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ABSTRACT

Much of the recent discussion on basic education finance in Latin America points to a decline in education funding and to problems in the political economy of the education sector. This paper presents findings of a study that reviewed the existing framework for education finance and proposed a more organic linkage between education finance and education reform. The paper suggests that increased funding for basic education will result in better and more equitable education only if the system deals first with the issue of accountability. Following the introduction, section 2 reviews the historical evidence leading to the current trends on education finance in Latin America. The section asks if the current crisis in education finance is relegated only to public finance, suggesting that the private cost of public education may be picking up the difference. Section 3 reviews the main prescriptions given by analysts and governments concerning the uses for increased education funding, and discusses the myths surrounding some of those prescriptions, as well as the links between the sustainability of each prescription within a context of accountability. The fourth section analyzes the overall links between accountability and finance, and suggests a sequence for policy reform leading to increase public spending, leading in turn to increased efficiency in resource use, increased quality, and equity. Six tables and one figure are included. Six tables and one figure are included. (Contains 53 references.) (LMI)

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A Framework for Sustainability

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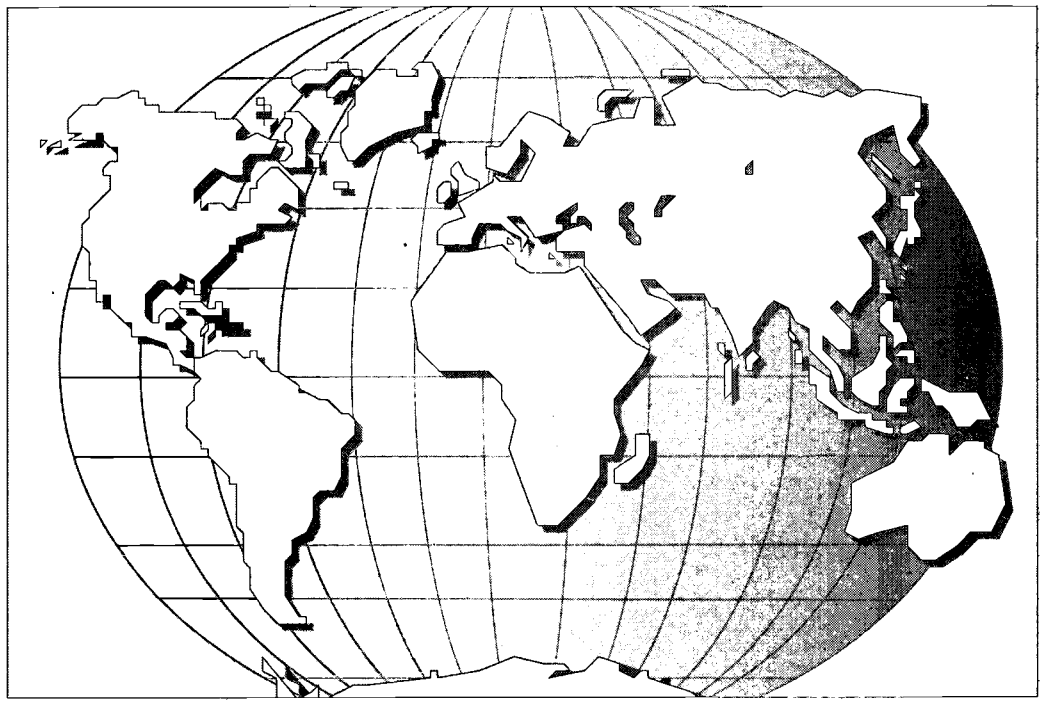
May 1997



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Education Finance and Education Reform: A Framework for Sustainability

Gustavo Arcia, Carola Alvarez and Tanya Scobie[1]

1. Introduction

Most of the recent discussion on basic education finance in Latin America points to a decline in education funding[2] and to problems in the political economy of the education sector[3]. At the same time, there is an increasing concern for accelerating education reform, particularly in the areas of education quality and equity. Given access to basic education—especially in the first 4 grades—has been substantially improved, the remaining task for improving human capital formation is how to achieve a better quality of education while making sure that it reaches the poorer segments of society. The objective of this study is to review the existing framework for education finance and to propose a more organic linkage between education finance and education reform. In particular, the argument is made that increased funding for basic education will result in better and more equitable education only if the system deals first with the issue of *accountability*. Lack of accountability seems often to be one of the main barriers to sustainable reform efforts. The main argument proposed in this study is that as long as accountability in public education is treated euphemistically, or ignored completely, the current distortions in the use of education funds will continue, and education quality will remain elusive.

Conditioning education finance to the creation of a system of accountability is important for the sustainability of education reform. Although most of the studies in education finance are correct in delineating areas of assistance, few if any assign priorities, nor do they suggest a sequence of interventions. As will be discussed here, placing accountability as a condition for the sustainability of reform clearly indicates that the sequence of intervention does count. Therefore, the purpose of this study is to generate interest in the sequence of reforms and policies, thus giving a more appropriate context to the increased financing of basic education.

The study is organized as follows: Section 2 reviews the historical evidence leading to the current trends in education finance in Latin America. This section asks if the current crisis in education finance is only relegated to public finance, suggesting that the private cost of public education may be picking up the difference. Section 3 reviews the main prescriptions given by analysts and governments concerning the uses for increased education funding, and discusses the myths surrounding some of those prescriptions, as well as the links between the sustainability of each prescription within a context of accountability. Section 4 analyzes the overall links between accountability and finance, and suggests a sequence for policy reform leading to increased public spending, leading in turn to increased efficiency in resource use, increased quality and equity.

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[2] This argument can be traced to the fiscal problems faced by governments during the last 15 years [IDB, 1996; Crouch, 1995].

[3] Most Latin American countries have funding earmarks for tertiary education—formal or informal—which are considered fixed, while primary and secondary school funding are considered flexible. This is due to the political volatility of university students, and the lack of voice among parents of primary and secondary school students.

2. The Financing of Basic Education in Latin America: A Review of the Issues

There is no doubt that, since the 1980s, public funding of basic education in Latin America suffered a steady reduction, both in terms of its importance within the government budget, as well as in terms of its magnitude as a proportion of GDP. During the fiscal crisis of this decade, where debt service became a prominent component of the government budget, the social sector, and basic education in particular, suffered a significant decline in public funding. However, the reduction in public funding per pupil in basic education observed between 1980 and 1989 (Table 1) is no longer widespread, since by 1993 many countries have begun to increase per pupil funding.

Table 1: Primary Unit Cost for Public Funding of Basic Education (constant US$ 1990)

Country	1980	1989	1993
Bolivia	136	73	79
Brasil	214	200	279
Colombia	76	62	259
Ecuador	173	97	72
Mexico	221	114	432
Venezuela	277	213	141

Source: Crouch, 1995. P. 26, (*) 1990 US$ millions, author's calculation for 1993 (see Appendix)

Decreases in public funding to education were not divided equally amongst educational sectors. As a rule, the net reduction in the education budget has to be decomposed into the budget allocations for tertiary education and then compared with the allocations for the primary and secondary sectors. Because many countries have constitutionally mandated earmarks for tertiary education—on grounds of insuring University autonomy—the fiscal pressures of the eighties were felt mostly on basic education [Arnove, 1996; Arcia, Quispe, and Gargiulo, 1994; Wolf, Schiefelbein, and Valenzuela, 1995].

Still, there is a generalized view that the inadequacy of basic education finance in Latin America derives from the recognition that future growth and development in the region is closely tied to a more productive labor force, which in turn depends on a better quality of basic education. Central to this view is the conviction that in order to increase the quality of the labor force there is a need to fill the gap between current and required per capita expenditures in education to satisfy the increased demand implicit in the increased primary enrollment in the poorer countries, increased secondary enrollment in all the countries in the region, plus the cost of attaining a better quality of education [Londoño, 1995; Crouch, 1995; Wolf, Schiefelbein and Valenzuela, 1995].

According to the IDB [1996, pp. 242-243] the current gap in basic education for the region is now at 1.8 grades per active member of the labor force. Currently, the average educational attainment is 5.2 grades, while it would be desirable to have 7 grades in order to match the values that would be expected for countries with similar levels of income. Such a gap would cost at least an additional

15% over current expenditures in order to cover the costs of books and other educational materials, which have proven to the most productive inputs in the current production function for primary education [Wolf, Schiefelbein, and Valenzuela, 1995], even after accounting for the gains in efficiency.

In the case of secondary education, the cost of improving access, plus the costs of improved quality, indicate that public secondary school systems in Latin America would have to spend an additional $10 billion a year by the year 2,000, and $12.7 billion a year by the year 2010 in order to catch up to the levels of secondary enrollment in the high-performing East Asian economies [Crouch, 1995]. Some selected countries will have to almost double their secondary education expenditures by the year 2010 in order to become competitive (Table 2).

Table 2: Results of Enrollment and Cost Projections for Selected Countries, 1990-2010

Country	GER 1990	GER Target 2010	Cost 1990*	Cost 2010*
Bolivia	34	50	15	34
Brasil	39	60	1194	2147
Colombia	55	80	458	779
Ecuador	56	75	76	130
Mexico	55	75	3815	5781
Venezuela	34	55	123	276

GER is the Gross Enrollment Ratio. Source: Crouch,1995. p.26, (*) 1990 US$ millions

At this macro level of abstraction, the basic argument is one of global competitiveness. This argument is exemplified by the success of East Asian countries, which relied heavily on the education of the labor force to improve their agricultural and industrial productivity [World Bank, 1995; IDB, 1996, p.243]. The current system in the region places a premium on ensuring initial access to primary school, while paying little attention to quality This inattention later results in a drastic reduction in the proportion of student who finish the primary level. As shown in the enrollment pyramids (Table 3), for every 10 children who begin primary school, on average only 4 continue to secondary school, which is well below the standards for countries in Asia with similar income levels. In the high-performing East Asian economies and the best educational performers in Latin America (for example, Chile and Costa Rica) the ratio is higher that 65%.

As a first step, studies examining the education gap, both at the macro level [IDB, 1996, p. 249; Wolf, Schiefelbein and Valenzuela, 1995] as well as at the country level [see Fierro-Renoy, 1996 and Londoño, 1993, for examples] make a plea for increased financing of education, while at the same time calling attention to the need for increased efficiency in the system. If education is underfunded, where does the additional money go? By looking first at the net savings that would result from higher student teacher ratios, and lower repetition rates, one can begin to differentiate the increased financing resulting from optimizing current resources [World Bank, 1995; Tsang, 1995], from the need for more funds resulting from a higher quality standard leading to *increased*

learning. Currently, they seem to be confounded, even though increased learning responds to teacher's and parent's structural incentives.

Table 3: A Comparison of Primary and Secondary Completion Rates: East Asia and Latin America (1990)

Country	Primary Completion Rate (%)*	Secondary Completion Rate (%)**
Bolivia	44	53
Brasil	20	4
Chile	77	53
Colombia	56	46
Costa Rica	79	39
Ecuador	63	77
Mexico	73	48
Nicaragua	41	39
Venezuela	48	2
Indonesia***	68	60
Malaysia	79	45
Singapore	94	100
Thailand	89	32

Source: (*) Latin American primary data from UNDP Human Development Report, 1994, (**) secondary data calculated using UNESCO (1995) data , (***) all East Asian data calculated using UNESCO data.

How much does public education cost? It depends on how one asks the question. Federal systems seem to have a hard time figuring out how much States and Municipal governments spend in education, and know little about the optimality of resource use. Certainly, the available evidence from Brasil [Birdsall and Sabott, 1996; Plank, 1996], Venezuela [Navarro, 1996] and Mexico [Gershberg, 1996] shows that figuring out the real *public* cost of education is very difficult. Moreover, there is little information about the *private* cost of public education, which also brings into question the efficacy of equity concerns within these systems. So far, the available evidence shows that the private cost of public education is substantial: 48% of total cost per pupil in Ecuador [Arcia and Saltos, 1995; Henschel and Lanjouw, 1996], with similar figures reported for Guyana [Tsang, 1996]. However, most education systems do not look at the *unit cost* (be it the cost per pupil, or the cost per school) as a financial or policy indicator, let alone the private component of the unit cost. Instead, system managers tend to develop funding formulas based on the supply-side of the education equation, without regard for the productivity of its inputs. Such supply-side

systems tend to produce funding formulas that lack transparency and produce perverse results (as in the case of Mexico) or that show very large operational inefficiencies (as in the case of Venezuela).

If increased efficiency in the education system will result in a net gain in public funding per pupil, one must begin to examine closely what is meant by "efficiency" and what policy sequence must be undertaken to achieve it. One key issue driving the concern for better defining efficiency is the fact that in most countries teacher's salaries account for almost 95% of recurrent costs in the system, leaving almost no room for materials and non-salary expenditures considered crucial for education quality. If—in addition—teacher's salaries are set by law and by collective agreements which extract from salaries any rules linking performance with salary levels, then the system is structurally set up to assign teacher's salaries any increase in public financing, since teachers—who are the ones who run the education system—would have absolutely no incentive to do otherwise as long as accountability can be avoided.

In addition to the problem of salaries as the dominant component of education budgets, there is an inherent conflict of interest between education ministries and educational efficiency, since any internal funds allocated to non-salary expenditures reduce the wage gains of ministry employees. This conflict of interest is reflected in the apparent inability of ministries to promote or achieve operational efficiency without external pressure. Unless donors and external agencies address the issue of efficiency, education ministries never will, maintaining instead that education is simply under-funded [Pfister, 1996; Arcia and Saltos, 1995; Arcia, Quispe, and Gargiulo, 1994; Navarro, 1996].

Within this framework, one has to ask if the current crisis in public funding is synonymous with a crisis in *total* funding of education, or is it simply an abdication of the government's responsibility for funding a quasi-public good—such as basic education—leaving parents to pick up the difference. As will be discussed later, this is an issue that has not been dealt with appropriately in the literature, but that is relevant for creating a sustainable financing formula.

Another question related to education finance is equity. Although there is widespread consensus that equity is another goal of public education funding, there has been little analysis of the implications of an adverse macroeconomic environment on education access. However, it is clear that during periods of hardship or high unemployment, poor children will drop out from school regardless of the level of public expenditures under the current system [Londoño, 1995]. For example, in Nicaragua, 60% of the children who drop out of school after the 4th grade do so for economic reasons [Gargiulo and Crouch, 1995].

Hence, on the face of it, the current policy prescription of increasing education funding under the caveat of increased efficiency, provides an important, albeit only partial, answer to human capital investment. However, such a call for increased funding may generate more education projects which may not be sustainable unless placed within a context of accountability, and within a policy sequence which first connects performance with individual incentives before addressing the issue of how to allocate increased funding.

3. Increasing Education Funding without Accountability : Five Unsustainable Prescriptions

The generalized recommendation of increasing resource efficiency before asking for increased funding is certainly a good starting point. Where to achieve efficiency is a different matter. In

general, the recommendations include: increasing the pupil/teacher ratio, reducing the administrative load in the system, increasing the intensity in the use of school buildings (e.g.: double shifting) and, above all, decreasing repetition rates, thereby substantially reducing the demand on education resources. These recommendations imply a sequence of events in which school management and planning has to improve first, before budgetary efficiency is attained, as well as a sequence of events in which education quality improves first, so that students do not repeat grades. The alternative scenario is a policy of automatic promotion, where no students are allowed to repeat—regardless of their level of learning—and no additional funding is provided for education, forcing the system to implement higher pupil/teacher ratios and a more intensive use of its facilities. Clearly, something is amiss in recommending efficiency as a *starting* point.

A look at the education finance folklore yields a set of prescriptions which follow a certain pattern: increase teacher salaries; increase pre-service and in-service teacher training; increase the budgetary allocation to books and school materials; reallocate funds from the tertiary to the primary level, and promote decentralization. The latter is couched in terms of an overall framework which encompasses accountability, increased contact with parents, and more community participation. In terms of education *finance*, however, decentralization implies the potential establishment of some sort of cost-recovery mechanisms, and therefore it is analyzed from that perspective. There are other recommendations, of course (establishment of information systems, investment in research and development, among others), but the ones described above are prescribed by most of the recent studies.

Table 4 below shows a sample of studies which deal with some or most aspects of education finance in Latin America, either at the country level, or as a general issue. In principle, reallocating budget resources from tertiary to primary education is recommended by all, but as Birdsall and James [1990] note, the political economy of this budgetary shift places a heavy burden on the management capacity of the sector, as discussed later in this section. Investment in books and teaching materials and teacher training programs are also highly recommended, especially since education production functions for the region show that these investment do result in substantial gains in learning. Teacher training is also recommended, especially since most analysts agree that teachers are ill equipped to go beyond rote learning methods, or beyond a passive approach to implementing what is already an inadequate curriculum. Still, as will be discussed later, the incentive structure for making teacher training work is a critical component of the sequence of policies during the reform process. Finally, decentralization is widely recommended, but within a framework which tends to confound financial with pedagogical issues. At the core of decentralization, however, is the issue of increased *private* financing of public education in decentralized systems [Bray, 1996; Lockheed and Zhao, 1992], which is sometimes discussed by external agencies in terms of cost recovery.

Table 4: Education Finance Reform Prescriptions: A Sample of the Literature					
n/a=not directly addressed	Proposed Prescription				
Author	Increase Teacher Salaries	Increase Investment in Non-Salary Items	Return Emphasis to Primary Education	Train Teachers	Decentralize
Ziderman &[4] Albrecht (1995)	✔ (p.160)	n/a	Reference (p.10)	n/a	✔ (p.4, 32, 157)
Lockheed &[5] Verspoor (1990)	✔ (p.102-10)	✔ (p.49, 53)	✔ (p.227)	✔ (p.95,99,225)	✔ (p.222)
Jimenez (1987)	n/a	✔ (p.90-91)	✔ (p.77[6], 84-5)	n/a	n/a
Jimenez, Lockheed & Paqueo[7] (1991)	n/a	Reference (p.214)	n/a	Reference (p.213)	Reference (p.216)
Psacharopolous (1986)	n/a	✔ (p.1,2, 12)	✔ (p.1,4, 7-10, 17[8]-21)	n/a	✔ (p.2,3, 33-4)
Tsang (1994)	✔ (p.36-37)	✔ (p.36-37)	✔ (p.36-37)	✔ (p.36-37)	n/a
Hecht, et.al. (1995)	n/a	✔ (p.12-13,28)	✔ (p.7)	✔ (p.28)	✔ (p.3-5, 16)
Birdsall & James (1990)	n/a	n/a	✔ (p.10, 32)	n/a	n/a
McMahon (1988)	n/a	n/a	✔ (p.135, 137)	n/a	n/a
Wolff, Schiefelbein & Valenzuela (1993)	✔ (p.72, 87[9]. 99, 100)	✔ (Chapter V, p.97, 99, 100)	✔ (Chapter VII)	✔ (p.85)	✔ (p.103)

[4] Speaks of need for greater accountability (to provider of funds) and the need for provision of incentives to increase efficiency (p.4, 32, 115 and others).

[5] Also addresses issues of poor information dissemination and establishment of strong testing, monitoring and evaluation systems to inform policy reform (chapter 9).

[6] With respect to the decreasing returns/positive externalities to further education; suggests that limited resources should first be allocated to primary, then secondary and so on. This is, monies should go to where their social benefit is the greatest.

[7] Authors speak of perceived and actual quality due to asymmetry of information between consumers and providers.

[8] As with many of these papers, the redistribution of expenditures in education away from higher toward primary and secondary is recommended to be achieved by encouraging private investment in higher education; thus freeing resources for primary and secondary.

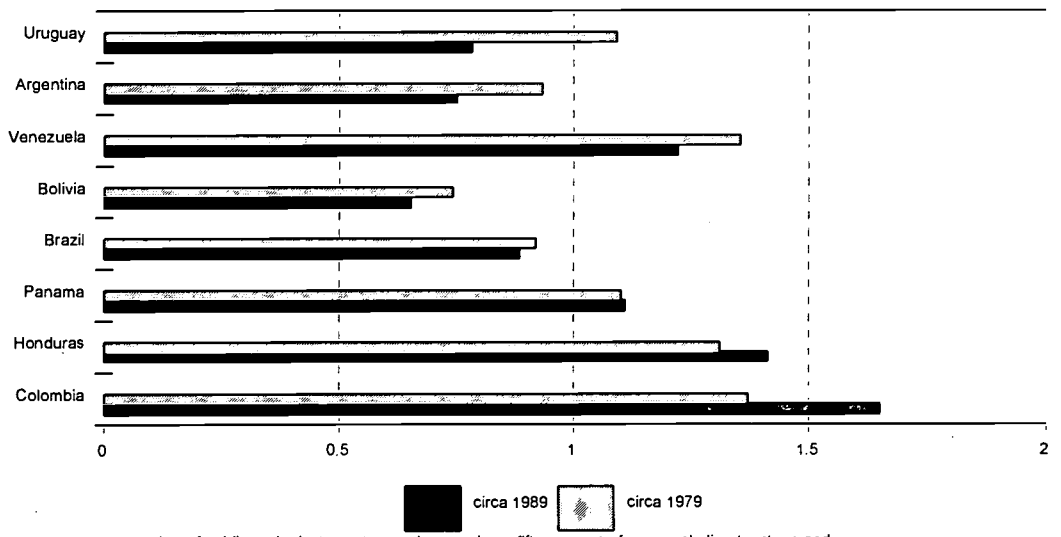
[9] Authors do not condone the outright increase in teacher salaries, but suggests the institution of performance based salary increases: the concept of merit pay.

A. Increasing Teacher Salaries

The prevailing notion on the use of additional education funding among some education ministries in Latin America is that new funding should go to improve teacher salaries [Arcia and Saltos, 1995; Mulcahy-Dunn and Arcia, 1996; Plank, Amaral, and Xavier, 1996; Navarro, 1996]. Such a notion also carries over to some of the conclusions posed by external agencies [Wolf, Schiefelbein, and Valenzuela, 1995]. The above evidence indicates that the internal position of many education ministries seems to be that teacher's salaries take priority over other education issues. The conflict of interest between the teacher's union –who represent the vast majority of ministry employees– and policy formulation at the ministry seems to have been ignored in the process of policy formation at the national level; witness the failure to assign any significant proportion of the national budget to anything other that teacher's salaries during the last 30 years. However, salaries must be examined in detail again, especially in relative terms. That is, the claim by teacher's unions that salaries are too low must be examined in the context of the rest of society by looking at the salaries of comparable groups. If other people in society with similar training and experience receive higher wages, then the issue is a valid one. Inversely, if it can be proven that salary parity is not a problem, then the issue must be passed over in favor of other expenditures. Figure 1 shows the ratio of teachers salaries to a comparator group and the changes over the decade of 1980s.

Figure 1: Mean Earning Ratio

Teachers and Comparator Group



The comparator group consists of public and private sector employees above fifteen years of age, excluding teachers and agricultural workers.

Source: Psacharopoulos, Valenzuela and Arends, 1993

Although teacher salaries are not within the purview of donors and lenders[10], countries do insist that teachers earn salaries that are too low, and that this is a problem that needs to be resolved in order to improve the quality of education. The usual argument for increasing teacher's salaries are

[10] Nonetheless, the Social Programs Division and staff of the Office of the Chief Economist at the Inter-American Development bank are currently conducting a quantitative analysis of teacher salaries in several countries.

to achieve parity with comparable groups and to attract and retain good teachers. However, before one begins to discuss teacher's salaries, each country in the region should determine how much teachers really earn.

The first dirty little secret in the salary discussion is that teacher's salaries and teacher's earnings are two different things. In Mexico, the take home pay of teachers is composed of 17 different items, of which only one is the salary proper [Barreneche, 1996]; in Ecuador, the take home pay is composed of 16 different items, the same as in Brasilia[11] and other States in Brasil. The basic teacher salary—before adding all the subsidies and supplements—represents about 30% of the total take home pay [Mulcahy-Dunn and Arcia, 1996].

The second dirty little secret is the classification of teachers within the pay scale. Most teachers in Ecuador and Brazil are classified at the higher end of the pay scale, thus distorting the debate on salaries, since the average salary is significantly lower than the median salary. However, the debate is concentrated on the average salary (the case of Brazil), or the basic initial salary (the case of Ecuador), which applies only to 10% of the teachers. Although there is no evidence yet from other countries, the anecdotal evidence from conversations with other researchers and people with experience in several countries in the region indicates that this pattern is repeated in many countries.

The third dirty little secret of teacher's salaries is the calculation of the wage rate based on substantially less than 40 hours per week. Approximately 20% of teachers in the Federal District in Brasil work only 20 hours a week, and the rest significantly less than 40 hours[12]. In Ecuador, a sample of 158 teachers found in the Living Standards Measurement Survey of 1994 reported 29 hours of work per week, versus 42 hours for members of the comparable group [Mulcahy-Dunn and Arcia, 1996]. In Mexico, a recent labor survey showed that primary education teachers work 30 hours per week [Piras, 1996].

The most glaring structural problem of teacher's salaries is the absence of a link between pay and performance. From the available evidence it can be discerned that almost none of the take home salary components relate to merit or performance. Clearly, such a salary system originates from the need to avoid extending the benefits received by teachers (as a result of strike negotiations) to all employees in the public sector, as well as to avoid income tax creep[13]. Therefore, the unions and the government devise ways in which—by delinking pay from the basic salary scale—take home pay can increase while minimizing the fiscal repercussions in other areas of the public sector. Clearly, *if pay and performance are delinked, the system becomes structurally unaccountable.*

[11] As described during interviews with members of the Council of Secretaries of Education for the Sates, and of the Education Foundation of the Federal District in Brasilia, 1996.

[12] Data from the Secretariat of Education, Brasilia.

[13] Ironically, such an approach is a quasi-conspiracy between public officials on both sides of the table. The fiscal side agrees to increases in the wage rate as long as each pay increase is called something but wages, to avoid having to increase the salaries of other public employees. Unions, on the other hand, also gain from this euphemism, since it maintains taxable wages at a low level.

The argument behind increasing teacher salaries is the potential gain in productivity/quality of education given that higher salaries would retain good teachers and would attract better talent to the teaching profession. However, this is not a sufficient condition for change in teacher quality. A higher salary under present conditions in which the teacher—as input in the production function—has a low productivity, only shifts the cost curve upwards. Given present levels of human capital stock, teacher salaries seem to be competitive, at least in urban areas in the countries analyzed so far. However, as stated earlier, since salaries represent between 90% and 95% of the education budget in most countries, they merit a harder look.

Whether or not salaries in the education sector are high or low relative to the stock of human capital, it is important to recognize the impact that the particular labor rules of the sector have on education financing. Microeconomic theory dictates that in the private sector, under competitive factor and product markets, salaries are equal to the value of the marginal product of labor. For this value to represent a social optimum, it should take into account not only the market value assigned to the product or service being offered but also the externalities associated with their production or consumption. None of these factors are present in the case of the public sector. The specific labor code for the education sector that guides teacher salaries and promotions in Latin America is usually based on years of service and dictate extreme job security. The fact that regular salary increases (not due to strike negotiations) are a function of seniority also delinks productivity from pay. At the same time, extreme job security does not allow systems the flexibility necessary to find the optimum input mix, specially in regard to teacher/student ratios.

In regard to extreme job security's perverse financial impacts, witness the case of Chile. The labor laws allow municipalities and subsidized private schools to hire additional teachers if enrollments increase but do not allow for a reduction of the number of teachers employed in the case of an enrollment decrease. Between 1990 and 1993, municipalities hired an additional 9,000 teachers even though enrollments dropped by 43,000 students. This entailed that 30% of the total increase of resources for the sector in that period went to hire additional teachers. At the same time teacher/student ratios dropped without a concomitant improvement in education quality.

Linking productivity to pay requires changing the existing salary laws for teachers[14]. The political economy of basic education indicates that union members—as potential losers under a system of enhanced accountability—have traditionally opposed changing the present system. In part they get away with their position because governments have not been able to co-opt teacher's unions. Generally, the union leadership knows more about their real financial situation than their opponents at the Ministry of Finance and the Minister of Education. The amount of misinformation about wages is augmented by the difficulty one generally finds in trying to figure out the true take home pay of teachers, underscoring the conflict of interest between ministry personnel and the issue of teacher salaries as one of the main policies in basic education.

In those cases where teacher salaries are indeed low, how can additional education funding be used to improve the link between better teaching and better pay? A two-pronged strategy can be explored: invest in teacher training for the current stock, and increase salaries to attract and retain better talent. The main problem behind this two-pronged strategy is the management of the period of transition in which the current labor agreement is exchanged for a new system.

If the above two-pronged strategy results in overall wage gains to everybody –to allow for a

[14] This is true not only of centralized systems but also of decentralized ones. Mexico decentralized schools to the state level but reconcentrated hiring and firing practices (Gershberg, 1996).

minimum of disturbance among the less able teachers– then the innovation reverts to the current system. The only way to begin is by changing the existing salary laws for employees in the public sector. However, such a change takes time and is fraught with acrimonious debates, unless some initial investment is made to come out with the true picture of the financial position of teachers relative to the rest of society. In other words, the law can be changed only if the administration knows more about teacher salaries than the union leadership. This is why salaries merit a more serious analysis in each and every country in the region. *Only if teacher's salaries are changed to a more conventional system, can one then begin to device pay-performance linkages.*

B. Investing in Teacher Training

The empirical evidence on the effectiveness of in-service teacher training seems to suggest that it has relatively little impact on learning [Harbison and Hanushek, 1992] while pre-service training has a good impact only when the training program is of good quality [Wolf, Schiefelbein and Valenzuela, 1995]. At the same time, two logical questions remain: if teachers are ill-equipped to teach, why is it that teacher training has little impact? and, if good teacher training is available within a system of incentives in which good and bad teachers are rewarded equally, how does one know if the problem is with the training, or with the lack of incentives to apply it in the classroom?

Both questions suggest the need for a system of evaluation which would determine the effectiveness of different classroom methods (to measure the between-treatment variation) and the effectiveness of teachers in applying the effective methods in the classroom (the within-treatment variation). The lack of an effective system of evaluation indicates that if teacher training shows no impact on learning, schools and parents will not know whether it is because of inadequate training or because of inadequate incentives. Obviously, some system of evaluation is in order. Almost inevitably, if the end result of training programs is reflected in better learning, then the evaluation should be made at the end point, that is, it should measure student learning. If, in addition, one needs to reward those teachers who apply the good methods in order to maintain a coherent system of incentives, then *one inevitably ends up linking student learning with teacher incentives.*

Under the current system of teacher training without an evaluation framework, teacher training may or may not work, and there is no way to know why. Some of the available evidence indicates that teacher training is used in place of time away from the classroom or a mini-vacation [Arcia, Quispe, and Gargiulo, 1994] or it is not monitored sufficiently to know its effectiveness [Hanushek, Gomes-Neto, and Harbison, 1996]. However, there is great need for teacher training but there exist few well detailed mechanisms for linking training with training needs (for determining what works in terms of student learning and achievement) and effective training with teacher incentives. Creating these mechanisms is not a simple task, considering the temptation (as exemplified by existing mechanisms in many countries) of linking the completion of training modules with the salary scale. This simplistic mechanism of linking pay to the quantity of training received results in a paper chase and a waste of money, since it creates a net incentive for teachers to enroll in teacher training modules without the obligation to implement them in the future. Another perverse approach is to use political pressure within the ministry to induce teachers to attend training courses while failing to measure the impact of training on student performance. This approach has been documented in countries with high unemployment, in which attendance to training courses has been seen as a necessary rite of passage in order to keep the teaching job [Arcia, Quispe, and Gargiulo, 1994]. This approach generates a morale problem due to the disconnection between training and learning, and between learning and teacher incentives.

The bottom line of the above arguments is that teacher training must be undertaken within a framework of evaluation of its cost-effectiveness, its impact on learning, and within a framework of incentives linking student learning to teacher's monetary and non-monetary incentives. That is, *teacher training must be accountable.*

How much should be spent on teacher training? This question is similar to asking: "how long should legs be?", to which the response is; "long enough to reach the ground". Teacher training expenditures should correspond to teacher training needs. If 50% of 4th grade teachers cannot pass the 4th grade achievement test, as reported for some rural areas in Northeast Brazil [Harbison and Hanushek, 1992], then it is obvious that teacher training requires substantial funding. In other countries with lower urban-rural disparities, or better pre-service training, the requirements should be lower. In Nicaragua, where teacher training is considered priority, the in-service teacher training budget represents 2.8% of the education budget. However, since teacher training in Nicaragua does not yet have a system for monitoring and evaluation, such a percentage may be adequate for the moment.

C. Investing in Textbooks and Teaching Materials

Textbooks and teaching materials are perhaps the most productive input in the education production functions for the region. From production function studies [Harbison and Hanushek, 1992] and from reported professional experience [Sanguinetty, 1992; Wolf, Schiefelbein, Valenzuela, 1995], investing in textbooks and teaching materials has a high pay off in terms of learning. During the decade of the eighties, when fiscal pressures resulted in a reduction in real education expenditures, the political realities indicated that expenditures in school inputs would be reduced first, and personnel costs would be reduced last, and that was exactly what happened [Sanguinetty, 1992, p.34]. As a net result of this budgetary contraction, which has barely begun to reverse direction in the last three years, many governments began to use external funds to pay for school inputs, but on a lower scale than before, leaving much of the expenditures to parents and other private sources. In other countries it is now understood that parents will pay for most of the school inputs.

Paying school inputs with external loans is akin to financing recurrent costs, and therefore is not sustainable. Abdicating the responsibility for financing public goods by letting parents pick up the tab for a high proportion of school inputs is akin to implementing a model of regressive taxation, since poor families are the overwhelming users of public education in the region. Either way, the current policy towards the financing and provision of school inputs is unsustainable.

The provision (or lack thereof) of school inputs has always been within the control of the Ministry of Education. The fact that ministries tend to hire teachers at a higher rate than the growth in enrollment [Crouch, 1995; Wolf, Schiefelbein, and Valenzuela, 1995; IDB, 1996] creates the perfect conditions for underinvesting in school inputs. This is a clear case where a teacher's union is able to collect rents from the State by taking advantage of a climate of imperfect information regarding teacher salaries, as well as the lack of voice among parents and students.

So far, the response to this asymmetry in budget allocation between teachers and school inputs has been dealt with by governments and families through decentralization schemes (such as the school autonomy experiment in Nicaragua [King *et al*, 1996]), and through the establishment and expansion of quasi-public institutions (such as the *Fe y Alegría* schools [Navarro *et al*, 1993; Monge, Harold, and Arcia, 1996]. These schemes formalize the increased financing of school inputs from private sources, giving in exchange a substantial increase in voice to parents and

students. The available evidence from Nicaragua, Venezuela, and Ecuador indicates that parents are willing to accept this trade off in view of the perceived improvements in school performance. However, what the above schemes do not take into account is the net loss in school access which results from the increase in the private cost of public education. In the case of poor countries, the negative impact on school enrollment of an increase in private financing can be significant [Arcia, Quispe, and Gargiulo, 1994]. However, no information is available which estimates the price elasticity of demand for primary education among low income families.

The main lesson from the success of the autonomy experiment and the co-payment of school inputs by parents in the *Fe y Alegría* schools is that *investment in textbooks and school materials increases organically and sustainably only within a framework of increased accountability.* If left to its own devices, the political economy of education ministries—which is strongly affected by the conflict of interest between ministry employees and the union—suggests that a sustained allocation to school inputs will not happen unless parents have more voice in the composition of the budget at the school level; that is, unless some sort of mechanism for accountability is established.

Another lesson from these schemes is that donors and lenders must look critically at the financing of recurrent costs. In that regard, planning sectoral loans, which includes the financing of school inputs without developing a clear strategy for the future, only creates a climate in which there is a quasi-conspiracy between the bureaucrats at the lending agency and the bureaucrats at the ministry of education; both respond well in accord to their respective bureaucratic incentives, but together do not generate a sustainable policy. Unless lenders bring up the issue of a strategy for increasing the share assigned to inputs in the education budget, ministry officials will always be happy to finance them with external funds, while maintaining the salary share at a high level.

D. Transferring Funds from Tertiary to Primary Education

Throughout the entire region universities seem to absorb a disproportionate share of the of the education budget. The amount spent per university student can be up to up to 14 times the amount spent per primary student (see Table 5) [Hecht, 1996; Lockheed and Verspoor, 1991; Jimenez, 1987; McMahon, 1988]. In comparison, in the United States the ratio is 3 to 1. Many countries have earmarked between 5% and 7% of the national budget to university education by means of constitutional amendments, which tend to make the internal reallocation of the budget extremely difficult from a bureaucratic perspective. From a political perspective the difficulty of reallocating the university budget back to primary schools is even worse, since university students—many times in collusion with the faculty—are notorious for creating civil disturbances which have a strong impact on the negotiating stance of the government, leading to a continuation of the university's disproportionate share of finances.

Donors and lenders keep recommending the transfer of resources from tertiary to primary levels; some even declare that it is a difficult task, but there is not yet a consensus in how to do it. Birdsall and James [1990] outline some key elements of a strategy by indicating that the dispersion among potential winners of the transfer of resources, namely primary school students and their families, would receive very small private gains because of the high public good content of basic education. In contrast to primary education, university education has a high private good content, which suggests that a small number of potential losers, namely university students, would face large per capita losses from the transfer of resources.

Clearly, in order to make the transfer successful one has to deal with this political economy as one deals with well entrenched rent-seeking groups: using "market" information and social marketing, to spread information about the winners and losers (both in terms of private and social gains) to generate enough political support among all stakeholders to allow the transfer of funds from tertiary to primary levels at a low political cost.

Table 5: Ratio of Education Expenditures per Student for Selected Countries (1990)			
Country	Secondary to Primary	Tertiary to Primary	Tertiary to Secondary
Argentina	1.3:1	1.9:1	1.4:1
Bolivia	1.1:1	3.9:1	3.5:1
Brasil	1.2:1	10:1	8.5:1
Chile	0.9:1	2.9:1	3.2:1
Colombia	1.6:1	6:1	3.6:1
Ecuador	1.8:1	3.2:1	1.7:1
Honduras	1.8:1	7.9:1	4.5:1
Nicaragua *	1.1:1	14:1	15:1
Source: IDB Economic and Social Progress in Latin America, 1996 (p.332). (*) Arcia, 1997.			

Such an approach takes several years to take effect, but it is routinely done in mature democracies—witness the issue of privatization of state-owned enterprises in Latin America, where it has taken the public about 10 years to get used to the idea. The main problem here is the low managerial capacity of education ministries to undertake these campaigns. This handicap suggest that this type of campaign must be undertaken by interested stakeholders outside of government, or by institutions perceived to work in the public interest and with a high power of convocation [Vegas, 1993].

Some of the informational failures which sustain the current imbalance are: (i) a large government failure in the provision and dispersion of basic information on the public and private costs of a university education in relation to the economic and social returns. In some cases, the credentialism sought by teacher's unions often leads to the creation and maintenance of university departments that are nothing more than "diploma mills". In other cases the lack of cost/benefit information generates an oversupply of certain careers, at a very high social cost; and the scarcity of high-paying skills with a low training cost; (ii) lack of information about the inequities in the capture of the university subsidies. In Nicaragua, 40% of the university subsidy is captured by students in the highest 30th percentile of the income distribution, while only 10% of the university subsidy is captured by the students from the lowest 30th percentile of the income distribution[15]. In Ecuador, 46% of the subsidy goes to students in the top 6% of the income distribution, while 10% of the subsidy goes to students below the 57% percentile in the income distribution [Arcia *et al*, 1995].

Table 6 illustrates the budgetary inequities, by comparing the percentage of the education budget allocated to each level by the percentage of all students currently in that level. Argentina and Venezuela allocate more than 40% of the budget to a tertiary student body, only comprising around 12 percent of all students in the education system. Bolivia and to some extent Chile tend to be allocating monies according to the size of the student body in each level.

[15] This calculation was made using the 1993 Living Standards Measurement Survey for Nicaragua.

From the above points one could argue that part of the problem governments face in trying to get the transfer of resources from universities to primary schools, is that governments have been neglectful in generating and disseminating the type of information necessary to allow education stakeholders to ask the university sector for accounts.

Table 6: Budgetary Equity for Education in Selected Countries

Country	% Students in Primary	% Education Budget to Primary	% Students in Secondary	% Education Budget to Secondary	% Students in All Tertiary	% Education Budget to Tertiary
Argentina,1991	59.9	3.4*	37.2	44.9*	12.9	46.7 *
Bolivia,1989	78.5	73.7	13.3	13.5	8.2	2.9
Brasil, 1992	89.3	48.8**	11.4	6.9**	4.3	25.6**
Chile, 1993	67.9	48.6	21.4	13.4	10.8	21.0
Colombia, 1992	58.6	43.6	34.8	37.3	6.6	19.1
Ecuador, 1992	66.1	32.1	27.1	33.7	6.9	22.7
Mexico, 1993	63.5	30.8	30.6	25.9	6.0	13.7
Venezuela, 1990	83.0	20.2	5.8	4.5	11.3	40.7

Source: UNESCO, 1995; (*) 1990 data Argentina, (**) 1989 data Brasil.
Note: percentages of budget expenditures will not add to 100 due to unallocated funds.

These net imbalances could be reversed today, but without a correction in the failure in the role of government is corrected they are likely to recur in the near future. This discussion suggests that a share of an increased investment in basic education should go to the development and implementation of an information strategy, which would correct the market and policy failures which give structural support to the current budgetary misallocations.

E. Decentralization with Cost Recovery: Regressive Taxation by any Other Name

The last commonly recommended prescription for improving the finances of basic education is decentralization. Within decentralization, the argument for cost recovery is based on two premises: one, that there is no money, and therefore parents have to contribute more, and two, that private funding in decentralized systems allows for more ownership, and therefore for a more propitious climate for accountability [Bray, 1996]. These arguments are valid as long as the absolute amounts involved do not become a burden on poor families. However, the empirical evidence indicates that the differences in private expenditures between poor and non-poor families may show some regressive trends[16]. Henschel and Lanjouw [1996] show that poorer families in Ecuador with children in public schools assign between 4% and 5 % of their total expenditures to education, mostly to pay for transportation, uniforms, books, and ad-hoc requests from school. Non-poor families with children in public schools assign about 1.5% of their total expenditures for the same items.

[16] Two well documented exceptions are Colombia [Molina, Alviar, y Polanía,1993; Chiappe, 1996] and Guyana [Tsang, 1996], where the system is slightly progressive in terms of household contributions and geographical targeting.

Although it is accepted that some private co-payment is required, the closer the school system gets to parents, the more expensive it gets, as exemplified by the ongoing school autonomy experiment in Nicaragua [King *et al*, 1996]. Once a threshold is crossed, enrollment falls. In Nicaragua, for example, this threshold appears to be in the fifth grade, when the cost of textbooks and materials double and children are old enough to leave school to work [Gargiulo and Crouch, 1995].

One key difference in the approach to this threshold is the subtle distinction that must be made between cost sharing and cost recovery. Cost sharing is the result of a net reduction in public allocation, while cost recovery is a variant of user fees. User fees can be targeted, scaled and regulated to capture different abilities to pay. On the other hand, cost sharing, pure and simple, is inherently regressive because it is more of an abdication of the financial responsibility of the State. Parents are left to pick up the tab, without much pretense at targeting according to ability to pay. Although such a distinction is crucial to insure ownership and empowerment by parents in decentralized systems, there is not much evidence of this type of distinction being made by borrowers or lenders.

An additional confusion exists between cost recovery as policy and the moral issues of ownership. If primary school parents are less vocal than university students, and donors and lenders recommend both a transfer of funds from tertiary to primary education, as well as cost recovery, then governments will be more likely to use the moral issue of ownership and install cost *sharing* policies, than to face the wrath of university students. The policy of cost recovery, then becomes a convenient mechanism for justifying the continuation of current structural inequities. What this means in terms of education finance is that, in the sequence of policies aimed at increasing the financial resources in basic education, cost recovery should be implemented later than the transfer of funds from tertiary top primary education on grounds of equity.

4. Linking Accountability and Finance

At the risk of overreacting, one can state that few education ministries know the extent of their public finance needs because they are bound from above by their emphasis on teacher salaries (and not on the student population, nor the unit cost per school), their lack of an evaluation system for inputs (such as teacher training modules or different teaching methods), and the lack of student performance measurement. Moreover, if most ministries rely on the inertia inherent in the traditional public budgeting procedures imposed by finance ministries, then finance needs are equal to the sum of the yearly increase (decrease) in the education budget, plus the amounts identified by externally funded projects.

Therefore, any increase in education funding is bound to be misallocated. In order to begin to remedy this situation external financing and lender and donor assistance should emphasize the establishment of systems of accountability based on multiple factors, some of which can act simultaneously or in sequence depending on the country. Among some of the most important ones are:

A system for measuring and reporting student performance in achievement tests. Achievements tests tend to provoke adverse reactions because they elicit the feeling of misguided accountability, and the sense that their results will only be used punitively, or that their results will be misinterpreted to the detriment of poorer or disadvantaged populations. In addition, there are concerns that teachers will be prone to teach for the test, or allow for testing irregularities in order to show a good student performance [Wolf, Schiefelbein, and Valenzuela, 1995]. First of all, a well designed test should test what the teacher is supposed to teach. Hence, if teachers teach the skill to be tested in the test, so much the better. Second, achievement tests can be used to establish benchmarks at the school level in which what matters is progress on test scores over the years, as if the school were engage in a race against itself. The concerns teachers may have about being treated unfairly because of low test results, dissipate if what counts is progress, instead of absolute rankings.

In North Carolina, the system in place in some counties report the test results, and the expected scores given the socioeconomic context of the class [Sanford, 1995]. As a consequence, parents and teachers can track progress in learning irrespective of the absolute values of test scores. Thus, a school with a good budget and a student body composed of kids from very favorable socioeconomic conditions could perfectly well show a math test score of 75, and a expected test score of 80, while a poor school with disadvantaged children could show a math test score of 45 with a expected score of 42. In the first case, the wealthy school would have to explain the net loss, while the poor school would be rewarded for the gain. Needless to say, the following year the expected scores would change given the results in the prior year.

As in the case of many evaluation tools, standardized tests and test scores can be abused. However, the potential distortions from abuse pale in comparison with the distortions brought in by the lack of accountability, since test abuse is likely to be sporadic, while the negative effects of an unaccountable system are felt system-wide.

Establishment of a parent information policy. Public school systems in Latin America have been very skillful at keeping parents at arms length. Parent participation in centralized systems is usually relegated to ceremonial functions, minor fundraising, or for dealing with non-pedagogical issues. As a consequence, over the years parents seem to have developed a set of expectations

which includes that schools must play a comprehensive role in their children's education, which means that school are completely in charge of the child's learning. Not surprisingly, parents of children in the public system seem to have no idea about the role they can play in the learning process. Such an attitude plays into the hands of teachers, who do not have to explain to parents why their children are not learning. In focus groups conducted in Guayaquil, Quito, and Cuenca, parents of children in public schools did not expect to be consulted, or rendered accounts about their child learning by teachers, and teachers considered that parents should not be involved because they would only get in the way of teachers[17].

The success of *Fe y Alegría* schools in working with parents of similar socioeconomic conditions as public school parents only serves to underscore the insidiousness of a policy in which parents are not informed about their children learning, nor involved in a more substantive way in the running of the school [Navarro *et al*, 1996]. Positive similar results have been obtained with the autonomous schools in Nicaragua [King *et al*, 1996], which strongly suggest that the potential benefits of increased parental involvement are very large and cost effective.

Such benefits are one of the main reasons behind the push for decentralization, which aims to bring the school closer to its clients. Before the takeover of public schools by centralized systems in the late fifties and early sixties, many communities had a social contract between parents and teachers, in which in return for good learning, parents gave teachers a prominent social role in the community. With the advent of centralization, and the diversion of accountability away from parents, the social contract was broken; teachers depended on the union and the ministry for their paycheck, and did not have to account to parents anymore. Not surprisingly, being a teacher -- especially in urban areas--is now akin to having a low social position in the community. Both in Ecuador and Nicaragua, teachers expressed their concern for their social standing, recognizing that the social contract should be recovered.

Part of the recovery process involves not only the decentralization of decisions at the school level, including how to use the budget and whom to hire and fire, but also the gradual education of parents about their role in the education process. Currently *there is no provision for financing the training of parents and teachers to assume these newly rediscovered partnerships*, which strongly suggest that donors and lenders can play a crucial role in this area, thus helping recover the social contract that worked so well in the past.

Under a parent information policy, the sequencing of policy reform also calls for government to comply with its role of providing for public information on school performance, one of the key market failures in the social sector. No firm or no individual school would provide information about the performance of the entire system because of the perennial free rider problem associated with the private provision of public goods. Hence, it is up the local and national governments to finance the provision of such information. Under decentralized and autonomous systems, where parents have more purchasing power as consumers, the only way to ask for accounts is if they are properly informed about the performance of their children relative to the rest of the school, the performance of the school relative to other schools of similar characteristics, and the performance of the system against itself. Teachers complain that education is not like buying tires or onions, where objective criteria can be used to assess quality, but the experience of developed countries does suggest that measuring performance—albeit an imperfect science—is possible for evaluating the work of teachers and the school system.

[17] Findings from a study in progress at Fundación Ecuador.

From the perspective of teachers, unions have been very skillful and creating a climate of false camaraderie, in which the promotion of objective evaluation criteria is portrayed as an attack on the profession. In this regard, governments have been weak in pointing out the fallacy of this argument, since by lumping together good teachers with people who could contribute more to society outside of the teaching profession, good teachers must bear the inherent cost of a system in which personal incentives do not count.

Taking another look at minimum quality standards. The present system in most countries is centered on the cost of supplying teachers, since teacher salaries eat up most of the budget. If one needs to insure the sustainability of allocating funds to textbooks and school materials, to evaluation and monitoring, and to systems of information on school performance, then the unit of analysis should be the school. Looking at the cost per pupil is illusory; if the supply of teachers increases at a higher rate than the supply of new entrants into the system –as is the case in most countries– then one can show that education investments are increasing, even though the empirical evidence shows that the pupil teacher ratio has little impact on learning. Furthermore, if teacher salaries increase within the above scenario, one can be fooled by the figures: expenditures per pupil are increasing, even though what has been done is to create an upward shift in the cost curve in the production function.

Therefore, going back to the issue of policy sequencing, it is time to extend the concept of minimum quality standards within decentralized systems in order to allocate the increase in investment to the proper set of inputs. Under this framework one has to ask the question: "What is a good school?". From the available evidence from Colombia (*Escuela Nueva*), Chile (*Novecientas Escuelas*), Venezuela (*Fe y Alegría*) and other experiments in public or quasi-public school systems, one can determine that a good school begins with *children's learning as the focal point*, and not infrastructure, or teacher's salaries; there exists collaboration between parents and teachers that goes beyond trivialities, such as the use of the school budget; there exists a substantial allocation to textbooks and other teaching materials, and there exist systems (formal and informal) of evaluation, targeting, student assessment, and parent information. In short, these schools are more accountable to parents than the rest of the public schools.

The key question to ask, then, is: "Is public education in crisis because of low public financing, or is low public financing the eventual consequence of an education crisis?". Going back to the political economy arguments raised by Birdsall and James (1990), the current funding crisis in education may also be the result of the steady erosion in public support for the present school system. If education budgets are finite, and universities are ready to claim some of their budgetary turf, public education has no defenders left in the political arena. *Only if public education is able to render accounts, then can it make a valid claim at the policy table.*

5. Concluding Comments and Remaining Questions

The main conclusion of this study is that investing in all the typical prescriptions recommended by analysts will result in sustainable reforms only if the public education system becomes accountable. Accountability brings more competition to the system, and with it, more quality and better learning outcomes. With the proper personal incentives in place—which include the introduction of performance measurement (for both teachers and students) and a corresponding reward system—the public education system can become more effective.

The above suggest that in dealing with the financing needs of the system, it does matter where the money is allocated (hint: textbooks and materials and teacher training). However, to make education budgets take into account the share of those investments year after year requires the sequencing of education policies to include first those policies aimed at establishing mechanisms for measuring student and teacher performance, followed by decentralization policies, the establishment of mechanisms for training and informing parents about student and school performance, and the design of performance-based pay systems for teachers. These tasks are difficult enough, but they are more concrete and easier to deal with than simply asking the system to increase its efficiency before asking for more money.

Despite the claims made here about the sustainability of investments under the above rules, many questions remain unanswered. The first one relates to the managerial capacity of public schools. Under a system of accountability, how does one uses market incentives to improve public school management? Who trains parents about asking for accounts? Who monitors the training process and evaluates its success or failure? Who gives a voice to parents in the interim? What is the best way to design a system of accountability? Through a consensus? A consensus among who? These questions show a crucial role for donors and lenders, since they can be hardly be left to governments who do not have the funds or the means to answer them because of the perennial free rider problem.

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Appendix

Calculations for 1993 Data in Table 1: Primary Unit Cost (constant 1990 US$)

	Total Education Expenditure (con. 1990 US$)	Proportion of Total Spent on Primary	Total Primary Education Expenditure (con. 1990 US$)	Primary Enrollment 1990	Primary Unit Cost (con. 1990 US$)
Bolivia	136,476,941	0.737	100,583,506	1,278,775	79
1990	source: Gasto Ejecutivo			source: UNESCO	
Brazil	20,100,000,000	0.402	8,080,200,000	28,943,619	279
1993	source: Hecht (1995)			source: UNESCO	

	Total Primary Education Expenditure (con. 1996 pesos)	Primary Enrollment 1993	Primary Unit Cost (con. 1996 pesos)	1996 $/peso Exchange Rate	Primary Unit Cost (con. 1996 US$)
Colom	1,655,297,000,000	5,372,903	308,082	0.001	308
1993	source: Chiappe (1996)	source: IDB		source: Olsen & Assoc.	sourc

	Primary Unit Cost (current 1993 sucres)	1993 $/sucre Exchange Rate	Primary Unit Cost (current 1993 US$)	GDP Deflator 1990/ GDP Deflator 1993	Primary Unit Cost (con. 1990 US$)
Ecuad	154,597.45	0.00051	79	0.91	72
1993	source: Pfister (1996)	source: Olsen & Assoc.		source: US Govt FY97 Budget	

	Primary Unit Cost (current 1993 new pesos)	1993 $/peso Exchange Rate	Primary Unit Cost (current 1993 US$)	GDP Deflator 1990/ GDP Deflator 1993	Primary Unit Cost (con. 1990 US$)
Mexico	1,482.72	0.32	474	0.91	432
1993	source: SEP	source: Olsen & Assoc.		source: US Govt FY97 Budget	

	Primary Unit Cost (current 1995 US$)	GDP Deflator 1990/ GDP Deflator 1995	Primary Unit Cost (con. 1990 US$)
Venez	160	0.88	141
1993	source: Navarro (1996)	source: US Govt FY97 Budget	

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