

**SCHOOL AND TEACHER PERFORMANCE INCENTIVES:
THE LATIN AMERICAN EXPERIENCE ***

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March 2004

SCHOOL AND TEACHER PERFORMANCE INCENTIVES: THE LATIN AMERICAN EXPERIENCE*

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Abstract

This paper discusses performance evaluation and the introduction of incentives into education in Latin America from an analytical and methodological perspective. The aim is to describe ongoing strategies and learn from practical experiences in this field. The cases analyzed reveal that school-level evaluations and collective incentives adapt better to the characteristics of the educational process and the potential for teamwork, while individual evaluations pose some difficulties. Several evaluation systems currently in use emphasize educational inputs and, in some cases, mainly compliance with rules and procedures, irrespective of education results (output). If the factors considered in assessing school performance do not correlate well with educational achievement, the incentives vanish. Hence, the importance of emphasizing output and ensuring that if measures are included for inputs and processes, these must line up with educational achievement.

Author Keywords: educational policy, comparative education, performance evaluation, accountability systems, educational incentives, Latin America.

* We are grateful for financial support from the Partnership for Educational Revitalization in the Americas (PREAL) Educational Research Fund and FONDECYT project N° 1020869. We also thank Marcelo Henríquez for his collaboration, and Miguel Urquiola, Richard Wolfe and two anonymous referees for their valuable comments.

1. Introduction

The issue of education has taken on enormous relevance in recent years in both developed and developing countries. On one hand, this reflects the growing body of evidence demonstrating education's importance to society and the economy, and its role in income distribution. On the other, in many developing countries, it is apparent that although the problem of coverage has been overcome, problems remain in terms of educational quality and the distribution of quality education among the different population segments.

One of the issues that is universally discussed regarding the quality of education is the need for accountability from educational institutions and their teaching staff. Accountability consists of having governments or other organizations generate information making it possible to evaluate schools. This information is useful for parents, who can then exert pressure to improve the school, or select and transfer their children to a school with better results, if the free selection of schools is available to them.

Accountability is fundamental, because an information gap separates schools from families. It is costly for families to obtain relevant, up-to-date information on what is happening with their schools, and schools are not necessarily given incentives to provide information to parents. Moreover, depending on their cultural and socioeconomic level, families' ability to obtain information about schools varies. Accountability is particularly relevant in countries such as Chile, where parents can choose the school their children attend. As such, it is essential that they have access to good information upon which to make their decision. Well-informed parents can exert pressure to improve the quality of the educational system.

Another issue discussed in relation to the quality of education, which is also closely linked to accountability, is the structure of teacher incentives. The question here is whether teachers' remuneration structure and career development creates incentives to improve their performance.

This paper discusses performance evaluation and the introduction of incentives into education in Latin America from an analytical and methodological perspective. The aim is to describe ongoing strategies and learn from practical experiences in this field.

The structure of the remainder of the paper is as follows. Section 2 discusses salary structure and career development for teachers, while exploring some policies applied to address these characteristics of the teaching profession. Section 3 reviews the design and application of different educational incentive systems in Latin America. The conclusions are given in section 4.

2. International Experience with Teacher Performance Evaluations and Incentive Payments

Both the salary structure and career development opportunities for teachers generate problems from the point of view of the incentives they create.

In Latin America, teachers' salary structure suffers from several problems: equal pay is provided regardless of differing efforts and abilities. No differentiation is made between those who have more extensive education and those with less. Salaries are unrelated to the activities carried out at the schools and seniority is the principal basis for any pay increase. This last ultimately means that in the teaching profession loyalty, rather than actual job performance, is rewarded (Liang, 1999).

Career development in general is associated with promotions that take the best teachers out of the classroom. Often, such opportunities are only available when those higher in the hierarchy retire or leave their jobs. Thus, the best teachers receive no incentive to continue perfecting their skills.

These problems have led economists working in the field of education to insist upon the need to reform teacher salary structures and create incentive systems. Although these approaches are not the only way to improve the quality of education, they are indeed a necessary mechanism for supporting the changes being implemented in the sector (Hanushek, 1994, Hanushek and Jorgenson, 1996).

The suggestion to introduce incentives in education complements other proposals that aim to establish market mechanisms and competition in the sector by subsidizing demand for education (vouchers). The introduction of incentives is related to the supply of education.

In the case of education, the market suffers from a particularly relevant fault: it is hard to suitably identify the quality of the product. In other words, if parents and the community cannot differentiate a good school from a bad one, it is likely that there will be more bad schools (Sayedoff, 1997, and González, 2000).

The solution is not to ignore the market, but rather to improve its functioning. To achieve this, one must create quality indicators and make educational results transparent, while also establishing suitable incentives.

Incentive programs that have been proposed include: (a) merit pay, (b) career laddering, (c) payment for competencies, and (d) incentives at the educational institution level (school awards). We shall now briefly review each of these approaches.¹

(a) Merit pay

Merit pay was implemented in some school districts of the United States in the 1980s. This approach grants individual monetary bonuses to teachers who meet certain requirements. The merit pay system was fraught with difficulties, and at the present time is rarely used. The few cases where it is still applied mostly correspond to private schools (Murnane and Cohen, 1986; Richards 1985; Johnson 1984; Hanushek, 1994).

The main criticisms of this type of incentive are: (i) it is difficult to measure the performance of an individual teacher, given the complexity of the educational product; (ii) it is hard to attribute educational results to a single teacher, as teamwork is involved; (iii) this incentive promotes individualist behavior, ignoring the necessary interdependence and teamwork that must be present in the educational process; (iv) given the difficulty of establishing evaluation standards, it is easy to use the incentives as a reprisal, rather than as a stimulus; (v) a select number of teachers are rewarded, but the overall quality of instruction does not improve. In fact, there is no evidence that the implementation of merit pay programs in the United States has improved the performance of students or teachers (Cohn, 1996; Murnane and Cohen, 1986).

¹ A detailed analysis of each of these programs can be found in Morduchowicz (2002), Brandt (1990) and Malen, Murphy and Hart (1988), among others.

(b) Career Ladders

The career ladder seeks to provide incentives and salary increases for teachers, to keep them in the profession. This approach attempts to break with the excessively undifferentiated structure of teachers' salaries. With this goal in mind, promotion is not solely based on seniority. Instead, it is based on requirements that teachers know of in advance, including, for example, training, proven experience, and performance.

It is argued that, unlike merit pay, career ladders do not force teachers from a single educational institution to compete for a given sum of money, which only some would finally receive. All teachers who meet the requirements to go from a lower rung to a higher one obtain the respective professional certification. Yet career ladders are criticized due to the fact that they continue to reward and encourage uniformity, although in this case within each respective category.

Some experiments with career ladders, seeking a greater salary differentiation among teachers, have attempted to create new positions, but often these have nothing to do with school needs. In other cases, good teachers have been removed from the classroom to be "rewarded" with administrative positions, producing a negative impact on student performance (Malen, Murphy and Hart, 1988; Brandt, 1990).

(c) Payment for Competencies

Payment for competencies has arisen in response to the limitations of the career ladder, particularly those related to expanding school autonomy. This system is based on the idea that if common minimal standards are taken into account, schools can prepare and pay teachers for those aspects and functions that they need to develop.

Under this system, teachers must meet certain competency standards to do their job well, among them they should possess: (i) competencies related to instruction in the classroom, which means having a mastery of the subjects they teach; (ii) competencies in other areas of education, such as tutoring students, evaluating teaching materials, and developing innovative curriculum practices; and (iii) competencies involving leadership and administration, which strengthen academic autonomy and allow the teacher to engage in activities such as team coordination, providing guidance to other teachers at the school, institutional project development, and resource administration (Odden and Kelley, 1997).

In reality, teachers today already engage in many of these tasks. Nonetheless, many of them are not sufficiently or suitably prepared to do so successfully, or do not receive the corresponding higher pay (Odden and Kelley, 1997).

In an effort to correct this situation, a system of payment according to competencies has recently been implemented in the United States in the three areas mentioned above. This system links teacher salaries to proof of these competencies, making it possible to increase pay according to each teacher's characteristics and progress. This system does not create a career ladder *per se*. Rather; it essentially creates a pay raise obtained by demonstrating a pre-determined set of competencies.

(d) School Awards

The rather unsuccessful experience with merit pay led to the development of group incentive systems. These awards are assigned to groups of teachers or entire schools, to the extent that they achieve a pre-determined educational objective; for example, improvements in standardized performance tests, reduced failure rates, lower absenteeism among students and teachers,

development of school projects, and so on. These incentives may be ex ante-oriented (to encourage processes) or ex post-oriented (based on achieving pre-determined results).

Given its recent implementation, few evaluations have been made of this policy's contribution to improving educational quality.² Nonetheless, there is some consensus that one of the most significant effects of incentives to groups of teachers or whole schools is that they promote cooperation to achieve shared objectives. It is hoped that these systems will lead to internal changes in school organization and will motivate teachers to work together to win the award.

In the United States, several states and some school districts have adopted this type of incentive (Richards and Ming Sheu, 1992; Cornett and Gaines, 1994; Ladd, 1999; Clotfelter and Ladd, 1996; Hanushek and Raymond, 2002). Also, in Israel a group of secondary schools have experimented with teachers' group performance incentives (Lavy, 2002).

3. Incentive Systems Applied in Latin American

Only recently, a very small number of Latin American countries have incorporated teaching performance evaluation systems, tied to the payment of a monetary incentive. Table 1 summarizes the cases we will analyze, considering countries, incentive schemes used, and the years since they were first implemented. Mexico and Bolivia have implemented individual incentive schemes. Chile, meanwhile, has had a collective incentive program for schools since 1996. El Salvador started a school incentive program in 2000 and in 2001. Bolivia replaced its payment for competencies system with this kind of incentive.

² Richards and Ming Sheu (1992) analyze the experience of South Carolina; Ladd (1999) evaluates Dallas' experience; and Lavy (2002) evaluates Israel's experience.

Table 1
Educational Evaluation and Incentive Payments in Latin America

Evaluation and Incentives Schemes			
Countries	Career ladders	Payment for competencies	School award
Bolivia		1998-1999	2001 to date
Chile			1996 to date
El Salvador			2000 to date
Mexico	1992 to date		

We will now examine the main characteristics of these systems, the factors considered in evaluating educational performance, indicators and evaluation instruments, and the results in terms of beneficiaries and additional income for teachers.

3.1 General Characteristics of the Incentive Systems Applied in Latin America

The Carrera Magisterial in Mexico

Within Latin America, Mexico has implemented a career ladder, called the *carrera magisterial*, throughout the country.³ Mexico's approach seeks to meet two goals: to improve teachers' status by providing economic and morale-related incentives, and to raise the quality of education. It consists of a promotion system in which teachers participate on a voluntary and individual basis, and is oriented to all teachers at different kinds of schools, principals, supervisors, and teaching assistants at the primary level.

³ Ornelas (2001), Lopez-Acevedo and Salinas (2000), and Santibañez (2002) describe and analyze the Mexican experience.

The *Carrera Magisterial* arose as one of the instruments included in a national agreement for modernizing primary education (*Acuerdo Nacional para la Modernización de la Educación Básica*), signed in May 1992. The signatories included the education ministry, the teachers' union (SNTE, *Sindicato Nacional de Trabajadores de la Educación*), and the governors of the 31 states. This policy had been on the government's agenda since the start of the Salinas government, but teachers' union leaders were opposed to replacing the five-year seniority scale that was administered directly by the union. Changes in the teachers' union leadership and wage improvements provided to teachers by the government generated conditions more favorable to agreeing upon evaluation and incentive schemes.

In fact, there was significant tension between government and union; the former proposed an incentive scheme solely for primary school teachers, which would improve their income, regardless of their seniority. The union sought to turn the career ladder into a horizontal scale that would reward teachers equally, regardless of their students' performance and learning. The final agreement combined elements from both positions, with the union's vision initially prevailing. In particular, principals, supervisors and teaching assistants were included in the system. At first, external student tests, which the union had opposed, were assigned very little weight, a situation that was corrected over time (Ornelas, 2001).

Merit Wages in Bolivia

One case in which there was a partial attempt at payment for competencies in Latin America arose in the case of Bolivia's "merit wages" (*salario al mérito*) program. This policy was implemented at the start of 1998, through national law (*Decreto Supremo*) N° 25,027, whose purpose was to create incentives for improving teachers' performance. It consisted of applying a

teaching sufficiency examination that measured teachers' knowledge of the subjects they taught. Teachers signed up voluntarily and those who passed the examination received a wage increase, while those who failed remained in the traditional pay scale system. The examination was required to hold the post of principal, and therefore all principals' positions were declared vacant.

This merit wage approach was suspended after its second application.⁴ In the first evaluation, 60% of all teachers who took the test failed, triggering rejection from the teachers' union, which argued that the invitation to participate and the way grades were assigned were both faulty. Only 1,417 teachers received the merit wages. As a result, there was a large demonstration and strong pressure through massive hunger strikes to eliminate these examinations, amidst demands that the Minister of Education resign. Probably as a result of these pressures, during the second phase in 1999, the number of teachers receiving the merit wage rose to 18,600.

This type of phenomenon is rather common in experiences based on individual incentives; the same occurred with the introduction of merit pay in the US. Pressure from teachers means that in some cases most teachers end up eligible for rewards, thus diluting the idea of rewarding the best and turning them into a general wage increase. In other cases, award amounts end up very low, muting their impact on teachers' behavior (Cohn, 1996).

The merit wage program was replaced by other incentive schemes, among them: an upgrading incentive (*Incentivo a la Actualización Docente, IAD*), a bilingual mode incentive (*Incentivo a la Modalidad Bilingüe, IMB*), an incentive to remain in rural areas (*Incentivo a la Permanencia Rural, IMR*), and a collective school incentive (*Incentivo Colectivo a Escuelas, ICE*). These four

⁴ The beneficiaries of merit wages received these amounts until April 2000.

incentive programs remain in effect to date. In this paper we focus on the ICE, because it is the program closest to a collective performance evaluation.

School Awards (ICE) in Bolivia

The ICE program came into effect in late 2001 and its main objective was to encourage teamwork among principals, teachers and administrative staff to improve services provided to students. This program is oriented toward all public schools offering the first, second and third cycles of primary education. The ICE provides an annual monetary award to the principal, teachers and administrative staff at these schools.

School Awards (PLAN) in El Salvador⁵

The purpose of the PLAN (*Plan de Estímulos a la Labor Educativa Institucional*) school award system is to encourage public school teachers to work together to solve the problems affecting their schools and improve the quality of educational services that they offer the community.

The award consists of a monetary incentive for each teacher working at schools that meet objectives previously established by the Education Ministry (MINED). To assign this reward, all public schools at the pre-school, primary and secondary level are evaluated.

To date, PLAN has been in effect for three consecutive years (2000, 2001 and 2002). The MINED provides evaluation areas and criteria and then the University of El Salvador organizes

⁵ The information about PLAN came from Rodríguez (2002).

and carries out the evaluation, informing the Ministry of progress and results obtained, and the Ministry then makes the respective payments.

*The National System for Assessing School Performance (SNED) in Chile*⁶

The National System for Assessing School Performance (*Sistema Nacional de Evaluación del Desempeño de los Establecimientos Educativos Subvencionados, SNED*) has been applied in Chile since 1996.⁷ This policy is oriented toward all schools receiving government funding, whether administered by city governments (municipal schools) or by the private sector (subsidized private schools).⁸

The SNED rewards teachers' performance and seeks to improve their motivation. Moreover, it has become a guide for providing information to the community on school quality, combining measurements for different aspects affecting teaching quality and comparing schools attended by populations with similar socio-economic characteristics.

The schools that perform with excellence are chosen every two years and receive an excellence subsidy as an incentive. Schools representing up to 25% of each region's enrolment receive awards. It has been established that 90% of the amounts assigned must go directly to the

⁶ For more details, see Mizala and Romaguera (2002b)

⁷ In 2002, a parallel teaching excellence bonus (*Asignación de Excelencia Pedagógica*) for those teaching the first four years of primary education was added. This bonus consists of a voluntary, individual evaluation associated with a money award (US\$714 for 10 years). To receive this award, teachers must successfully pass knowledge-based examinations, present their curricula, and a recording of a class. Of 1,932 teachers who met the requirements, just 313 passed the evaluation and were considered excellent teachers.

⁸ In Chile, there are three kinds of schools: municipal schools, with 53.7% of enrolment, financed by the state and administered by city governments; subsidized private schools, with 35.8% of enrolment, financed with a per student subsidy from the state and administered by the private sector; and private, fee-paying schools, that operate solely on payments from parents and account for 8.9% of enrolment. The rest, 1.6% of enrolment, are run by private corporations (*corporaciones de administración delegada*, which are technical-professional or vocational schools, financed by the state and administered by the private sector).

school's teachers, in proportion to their hours of employment, while each school decides the distribution of the remaining 10%.⁹ The SNED has been applied four times.

3.2. Factors and Weights Used to Evaluate Performance

One of the challenges facing educational performance evaluations is the definition of the factors to be considered, the measures that will be used to quantify them, and the weights to be assigned to each factor. Table 2 summarizes the factors and weights used in the incentive schemes implemented in Latin America, distinguishing between those that evaluate educational inputs, educational processes, and educational results. Where a factor tends to evaluate essentially inputs (processes), but also involves some measures that evaluate processes (outputs), the Table identifies them in parentheses.

Most evaluation systems implemented in Latin America emphasize educational inputs, followed by processes and, to a lesser degree, educational outputs. In other words, in general ex-ante evaluation is given priority over ex-post evaluation. For example, collective incentives in Bolivia emphasize measures for educational inputs and processes, while the only measures for results are passing, drop-out and repetition rates.

⁹ The excellence subsidy is defined on a per student basis, so the amount each school receives depends on the number of students in attendance.

Chile's SNED is the only system that mainly emphasizes educational results in calculating the final performance measure, although it also considers some process measures and assigns significant weight to the equality of opportunities offered by schools.¹⁰ The factors stipulated by the law that created the SNED are measured using a set of indicators, which represent specific aspects to be evaluated. Table A1 in the appendix shows the indicators associated with each factor. Based on these factors, a SNED Index is created, which is calculated for each school in the country. Finally, the schools with the highest scores are selected, until 25% of the enrollment for each region is covered.

El Salvador's PLAN basically emphasizes compliance with legal rules and regulations, such as attendance, punctuality, school registration, etc., and does not examine outputs. Nonetheless, the last time it was applied, in 2002, some measures for educational results were added, essentially drop-out and repetition rates.¹¹

The weights assigned each factor are key to evaluating performance, because evaluation results are sensitive to them. This often leads to conflict between teachers and authorities over the weights used, as occurred in Mexico, where there is no consensus about which factors should receive the most weight.

¹⁰ The SNED penalizes discriminatory conduct and undue punishment of students. In other words, schools that engage in such practices have their score reduced and therefore are less likely to win an award. It should be noted, however, that discrimination is a complex issue in educational systems based on school choice, and therefore goes beyond the scope of the SNED. Similarly, the SNED considers the score on standardized tests (effectiveness), as well as changes over time (improvement).

¹¹ The factors evaluated have changed with each application according to accumulated experience (see footnote (a) of Table A3 in the appendix).

The fact that most of the evaluation systems analyzed emphasize educational inputs is worrisome, because the empirical evidence reveals that in many cases educational inputs correlate poorly with students' educational results.¹²

¹² Process indicators have a variable relationship with educational achievement, with some having a positive effect while others have little or no effect. In contrast, output variables, such as retention and graduation rates, are strongly associated with educational achievement, with the main exception being parental satisfaction, as studies show that parents have a good opinion of the schools where their children study, independently of their actual performance (Hanushek and Raymond, 2002).

Table 2
Factors and Weights in Incentive Systems in Education

Type of evaluation	Individual Incentives		Collective Incentives		
	Career ladder Mexico	Merit Wages Bolivia	ICE Bolivia ^a	PLAN El Salvador	SNED Chile
Educational Inputs	<ul style="list-style-type: none"> ▪ Seniority (10%) ▪ Academic degree (15%) ▪ Upgrading and professional development (17%) ▪ Professional preparation (28%) 	<ul style="list-style-type: none"> ▪ Teacher knowledge (100%) 	<ul style="list-style-type: none"> ▪ School organization ▪ Teacher training and their remaining in the school ▪ Regularity in school management ▪ Number of students per class ▪ Student / teacher ratio 	<ul style="list-style-type: none"> ▪ School management (25%) ▪ Educational management (9%) ▪ Institutional planning (actions to reduce repetition and drop-out rates)^b (44%) 	<ul style="list-style-type: none"> ▪ School Initiative (6%) ▪ Improved working conditions (2%)
Educational Processes	<ul style="list-style-type: none"> ▪ Professional performance (10%) 		<ul style="list-style-type: none"> ▪ Teaching initiatives developed by teachers ▪ Parental participation 	<ul style="list-style-type: none"> ▪ Teacher management (planning and teaching material)^c (22%) 	<ul style="list-style-type: none"> ▪ Integration of teachers and parents (5%) ▪ Equality of opportunities (retention and passing rates)^d (22%)
Educational output	<ul style="list-style-type: none"> ▪ School results (student performance) (20%) 		<ul style="list-style-type: none"> ▪ Actual passing rates ▪ Drop-out and repetition rates 		<ul style="list-style-type: none"> ▪ Effectiveness (student performance, level) (37%) ▪ Improvement (student performance, gain) (28%)

Source: Tables A1, A2 and A3 in the appendix.

Notes: ^a Each factor has the same weight in Bolivia.

^b Although this has been classified as an educational input, it shares some elements (in parenthesis) with educational processes.

^c Although this has been classified as an educational process, it shares some elements (in parenthesis) with educational inputs.

^d Although this has been classified as an educational process, it shares some elements (in parenthesis) with educational results.

3.3. Indicators and Evaluation Instruments

Table 3 describes the indicators and the information used to evaluate schools and teachers. Only Mexico and Chile use students' results on standardized tests to measure teacher and school performance.

Currently, only Mexico uses teachers' external examinations. As mentioned, the merit wage system in Bolivia, which included teachers' exams, was suspended after its second application.

Mexico also considers peer and union representative evaluations, which have triggered conflicts and tensions, because the evaluation is carried out by peers at the same school. Ornelas (2001) points out that this policy has encouraged undesirable behavior among teachers, such as a lack of cooperation and increased competition within schools. Some teachers act strategically, plotting with others to grant the top mark. He also argues that often the teachers who are promoted are the most subservient to trade union guidelines, and not necessarily those who do the best work. In this sense, the union has captured the instrument.

In Bolivia, collective incentives to schools involve evaluating each school using a questionnaire designed for this purpose. The principal, teachers and school board, this last representing parents, fill out the questionnaire, making this essentially a self-evaluation. Then, using a sample verification process at the whole country level, the information provided by schools is processed. Although since 1997 Bolivia has had standardized achievement tests on primary school students, these are not applied to all schools, making their use difficult. As the scope of these tests expands, results should become part of school evaluations.

In El Salvador, the evaluation instrument is a questionnaire in which each question is verifiable, has a legal basis, and is related to specific areas of action involving principals and teachers. The evaluator, by observing and reviewing school registration, administrative controls

and documentation regarding plans and projects, completes a series of questions with the responses of a member of the school's management (the principal or vice principal), in the first place, and then several teachers.¹³ Evaluators apply this instrument directly in schools, supervised by the education ministry's technical staff.

For the SNED, standardized tests of student achievements are used, along with parental surveys to gather their opinions on school quality. These surveys are applied every year as part of the SIMCE tests. Information is also gathered using a special SNED questionnaire applied to all schools and provincial directors of education. Finally, information from the national Ministry of Education is also used.

¹³ The number of teachers interviewed is defined using the following criteria: i) three are interviewed, in the case of schools with 13 or more teachers; ii) two, if the school has seven to twelve teachers; and iii) one, if the school has one to six teachers. In schools with a single teacher, the principal is interviewed, for both parts of the questionnaire as principal and teacher.

Table 3
Indicators and evaluation instruments

Individual Incentives		Collective incentives		
Career ladder Mexico	Merit Wages Bolivia	ICE Bolivia	PLAN El Salvador	SNED Chile
<ul style="list-style-type: none"> ▪ Evaluation using external examinations written by teachers and students ▪ Document accreditation ▪ Peer and union representative evaluation 	<ul style="list-style-type: none"> ▪ External examinations for teachers 	<ul style="list-style-type: none"> ▪ Self-evaluation, teachers, principals and parents. Verification using sampling 	<ul style="list-style-type: none"> ▪ Survey applied by external evaluators 	<ul style="list-style-type: none"> ▪ External examinations written by students ▪ SNED survey of schools; SIMCE survey of parents ▪ Central information from the Education Ministry

Source: Authors' elaboration based on Ornelas (2001), Rodríguez (2002), Ministry of Education Bolivia (2002), Mizala and Romaguera (2002b).

3.4 Methodology for Comparing Between Schools

One element that is very important to designing performance evaluation and incentive systems at the school level is the comparison between schools with very dissimilar student populations. Since the pioneering work by Coleman *et al.* (1966), it has been well documented in the literature that certain family characteristics, which cannot be modified by schools, significantly influence performance measures. For example, students' socio-economic status affects their performance and therefore school results on standardized achievement tests.

Table 4 shows that not all collective incentive systems that compare performance between different schools use methodologies that permit comparisons between schools with different characteristics. Chile and Bolivia have developed homogeneous groups of comparable schools, at least with regard to specific characteristics. The methodology used in El Salvador does not permit comparisons between similar schools; each is compared to all others, independently of its specific characteristics and those of the population it serves.

Table 4
Collective incentives. Methodology for comparing schools

ICE Bolivia	PLAN El Salvador	SNED Chile
10 homogeneous groups by:	No homogeneous groups.	109 homogeneous groups ¹ , by:
- single or multiple teachers	All schools compared to each other	Level 1:
- urban- rural		- urban – rural
- educational level (1 st , 2 nd , 3 rd , primary cycle)		- educational level (only primary, secondary and primary)
		Level 2:
		- Students' socioeconomic status

Source: Ministry of Education Bolivia (2002), Rodríguez (2002) and Mizala and Romaguera (2002b)

Note 1: 13 homogeneous groups, one for each country's region, bring together school providing special education to children with different disabilities.

In Bolivia, to better compare their performance, schools are classified into ten homogeneous groups, in terms of: i) number of teachers (single versus multi-teacher schools), ii) geographic area (urban or rural), and iii) grade levels: first, second and third cycles of primary education. The schools with the highest scores in each homogeneous group are selected.

The groups do not take into consideration the socio-economic characteristics of the students that attend the schools, which is very important for a fair comparison, because, as mentioned, the literature has clearly established the effects of students' socio-economic level on their performance at school.¹⁴

In El Salvador, the lack of homogeneous school groups in the 2001 evaluation led to results that were biased against rural, single teacher and schools located in the country's lowest income regions or *departamentos* (Rodríguez, 2002). In fact, although single teacher schools account for 8.6% of total schools in the country, they represented just 3.5% of total winning schools; also while rural schools account for 75% of total schools, just 65% of them won awards in 2001.

In Chile, the SNED builds homogeneous groups of schools with similar characteristics, according to educational level, geographical location and socio-economic factors¹⁵. To form these homogeneous groups, schools from each region are classified, at the first level according to the geographic location and educational level: rural versus urban and primary versus secondary with or without primary education. At the second level, based on the socio-economic characteristics of the students that attend the schools (household income, parental education, school vulnerability index), cluster analysis is used to identify groups within these classifications. In addition, homogeneous groups for each of the country's 13 regions bring

¹⁴ We have no information on why students' socioeconomic information was not included when forming the homogeneous groups.

¹⁵ An alternative approach would be to estimate school value added using econometric techniques, this methodology can not be applied in Chile due to a lack of necessary information.

together schools providing special education to children with different disabilities. In applying the SNED 2002-2003, 109 homogeneous groups were formed. The homogeneous groups make it possible to achieve a better balance in awarding schools, with rural schools, which represent 49% of the total, accounting for 46% of SNED prizewinners. Likewise, primary schools represent 79% of total schools and 77% of award winners.

3.4 Results in Terms of Beneficiaries and Extra Income

Table 5 summarizes the beneficiaries and extra income obtained by teachers for each of the experiences analyzed. In Mexico, about 75% of primary school teachers have entered the system, thus making it possible to boost their income in real terms. There are five levels (from A to E), with extra income ranging from 27% to 224% of the professional wage.¹⁶

In Bolivia, merit wages operated as an alternative to the traditional wage system. The incentive consisted of increasing primary school teachers' schedules from 72 to 120 hours per month, thus making it possible to increase their salaries. With the program's rise to 120 hours per month, urban teachers received US\$ 300, and rural teachers US\$ 333.¹⁷ On average, teachers' wages rose 66% with the merit wages.

¹⁶ In the Mexican case, since it is a career ladder, teachers that are promoted increase their wages permanently. Teachers must spend a specific number of years in each level before trying to move on to the next.

¹⁷ In Bolivia, teachers have different wages according to the geographical area in which they work, their education and their experience (teachers' pay scale or *escalafón docente*). Urquiola and Vegas (2002) analyze teachers' wage structure in Bolivia. For example, in the traditional system in an urban area, a teacher working 72 hours per month with 15 years' seniority received about US\$180 in 1998, while an equivalent teacher in a rural area received about US\$200. The resources for this incentive system came from the Inter-American Development Bank (IDB) and the idea was to use them on a declining basis during the first three years of application, until the national treasury assumed the full cost of the program.

As mentioned, after the merit wage system was discontinued, in 2001 a collective incentive program for schools was applied. In its first application, 1,100 of the 9,343 schools that participated in the competition won.¹⁸

The ICE reached 3,988 people, including principals, teachers and administrative staff, with a total sum of about US\$ 1 million. Of the people receiving ICE awards, 95% were teaching staff (teachers and principals), while 5% were administrative staff (Table A4 in the appendix). The number of prizewinning teachers was about 5% of the total eligible for this award, and the annual incentive amounted to 2,000 bolivianos (US\$280.5), which represented a wage increase ranging from 5% and 19.3%, depending on the type and category of teacher.¹⁹

¹⁸ Of the 14,492 public schools registered in the Education Information System (*Sistema de Información Educativa SIE*), 11,872 offered at least the first cycle of primary education (grades one to three), this was the requirement for participating in the first competition.

¹⁹ The maximum percentage corresponds to a substitute teacher in an urban area, and the minimum to a normal school graduate working in the rural sector, in the merit category. These calculations have been done for teachers working 120 hours, because recently, thanks to more expansive budgetary conditions, teachers' wages have risen as if they were merit wages.

Table 5
Beneficiaries and wage increases

Variable	Individual Incentives		Collective incentives		
	Career ladder Mexico	Merit Wages Bolivia ¹	ICE Bolivia	PLAN El Salvador ²	SNED Chile ³
% teachers	75% ⁴	2% (1998) 26% (1999)	5%	49%	28%
% schools	-	-	9.3%	36%	19.7%
Annual additional income (% of salaries)	27% to 224%	66%	US\$280.5 5% to 19.3%	US\$228.6 4%	US\$439.4 4.7% to 7.2%

Source: Authors' elaboration based on Ornelas (2001), Rodríguez (2002), Ministry of Education Bolivia (2002), Ministry of Education Chile.

- Notes: 1) Teachers who approved the exam increased their salaries from the beginning of 1998 until April 2000.
2) This data is for 2001; 53% of teachers received awards in 2000 (Table A3 in the appendix)
3) This data is for 2002-03; the percentage of awards-winning teachers and schools was similar in previous years (Table A1 in the appendix).
4) Percentage of primary school teachers

In El Salvador, schools scoring 70 points or more receive awards. The PLAN design includes no rules establishing the percentage of award winners per year, so in 2002, the Education Ministry decided to award not only those scoring 70 points or more, but also teachers at schools scoring better than they did in previous years, who received about 50% of the bonus. To date, the minimum percentage increase required is unknown. Moreover, the Ministry planned to give out honorary awards – plaques or diplomas – to schools achieving a percentage of 70% or higher.

The results obtained reveal that 41% of schools did not earn the benefit in either of the two years that it was applied. Similarly, 24% of schools that did not win in 2000 did win in 2001, while 16% won in both periods. In 2000, 2,268 public sector schools, with 20,000 teachers, won awards. In 2001, 1,736 schools with 18,085 teachers won awards (see Table A3 in the appendix).

The stimulus consisted of an annual bonus of US\$228.6 to each teacher working at schools meeting the goals established by the Education Ministry (MINED). This bonus involved an average salary increase of 4% for teachers.

In Chile, with the first application of the SNED, 30,600 teachers at 2,274 schools received awards. These figures have varied for each year. For example, in the 1998-1999 application, 31,400 teachers (27.3% of the total) received awards; in 2000-2001, 32,600 teachers (27.7% of the total) and, currently (2002-2003) 34,400 teachers (27.7% of the total), working in 1,863 schools (19.7% of the total). In each application, awards were granted to the equivalent of 25% of school enrolment, by region (Table A1).²⁰

The subsidy for excellence that teachers receive is 279,000 Chilean pesos per year (US\$439.4)²¹, slightly more than the ChP 219,000 they obtained in 1996 when the system began. This figure currently amounts to 87% of the minimum monthly salary for teachers and a little more than an additional half salary per year for a teacher working 36.3 hours per week. In terms of a salary increase, this ranged from 7.2% per year among those receiving the teachers' minimum wage to 4.7% for those earning an average salary for 36.3 hours per week.

The SNED has remained over time and gradually become better known among teachers who, despite their traditional opposition to performance evaluations that give priority to the educational product, view the SNED positively.²²

It is clear that in Chile and El Salvador the additional income involved in the award is relatively low and this could seriously limit the impact of this policy on teachers' behavior.

²⁰ 50.9% of schools have never received the award; 27.7% have won once, 13.7% twice, 5.8% three times and just 1.8% every time the SNED has been applied.

²¹ This amount is paid quarterly during a period of two years.

²² For more details, see Mizala and Romaguera (2001).

4. Summary and Conclusions

Salary structure and career development opportunities for teachers create incentive problems, which mean that the best teachers are not encouraged to remain in the profession and to continue their professional development. These problems have generated proposals that emphasize the need to reform teachers' wage structures and introduce incentive systems. Although this is not the only way to improve educational quality, this mechanism is necessary to support other reforms in this sector.

The experiences reviewed reveal that the issue of performance evaluation and incentives to teachers is becoming important in Latin America. Although teachers initially rejected evaluations and incentive payments, more recent experiences have successfully put these issues on teachers' agenda and led to growing acceptance.

The different cases analyzed make it possible to conclude that evaluation schemes at the school level and collective rewards adapt best to the characteristics of education, enhancing vital elements in this process, among them teamwork and a multi-product approach. Individual evaluations pose more difficulties.

In particular, existing analyses of individual incentive policies applied in Mexico point to both positive results and some undesirable ones. The latter include the fact that teachers leave rural areas, moving to urban schools to have more ready access to upgrading courses that give them the points necessary to rise in their profession. At the same time, personal advancement and upgrading are perceived as an obligation and not simply an instance of professional development. Finally, there is some debate about whether the program's impact has really led to better educational results.²³ Among its positive aspects, it should be noted that the career ladder has

²³ See López-Acevedo and Salinas (2000) and Santibañez (2002) for an analysis of the impact the *carrera magisterial* has had on students' learning.

made it possible to raise teachers' income and improve their training and their knowledge. Similarly, this experience has made it possible for teachers to accept external evaluation and objective tests, thus improving the legitimacy of accountability policies.

The case of merit wages in Bolivia, meanwhile, shows how pressure from teachers often reduces standards so more receive rewards. Experience with merit pay in the United States reveals similar behavior among teachers. At the same time, this experience points out the importance of considering the political viability of these new policies: it is not feasible to implement teachers' evaluation through external exams and then fail a high percentage during the first application. This is the best way to obtain a massive rejection of the policy.

Moreover, this analysis suggests that it is not enough to implement incentives at the school level: comparable schools must be compared so that the system is perceived to be fair. The experience in El Salvador, for example, shows that by not comparing schools within homogeneous groups, results are biased in favor of urban, multi-teacher schools, located in regions (*departamentos*) with lower poverty indices. Fair comparisons, however, require gathering reliable information on the characteristics of schools and the families of children attending the school.

Likewise, it is necessary to give more weight to educational output in evaluations, since this is the ultimate purpose of improvements. A significant number of existing incentive systems emphasize educational inputs and in some cases mainly compliance with rules. To the degree that the factors considered in performance evaluation are not highly correlated with educational achievement, incentives fade. This highlights the importance of emphasizing outputs and ensuring that if input and process measures are included these must line up with results, which means considering only those with significant impacts on educational achievement.

In order to have output measures, students standardized achievement test must be applied to the entire population of schools. In this sense, if lack of resources prevents the universal application of the test it is preferable to have a representative sample of students take the test at each school.

Finally, at least two areas for further study can be highlighted. First, it is important to evaluate the actual impact of these programs. Partly because they have been implemented rather recently and in part because they often are politically controversial, there is relatively little knowledge about these schemes' implementation and design and on their impact. Second, recent research like Kane and Staiger (2002) and Chay, McEwan and Urquiola (2003) points out the possibility that the noisiness of test scores can complicate their use in ranking schools, as well as the evaluation of accountability-based systems. Thus, it is necessary to study how successful different accountability schemes have been at identifying effective schools; this has implications for the specific design of such systems, for instance, on the optimal weighting assigned to test score level and gains.

Therefore, the challenge is not only to establish school performance evaluation systems, but also to design and implement them so that they really do generate incentives that make it possible to improve the quality of education.

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APPENDIX

TABLE A. 1
CHILE: The National System for Assessing School Performance (SNED)

I. FACTORS AND INDICATORS				
Factor (weighting)	Indicator			
Effectiveness (37%)	- SIMCE tests (Language and Math for the last test round observed): 4 th grade; 8 th grade; 10 th grade			
Improvement (28%)	- SIMCE gain score (computing using the last two rounds of testing for each grade)			
Initiative (6%)	- School-level surveys about their educational activities and initiatives			
Improvement of working conditions (2%)	- School classification in the inspection system of the Education Ministry			
Equality of opportunities (22%)	<ul style="list-style-type: none"> - Repetition and dropout rates - Absence of discriminatory practices. For instance: expelling students who fail a grade; rejecting applicants despite vacancies, expelling students due to pregnancy or maternity - Absence of improper punishment of students. Among others: disciplinary measures for reasons other than behavior; retention of certificates of studies and/or leave; refusal of access to the school 			
Integration of teachers and parents (5%)	<ul style="list-style-type: none"> - School-level surveys on their activities to encourage integration and information - SIMCE survey of parents about their perceptions on the quality of the school 			
II. BENEFICIARIES AND RESOURCES				
	1996-97	1998-99	2000-01	2002-03
Schools receiving awards	2,274	1,832	1,699	1,863
% of schools receiving awards	-	20.2%	18.4%	19.7%
Teachers receiving awards	30,600	31,400	32,600	34,400
% teachers receiving awards	-	27.3%	27.7%	27.7%
Excellence subsidy per teacher (annual in 2001 US\$)	345.2	364.4	428.3	439.4
Total SNED budget (thousand of 2001 US\$)	10,563	11,442	13,963	15,115

Source: Ministry of Education, Chile

The average exchange rate in 2001 was 634.9 Chilean pesos per US dollar

TABLE A.2
MEXICO: Carrera Magisterial

FACTORS AND INDICATORS	
Factor (weighting)	Indicator
Seniority (10%)	Accreditation
Academic degree (15%)	Accreditation
Professional development and upgrading (17%)	Demonstrate completion of courses required by regulations.
Professional Preparation (28%)	Teachers' knowledge is evaluated considering: tests on subject matter taught, methodological approach, support materials, etc. This evaluation is carried out by the Education Ministry through its evaluation department (<i>Dirección General de Evaluación de la Secretaría de Educación Pública</i>)
Professional performance (10%)	Covers four aspects: planning of teaching, development of the teaching-learning process, participation in school functioning and school-community integration. Each teacher is evaluated by a School Evaluation Body (<i>Organo de Evaluación Escolar</i>), which consists of all the teachers at the school and a union representative, the body is chaired by the school principal.
Students' Results (20%)	Standardized national tests applied to the students of each participating teacher, in the corresponding grade or subject.

Source: Own elaboration, based on secondary information

TABLE A.3
EL SALVADOR: Institutional Performance Evaluation (PLAN)

I. FACTORS AND INDICATORS			
Factor (weighting)	Indicator		
Institutional planning (44%)	<ul style="list-style-type: none"> - Existence of an Institutional Educational Plan and Annual School Plan ^a - Existence of a School Emergency Plan - Repetition, drop-out, absentee and overage rates and actions to reduce them ^b 		
School administration (25%)	<ul style="list-style-type: none"> - Teacher attendance - Teacher punctuality - Teachers' personal appearance - Attention to students - Student registration at the institution - School order and cleanliness 		
Educational management (9%)	<ul style="list-style-type: none"> - Community involvement in school activities - Organizational structure - Definition of functions 		
Teacher management (22%)	<ul style="list-style-type: none"> - Class planning - Registered students - Section diagnosis - Classroom environment - Teaching of values 		
II. BENEFICIARIES AND RESOURCES			
	2000	2001	2002
Schools receiving awards	2,268	1,736	1,980
Teachers receiving awards	20,000	18,085	22,231
% Schools receiving awards	48%	36%	na
% Teachers receiving awards	53%	49%	na
Excellent subsidy per teacher ^c	US\$ 228.6	US\$ 228.6	US\$ 228.6
Total Budget ^c	US\$ 4.57 million	US\$ 5.14 million	na

Source: Rodríguez (2002)

(a) The areas of institutional performance evaluation have been changing according to the following:

2000: Institutional planning; school organization; condition of school facilities; educational environment; administrative regulations;

2001: Institutional planning; school administration; educational management; teacher management; general observation;

2002: Institutional planning; school organization; student registry; values; school resources; school results; teacher management; general observation; order and cleanliness.

(b) Only in 2002 did the evaluation start to consider these variables as indicative of educational results; in 2001 only registration and actions to reduce these rates were considered.

(c) The values in dollars are calculated using the fixed exchange rate of 2001 (8.75 colones per dollar)

TABLE A.4
BOLIVIA: School Awards (ICE)

BENEFICIARIES AND RESOURCES, 2002			
	Number	Annual amount per capita (US\$)	Total amount (US\$)
Principals	185	280.5	51,893
Teachers	3,603	280.5	1,010,659
Assistants (pre / kindergarten)	8	140.25	1,122
Secretaries	36	70.13	2,525
Administrative staff	21	56.10	1,178
Gatekeeper	133	42.08	5,596
Cleaning staff	2	28.05	56
Total	3,988		1,073,029

Source: Bolivian Ministry of Education

The exchange rate was 7.13 bolivianos per US dollar in 2002