECO (El Salvador)	• P-900 (Chile) • ROSE (Jamaica) • JEC (Chile) • Colegios en Concesion (Colombia) • Programa de Aceleracion del Aprendizaje (Brazil)	• Fe y Alegria (Bolivia) • Hogares de Bienestar Infantil (Colombia)
Demand Side	• Bolsa Escola / Familia (Brazil) • Oportunidades / Progresa (Mexico) • PRAF (Honduras)	• Eduque a la Niña (Guatemala) • Voucher Program (Colombia)	

Note: See full description of these programs in the annex.

ROLE OF PUBLIC AND PRIVATE SECTORS.

As noted in Table 3, household finance plays an important role in the financing of education in Latin America, especially at the pre-primary and tertiary levels, with an estimated total contribution over one percent of GDP. This figure excludes the private finance (and supply) of post-basic, career-oriented training programs on which there appears to be little information. Table 12 shows that the private share of total education spending varies widely both by level of education and by country. In general, the private share of education finance in Latin America exceeds the average of OECD countries, and the specific percentages reach as high as 40 percent for primary-secondary education in Paraguay and 77 percent for tertiary education in Chile. In aggregate, the private finance of education reaches as high as 3.3 percent of GDP in Chile.

TABLE 12: PRIVATE SHARE OF TOTAL EDUCATION SPENDING, 1999

Country	Primary-Secondary	Tertiary	All Levels
Argentina	11.4	32.6	22.8
Chile	30.8	77.2	44.9
Paraguay	40.5	48.8	43.6
Peru	23.2	45.5	28.4
WEI Average	21.7	37.2	28.3
OECD Average	7.9	28.0	12.0

Source: OECD/UIS/WEI

Household finance of education occurs in both the public and private sectors. In the public sector it typically takes the form of household outlays on examination fees, textbooks, and school transportation, whereas in the private sector it also includes tuition. In any case, private finance does not necessarily imply private provision.[14] Table 13 illustrates the wide variation in private provision (as measured by the percentage of all students attending privately managed schools) in Latin America.

TABLE 13: PRIVATE SCHOOL ENROLLMENTS AS SHARE OF TOTAL, 2001.

Level	Highest Share	Lowest Share	Regional Average
Pre-Primary	Chile (47%)	Costa Rica (15%)	26%
Primary	Chile (47%)	Mexico (6%)	16%
Secondary	Guatemala (56%)	Mexico (11%)	25%
Tertiary	Brazil (70%)	Bolivia (8%)	36%

Source: Wolff, Navarro, and Gonzalez (2005).

[14] Indeed, there is some evidence that low levels of government spending is correlated with high levels of household financing for children attending public schools. See World Bank

Policy Choices. Governments have choices to make with respect to the role of the private sector in financing and/or providing education. Choices about both finance and delivery should be guided by considerations about their implications for equity, quality, and the cost-effective use of public monies.

The private finance of education has important and often adverse equity implications, as noted earlier. To the extent the costs of education are shifted onto households, the more a household's capacity to pay will determine what its children receive in terms of educational investment. As noted earlier, at the primary-secondary level, the costs of public education are shifted onto households by governments simply not funding certain inputs—textbooks, transportation, specialized teachers, etc. At the tertiary level, the costs of public education are more likely to be shifted onto households in the form of increased tuition or cost-recovery for non-instructional services. Alternatively, as frequently happens at both the pre-primary and tertiary levels, governments can shift the costs of education to households by simply not providing public instructional services, or by providing them at such low quality that non-poor and even some poor households will self-select to pay for private alternatives.

Governments thus face difficult tradeoffs with respect to the role of the private sector in the finance and provision of education. Increased private funding may, but not always, lead to higher inequity in education spending and educational opportunities. The exception is those cases—e.g., high quality higher education—where many of the students come from households with the capacity to pay. On the other hand, high levels of private funding serve to leverage public monies and allows government to provide either a higher quality of education or a larger supply of education, which often benefits the poor, than it would otherwise be able to do.

The fact that private funding is high in several countries (Table 13) suggests that other countries in the region could further leverage their public funding to increase the overall level of educational investment, with implications for both improving coverage and quality. Wolff, Navarro, and Gonzalez (2005) provide useful advice as to how countries might encourage both public finance and provision. The wise targeting of public monies can help offset some of the otherwise adverse consequences of private finance.

IN CONCLUSION.

How countries finance and spend their education budgets reveals much about their priorities and the policy choices they have made. This paper has analyzed data on the sources and uses of funds to look at three policy areas—the educational output mix, the distribution of educational services, and the role of the public and private sectors.

Educational output mix. Countries choose to allocate their education spending across levels of education—primary, secondary, and tertiary—and between quantity and quality. As a region, Latin America has attained near universal coverage at the primary level as well as a high level of coverage at the secondary level. However, at the tertiary level enrollment growth has been more modest, and LAC lags behind OECD countries. Also, as a region and compared to OECD countries, Latin America performs poorly on primary and secondary level international tests of achievement. Indeed, richer students in Latin America tend to perform worse than poorer

students in OECD countries. While expenditures do not necessarily translate into quality, most LAC countries spend considerably less per pupil relative to GDP on primary and secondary education than do OECD countries.

Distribution of educational services. Inequality in education has contributed to Latin America's notoriously bad distribution of income. However, the education Gini index has improved over time as coverage at the primary and secondary levels has increased, and there is recent evidence that this improvement is having a positive impact on income distribution, too. There continue to be large differences in education quality between income groups, and these contribute to future disparities in wages, but the gap in test scores across income groups is not greatly different than that found in OECD countries. Again, while higher spending does not necessarily translate into improved quality, the high disparities in education spending across income groups in Latin America undoubtedly contribute to disparities in outcomes. Private household spending on education—both to complement spending in public schools and to finance private schooling—is especially unequally distributed. Latin America is the home of numerous program and policy interventions targeted on poor and low-achieving students, but the impacts of these interventions are still largely unknown.

Role of public and private sectors. The private sector plays a large role in Latin America, both in terms of finance and supply. Compared to OECD countries, a much higher share of education spending comes from households. Given the high inequality of private education finance noted above, this of course is an important contributor to the inequality of spending across income groups. In addition, the private supply of education is important in LAC countries, especially at the tertiary level.

Future choices. The education challenges facing Latin America are clear: [a] raise the quality of schooling, especially for lower income groups; [b] continue to increase coverage at the secondary level, and [c] significantly increase coverage at the tertiary level. The fact that the school age population is relatively stable provides an opportunity for countries to focus on something other than simply planning to accommodate growing enrollments. The difficult choice for the region is how to finance the actions to meet the challenges. If public education budgets continue to grow only slowly, it will be difficult to reduce the private spending that generates much of the inequality. Increased public financing to expand the coverage of higher education has to be traded off against increased public financing to raise quality, unless that is someone finds a way to make more efficient and effective use of existing resources.

ANNEXES.

Supply-Side Interventions: Geographic Targeting

Telesecundaria. Mexico's *Telesecundaria* program affords one of the best examples of supply-side intervention using a geographic targeting mechanism. The program provides lower secondary instruction (grades 7–9) to students in rural communities through a series of daily satellite broadcasts. Each lesson consists of a fifteen-minute television program, followed by a thirty-five-minute teacher-student discussion, and then a ten-minute break before the next lesson. The school day consists of six of these periods, and students attend 200 days per year, just as they would in a conventional school setting.

Communities can enter the program by furnishing at least fifteen primary school graduates with an instructional facility. At this point, the ministry of education provides a college-trained and nationally certified teacher, a television, digital signal decoder, satellite dish, wiring, instructional program, and textbooks. The ministry also sponsors teacher training. This includes periodic afternoon and weekend in-services, as well as more elaborate seminars and workshops.

Telesecundaria geographically targets its resources to expand coverage to rural areas in Mexico. At its inception in 1968, programming reached rural villages in the seven states surrounding Mexico City. Today, *Telesecundaria* reaches over a million students in more than 10,000 rural communities.

MECE-RURAL. Chile's Program for the Improvement of Rural Schools *(MECE-RURAL)* provides a second example of a compensatory program that features both supply-driven and geographic targeting components. *MECE-RURAL* targets those primary schools in rural areas in need of improvement. It designs new teaching methods for rural settings, supplies schools with first- and sixth-grade textbooks that incorporate these methods, sponsors additional new rural-oriented methods by way of a curriculum development manual, and trains teachers to implement educational reforms. The program relies on a strong supervision component to monitor the progress of these reforms.

One of the more novel elements of *MECE-RURAL* is a network of "rural education microcenters," each intended to bring together teachers within a given rural area. The idea is to facilitate the exchange of ideas and experiences among rural teachers. Beyond this, the centers also assist in the provision of technical support.

On the level of access, meanwhile, *MECE-RURAL* supports classroom construction and the hiring of teachers in schools that cannot accommodate students through the eighth-grade level (the final year of compulsory education in Chile)

PARE. A third example *of* this type of program, *PARE,* falls under the group of compensatory programs under the aegis of Mexico's National Council for Educational Deyelopment (CONAFE). The CONAFE programs are run on the national level and are designed to improve the delivery of education services to remote areas.

The *PARE* program operates in Mexico's four poorest states. Most of the inhabitants of these states are indigenous; in aggregate the indigenous population of these states is 40 percent of the total for the country. These states are also poor; two-thirds of their populations are below the poverty line. *PARE's* curriculum is similar to the national curriculum through the first six grades but is delivered in two three-year cycles.[15]

On the input side, *PARE* provided books for school libraries and developed textbooks in the eight main indigenous languages through the fourth-grade level. To improve the quality of teaching, it provided a series of training sessions on Saturdays and during summers. The training addressed subject matter knowledge; pedagogic techniques, including multigrade teaching; and approaches to student evaluation and monitoring. As a complement to the training, *PARE* provided monetary incentives equal to the teacher's base salary. Parent associations meted out the incentives according to a specific set of criteria for teacher performance.

PARE also supported the upgrading and replacement of schools in disrepair and earmarked a small annual sum to the parent associations for school improvement and maintenance. It also increased funding for supervision, making it possible for supervisors to visit remote schools in both monitoring and technical support capacities. It further strengthened management by training mid-level administrators in organizational and pedagogic reform, decentralization, and information systems. To improve access *PARE* supported the construction of rural schools in remote locations. Large cost savings resulted from the transfer of responsibility for construction from large, national contractors to municipalities employing local labor.

Escuela Nueva. Colombia's *Escuela Nueva*, is a supply-side intervention that aims to increase the quality of learning in multi-grade public schools in geographically targeted rural and marginalized areas, through the use of community involvement, fit-for-purpose curriculum design, educational materials and teacher training.

The program's main focus is on the application of abstract concepts to daily life. The curriculum is adapted to reflect the reality faced by children within their rural setting, encouraging development of democratic values, and promoting a learning process anchored in their peers, in which older students support and help the younger students with their learning process. Parents and community participation play a significant role, involving every day situations to school activities. One salient characteristic of the model is the use of flexible promotion based on achieving competency levels rather than an automatic system. The fulfillment of specific objectives throughout the year enables students to self-monitor their progress and allowing them to provide feedback to teachers through so called "suggestion mailboxes".

Escuela Nueva provides specific educational materials such as textbooks and guidebooks, supplies and a small library that can also work as resource center for the community. The physical environment is also design in order to define learning subject spatially, by setting out

[15] A parallel program, *PRODE/, was* designed to expand access to early childhood education and included home visits to upgrade parenting skills. The two programs have recently been combined under the heading *PAREB,* which now includes ten additional low-income states.

learning corners focused on different academic subjects. In so far as teachers' training, the model gives a central role to workshops that allow the sharing of experiences among multi-grade teachers, in order to strengthen skills in subject specific topics and in the application of the program's working material. This is specially important given the common isolation that multi-grade teachers face in their everyday working environment. Monitoring visits also take place throughout the year, in order to provide assistance to teachers and to verify program consistency.

The *Escuela Nueva* system was initially organized in 1975, and evolved over three distinct periods. Between 1975 and 1979, the program covered 500 schools in three different states. From 1979 to 1986, it expanded to over 3.000 schools, and starting in 1987, the program massively expanded at a countrywide scale. Nowadays, it operates in more than 18.000 Colombian schools, and has been implemented in various countries around the world including Brazil, Guatemala, Panama, Chile, El Salvador, Dominican Republic, Peru, Guyana, Uganda, Philippines and Nicaragua.

PROHECO. Honduras's *PROHECO* is a supply side compensatory program that aims to create greater school autonomy by delegating to parent's association the decision of hiring and firing of teachers. It was modeled after El Salvador's EDUCO program. It aims to address issues of coverage and quality of primary and secondary education in remote rural areas, applying an alternative and self-sustainable model which actively involves community participation.

The basic component of this model are the community education associations which are responsible of all school administration. They are in charge of teacher hiring, material acquisition and physical facilities maintenance. For their promotion, organization and training, these associations receive cash transfers and technical assistance from the government. *PROHECO* schools generally operate in private residential houses, and to a lesser extent in churches or public buildings. Its teachers are usually from the same community or community leaders.

About 25.000 students, in thirteen of the eighteen states in Honduras go to *PROHECO* schools. The plan is to expand the program to other 500 schools in order to better attend increasing educational demand in distant settings.

Supply-Side Intervention: Group Targeting

P-900. Chile's *P-900* program is a concrete example of a supply-driven and group-targeted compensatory scheme. The program, which came into being at the initiative of Chile's new democratic government in 1990, seeks to improve the quality of the country's worse performing primary schools. It trains teachers to encourage creativity and innovation through a series of in-service workshops where it trains young "extension workers" to provide remedial reading instruction to third and fourth grade students outside of school hours. *P-900* also provides classrooms with a set of educational materials, including libraries, teacher guides, games, and calculators. It funds the repair and upgrading of the physical facilities teachers deem most relevant to learning and regularly dispatches teams of technical and educational supervisors to participating schools. All of these efforts are coordinated and funded by the national education ministry.

P-900 employs a group-targeting mechanism, focusing on schools as the basic targeting unit. Using data from Chile's National Education Quality Assessment System [SIMCE], the program originally directed its resources at the lowest-achieving 10 percent of Chilean primary schools. The criteria has since been altered to include all schools falling well below the regional SIMCE average for student achievement, which increased the number of eligible schools beyond the original 900 in 1990. Schools "graduate" from the program once they have caught up to the regional average, while others become eligible as they fall below it. As a consequence, the number of participating schools fluctuates.

Evaluation. Tokman (2002) re-evaluated the P-900 program, attempting to correct for biases present in earlier evaluations. He found that the impact of the program on student learning increased over time.

ROSE. Jamaica's Reform of Secondary Education Project [*ROSE*] is an attempt to achieve both quality and access objectives in compensatory programs. The project directs curriculum reform, teacher guides, teacher training, and textbooks to underperforming schools. *ROSES's* seventy-two participating schools were selected according to the incidence of poverty in their student populations, as measured by Jamaica's Survey of Living Conditions. *ROSE* schools serve 79 percent of the poorest quintile of students.

The *ROSE* curriculum includes math, science, social studies, language arts, technology training, and career education. In terms of pedagogy, the emphasis is on both basic skills and problem-solving activities, and the project provides local consultants to develop daily assignments and conduct curriculum research. The central Ministry of Education and Culture coordinates teacher training designed to complement these changes. It includes overseas training, periodic in-service triaining, summer workshops, distance education, and school visits. The ministry also trains regional education officers, school administrators, and school board members.

To support other educational inputs, the ministry identifies a minimum set of materials necessary to meet the core educational goals and requires each school to conduct an "inventory" of these materials. The ministry then supplements the schools' inputs—typically chairs, desks, blackboards, and laboratory equipment—according to the disparity between the actual inventories and minimum requirements.

The final component of ROSE's quality improvement efforts is a rigorous evaluation process. The new student evaluation attempts to consolidate earlier tests into a new ninth-grade Junior High School Certification Exam. The exam is a requirement for employment and promotion to upper secondary school.

Jornada Escolar Completa (JEC). One of the fundamental components of Chile's educational reform is the supply driven intervention *JEC*. This project seeks to improve the learning process, by changing school schedules and increasing student work time, and by establishing a network of high quality educational facilities. The extension of the daily school program, converts two part-time six hour schedules into a full-time eight hour schedule. It demands the review and redesign of learning activities, and implies an adjustment of the educational curriculum to allow for extended time-on task on different academic subjects, longer

recess, and a single group of students per educational facility. For the extended schedule program to operate, schools could request funds to adapt their physical infrastructure, since they would have to accommodate a larger number of students in one-shift. In these cases, schools can receive support and technical assistance from the national government, and figure out different mechanisms to development a better infrastructure.

While *JEC* is a universal program applied to all schools, it is being implemented using a targeted roll out strategy. Although it essentially mandates that every public and private subsidized school adopt the new schedule, it allows differentiated deadlines based on several characteristics of the schools. The extended schedule program started in 1997, but the time limit for full compliance was later extended in 2004. Public and private subsidized schools of technical-professional category, and all those working with vulnerable students, must operate within the *JEC* scheme before 2007, while all others have to comply before 2010.

Colegios en Concesion. In 2000, Bogotá's local government established a mechanism to allow the private administration of new public schools serving urban marginal areas. This supply-side intervention is intended to take advantage of the knowledge and experience of successful private institutions, in order to improve coverage and quality of education in marginalized areas of the city's periphery. The scheme combines geographic and group targeting mechanisms: it selects beneficiaries by building schools in the poorest localities of the city, and restricts enrollment to students in the two lower levels of the country's welfare targeting system (SISBEN). A very important trait of this particular program is related with the high quality standards of the infrastructure built. All new schools have remarkable physical facilities that dignify education, and generate positive expectations in children and the entire community.

The program delegates school management to private institutions with proven academic results. Selection of providers is done through public bids, and their performance is measured by student achievement in the latest standard academic examinations. The administrator is completely in charge of running the school, and has autonomy in teacher and principal hiring decisions. Schools must provide all level of education, from preschool to secondary education, with a full time schedule, and exclusively in newly constructed premises.

The partnership operates in results-based management model. Annually, the local government transfers a fixed per pupil grant to the bid winner (below the unitary cost afforded by public schools in the city), who in turn uses these resources to maintain the infrastructure, hire teachers and administrative employees, supply textbooks and teaching materials, offer a daily snack, and run the institution. The partnership between the winning private institution and Bogotá's Secretary of Education is valid for fifteen years. Once the deadline is reached, it can continue to operate only if the commitment with high quality education and permanent supervision is maintained. A two year in a row academic underperformance, may terminate the agreement.

This private-public scheme entered into operation in year 2000 in 16 schools with preschool and primary education. Additionally, during this same year 5 more bids were opened. In 2001, the first secondary students were enrolled, and two years later, 23 schools with 23.117 students, had already entered the program.

Evaluation. A World Bank evaluation by Barrera-Osorio (2006) of this program found that concession schools had lower dropout rates and higher test scores compared to similar public schools.

Programas de aceleração da aprendizagem. To address the prevailing high levels of repetition in Brazilian schools, central and local governments have applied, since 1995, the accelerated learning program. This supply-side intervention is intended to provide special attention to those students who, according to their age, are two or more years behind in their on-time grade for age. It targets children enrolled in public schools, between first and fourth grade, with overage for the grade they are attending as beneficiaries of the acceleration classes.

The scheme basically works through special courses, with no more than 25 students per class, in all of the schools involved. Its goal is to allow every participating child to advance, one to three grades annually, depending on its own performance. Besides its academic objective, the program also aims at recovering children's self-esteem. It attempts to deal with the frustration faced by students as a result of past academic failures, encouraging them to take challenges and stimulating their interest on the different subjects.

The teaching method applied in the acceleration classes, relies on material specifically designed for the program, and includes guidebooks, teacher manuals, and reading material. It allows children to work with little teacher assistance, developing individual and group activities, and presenting daily assignments as parts of determined subprojects and projects. Reading is also strongly encouraged by the system, by reserving the first hour of every school day to that end. Students are expected to read at least one book weekly.

A key characteristic of this accelerated learning program is the importance given to teachers, taking into account that its them who essentially prevent (or stimulate) students from dropping out of school or staying behind in the curriculum. The system provides special training and support to teachers, through guideline material and activities such as an initial instruction session. Supervision and assistance is carried out weekly (supervisor visits) and monthly (sharing experiences workshops), and corresponds to the main teacher promotion tool.

Supply-Side Intervention: Self-Targeting.

Fe y Alegria [FYA] is a private [Jesuit], non-governmental organization that supports formal and non-formal education for the poor in twelve Latin American countries through supply-driven interventions and self-targeting mechanisms. Although FYA receives some public funding in most countries, it insists on strong functional autonomy in all countries of operation.

FYA schools serve students at all grade levels. When *FYA* opens a school, it quickly engages local organizations and community members, involving them as much as possible in construction, management, and administration. In return for these contributions, community members are given considerable say in how to spend school resources.

The defining feature of *FYA's* philosophy is its focus on community development and local culture. Teachers are encouraged to live on school grounds to better integrate themselves

into the community. In this capacity, they are expected to promote *FYA*'s vision of democratic participation, supervising rather than dictating wherever possible.

FYA activity in Bolivia is fairly representative of its work internationally. A national *FYA* office handles matters of accounting, budgeting, personnel, finance, and project development, while seven regional offices—with staffs of two to five each—manage nearly 200 schools nationally. From these centers, field coordinators visit schools to conduct in-service training, help schools prepare curricular plans, and aquaint schools with FA's basic guidelines. The Bolivian government pays teacher and principal salaries, while the community bears the remaining costs. This gives the Bolivian government some control over personnel decisions, but it respects *FYA*'s autonomy in most other areas.

FYA participants are identified through a self-targeting mechanism requiring parents to apply if they want to enroll their children in the program. As a result of this personal choice, affluent households choose to enroll their children the more prestigious schools.

Hogares de Bienestar. Colombia's early childhood development program, *Hogares de Bienestar Infantil*, provides access to pre-primary education for young, disadvantaged children. *Hogares* consists of two components, a supplemental feeding program and a day care program. Volunteer mothers organize the program, which places groups of fifteen children in a neighborhood home. For its part, the Institute for Family Welfare [ICBF], a government agency, trains the volunteers, pays them nominal stipends, and even helps them procure home improvement loans. The ICBF also supplies all necessary food and nutritional material. This program makes use of a self-targeting mechanism because more affluent households will generally elect not to have their children participate in this program due to the perceived higher quality of other pre-primary institutions. It also utilizes the geographic targeting mechanism as it targets specific neighborhoods.

Demand-Side Intervention: Geographic Targeting

Bolsa Escola / Familia. Brazil's *Bolsa Escola* [subsequently renamed *Bolsa Familia*] is an example of a demand-side intervention using a geographic targeting mechanism. The most important part of this program is a scholarship to needy children aged seven to fourteen with the aim to increase attendance and reduce dropouts by offsetting the opportunity cost of attending school. The scholarships are redeemable at public primary schools withn the Federal District of Brazil [Brasilia]. Payment is conditional upon the child attending at least 90 percent of all school days.

Bolsa Escola makes primary use of individual assessments to identify the participants, with municipal government officials responsible for producing the lists of elegible recipients. To qualify for the program, the per capita income of the child's family must not exceed half the minimum wage. If any adult family members are unemployed, they must provide periodic verification that they are actively searching for a job by enrolling in the National Employment System.

Evaluation: Gove (2005) and Schwartzman (2005) have evaluated Bolsa Escola and found the impact on attendance to be small and the impact on student learning to be non-existent.

Progresa / Oportunidades. Like *Bolsa Escola*, Mexico's *Progresa* [subsequently renamed *Oportunidades*] is a demand-side approach to the problem of access. *Progresa* provides educational grants for children under the age of eighteen and between the third year of primary and the third year of secondary school. The value of the scholarship is between 5 and 9 percent of the annual income of a family living in extreme poverty—roughly 15 percent of the average potential income for children—but is slightly higher for girls over the age of twelve because of their higher dropout rates. Stipends are generally larger for secondary school students, who must typically pay for their own textbooks.

Programa de Asignacion Familiar (PRAF). Honduras's *PRAF* combines supply and demand side interventions and uses a geographic targeting mechanism. Its main objective is to promote the accumulation of human capital among the poor, by stimulating school attendance and improving health conditions.

On the demand-side, *PRAF* operates as traditional conditional cash transfer program. It consists of two basic components: a scholarship to children in the first four years of primary school, up to age 12, and an additional grant to families with children under the age of five or pregnant women that comply with health control requirements.
On the supply-side *PRAF* addresses quality issues by providing cash transfers to the school's teacher and parents association. This enables the educational community to identify which needs are more salient for their school and creates so degree of budget autonomy to finance the solutions to those identified problems.

PRAF was first launched in 1990, as a temporary program intended to alleviate the burden of the macroeconomic adjustment in poor families. However, in 1998, a second phase was approved in order to increase the accumulation of human capital among the poor. A year later, a targeting procedure was developed, and as a result 50, of the 70 municipalities classified as eligible, were randomly chosen to enter the program.

Demand-Side Intervention: Group Targeting.

Eduque a la Nina. Guatemala's *Eduque a la Nina* program is designed to address the low school attendance of primary-age girls aged seven to fourteen in rural Guatemala. It is funded by several donor organizations—USAID being the most prominent—though it receives a small contribution from the Ministry of Education. These funds are coordinated by Fundazucar, a local NGO that supports community development, housing, and education projects generally within the sugar plantation areas along the southern coast. In the case of Eduque, however, Fundazucar works with twelve rural communities in the country's highland region.

Fundazuar presides over *Eduque*'s four components. First, *Eduque* provides a monthly scholarship worth about $5, equivalent to about one-quarter of the monthly income for women with less than one year of schooling. Second, it organizes the parent committees whose job is to select recipients of the scholarship and monitor program activities. Third, *Eduque* provides community outreach workers to offer tutoring and support to scholarship recipients. Finally, the program distributes educational materials for students and teachers in Spanish and four Mayan languages. The materials are oriented to the educational needs of girls.

Eduque targets the participants based on gender. However, it implicitly utilizes the geographic and self-assessment targeting mechanisms as well. It targets those rural communities with the largest disparities in primary enrollment between boys and girls and it requires parent committees to conduct a socioeconomic survey of each candidate's parents before awarding the scholarship entirely on the basis of need.

Vouchers in Colombia. In response to severe overcrowding in public secondary schools and excess capacity in private schools, the Colombian government initiated a private school voucher program in 1991. This program makes use of a demand-side intervention and a group targeting mechanism to increase secondary school coverage by providing vouchers that cover the cost of private school tuition for children under sixteen in grades six through eleven. Its value is set according to the average tuition of lower- to middle-income level private schools in the country's three largest cities. Students who fail a grade lose their voucher immediately.

The program provides vouchers to all graduates of public primary schools who have been admitted to a participating private school and meet an income eligibility requirement. Students must demonstrate their status in the bottom third of the socioeconomic spectrum, typically through a utility bill which indicates the income stratum of the child's neighborhood. It should be pointed out that in accepting only public school graduates, the program benefits from a fairly strong self-targeting mechanism as well.

Evaluation: Angrist, et. al.(2002) found that controlling for all other variables, those students receiving vouchers and attending private schools were about 10 percentage points more likely to finish eight grade, were less likely to repeat grades, and scored about 0.2 standard deviations higher on achievement tests. The cost of the voucher was US$ 24 higher than the average unit cost in public schools.

STATISTICAL ANNEX.

TABLE A1: RATIO OF TEACHER SALARIES TO GDP PER CAPITA, 1999

Country	Primary School	Lower Secondary
Argentina	1.00	1.69
Brazil	1.48	2.36
Chile	1.39	1.39
Mexico	1.62	2.05
Paraguay	2.00	3.13
Peru	1.19	1.18
WEI Average	1.73	2.03
OECD Average	1.32	1.35

Source: OECD/UIS/WEI

Note: Calculated at 15 years of teaching experience.

TABLE A2: CHANGE IN SCHOOL AGE POPULATION AGE 5-14
[Base Year 2000 = 100]

Country	1998	2015
Argentina	98	106
Brazil	104	98
Chile	87	97
Mexico	98	97
Paraguay	78	122
Peru	95	100
Uruguay	99	102
WEI Average	93	100
OECD Average	105	85

Source: OECD/UIS/WEI

TABLE A3: PUBLIC AND PRIVATE EDUCATION FINANCE AS PERCENT OF GDP

Country	Public	Private	Total
Argentina	3.5	1.2	4.7
Brazil	4.4		
Chile	3.5	3.3	6.8
Mexico	5.6	1.2	6.8
Paraguay	4.3	1.6	5.9
Peru	2.9	0.9	3.8
Uruguay	2.3		
WEI Average	4.0	1.6	5.6
OECD Average	5.2	0.7	5.9
Korea	4.6	2.9	7.5
Malaysia	7.4	na	

Source: OECD/UIS/WEI

TABLE A4: TOTAL EXPENDITURE FROM PUBLIC AND PRIVATE SOURCES BY LEVEL OF EDUCATION, AS PERCENT OF GDP

Country	Pre-Primary	Primary & Lower Sec.	Upper Secondary	Tertiary	Total
Argentina	0.4	2.6	0.8	1.0	4.7
Brazil*	0.3	2.5	0.7	0.8	4.4
Chile	0.5	2.8	1.4	2.2	6.8
Mexico	0.8	3.5	0.9	1.3	6.8
Paraguay	0.4	3.2	0.9	1.4	5.9
Peru	0.3	2.4	Na	0.9	3.8
Uruguay*	0.3	1.3	0.3	0.6	2.4
WEI Average	0.2	2.4	1.3	1.1	4.9
OECD Average	0.5	2.5	1.4	1.4	5.9
Korea	0.2	3.0	1.4	2.6	7.5
Malaysia*	0.1	2.3	2.7	2.2	7.4

* Public expenditure only.
Source: OECD/UIS/WEI

TABLE A5 : ANNUAL EXPENDITURE PER PUPIL IN US DOLLARS (PPP), 2003-2004

Country	Pre-Primary	Primary	Secondary	Tertiary	Total
Argentina	1616	1324	1636	2896	1625
Brazil*	926	870	1121	10054	1242
Chile	2470	2139	2225	7011	2876
Mexico	2069	1656	1918	5774	2095
Paraguay	749	672	843	2678	904
Peru	427	454	639	1368	584
Uruguay*	924	735	670	2351	865
WEI Average	707	1066	1183	4225	1496
OECD Average	4508	5450	6962	11254	6827
Korea	2628	4098	6410	7089	5733
Malaysia*	439	1830	2920	10792	3031

* Public expenditure only.
Source: OECD/UIS/WEI

TABLE A6: ANNUAL EXPENDITURE PER PUPIL RELATIVE TO GDP PER CAPITA, 2003-2004

Country	Pre-Primary	Primary	Secondary	Tertiary	Total
Argentina	13	11	14	26	15
Brazil	12	11	14	127	16
Chile	21	18	19	60	25
Mexico	22	17	20	60	22
Paraguay	16	15	18	58	20
Peru	8	8	11	24	10
WEI Average	9	13	16	58	18
OECD Average	18	20	26	43	26
Korea	14	21	33	37	30
Malaysia*	5	19	31	113	32

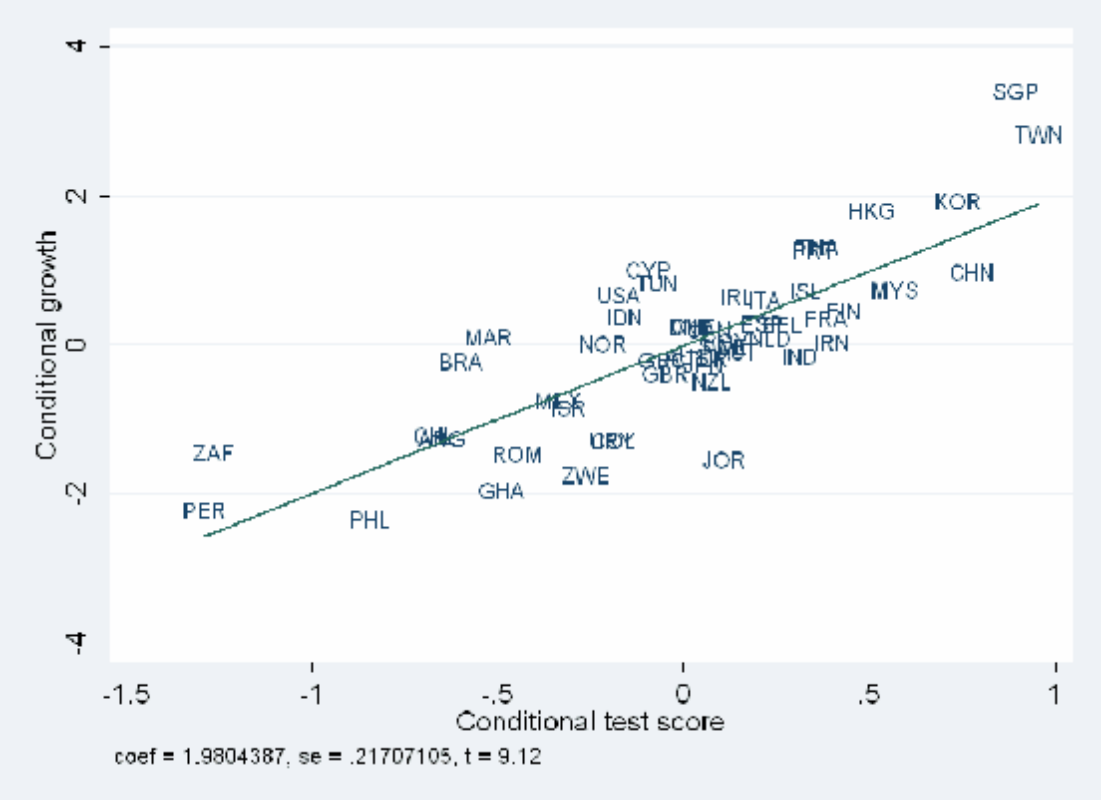
* Public expenditure only.
Source: OECD/UIS/WEI

TABLE A7: GROSS SECONDARY PARTICIPATION RATE BY HOUSEHOLD WEALTH QUINTILE

Country	1st	2nd	3rd	4th	5th
Bolivia (2003)	14.2	27.2	42.0	57.1	65.6
Colombia (2005)	52.7	78.1	91.8	101.2	103.8
Dom. Rep. (2002)	18.9	34.4	43.3	55.0	67.6
Guatemala (1998)	2.5	8.6	23.7	50.5	101.9
Nicaragua (2001)	8.2	28.8	62.9	87.9	109.7
Paraguay (1990)	6.4	11.7	31.0	52.8	79.5
Peru (2000)	27.1	60.7	84.6	98.7	111.0

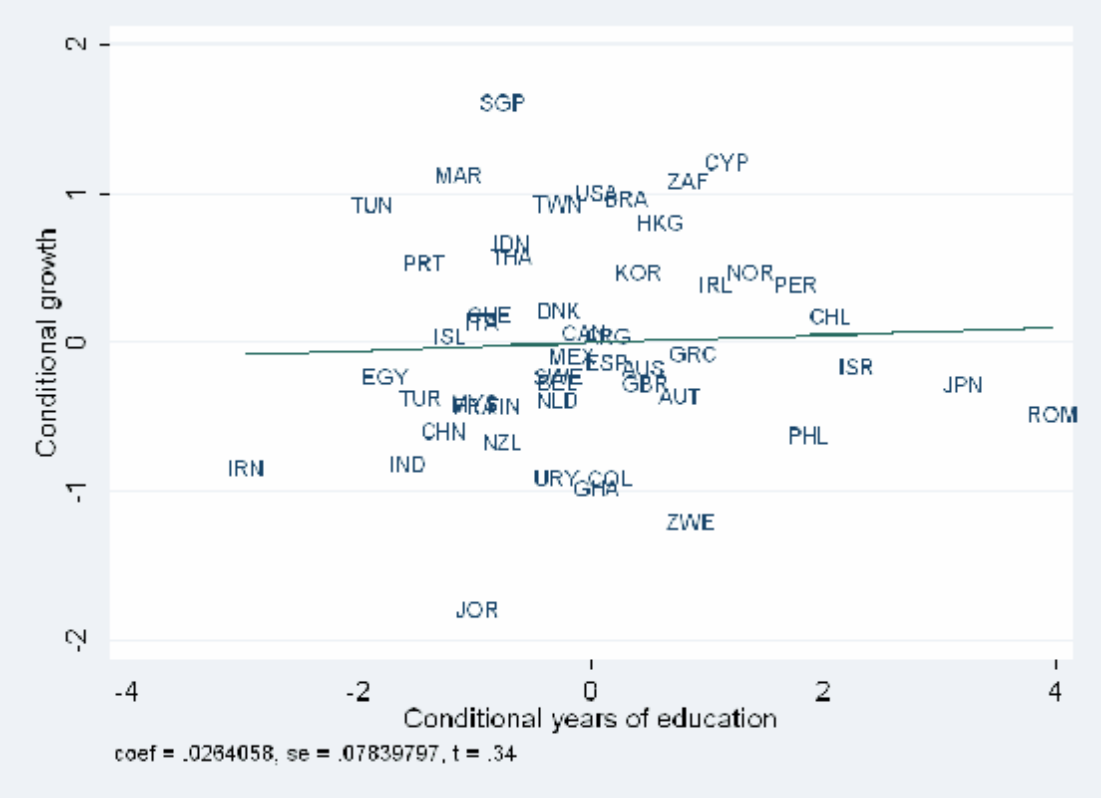
Source: World Bank EdStats

FIGURE A1: ECONOMIC GROWTH AND EDUCATION QUALITY.



Source: Hanushek (2007)

FIGURE A2: ECONOMIC GROWTH AND YEARS OF EDUCATION



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