

# GREAT TEACHERS

HOW TO RAISE STUDENT LEARNING  
IN LATIN AMERICA AND THE CARIBBEAN

BARBARA BRUNS & JAVIER LUQUE

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How to Raise Student Learning  
in Latin America and the Caribbean

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## Overview

Over 7 million teachers file into classrooms across Latin America and the Caribbean each day. These women and men represent 4 percent of the region's overall labor force and over 20 percent of its technical and professional workers. Their salaries absorb close to 4 percent of the region's GDP. Their working conditions vary widely—from mud-walled, one-room rural schools to world-class facilities—but Latin America's teachers share one important commonality: they are increasingly recognized as the critical actors in the region's efforts to improve education quality and results.

While the importance of good teaching may be intuitively obvious, only over the past decade has education research begun to quantify the high economic stakes around teacher quality. In a world where the goals of national education systems are being transformed, from a focus on the transmission of facts and memorization to a focus on student competencies—for critical thinking, problem solving and lifelong learning—the demands on teachers are more complex than ever. Governments across the world have put teacher quality and teacher performance under increasing scrutiny. The Latin America and the Caribbean (LAC) region is no exception to these trends; indeed, in some key areas of teacher policy, the region is at the vanguard of global reform experience.

In this context, this study aims to:

- Benchmark the current performance of LAC's teachers and identify key issues
- Share emerging evidence on important reforms of teacher policy being implemented in LAC countries
- Analyze the political "room for maneuver" for further reform in LAC

We focus on teachers in basic education (preschool, primary, and secondary education) because the quantitative and qualitative challenges of producing effective teachers at these levels differ in key ways from university-level education, which has been addressed in other recent World Bank publications (Rodriguez, Dahlman, and Salmi 2008; Salmi 2009). We also focus on public education systems. Notwithstanding growing basic education enrollments in private schools in many countries in the region, national and sub-national governments deliver the bulk of basic education services and remain the guardians of education quality and the architects of education policy.

Chapter 1 analyzes global and regional evidence on the importance of education results for economic growth and competitiveness, and the importance of teacher quality for education results. It profiles LAC's teachers and how their characteristics have changed in recent decades. Chapter 2 provides a first-ever insight into how the region's teachers perform inside the classroom, drawing on new research conducted for this report in over 15,000 classrooms in 7 LAC countries.

Chapters 3, 4, and 5 focus on three leading areas of teacher policy reform in LAC today: chapter 3 analyzes policies to *recruit* better teachers; chapter 4 looks at programs to *groom* teachers and improve their skills once they are in service; and chapter 5 reviews strategies to *motivate* teachers to perform their best throughout their career.

Chapter 6 analyzes the prominent role of teachers' unions in the region and recent country experience with major education reforms. This chapter, like those that precede it, tries to distill the growing body of evidence from within and outside the region that can guide the design of effective programs and sustainable reforms.

Six overarching messages emerge from this study:

- The low average quality of LAC's teachers is the binding constraint on the region's education progress, and consequently on the contribution of national education spending to poverty reduction and shared prosperity
- Teacher quality in the region is compromised by weak mastery of academic content as well as ineffective classroom practice: teachers in the countries studied spend 65 percent or less of class time on instruction (compared with the a good practice benchmark of 85 percent), which implies *the loss of one full day of instruction per week*; they make limited use of available learning materials, especially information and communications technology (ICT); and do a poor job of keeping students engaged
- No teaching force in the region today (except possibly Cuba's) can be considered of high quality against global comparators, but several countries have made progress over the past decade in raising teacher quality and student learning results, most notably Chile
- There are three fundamental steps to a high-quality teaching force—recruiting, grooming, and motivating better teachers—and substantial reform experience across and outside of LAC in all three areas can guide the design of better policies
- Over the next decade, the declining size of the school-aged population in about half of the countries in the region, notably the southern cone, could make it substantially easier to raise teacher quality; in the other half of the region, especially Central America, the need for more teachers will complicate the challenge
- The deepest challenge in raising teacher quality is not fiscal or technical, but political, because teachers' unions in every country in Latin America are large and politically active stakeholders; however, a growing number of successful reform cases is yielding lessons that can aid other countries

## Why teachers matter

**LAC education performance is lagging.** Over the last 50 years, Latin American and Caribbean countries have achieved a mass expansion of education coverage that took a century or more to accomplish in many OECD countries. From a starting point of less than 10 percent of all children completing secondary school in 1960, today most LAC countries have achieved universal primary school completion and high rates of secondary schooling. Only Guatemala and Haiti stand in sharp contrast to the regional progress. While the average LAC worker's 4 years of schooling in 1960 was little more than half the level of workers in OECD countries, today the LAC average is converging on the OECD's average of 12 years. There has been a significant and rapid accumulation of human capital in Latin America over the past half-century.

But recent research has deepened the understanding of how human capital contributes to economic growth; it has established convincingly that what counts is not how many years of schooling students complete, but what they actually learn. It may seem intuitively obvious that a year of schooling in Mali will not equal one in Singapore, but only recently have researchers been able to quantify this. A country whose average performance on international tests is one standard deviation higher than another's (roughly the 100-point difference between Mexico and Germany on the 2012 Program for International Student Assessment [PISA] exam) will enjoy approximately 2-percentage point higher annual long-term GDP growth. This relationship holds across countries at all income levels, across regions, and across countries within regions (Hanushek and Woessmann 2012, figure O.1). Differences in countries' average

level of cognitive skills are consistently and fairly strongly correlated with long-term rates of economic growth. It is quality—in terms of increased student learning—that produces the economic benefits from investing in education. The region’s increasing participation in international and regional tests provides direct evidence of how well its students are learning, and four important conclusions emerge.

**Figure O.1 Cognitive skills and long-term economic growth across regions**



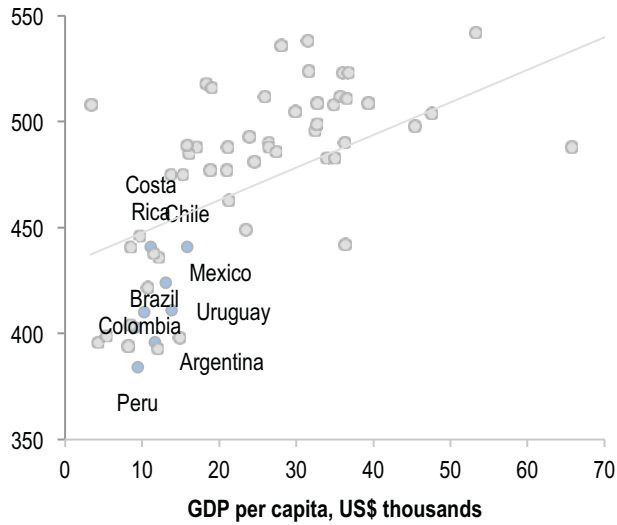
Source: Hanushek and Woessmann 2012, p.2.

Notes: This graph compares the average annual rate of growth (in percent) of real GDP per capita in 1960–2000 (adjusted for the initial level of real GDP per capita in 1960) with average scores on international student achievement tests over this period. Region codes: Asia (ASIA), Commonwealth OECD members (COMM), Europe (EURO), Latin America (LATAM), Middle East and North Africa (MENA), Sub-Saharan Africa (SSAFR).

First, relative to its level of economic development, the LAC underperforms badly. As seen in figure O.1, LAC countries’ average learning performance on all international tests over the past 40 years is lower than that of every other region except Sub-Saharan Africa. Of the 65 countries participating in the 2012 PISA test, all eight participating LAC countries scored below the average for their level of per capita income (figure O.2). The nearly 100-point difference between the Organisation for Economic Co-operation and Development (OECD) average math score (494) and the average for participating LAC countries (397) represents a disparity in skills equivalent to over two full years of math education. The gap with Shanghai, whose students averaged 613, is more than five years’ difference in math skills. Given that a larger share of all 15 year olds have already dropped out of school in LAC countries than in the OECD or East Asia, the true gap in skills is even worse. All available evidence is that the average literacy and numeracy skills of youths in LAC badly trail those of other middle-income countries.

Second, the range in performance *within* the region is substantial. Among the LAC countries participating in PISA, the gap in skills between the top performer (Chile) and the lowest (Peru) is as large as the gap between Chile and Sweden in math and Chile and the United States in reading. Regional tests show that LAC countries that do not participate in PISA are even further behind: countries such as Honduras, Venezuela, and Bolivia are very far off track in terms of the amount of globally relevant learning a year of schooling produces.

**Figure O.2 PISA reading scores and income per capita for LAC countries, 2012**

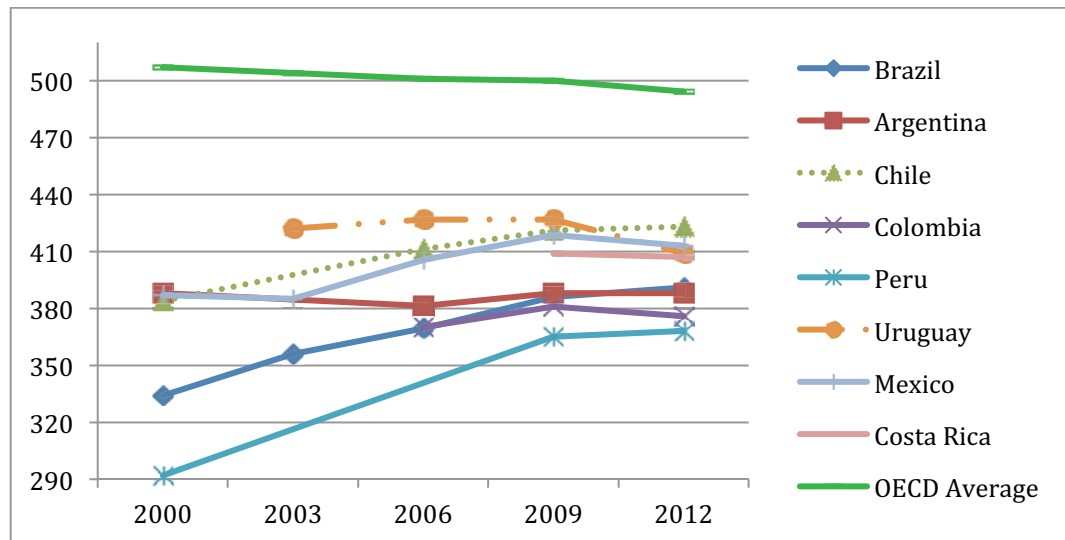


Source: OECD/PISA 2013 and World Bank.

Note: GDP per capita is adjusted for purchasing power parity (PPP), in 2005 constant prices.

The third broad conclusion is encouraging: some LAC countries are making sustained progress in closing the gap with the OECD. Between 2000 and 2012, Chile, Brazil, and Peru registered some of the biggest improvements in the entire PISA sample: more than twice the annual rate of improvement seen in the United States or Korea (Hanushek, Peterson, and Woessmann 2012).<sup>1</sup> While the LAC region as a whole faces a large challenge, there is also the encouraging prospect of relevant lessons from within the region.

**Figure O.3 Comparative PISA math improvement for LAC countries, 2000–12**



Source: OECD PISA Secretariat 2013.

But the final conclusion, reinforced by the 2012 PISA results, is that there is no room for complacency. LAC's top improvers as well as other countries in the region all made far less progress than in prior rounds of PISA. This suggests that while other countries in the region may have something to learn from

the policies adopted in Chile, Brazil, and Peru over the past decade, those countries also need to do more.

**Teacher quality drives learning.** If the economic benefits from education investments hinge on their effectiveness in producing student learning, the critical question becomes, what drives learning?" Students' family background (parent education, socioeconomic status, and conditions at home such as access to books) remains the largest overall predictor of learning outcomes. A growing body of research confirms the importance of policies to protect children's nutrition, health, cognitive, and socioemotional development in the earliest years of life. But research over the past decade has also built new evidence that once children get to school, no single factor is as critical as the quality of teachers.

Increasingly abundant student test data, especially in the United States, allow researchers to measure the "value added" of individual teachers over the course of a single school year, and has generated eye-opening evidence of widely varying teacher effectiveness, even within the same school and same grade. Students with a weak teacher may master 50 percent or less of the curriculum for that grade; students with a good teacher get an average gain of one year; and students with great teachers advance 1.5 grade levels or more (Hanushek and Rivkin 2010; Rockoff 2004). The most recent research shows that exposure to even a single highly effective teacher raises a student's college participation rates and subsequent income (Chetty et al. 2014). A series of great or bad teachers over several years compounds these effects and can lead to unbridgeable gaps in student learning levels. No other attribute of schools comes close to this impact on student achievement.

This evidence has intensified the focus of policymakers and researchers on how to identify effective teachers. No one disputes that a comprehensive definition of *teacher quality* must encompass many different teacher characteristics and performance dimensions. But teachers' ability to ensure that their students learn is the sine qua non for students and nations to reap education's economic and social benefits.

### Who are LAC's teachers?

What do we know about the characteristics and performance of teachers in Latin America? Available data paint a distressing picture.

**Mostly female, with relatively low socioeconomic status.** About 75 percent of Latin America's teachers are female, but this ranges from a low 62 percent in Mexico to 82 percent in Uruguay, Brazil, and Chile. Teachers are also poorer than the overall pool of university students. University entrance data show that students majoring in education are of lower socioeconomic status and are more likely to be first-generation university students than entrants in other fields; the data point to a pool of students whose lives may have afforded them limited experience with other professions and, consequently, more limited academic aspirations. The teaching force in most of Latin America is also aging. In Peru, Panama, and Uruguay, the average teacher is more than 40 years old; the youngest corps in the region, in Honduras and Nicaragua, average 35 years of age.

**High levels of formal education, but weak cognitive skills.** Teachers' formal education has continued to rise across the LAC region. In 1995, only 19 percent of Brazilian primary teachers had university degrees; in 2010, 62 percent did. In all ten LAC countries for which comparable household survey data are available, the formal educational level of teachers today is higher than for all other professional and technical workers and considerably higher than for office workers.

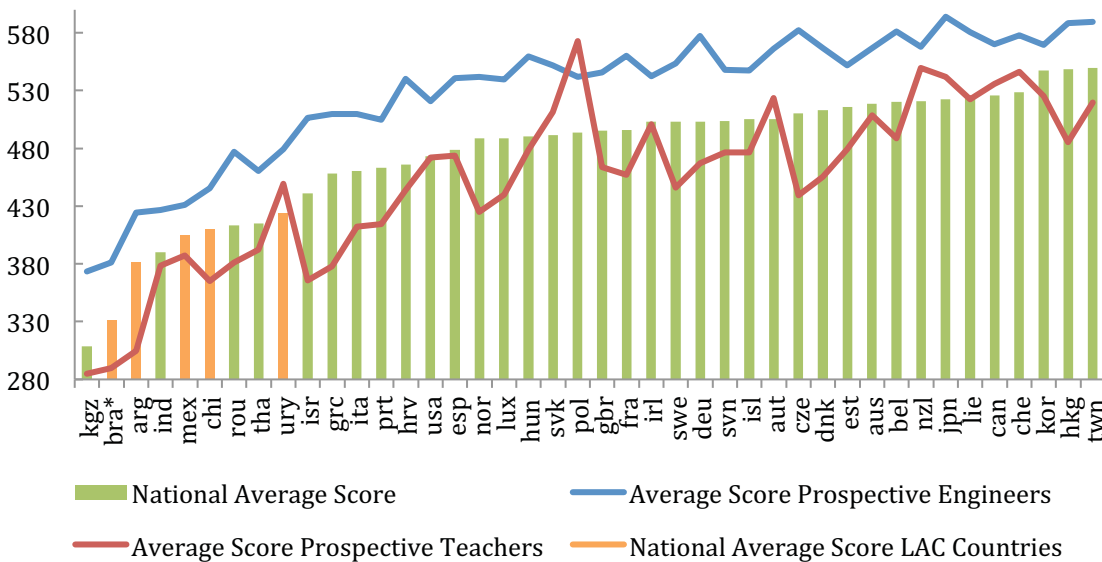
The increase in formal education, however, is undercut by evidence that the individuals entering teaching in Latin America are academically weaker than the overall pool of higher education students. Fifteen-year-old students who identify themselves as interested in a teaching career have much lower



PISA math scores than students interested in engineering in every country in the region, and score below the national average in every country except Uruguay (figure O.4).

Data from university entrance exams paint a similar picture. Students applying to teacher education programs average 505 on the Chilean university entrance exam (PSU); the average for law is 660; engineering, 700; and medicine, 745. At the University of Sao Paulo, students applying for law and engineering programs score 36 percent higher than teacher education applicants, and medical school applicants score 50 percent higher.

**Figure O.4 Comparative PISA math performance of prospective teachers and prospective engineers**



Source: OECD, PISA, 2000–06. Data are from PISA 2006, except for Brazil (from PISA 2000).

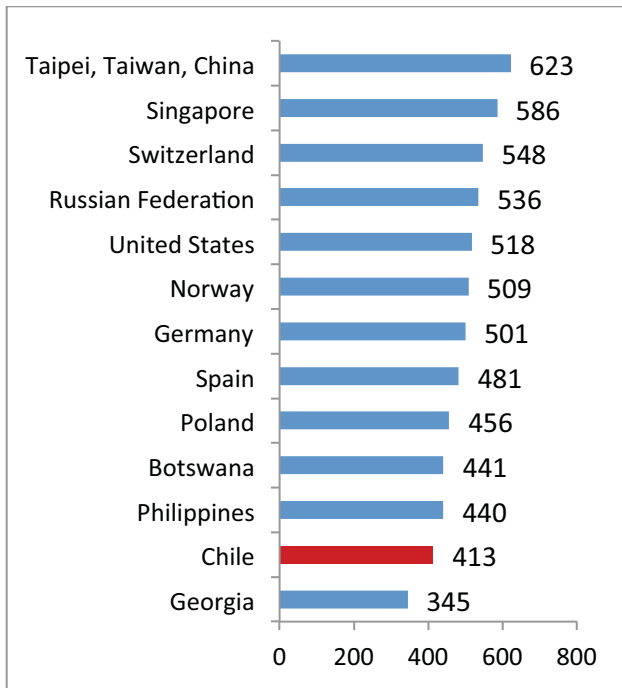
There are few direct studies of how much Latin American teachers know about the subjects they teach, but those available show a disturbing disconnect between teachers’ formal credentials and their cognitive skills. Fully 84 percent of sixth-grade teachers in Peru scored below level 2 on a 2006 test where level 3 meant mastery of sixth-grade math skills. On tests of teacher content mastery in Colombia, Ecuador, and Chile, fewer than 3 percent of teachers have scored in the range considered excellent.

On the one international study that directly compares teachers’ mastery of math, Chile was the sole LAC country to participate. The study tested the math skills of teacher education students. Chile’s future secondary school math teachers scored the lowest of the participating countries, and its future primary school teachers were second lowest (figure O.5). Most of the countries in the study were high-income, high-achieving countries. Yet Chile’s future secondary school teachers had weaker math skills than teachers from Botswana and the Philippines. Among future primary school teachers, only those from Georgia performed worse. Given that Chile is the LAC region’s highest performer on international tests, these data point to deep issues for other countries in the region in raising the expertise of their teachers.

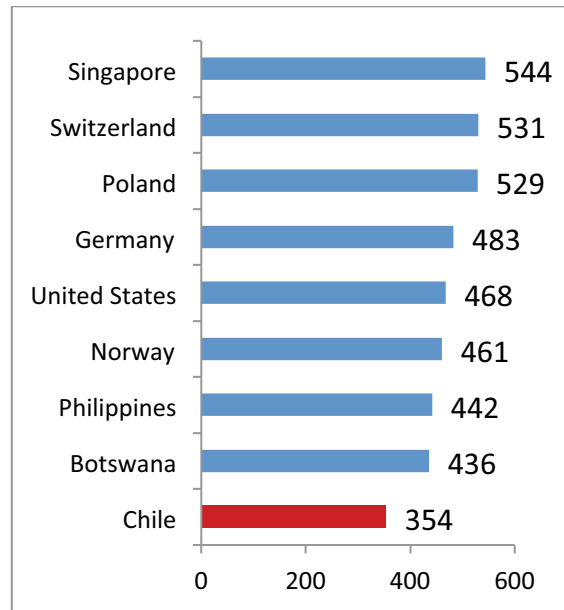


**Figure O.5 Comparative math content knowledge of future math teachers, 2008**

**a. Primary school teachers**



**b. Secondary school teachers**

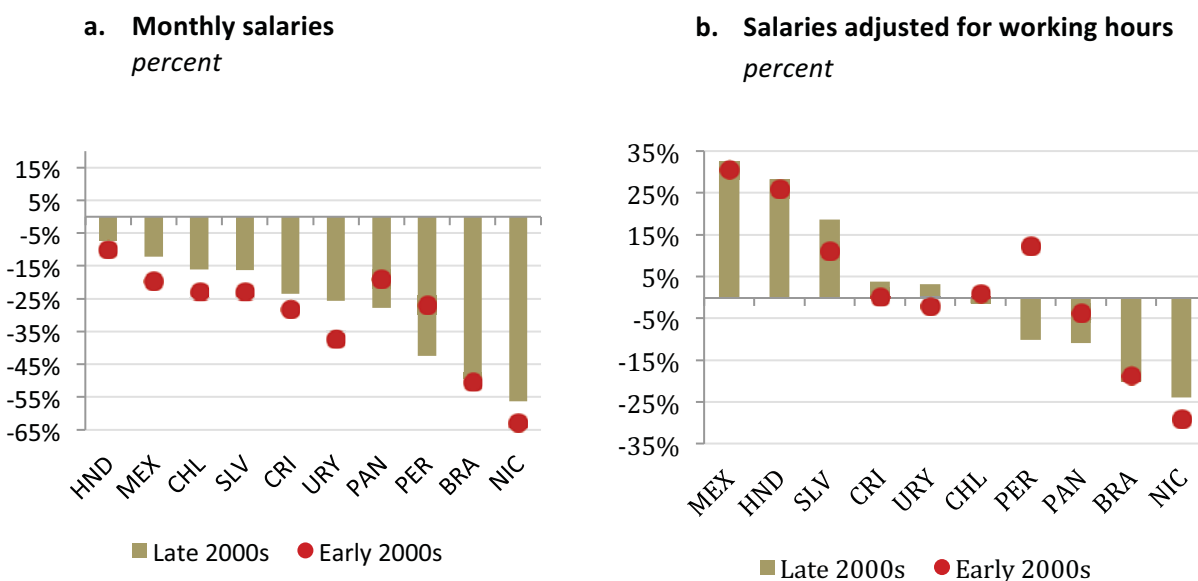


Source: TEDS-M 2008.

**Relatively low salaries.** What explains relatively weak students pursuing high levels of formal education to become teachers? What are the incentives to enter teaching today in LAC? Figure O.6 compares salaries for teachers to those of all other professional workers in all ten of the countries for which comparable household survey data are available controlling for age, gender, urban/rural location, and employment experience. On a monthly basis, teachers’ salaries in 2010 were between 10 and 50 percent lower than salaries for other “equivalent” professional workers, and have been throughout the 2000s.

Teachers, however, work significantly fewer hours, reporting 30 to 40 hours per week on average, compared with 40 to 50 hours per week for other professional, technical, and office workers. Adjusted for working hours, teachers’ relative position is different. In three countries (Mexico, Honduras, and El Salvador) teachers earn 20 to 40 percent more than comparable professional and technical workers; in three others they are on par (Costa Rica, Uruguay, and Chile); and in four countries they earn 10 to 30 percent less (Peru, Panama, Brazil, and Nicaragua).

**Figure O.6 Average salaries for teachers and other professional workers, 2000 and 2010**



Source: World Bank analysis of household survey and labor market data for 10 LAC countries.

Note: All values control for age, education, gender, and urban/rural location and are adjusted for inflation. Teacher income is income from teaching only, but can reflect multiple teaching jobs.

**Flat salary trajectory.** Underlying these differences in average salaries, however, is a much flatter lifetime career trajectory for teachers than for other professional, technical, and office workers. Teachers’ entering salaries in LAC are on par with other professional and technical workers in many countries but diverge significantly thereafter. Teachers’ salaries rise very slowly, while other workers reap salary gains as their experience increases. There is also little wage differentiation in education compared with other sectors: irrespective of individual skills, talent, and experience, landing a job in teaching guarantees a salary within a relatively narrow band, with little risk of a very low or declining wage but little chance of a high one.

Research by Hernani-Limarino (2005) suggests that in Latin America and the Caribbean individuals who tend to be less productive earn relatively more as teachers and those with attributes that make them highly productive tend to earn relatively less. This echoes research by Hoxby and Leigh (2004) for the United States which finds that talented women have been driven out of teaching over the past several decades by the “push” of a highly compressed wage scale, which is unattractive to more ambitious individuals. It is not only in the United States and Latin America that the average cognitive ability of university students getting teaching degrees has declined and higher-ability individuals have left the profession at a higher rate. Researchers in Sweden have documented similar trends (Corcoran et al. 2004; Eide et al. 2004; Hoxby 2004; Fredriksson and Ockert 2007).

**Job stability.** As Mizala and Nopo (2011) have observed, many nonpecuniary or “intrinsic” attributes of the teaching profession compensate for its relatively weak salary incentives in the eyes of prospective teachers. These include the mission of helping children and the satisfactions of professional mastery and collegial interaction. Teaching also offers long vacations, relatively generous health and pension benefits, and a “family-friendly” short official working day. Perhaps the most powerful attraction is high job security. Labor market data show that for women in particular, teaching offers stable employment; women who have graduated from teacher education over the past 40 years are significantly more likely to have been employed and stayed employed than women with other degrees.

**Excess supply.** Tertiary-level teacher education programs have proliferated in LAC over the past 15 years. The costs of establishing such programs are low, and have attracted a large number of private providers into the field. From the demand side, the low or nonexistent academic standards for entry to these programs make them attractive to a rapidly expanding pool of secondary school graduates. Virtually all countries in the region report difficulty finding sufficient teachers for specialty subjects such as secondary school math and science, or for bilingual schools in rural areas. But the broader picture across the region today is substantial excess production of teacher graduates of generally low academic quality. Recent data for Peru, Chile, Costa Rica, Panama, and Uruguay suggest that 40 to 50 percent of graduates from teacher training schools will not find work as teachers.

Available evidence suggests that Latin America is not attracting the high-caliber individuals it needs to build world-class education systems. Virtually all countries in the region appear trapped in a low-level equilibrium of low standards for entry into teaching, low-quality candidates, relatively low and undifferentiated salaries, low professionalism in the classroom, and poor education results. Moving to a new equilibrium will be difficult. No Latin American school system today, except possibly Cuba's, is very close to high standards, high academic talent, high or at least adequate compensation, and high professional autonomy that characterize the world's most effective education systems (such as those found in Finland; Singapore; Shanghai, China; Korea; Switzerland; the Netherlands; and Canada).

### **LAC's teachers inside the classroom**

The magic of education—the transformation of schooling inputs into learning outcomes—happens in the classroom. Every element of an education system's expenditure, from curriculum design through school construction, book procurement, and teacher salaries, comes together at the moment when a teacher interacts with students in the classroom. How intensively this instructional time is used is a core determinant of the productivity of education spending.

Research conducted for this study provides a first-ever look inside LAC's classrooms to examine how teachers use class time and other available resources to support their students' learning. Over 15,000 classrooms in more than 2,700 schools in seven different countries were observed between 2009 and 2012: the largest-scale international study of this kind ever mounted. Through unannounced visits to national (or state-level) representative samples of schools, trained observers used a standardized research protocol called the "Stallings classroom snapshot" to generate internationally comparable data on four variables:

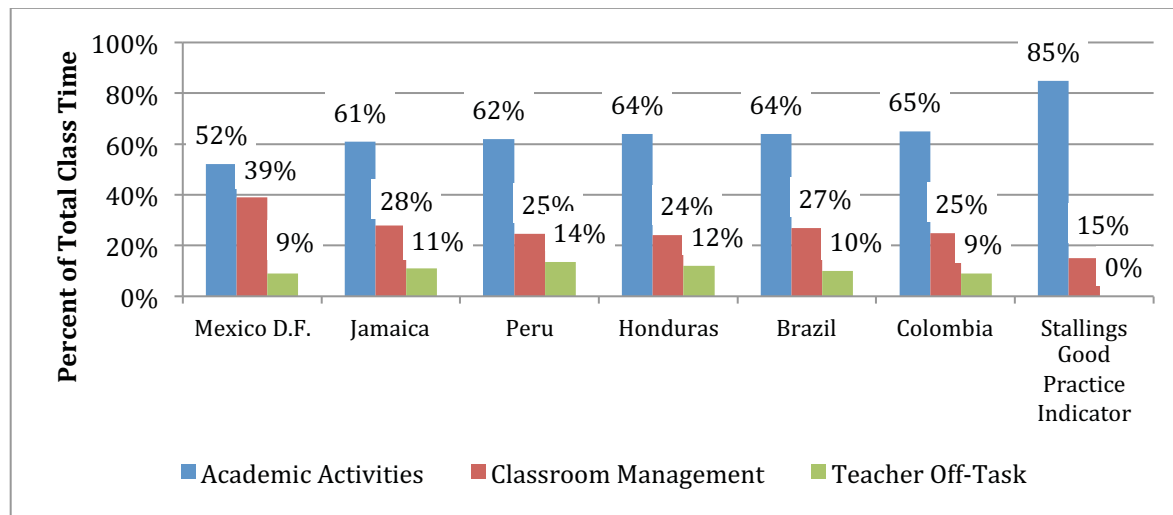
- Teachers' use of instructional time
- Teachers' use of materials, including computers and other ICT
- Teachers' core pedagogical practices
- Teachers' ability to keep students engaged

The method was originally developed in the United States, so LAC results may be benchmarked against data from US school systems collected over several decades by researchers Stallings and Knight (2003). Evidence from the observations in LAC supports five main conclusions:

**Low use of instructional time contributes to low student learning in LAC.** No school system in LAC studied, either at the national or state level, comes close to the Stallings good practice benchmark of 85 percent of total class time used for instruction. The highest averages recorded—65 percent for the national sample in Colombia, and 64 percent for Brazil and Honduras—are a full 20 percentage points below what Stallings' research suggested a well-run classroom achieves (figure O.7). Since Stallings measures are statistically representative of the functioning of the school system as a whole, this implies

that 20 percent of potential instructional time is being lost across Latin America compared with the good practice goal. *This is the equivalent of one less day of instruction per week.*

**Figure O.7 Average time on instruction in LAC countries**



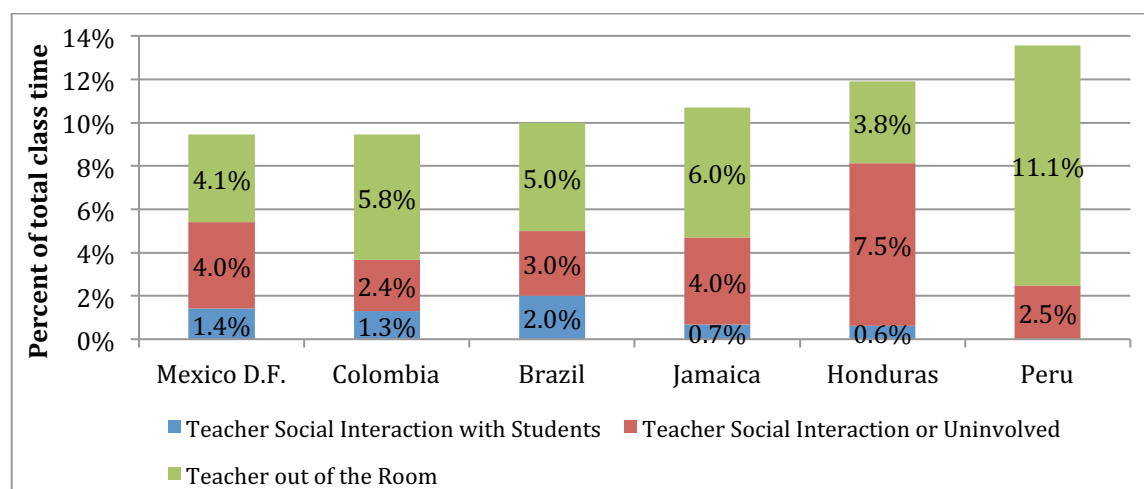
*Note:* Results for the Dominican Republic are not included because the sample was a pilot.

*Source:* World Bank classroom observation database

Most of the time lost to instruction is used on classroom management activities, such as taking attendance, cleaning the blackboard, grading homework, or distributing papers, which absorb between 24 percent and 39 percent of total class time: well above the 15 percent benchmark. Teacher training programs in many OECD countries impart techniques for managing classroom transitions and administrative processes as efficiently as possible, with the mantra that “instructional time is a school’s most expensive resource.” Classroom teachers in Latin America appear to operate with little of this pressure.

Stallings benchmarks also assume that teachers spend the entire class session either teaching or managing the classroom, but in every LAC country studied teachers spend at least 9 percent of time engaged in neither of these, which is considered teacher time completely “off-task” (figure O.8). The highest shares are 13 percent in Peru, 12 percent in Honduras, and 11 percent in Jamaica. In some systems, teachers are physically absent from the room as much as 6 to 11 percent of total class time. In others, as much as 6 to 8 percent of the time teachers are engaged in social interaction with someone at the classroom door or simply not interacting with the class. Ten percent of total instructional time off-task equals 20 lost days in a 200-day school year. In these countries, more than half of the lost days of instruction are because teachers are physically absent from the classroom, arriving late to class, leaving early, or conducting other school business during class time.

**Figure O.8 Breakdown of teacher time off-task, by country**



Source: World Bank classroom observation database.

In Brazil, Honduras, Mexico’s D.F., and Colombia, student test data permit correlation of teachers’ use of time with learning results at the school level. Table O.1 shows a characteristic result: a very different pattern of time use between the highest- and lowest-performing schools in Rio de Janeiro (on a combined index of student test scores and student pass rates called the Index of Basic Education Development [IDEB]). Top schools averaged 70 percent of class time on instruction and 27 percent of time on classroom management. Teachers were off-task only 3 percent of the time and were never absent from the classroom. In the lowest-performing schools, only 54 percent of time was spent on instruction, 39 percent was absorbed in classroom management, and teachers were off-task 7 percent and physically absent 3 percent of the time. These data mean that students in Rio’s high-performing schools receive *an average of 32 more days of instruction* over the 200-day school year than their counterparts in low-performing schools. Observation data cannot establish causality, but gaps of this magnitude in opportunities to learn could clearly contribute to gaps in test scores and pass rates.

**Table O.1 Use of class time in Rio de Janeiro schools, 2010**

*percent of total class time*

Fifth grade	Use of class time			
	Time on instruction	Classroom organization	Teacher off-task	Teacher out of classroom (within off-task)
<b>Rio municipality</b>	<b>58%</b>	<b>37%</b>	<b>6%</b>	<b>1%</b>
Top 10% of schools on IDEB	<b>70%</b>	<b>27%</b>	<b>3%</b>	<b>0%</b>
Bottom 10% of schools on IDEB	<b>54%</b>	<b>39%</b>	<b>7%</b>	<b>3%</b>
Difference	0.16	-0.13	-0.03	-0.03
	[0,09]*	[0,09]*	[0,02]	[0,01]**

**Note:** Robust standard errors in parentheses: \*statistically significant at 10 percent level, \*\*statistically significant at 5 percent level. .

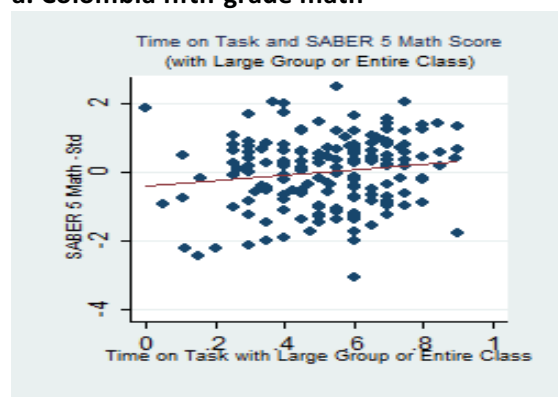
Source: World Bank classroom observation database.

Schools at the top and bottom ends of the performance distribution in terms of student learning almost always show large, statistically significant differences in instructional time. In Honduras, the top 10 percent of schools on the national assessment averaged 68 percent of time on instruction, while the schools in the bottom 10 percent averaged 46 percent. In Mexico’s Federal District, the 10 percent of schools with the highest test scores averaged 62 percent of time on instruction compared with 51 percent of time on instruction in the 10 percent of schools with the lowest scores. Across the full distribution, positive correlations hold in all four countries, across all tested grades and subjects, with relatively few exceptions: students have higher learning outcomes in schools where teachers devote more time to academic activities.

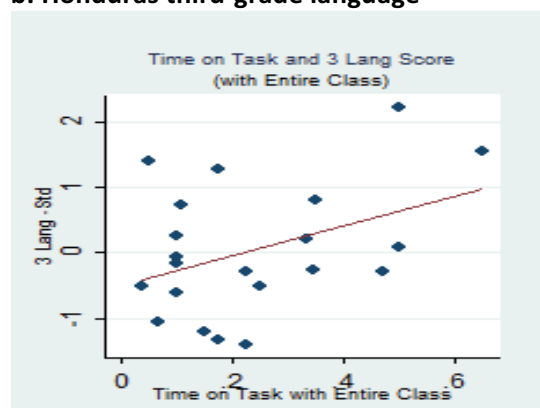
When test scores are correlated with teachers’ ability to keep students engaged in what they are teaching, the results can be even stronger. Teachers who successfully involve the entire class in the task at hand have better control of the class, fewer problems with discipline, more time to impact student learning, and afford a larger share of their students the opportunity to learn (figure O.9).

**Figure O.9 Time on instruction with high student engagement and student learning outcomes**

**a. Colombia fifth-grade math**



**b. Honduras third-grade language**



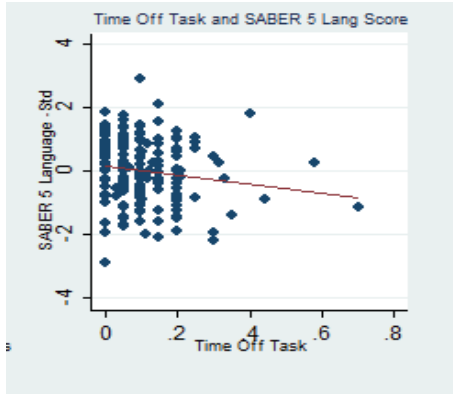
Source: World Bank classroom observation database.

Strongest of all was the negative correlation between teachers’ time off-task and student achievement. As discussed earlier, approximately 10 percent of the time LAC teachers are neither teaching nor managing the classroom. This pattern has clear consequences for student learning (figure O.10).

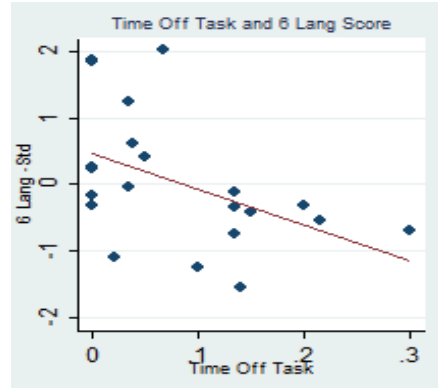
Although broad patterns are apparent, the correlations are statistically weaker than might be expected. A major explanation is that student test score data are analyzed at the school level and represent the average score for several different classrooms of students (for example, three or four different fourth-grade math classes) in a given school, while the observation data are for only one of those classrooms. Given large variation in classroom dynamics from one teacher to another, even in the same school—as discussed later in this section—comparing school-level average learning outcomes with the dynamics of a single classroom injected a large degree of random variation into the correlations.

Figure O.10 Teacher time off-task and student learning in LAC countries

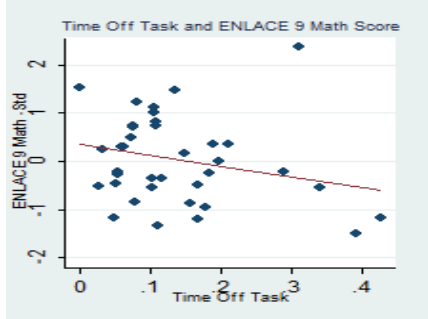
a. Colombia fifth-grade Spanish (SABER)



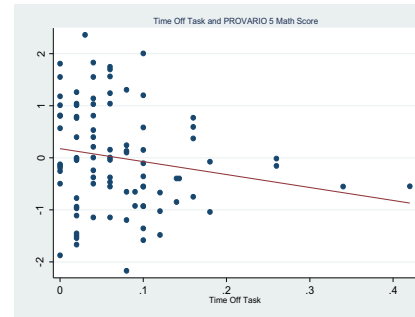
b. Honduras sixth-grade language



c. Mexico ninth-grade math (ENLACE)



d. Rio fifth-grade math (PROVARIO)



**Teachers rely heavily on the blackboard and make little use of ICT.** A second finding of the research is that many learning materials available in LAC classrooms are not used intensively by teachers. Descriptive data collected by the observers shows that most schools in the region today offer students a reasonably enriched learning environment. Students are widely equipped with workbooks, writing materials, and textbooks. A fast-growing share of schools has visible ICT in the classroom: from televisions to digital whiteboards, LCD projectors, and laptops. In this sample, both Peru and Honduras had introduced one laptop per child (OLPC).

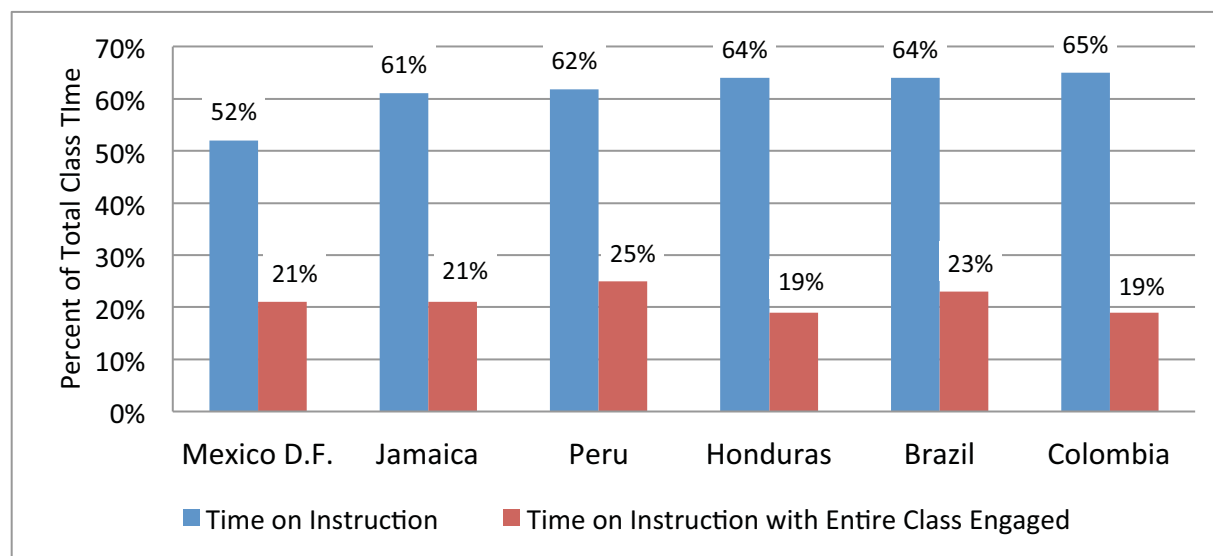
But teacher practice continues to rely heavily on a single, very traditional, learning aid: the blackboard. About one-third of all time spent on teaching activities, teachers use the blackboard and nothing else. Between 14 and 24 percent of the time, teachers use no learning materials. Teachers use available classroom-level ICT only 2 percent of the time. In Honduras and Peru—the countries with the largest investments in one-to-one computing in this sample—the share of total class time spent using these materials was in fact the lowest, 1 percent in Peru (in 2011) and less than 1 percent in Honduras (in 2011).

**Students are unengaged.** LAC's teachers have great difficulty keeping their students engaged in learning. In no system studied do teachers on average keep the entire class engaged in learning more than 25 percent of class time (figure O.11). More than half of all class time, in all countries, up to five students are tuned out. Between one-fifth and one-quarter of total class time, in all countries, a large group of students (six or more) is visibly not involved in the activity the teacher is leading. With an average class size of 25 across our sample, six students represent a significant share, and can disrupt the



work of other students. Observers in every country saw classrooms that were badly out of control, even with the teacher present and aware of being observed.

**Figure O.11 Teacher time on instruction with the entire class engaged**



Source: World Bank classroom observation database.

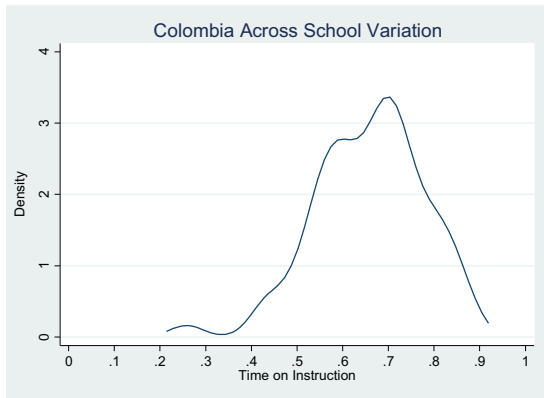
Given high repetition rates, LAC's teachers often face classes that span different ages and learning levels. Well-trained teachers, however, learn to handle such classes and with well-designed lesson plans keep all students engaged much more than 20 percent of the time. One of the clearest findings of this research is that poor student learning results can be directly linked to the failure of teachers to keep students engaged in learning. Important challenges for both pre-service and in-service teacher training programs in LAC are to ensure that teachers recognize the importance of drawing all students into the learning process, are equipped with a range of teaching strategies to achieve this, and arrive at school each day prepared to use these strategies, and every minute of class time, effectively.

**Average classroom practice varies tremendously across schools.** A fourth finding is the wide variation in average classroom practice across schools. In every system, there are many schools where the average share of class time used for instruction exceeds the Stallings 85 percent benchmark and others where instructional time is disastrously low: below 20 percent of total class time. Imagine attending a school where four days per week there is no instruction (figure O.12).

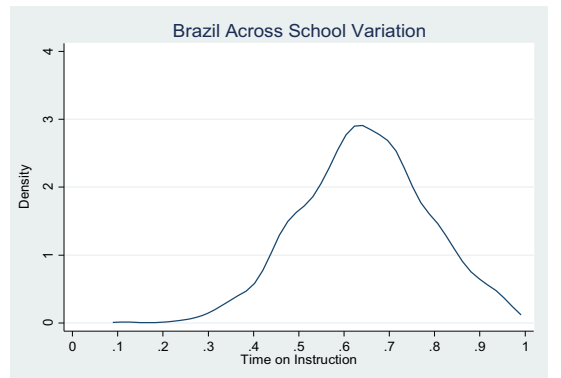
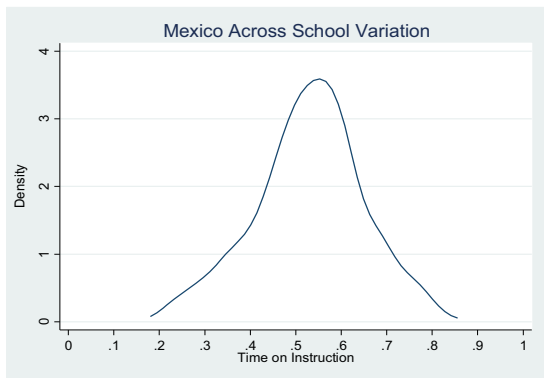
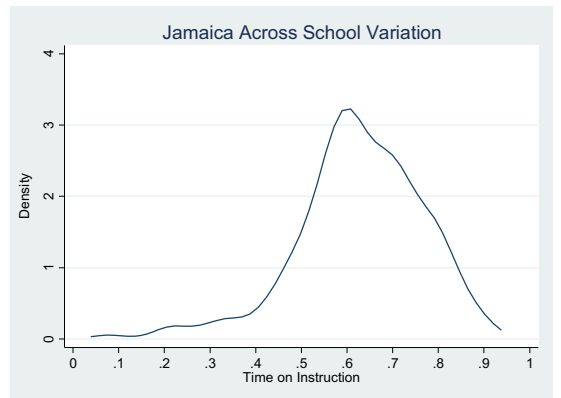
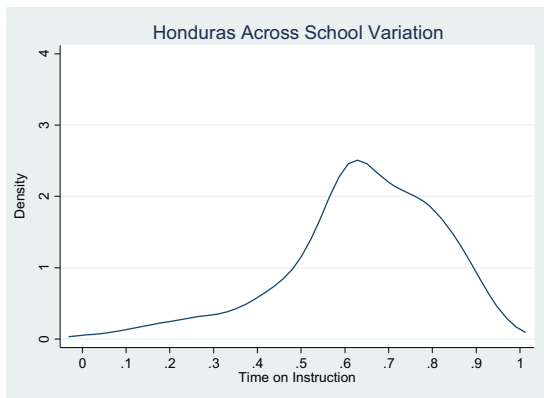
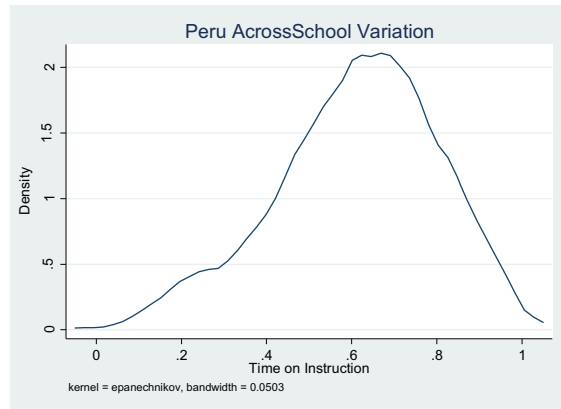
In some countries, there were distinct differences across regions; in Honduras, schools in the province of Colon averaged 33 percent of time on instruction while those in Copan averaged 83 percent. In Pernambuco, Brazil, schools observed in late 2009 that went on to achieve their performance targets for the year and earn a school-level bonus averaged 63 percent of time on instruction compared to 54 percent in schools that failed to gain the bonus.

Figure O.12 Distribution of schools by average time spent on instruction

a. Colombia across school variation



b. Peru across school variation



Source: World Bank classroom observation database

What is evident from this dispersion is that *school systems are not focused on the issue of instructional time*. Within a given national or subnational education system, schools operate in the same institutional and policy environment. They share the same policies for the selection of school directors, curriculum, teacher standards, preparation, and student assignment rules. Yet this research shows that these policies are playing out at the school level in widely different ways. And these difference have important

consequences for students. In Honduran schools, 64 percent of time is spent on instruction, on average, across the system. But the top 20 percent of schools (in terms of instructional time use) average 85 percent: they achieve the Stallings benchmark. Schools in the bottom quintile average 37 percent. This 48 percentage-point difference means that students in top quintile schools receive an average of 96 more days of instruction than students in bottom schools *each year*. The consequences for students spending several years in a school that consistently delivers much less instruction are cumulative and highly unfair.

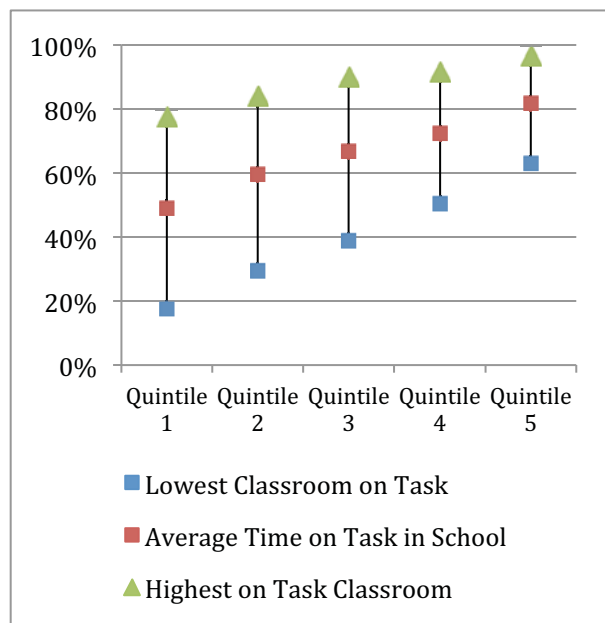
**Average classroom practice varies tremendously within schools.** The fifth and most surprising finding is the degree of variation in teacher practice *inside* schools. The difference in instructional time use between the best (highest time on teaching) and worst teacher in a single school is typically about two-thirds as large as the variation across the whole school system, a truly staggering range.

Figure O.13 draws out these patterns. In Colombia, for example, the average time on instruction across the national sample is 65 percent. Schools in the top quintile of the performance distribution (of time use) average 82 percent, and schools in the bottom quintile average 49 percent: a 33 percentage-point difference. But an even greater range exists between the best- and worst-performing teachers *inside* these schools. For a school in the lowest quintile, the best teacher will typically spend 78 percent of class time on instruction—not far from the Stallings benchmark—while the worst teacher in that school will use only 18 percent of time for instruction. This 60 percentage-point average difference in time spent teaching *within* these schools is larger than the range in the average *across* quintiles of schools.

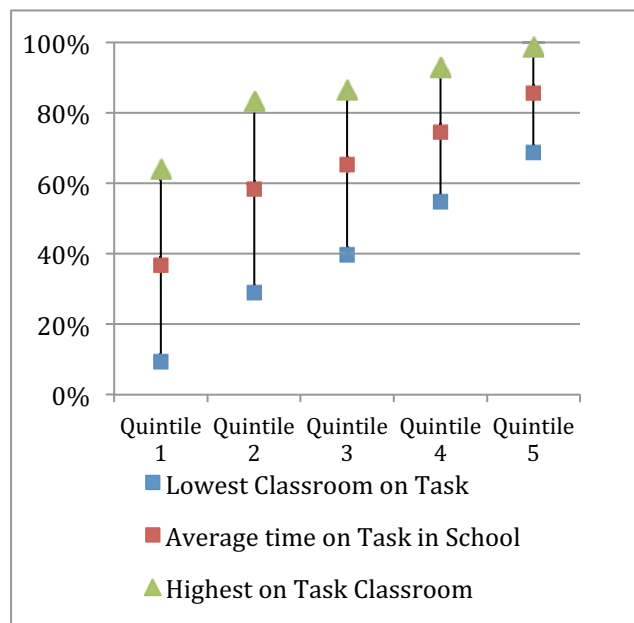
**Figure O.13 Colombia and Honduras variation in instructional time within schools, 2011**

*Percent of class time spent on instruction*

**a. Colombia**



**b. Honduras**



Source: World Bank classroom observation database.

Note: Quintiles refer to the distribution of schools ranked from highest to lowest average time on instruction.

In the 20 percent of schools with the highest average use of time, the gaps in time use between the best- and worst-performing teachers in each school is much smaller. Top teachers in these Colombian schools spend an impressive 97 percent of total class time on instruction, but even the least efficient teachers in these schools achieve 63 percent of time on instruction: a 34 percentage-point difference that is roughly half the size of the within-school gap in the bottom quintile of schools. What truly distinguishes top schools is consistency: good schools have less variation from classroom to classroom in one very basic parameter of teacher performance: the share of class time used for instruction. Whether the country has relatively high across-school variation (such as Honduras, Jamaica, or Brazil) or low (Mexico and Colombia) the top quintile of the distribution is characterized by more consistent teacher performance across different classrooms.

The implications of these data are profound. First, school systems clearly are not focused on the issue of instructional time. In some sense, this is understandable. No LAC school system today collects standardized data on classroom dynamics; it is understandable that large differences can persist in the absence of any detection system.

But variations in classroom practice *within* a school are another matter. Direct observation of all the classrooms within a single school is not only technically feasible but is an implicit responsibility of school directors. There is clearly large scope for directors to promote more exchange of practice within their schools. The costs of identifying the most effective teachers within a school and ensuring that other teachers observe and learn from these examples are tiny compared to the costs of traditional teacher training programs, which require bringing large numbers of teachers off-site and hiring trainers.

Raising the average quality teacher practice *across* schools is the responsibility of system managers. Many different approaches can be imagined: feeding back comparative classroom observation data to schools as an input to their development planning; initiating new forms of teacher training based on videotaped examples of good and weak teacher practice; including assessments of teachers' classroom practice—whether by video or trained observers—in teacher performance evaluations. Policymakers in the seven countries involved in this program have taken the results as a stimulus to action along several of these lines. Our research created a baseline picture of what LAC students encounter inside the classroom today. It also provides a basis for tracking how ongoing and new reforms in these countries succeed in reshaping that reality.

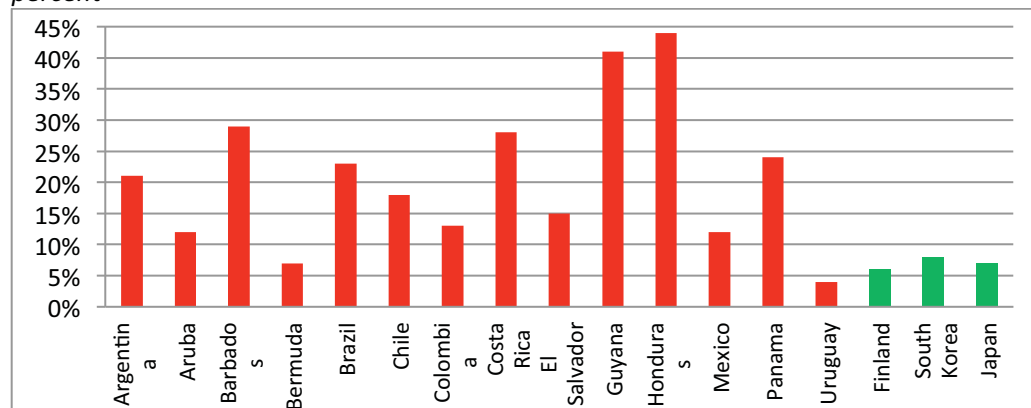
## Recruiting better teachers

There are three core challenges in raising teacher quality: recruiting, grooming, and motivating better teachers. Of these, recruiting—raising the caliber of teachers at the point of recruitment—is likely to be the most complicated for LAC countries, because it depends on raising the selectivity of teaching as a profession. Global research on high-performing education systems consistently points to the ability to attract top talent into teaching as a critical underlying factor that takes education systems from “good to great” (Barber and Mourshed 2007). But attracting highly talented individuals into teaching requires aligning a complex and interrelated set of factors that can be difficult and slow to change, including salaries and the salary structure, the prestige of the profession, the selectivity of entry into teacher education, and the quality of that education.

**Raising selectivity.** Our analysis suggests that salary increases may be necessary in some countries to make or keep teachers' average salaries—and the structure of teachers' salary incentives—competitive. But salary increases will raise quality only if they are accompanied by policies to raise the selectivity of teacher education programs. This is a crucial issue in the LAC region that gets far too little attention. In Singapore and Finland, only 20 percent of secondary school students who apply to teacher education

programs are accepted, and all come from the top third of students. In LAC, there is virtually no winnowing of teacher candidates at the point of entry into teacher education, and academic standards are lower than in other professional fields. As a result, the share of tertiary education students in Latin America enrolled in teacher training is much higher than in many OECD countries, and many LAC countries are currently producing an excess of teacher graduates (figure O.14). In Peru, only 50 percent of teacher graduates find jobs as classroom teachers; in Costa Rica, only 54 percent. Chile's Ministry of Education in 2013 estimated that as many as half of all students graduated from teacher education programs in recent years are currently employed in retail.

**Figure O.14 Tertiary graduates who studied education**  
percent



Source: UNESCO 2012. Data is for most recent available year between 2009 and 2012.

Since teacher education is often subsidized by the public sector, producing an excess of teachers diverts resources from other, more productive investments in student learning. In countries where students finance teacher education with their own resources or loans, the overproduction of graduates from a four- or five-year program of study that does not lead to relevant employment can be even more problematic, and may generate social unrest. Most fundamentally, a lack of selectivity undermines the prestige of the profession and makes teacher education less attractive for top students.

The selectivity and status of the teaching profession are not immutable qualities of an education system. Finland made raising teacher selectivity a cornerstone of an education reform strategy adopted in the 1970s. Over several decades, it transformed its labor market for teachers from one where a large number of teacher training institutions of variable quality produced an excessive number of teachers to one where a much smaller number of high-quality institutions produce just enough high-talent teachers, all of whom find teaching positions and enjoy high social prestige.

Global experience points to three key levers for making teacher recruitment more selective:

- Raising standards for entry into teacher education
- Raising the quality of teacher education schools
- Raising hiring standards for new teachers

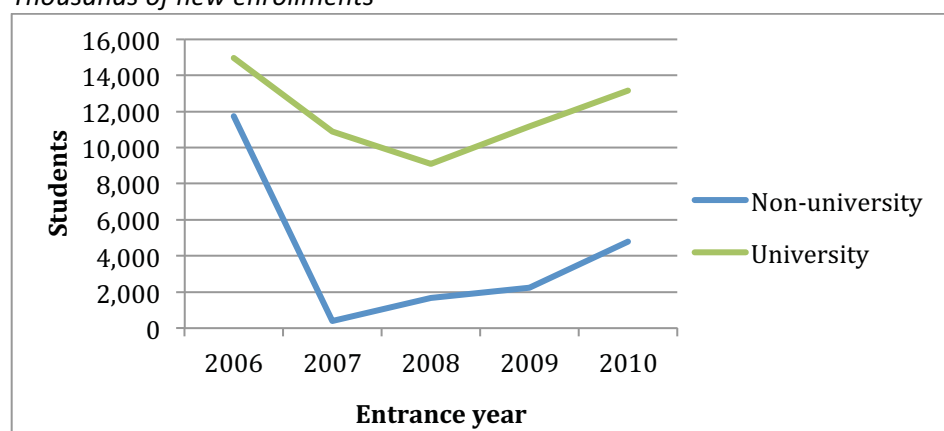
**Raising entry standards for teacher education.** The principle of university autonomy in Latin America legally prevents most ministries of education from directly controlling admissions standards for pre-service teacher training. A few prestigious universities are selective, but in most countries the majority of new teachers are produced by low-quality private providers and nonuniversity teacher training institutes subject to weak quality assurance.

Four main strategies are being pursued by education ministries in the region to address these issues: (a) closing low-quality schools under direct control of the ministry (typically nonuniversity teacher education institutions); (b) establishing a national teacher university directly controlled by the ministry, such as Singapore’s National Institute for Education; (c) creating special scholarships for top students; and (d) raising accreditation standards for autonomous tertiary institutions, forcing closure or adaptation.

Peru tackled the oversupply of low-quality teachers from nonuniversity teacher training schools (Institutos Superiores Pedagógicos [ISP]) in 2006 with the introduction of a national bar for admissions. Requiring candidates to achieve a minimum competency score on cognitive tests, a writing test, and an interview had a dramatic effect on ISP enrollments; they dropped from 11,000 to 389 in a single year (figure O.15). A number of regional institutes were suddenly threatened with closure, raising concerns about potential teacher shortages in bilingual and rural communities. In 2012, the ministry returned control over admissions to the institutions, but with annual enrollment caps set by the ministry.

**Figure O.15 Raising the bar for teacher education programs in Peru, 2006–10**

*Thousands of new enrollments*



Source: World Bank construction from Peru Ministry of Education data.

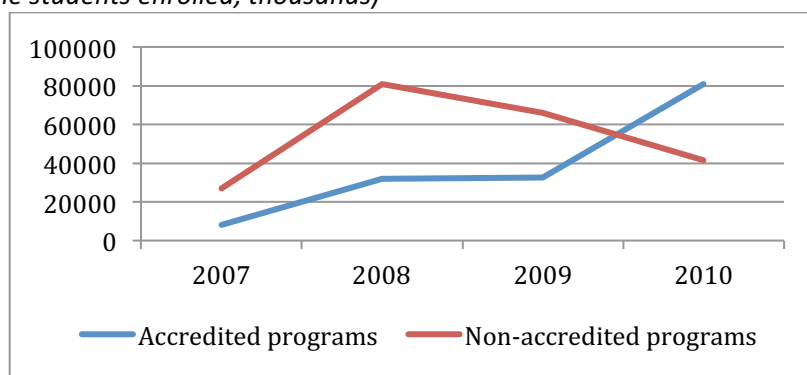
Ecuador has been similarly aggressive in trying to raise the quality of teacher education. It closed 14 low-quality teacher preparation institutions in 2012 and is creating a high-level pedagogic university dependent on the Ministry of Education, the Universidad Nacional de Educación (UNAE). Researchers have identified a “tight coupling” between the Ministry of Education and the institutions where teachers are educated as a factor in the educational success of countries as different as Singapore and Cuba (Carnoy 2007). “Tight coupling” ensures the coordination of teacher education with national education policy goals, such as higher selectivity at entry and stronger emphasis on math instruction, critical thinking, and twenty-first-century information technology skills. The UNAE will prepare teachers for a new national curriculum currently being designed in consultation with national and international stakeholders and experts. Another central idea is that UNAE will become the link between national policymakers and other teacher training institutions, seeding the latter over time with highly qualified faculty trained at the UNAE.

A third strategy, which offers shorter-term impact, is the use of targeted incentives to attract top secondary school graduates into teaching. In Singapore, Finland, Hong Kong, and Scotland, teacher training is open only to select candidates, but these students receive free tuition plus a salary or stipend while they are in training (Garland 2008). Colombia and Chile have recently launched similar programs. Chile’s program, called the Beca Vocación de Profesor (BVP), in 2010 began offering full tuition for students who score 600 or higher on the university entrance examination (PSU), and agree to study

education and work as a full-time teacher for at least three years in public or subsidized schools after graduating. About 3,500 students per year have qualified for the Beca since 2010, a relatively small share of the 130,000 students in teacher education in Chile. But researchers have confirmed the BVP's success in attracting students with a stronger academic profile. Feedback from top universities is that the new students are stimulating higher academic performance from their classmates as well.

The fourth and most important tool is the accreditation and review process. Developing the institutional capacity for a national higher education accreditation system is complex and takes time. Chile's experience, however, shows that accreditation information can exert important influence on student enrollment choices (figure O.16). When mandatory accreditation reviews of teacher education programs began in 2006, 80 percent of the country's 940 teaching programs received either no accreditation or the lowest category. Even without direct action to close low-quality institutions, in the space of a few years, the teacher training market shifted massively from 77 percent of enrollments in nonaccredited programs to 70 percent of enrollments in accredited programs. Proposed legislation goes further, requiring that all teachers hired into public (or publicly subsidized) schools must have graduated from accredited programs.

**Figure O.16 Impact of accreditation information on teacher education enrollments in Chile, 2007–10**  
(full-time students enrolled, thousands)



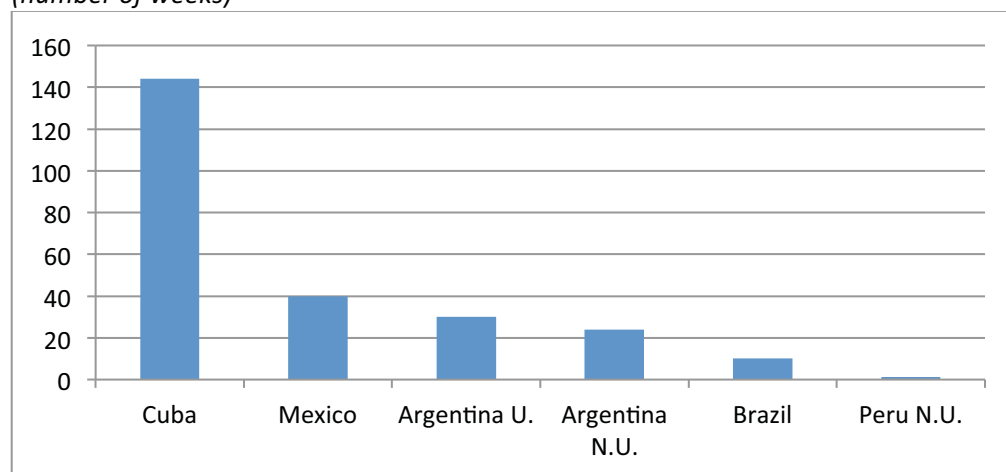
Source: World Bank construction using Chile Ministry of Education enrollment data.

**Raising the quality of teacher education.** The academic quality of students entering teacher training is weak, but the quality of those programs is also dismally low. Qualitative accounts of pre-service training in Latin America generally describe it as failing to provide sufficient content mastery and student-centered pedagogy; being isolated from the school system and education policy making; and including practical exposure to work in schools only toward the end of the degree and sometimes not at all (UNESCO 2012).

While global research suggests that pre-service training programs focused on the work teachers will actually face in classrooms lead to more effective first-year teachers and higher learning for their students (Boyd et al. 2009), most Latin American and Caribbean countries do not set a minimum standard for practice teaching and leave it to institutions to define. As a result, while in high-performing Cuba 72 percent of a teacher education program is spent doing practice in schools (i.e., more than 7,100 hours over 5 years), national thresholds in other countries require far less. (figure O.17).



**Figure O.17 Compulsory pre-service teaching practice in LAC countries**  
(number of weeks)



Source: Franco 2012.

Note: N.U. refers to non-university programs. U. refers to university level programs. Figures assume 40 program hours per week and 40 weeks per year.

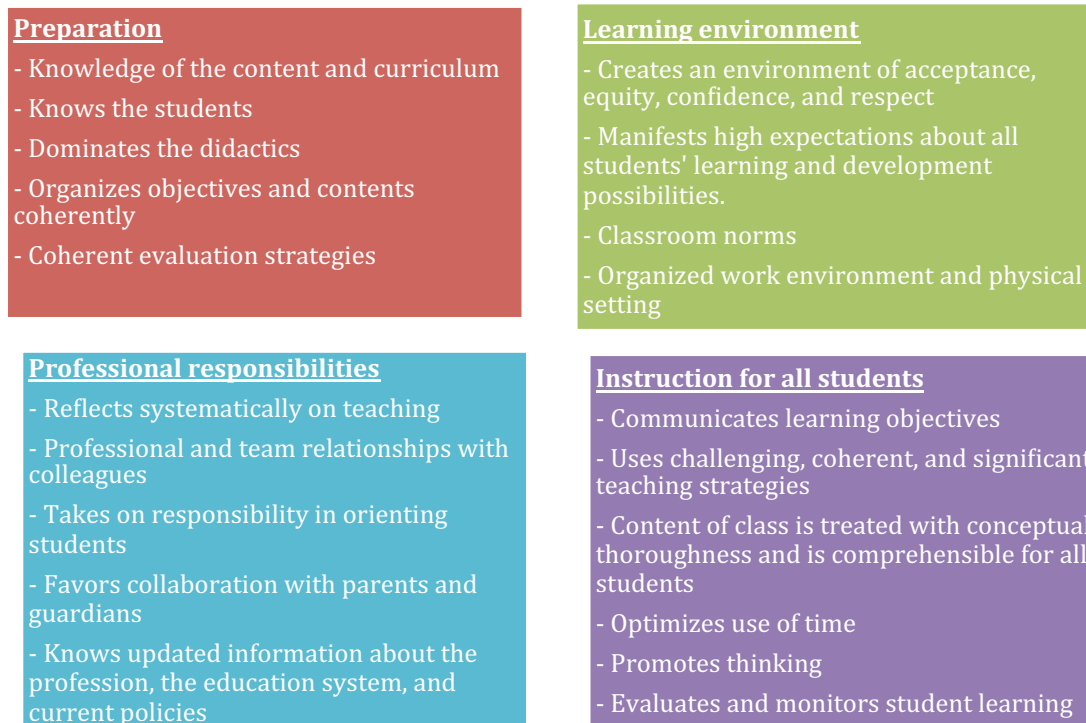
University autonomy prevents directly mandating changes in the content of teacher education, but several ministries of education in the region are creatively using competitive funding programs to stimulate such reforms. Chile in 2013 launched a new line of competitive funding to support a “rethink” of teacher education. Its ministry is open to proposals for major change, including shortening the number of years required, radically changing curriculum content, and increasing the time spent working in classrooms. The only requirement is that proposals be grounded in global research evidence. Peru’s competitive fund for tertiary education (Fondo de Estímulo de la Calidad) also has a specific line of support to improve the quality of teacher training institutions.

**Raising hiring standards.** The low quality of teacher education programs makes it important that public education systems screen effectively at the point of hiring. Three main policy instruments can ensure this: (a) national teacher standards; (b) preemployment tests of teachers’ skills and competencies; and (c) alternative certification.

National teacher standards, articulating “what a teacher should know and be able to do,” are an important step in the development of a more professional teaching corps. Over the past twenty years, most OECD countries have put serious effort into developing standards for teachers. Relatively few LAC countries have done so.

The exception is Chile, which adopted national teacher standards (Marco para la Buena Enseñanza) in 2003, after three years of joint work by a national commission and the teachers’ union. Chile’s framework remains a best-practice example for the region (table O.3) It has guided the design of other key policies, including Chile’s teacher evaluation system and teacher exit exam, the Prueba Inicia. National teaching standards take time and effort to develop, but formally establishing high standards for teachers lays the foundation for education quality.

**Figure O.3 Chile's Framework for Good Teaching**



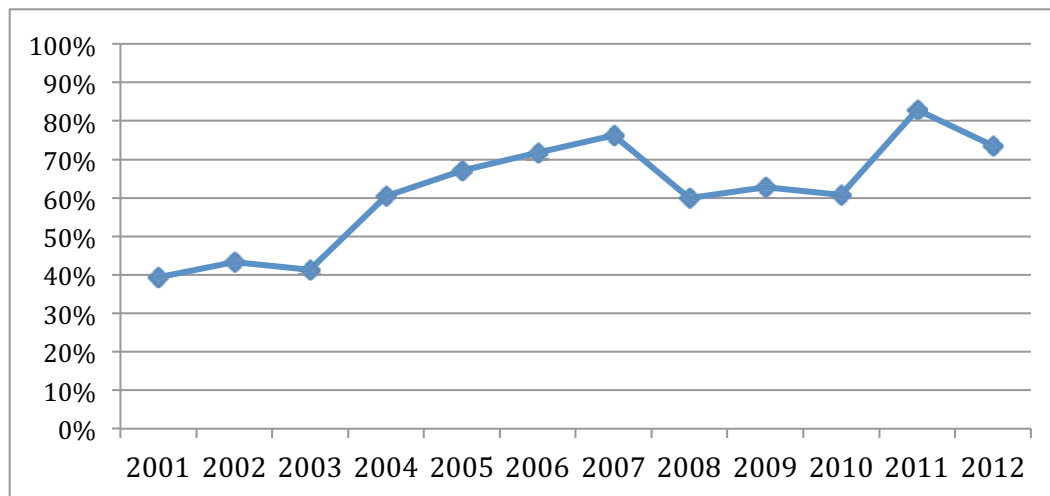
Source: Adapted from Chile Ministry of Education 2008.

A second tool is certification exams or competency tests to screen teacher candidates. No country in Latin America and the Caribbean today has a compulsory certification process for the teaching profession as stringent as those used in medicine, law, or accounting—i.e., a rigorous examination that prohibits those who do not meet its standards from being hired anywhere into the profession (public or private sector). But Colombia and El Salvador have introduced mandatory exit exams which teacher graduates must pass in order to be hired by the public sector. In El Salvador there has been clear progress in raising the share of teacher graduates who pass the exam (Evaluación de las Competencias Académicas y Pedagógicas [ECAP]) since it was introduced in 2001 (figure O.18). An important further step will be research on how the flow of better-prepared teachers into the school system affects student learning results.

In Colombia, the exam for graduating teachers established under the 2002 reform law also set a higher bar. But the share of teachers hired under the new system remains relatively small, and there is unfortunately little evidence on their effectiveness.

**Figure O.18 Teacher exit exam pass rate in El Salvador, 2001–12**

*percent of new teacher graduates with passing score*



Source: Picardo Joao 2012.

Introducing mandatory certification exams that set a higher bar for teacher quality typically requires a transitional period. When New York State established a more stringent teacher certification exam in 1998, a high share of new teacher graduates could not pass it. The state permitted a five-year window for school districts to hire “temporary license” teachers who had not passed the exam. The new standards hit hardest in high-poverty urban school districts such as New York City, where temporary license teachers accounted for 63 percent of new hires in the poorest quartile of schools. To meet the 2003 deadline for eliminating such hiring, the city was forced to pursue aggressive strategies to attract higher quality teachers. But by 2005, it succeeded in eliminating the hiring of uncertified teachers, sharply narrowed the gap in teacher qualifications between high- and low-poverty schools, and saw large improvements in student performance in high-poverty schools (Boyd et al. 2008).

While mandatory certification exams are the most powerful instrument for raising teacher standards, nonbinding “exit exams” upon completion of teacher education programs can also support better hiring choices, monitor the quality of graduates over time, and expose quality differences across teacher training schools. Chile’s 2008 “Inicia” test and the national teaching exam being developed in Brazil (Prova Nacional de Concurso para o Ingresso na Carreira Docente) are examples. Making such examinations voluntary has a downside, however; in Chile, only 40 percent of graduates, on average, opt to take the Inicia test, and of these, 70 percent fail to achieve the threshold score. Ministry concerns that the 60 percent of teacher graduates who refuse to take the exam are even less prepared to meet national teacher standards sparked a legislative proposal to make the exam mandatory.

A third strategy for raising the quality of new teachers is to bypass low-quality education schools entirely and recruit teachers trained in other disciplines, a practice known as alternative certification. This was key to New York City’s rapid progress in raising teacher quality and is widely used in other U.S. urban school districts that have difficulty attracting teachers to work with disadvantaged populations. Rigorous U.S. studies have generally concluded that students of teachers with alternative certification, most notably those from the Teach For America program, do as well or better than students of regularly recruited teachers.

Most countries in LAC have not pursued alternative certification on any scale, although it is permitted in Colombia, and proposed in Chile and Mexico. Since 2007, however, several LAC countries have launched

national branches of Teach For All, modeled on Teach for America. In Chile, Peru, Mexico, Colombia, Argentina, and Brazil, Teach For All programs have recruited top university graduates from other disciplines willing to commit to two years of teaching in highly disadvantaged schools.

A randomized evaluation of the program in Chile, Enseña Chile, is currently underway, with first results expected in 2016. A 2010 study documented that the programs in Argentina, Peru, and Chile have succeeded in attracting high-talent university graduates, and that students of Enseña Chile teachers had higher learning outcomes than those of comparable traditional teachers. Students of Enseña teachers also had better socioemotional competencies, including higher self-esteem and self-efficacy. The Enseña teachers had more positive attitudes about their students' ability to learn and higher expectations for them (Alfonso, Santiago, and Bassi 2010). Although the LAC programs currently operate on a small scale, they appear to be a useful tool, especially for raising teacher quality in disadvantaged urban or rural schools and for hard-to-fill disciplines, such as secondary school math and science.

**Raising teacher selectivity over the next decade.** All LAC countries face the challenge of recruiting better teachers, but it will play out in different countries against very different demographic backdrops. Over half of the region—including all of its largest countries—will see student population fall by as much as 31 percent, while other countries, especially in Central America and the Dominican Republic, will face continued growth in student numbers. UNESCO (the United Nations Educational, Scientific, and Cultural Organization) projects that with no change from 2010 in enrollment ratios or pupil-teacher ratios, the region would need 8 percent fewer teachers by 2025.

Since not all countries in the region have achieved universal schooling coverage, especially at the secondary level and preschool, the demand for teachers also depends on assumptions about how quickly these countries expand coverage. To project a scenario of maximum potential demand for new teachers, we assumed that all countries in the region reach 100 percent primary education enrollment, 90 percent secondary enrollment, and 90 percent preschool enrollment of children ages four to six by the year 2025, even if this implies rates of schooling expansion far above countries' past trends.

Under this highly ambitious scenario of schooling expansion, the region would still need a smaller overall stock of preschool, primary, and secondary teachers in 2025, assuming that current pupil-teacher ratios (PTR) in every country remain stable. The total stock of teachers would fall from 7.35 million in 2010 to about 6.61 million in 2025. While some countries would need to increase teacher numbers to support the expansion of coverage, others would see only modest changes or large declines. A net decline in teacher numbers implies an opportunity for countries to pay a smaller stock of teachers higher average salaries, which could help raise the attractiveness of the profession. But the salary increment would be relatively small, and even this potential "fiscal space" would materialize only if current pupil-teacher ratios did not decrease.

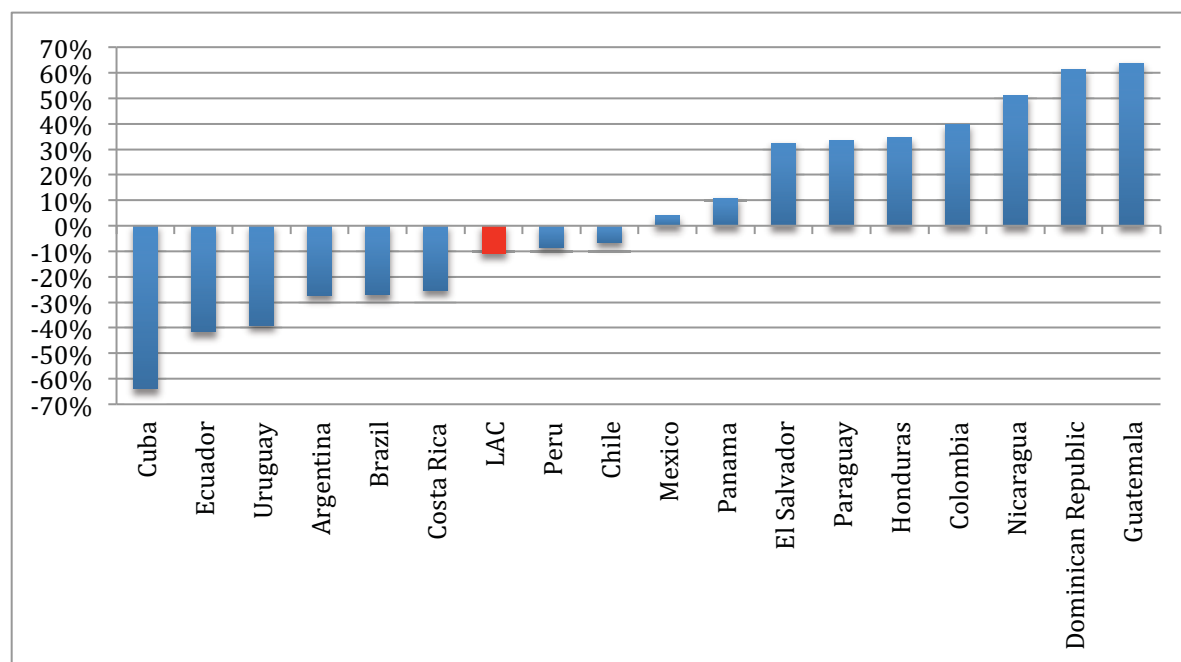
However, the tendency for school systems with a declining student population is to let the pupil-teacher ratio decline. It requires active management to reduce the teaching force *pari passu* with demographic decline, thus maintaining a stable PTR. Both teachers' unions (which wish to protect job stability) and parents (who believe that a smaller class size is better for their children) resist this. The falling pupil-teacher ratios already observed in LAC countries with declining student populations indicate that this pattern has already taken hold.

The contrast with East Asian countries is sharp. Singapore, Korea, China, and Japan consciously maintain relatively high pupil-teacher ratios to free up resources for higher teacher salaries, a longer school day, and cost-effective nonsalary investments. Teacher salaries in these countries are relatively high on average and are differentiated by competency and performance, which attracts more talented individuals.

To explore the implications of a similar trade-off in LAC, we projected the same ambitious trends in enrollment, but with active management of pupil-teacher ratios, to reach target levels of 18 to 1 in preschool education and 20 to 1 for primary and secondary education by 2025. While some countries would need to hire more teachers to meet the projected goals of close to universal coverage and lower pupil-teacher ratios than they currently enjoy, the overall size of the teaching force in LAC would decline by 11 percent (figure O.19).

**Figure O.19 Change in stock of teachers needed, assuming expanded coverage and efficient pupil-teacher ratios, 2010–25**

percent



Source: World Bank projections, using data from UNESCO 2009 and UNESCO 2011.

Note: Projections assume that all countries reach target GERs (gross enrollment ratios) of 100 percent for primary and 90 percent for preschool and secondary education by 2025, and pupil-teacher ratios of 18 to 1 for preschool education and 20 to 1 for primary and secondary education by 2025.

For several of the larger countries in the region, policies to manage the pupil-teacher ratio combined with demographic trends would permit significant increases in teacher salaries. In Brazil, for example, this scenario results in a 27 percent decline in the number of teachers, from 2.9 million to 2.1 million, by 2025. But it would allow for a 36 percent real increase in average teacher salaries and move teachers' relative salaries from the 76th percentile of the wage distribution to the 85th percentile, compared to the 90th percentile for other professional workers.

In the coming decade, several countries will have a unique opportunity to raise teacher quality through higher salaries, stronger incentives, and higher nonsalary spending. There would be no increase needed in overall education budgets if school systems carefully manage teacher numbers in favor of teacher quality. Since these assumptions are based on constant real spending per student, countries that have declining student populations and raise education spending as a share of GDP would have even more resources per teacher to finance a move to higher quality.

This heterogeneity will create diverse challenges for teacher policy. Projected declines in the student population in half of the region—including its largest countries—will make it easier for school systems to

finance higher teacher quality, but will pose the political challenge of pruning low performers out of the force to make room for higher quality new recruits. With declines in some cases of 20 percent or more in the size of the teaching force by 2025, managing both teacher exits and selective recruitment with a strategic focus on quality is critical. In countries where increased need for teachers is projected over the next decade, the major challenge is the financial burden of raising education spending to support the recruitment of new teachers at higher standards. For these countries, efficient class size is a critical policy choice.

## Grooming Great Teachers

Once teachers have been hired, it is the task of a school system to make them as effective as possible. This involves assessing, managing, and supporting individual teachers' development of their craft and building a professional community of teachers, both within schools and across the school system. Four essential tasks are:

- *Induction*: support for teachers' development during their critical first five years of teaching
- *Evaluation*: systems for regular assessment of individual teachers' strengths and weaknesses
- *Professional development*: effective training to remedy teachers' identified weaknesses and leverage the skills of top performers
- *Management*: matching teacher assignments to schools' and students' needs, and building effective schools through shared practice and professional interaction

**Teacher induction.** A consistent finding of education research is that new teachers face a steep learning curve in their first three to five years on the job (Boyd et al. 2009; Chingos and Peterson 2010; Hanushek and Rivkin 2010). During this window, school systems have an important opportunity to support and maximize the development of new teachers and to identify those who should be counseled out of the profession. Because teachers are typically hired into civil service positions, which make dismissal on performance grounds difficult once they are confirmed, there is a high payoff to avoiding recruitment mistakes. Both of these goals are served by a well-organized induction program and the effective use of probationary periods.

In the LAC region, very few countries outside of the English-speaking Caribbean countries have formal induction programs for entering teachers. Belize's program, which over the course of a teacher's first year includes tutoring, observation in the classroom, mentoring support, action-research projects, and assessments, has a particularly impressive design.

Effective induction goes hand in hand with consequential probationary periods. Most OECD countries use probationary periods. Some school systems in the United States have extended these to three years or more to allow more time to assess teachers' performance and growth potential before making a final contract decision. But in Latin America and the Caribbean probationary periods with consequences are rare. Only two of seven countries reviewed recently (Colombia and the Dominican Republic) have consequential probationary periods that include a comprehensive assessment of new teachers (Vaillant and Rossel 2006). A 2013 program introduced in Rio de Janeiro municipality presents a promising model: new teacher candidates are given an intensive training course in effective classroom dynamics—which draws on the municipality's Stallings results—and are subsequently observed teaching and evaluated before their recruitment is confirmed.

**Teacher evaluation.** Top education systems invest heavily in the evaluation of teacher performance. Teacher evaluation plays two critical roles: improving teachers' quality and holding them accountable. Singapore, Japan, Korea, and China's Shanghai all have effective systems for assessing their teachers' performance and progress. The experience in Latin America to date is much more limited. While Mexico

(in the 1990s) and Colombia in 2002 introduced the region's first teacher evaluation systems implementation issues have undermined their impact and Mexico's system is currently being redesigned. (Vegas et al. 2005, Ome 2012) Chile's 2003 system remains the region's best practice example to date. Ecuador began implementing teacher performance evaluations in 2007, and Peru is currently designing a comprehensive system similar to Chile's. Elsewhere in the region, countries have some elements in place, but they are less comprehensive and systematic.

Putting in place a sound system of teacher evaluation is expensive and institutionally challenging, but it can make other important education system functions more efficient. Teacher performance information can make in-service training investments more relevant, help target them better, and even reduce overall training costs. It creates the information base needed for individual performance incentives and accountability measures. It provides teachers with individualized feedback that might not be as forthcoming or insightful from their direct supervisors and peers, and increases teachers' motivation to pursue training or professional improvement. If these benefits are captured, the net costs of a good teacher evaluation system may be small.

Growing global experience with teacher evaluation points to four key features of successful systems. First, they are grounded in teacher standards: a clear articulation of the competencies and behaviors that good teachers are expected to have and demonstrate. Second, they measure performance comprehensively. A three-year research program in the United States concluded that a reliable judgment about an individual teacher's performance requires multiple measures, including classroom observation (ideally multiple times) and student and peer feedback. In combination, these measures can produce assessments of teachers' effectiveness that are well-correlated with their students' value-added learning gains (Kane et al. 2012). Chile's teacher evaluation system is a good example of comprehensive evaluation. It combines an observation of teachers' classroom practice (through a videotaped class), a sample lesson plan, a self-assessment, a peer interview, and an assessment by the school director and pedagogical supervisor.

Third, good evaluation systems use instruments that have technical validity and protect the integrity of evaluation processes. The implementation of Chile's system is contracted through competitive bidding to an independent education research group that conducts ongoing research to improve the robustness of the system. The evaluation team is responsible for assuring the quality and consistency of implementation. For example, it provides extensive training to the supervisors who evaluate the videos of teachers' classroom practice and the teachers who conduct peer interviews.

Fourth, good systems ensure that evaluation results have consequences for teachers: both positive and negative. Most OECD countries use their evaluation systems as a platform for performance incentives: identifying and rewarding top performers. In Chile and Ecuador, teachers who receive outstanding evaluations are eligible for bonus pay. Evaluation systems also provide the soundest basis for long-term grooming of individual teachers' potential and the fairest basis for promotions. Rather than promoting teachers on the basis of seniority alone—as most LAC countries currently do—teachers can be promoted on the basis of recognized competence. A salary structure aligned with evaluated performance creates the right incentives for current teachers and makes the profession more attractive to talented candidates in the future.

Effective teacher evaluation systems strengthen accountability. They allow school system managers to identify teachers in need of improvement and create strong incentives for these teachers to pursue the training offered and apply it to their work. In Chile, Ecuador and Colombia, and under new proposals in Peru and Mexico, teachers who receive poor evaluations are offered training and required to be reevaluated.



Finally, teacher evaluation gives school systems data to deal with consistent poor performers forthrightly and transparently. In Chile, Ecuador and Colombia, and under new proposals in Peru and Mexico, teachers who receive successive evaluations in the lowest performance categories are dismissed from service. An education system's capacity to identify its least-effective teachers is a powerful tool for raising schooling quality. Research suggests that systematically targeting the lowest 5 percent of teachers annually for "de-selection" can produce large gains in student learning over time (Hanushek 2011, Chetty et al. 2014).

A rigorous evaluation of the impacts of the Washington, DC, teacher evaluation system, which is considered a best-practice model in the United States, concluded that the system has produced an impressive improvement in overall teacher quality in just the first three years of implementation. Researchers documented four main mechanisms: voluntary attrition of teachers with low performance ratings increased by over 50 percent; low-rated teachers who decided to stay in the system achieved big improvements in performance; a higher share of top teachers stayed in the system (rather than transferring to other school districts); and teachers at the threshold for bonuses made big improvements (Dee and Wyckoff 2013). Since the teacher evaluation system was introduced, not only teacher quality has improved; student learning gains have been the largest of any urban district in the United States.

**Teacher professional development.** When the costs of teacher time are included, in-service training is a major element of education spending in LAC. In Brazil and Mexico, many teachers participate in more than one month of training annually. Yet evidence on the cost-effectiveness of training is almost nonexistent. The global evidence base is also limited. The most common conclusion of metastudies is that the relevance of training content, the intensity and duration of the course, and the quality of the delivery are key: observations that abstract from the central question of how to design relevant program content.

A review of the academic literature and different training approaches that figure prominently in the "improving" education systems identified by Mourshed, Chijoke, and Barber (2010) suggests that four broad strategies for teacher training are most relevant for LAC countries:

- *Scripted approaches*: training to prepare teachers in low-capacity environments to use specific teaching strategies and accompanying materials in the delivery of a well-defined daily curriculum
- *Content mastery*: training focused on filling gaps or deepening teachers' expertise in the subjects they teach and how to teach them effectively
- *Classroom management*: training focused on improving teachers' classroom effectiveness through lesson planning, efficient use of class time, strategies for keeping students engaged, and more effective teaching techniques
- *Peer collaboration*: school-based or cross-school opportunities for small groups of teachers to observe and learn from each other's practice and collaborate on curriculum development, student assessment strategies, research, and other activities that contribute to system quality and teachers' professional development

Scripted training programs are relevant for many LAC countries, and perhaps especially for early grade literacy instruction and math skills. Honduras' SAT (Sistema de Aprendizaje Tutorial) scripted training program for middle school teachers in rural areas has produced higher learning results at lower per-student costs (McEwan forthcoming). Scripted approaches have also been used successfully in Colombia's Escuela Nueva to support teachers in multigrade schools, and in the Brazilian states of Ceara and Minas Gerais to train early grade reading teachers. By providing teachers with comprehensive support in the use of teacher guides, lesson plans, classroom reading books, and reading assessments to

be applied at regular intervals, Ceara has seen significant improvements in both reading and math results (Costa and Carnoy 2014). The federal Ministry of Education is now supporting national scale-up of this approach.

Given the weak content mastery of many teachers in LAC, training in this area is also clearly relevant. Unfortunately, there is no rigorous evaluation evidence of successful LAC programs.. Useful training in the US context, however, has focused on the specific math content knowledge required for effective teaching at different levels. (Thames and Ball 2010)

Improving teachers' classroom practice emerged as a clear issue from the classroom observations conducted for this report, including teachers' ability to use class time and materials effectively and to keep students engaged. It is encouraging that a number of LAC school systems are developing courses focused on classroom management techniques that can improve student engagement and learning performance. In several cases, governments are planning rigorous evaluations, with random assignment of teachers to different training options and careful measurement of both subsequent classroom practice (through classroom observations) and impacts on student learning. These experiences could contribute enormously to the evidence base to guide effective training investments not only in LAC but also globally.

Peer collaboration—as practiced in Finland, Ontario (Canada), and under Japan's "Lesson Study" method—is integral to the development of greater professionalism among LAC's teachers and to the informal exchange of practice at the school level that is the most cost-effective strategy for improving school results. There is an incipient trend in this direction in several LAC countries. For example, in Ecuador training needs are identified at the school level, and colleagues receive training together (Ministerio de Educacion del Ecuador 2012). Under Peru's teacher mentoring program, external coaches work with all of the teachers in a school as a team, providing real-time feedback and advice grounded in the coaches' observation and understanding of the school's context and specific challenges. Under Rio municipality's new Gente and Ginasio carioca experimental programs, the school day has been extended to free up time for teacher collaboration and team teaching. All of these represent very new approaches for the LAC region and have yet to be evaluated. But the emphasis placed on looking inside schools and classrooms to identify the issues where teachers most need support is promising.

Designing and delivering capacity-building programs of the caliber and scale required in most countries will not be easy. As Carnoy (2007) has observed, "weak coupling" between education ministries and university education departments makes the latter ill-prepared to respond to ministries' needs. Increasingly, ministries (and secretariats in Brazil) are creating their own in-service teacher training institutes to take direct control of the content and delivery of teacher professional development. While it is too early to evaluate these institutes' effectiveness, there is a visible shift toward professional development programs that directly address identified issues. Using teacher evaluation data to determine training priorities; exploiting partnerships with NGOs, think tanks, and other providers operating outside of university education departments; and investing in rigorous evaluation of at least the most important training initiatives will help make investments in this area more cost-effective, which is essential for faster progress in raising the caliber of the current stock of teachers.

**Teacher deployment and management.** Grooming teachers so they develop their full potential and contribute to the professional growth of their colleagues is a direct responsibility of school leaders. Global research shows that school directors have a large impact on teacher quality, both by screening and selecting high-talent teachers for their schools and by engendering a school climate of peer collaboration, supportive feedback, and collaboration that makes those teachers even better (Loeb, Kalogrides and Beteille 2012). High-performing education systems such as Singapore and Ontario (Canada) pay close attention to how school directors are selected, trained, and developed, placing

special emphasis on their ability to gauge and develop the quality of their teachers (Schwartz and Mehta 2014, Tucker 2011, Barber and Mourshed 2007).

Despite increasing awareness of the pivotal role of principals, empirical evidence on how to build their skills and effectiveness is sparse. Most LAC countries are just beginning to develop systems for the selection, training, and coaching of school leaders.

Chile provides a good example of an incremental strategy for raising the quality of school leaders. Just as with teacher policy, the Ministry of Education started by defining standards. The “Framework for Good School Leadership” (Marco para la Buena Dirección), developed in 2004, established criteria for the training and assessment of principals in the areas of leadership, curriculum management, resource management, and organizational environment management and established a competitive process for principal selection (Ministerio de Educación, Chile 2005; Concha 2007). A 2011 law strengthened the selection process and increased principals’ autonomy and accountability. Principals may dismiss up to 5 percent of their schools’ teachers each year on performance grounds and must sign performance agreements with the local governments that hire them. The government also introduced the Program for the Training of Excellent Principals (Programa de Formación de Directores de Excelencia) in 2011, which has provided leadership training to more than 1,600 of the country’s 7,000 principals. The program subsidizes fees and subsistence costs for graduate programs (master’s degrees, diplomas, courses) and externships focused on school leadership. Programs are selected through a public call for proposals: in 2013 applicants could choose among 29 programs from 15 institutions, mostly in Chile but also in Canada and England.

While Chile’s approach allows for diversity in the training offered to principals, several OECD countries have chosen to develop in-house principal training. Australia’s 2010 Institute for Teaching and School Leadership develops standards, accreditation, *and* training for teachers and school leaders (OECD 2012). Principals are also trained in-house in Singapore, where young teachers are evaluated for leadership potential early in their careers and follow a specialized leadership track. This approach was adopted recently by Jamaica, whose National Center for Educational Leadership is charged with training and certifying aspiring and existing principals.

Once principals are selected and trained, ongoing support during the early years is important. A study of New York City schools found that effective support for principals on the job, particularly in the first few years, has a significant positive effect on school performance as measured by student exam scores and student absenteeism. (Clark et al. 2009) Leading countries such as Singapore ensure that experienced principals mentor new ones in a systematic manner.

## Motivating Teachers to Perform

Major progress in raising the quality of teachers in Latin America will require attracting high-caliber candidates, continuously and systematically weeding out the lowest performers, and motivating individuals to keep refining their skills and working their hardest over a long career. These three processes characterize the labor market for high status professions in all countries. In countries with high-performing education systems, they operate in teaching as well.

Research confirms that individuals are attracted to the teaching profession and inspired to high performance for a variety of reasons. Vegas and Umansky (2005) set out a comprehensive framework of incentives that may be collapsed into three broad categories: (a) professional rewards, including intrinsic satisfaction, recognition and prestige, professional growth, intellectual mastery, and pleasant working conditions; (b) accountability pressure; and (c) financial incentives (figure O.20).

Figure O.20 Three broad classes of incentives motivate teachers



Source: Adapted from Vegas and Umansky 2005.

While it seems intuitively obvious that all three types of incentives are important, there is a deep asymmetry in the research base. Very little research exists on specific policies or programs to raise the professional rewards for teachers, and none in Latin America. There is more research on reforms to strengthen accountability pressures on teachers—especially through school-based management—but little evidence on key questions such as the impact of policies that reduce teachers’ job stability or improve school directors’ capacity to evaluate and manage teacher performance. The greatest research attention by far has been focused on financial incentives, especially bonus pay. But this research bias should not be taken to mean that financial incentives are the most important. If anything, cross-country studies suggest that professional incentives are a very powerful element in high-performing education systems. In Finland and Canada, for example, the professional rewards for teachers are very strong and accountability pressures and financial rewards are relatively weak.

It is also likely that these three types of incentives are complementary: they have extra impact if well-aligned and undercut each other if not. Case studies of the world’s highest-performing school systems show positive incentives in all three areas, although their relative strength can vary.

**Professional rewards.** There is virtually no experimental evidence on the impact of alternative strategies for raising the professional rewards to teaching, but cross-country studies show that high-performing school systems offer their teachers abundant opportunities for continued *mastery and professional growth* and that outstanding teachers receive substantial *recognition and prestige*. Compared with most of Latin America, countries with high-performing education systems invest more resources in teacher professional development – Singapore’s 100 hours annually of paid professional development for every

teacher is a leading example – but most important is the quality of those investments. Courses are developed by university practitioners in close collaboration with Ministries of Education, grounded in research evidence, and focus on specific issues in effective delivery of the curriculum, the classroom practice of highly effective teachers, and lessons from education systems elsewhere in the world. High-performing systems also support teachers’ professional growth by promoting constant interaction and peer collaboration among teachers. Finland’s teachers spend only 60 percent as much time as the OECD average in the classroom teaching; the rest of their time they work jointly on new curriculum content, learning materials and ways of assessing students’ progress. Peru’s teacher mentoring program and Rio de Janeiro municipality’s *ginasio carioca experimental* are promising new examples in the LAC region of efforts to promote teachers’ professional mastery through peer collaboration.

High-performing education systems also give substantial *recognition and prestige* to excellent teachers. They have systems to evaluate individual teachers’ potential and performance and grant the best teachers special status as master teachers or leaders in specific curriculum areas, such as math. In contrast, teachers in Latin America are rarely observed or evaluated closely. Whether their performance is outstanding or deeply deficient, teachers in most systems advance equally through the ranks on the basis of seniority.

**Accountability pressure.** High teacher absence rates across the LAC region and classroom observations showing that teachers are often poorly prepared to use class time effectively are evidence that the pressures teachers feel to perform accountably are generally weak. Strategies for strengthening accountability include actions to *reduce or eliminate teachers’ job stability, increase managerial oversight, and empower clients (parents and students) to monitor or evaluate teachers*. There is little research evidence to date on any of these strategies except client empowerment: “strong” forms of school-based management, in which parents and community members had a voice in the hiring and firing of school personnel and were given training and encouragement to exercise that power, has been shown in some contexts to reduce teacher absence and raise student learning results (Bruns et al. 2011).

In terms of job stability, legislation in Chile, Peru, Ecuador, Colombia, and Mexico has created a path out of the profession for teachers with persistently unsatisfactory performance. While potentially very important, the number of teachers dismissed to date in these countries has been tiny. This contrasts with the practice in Singapore, where all teachers are evaluated regularly and the lowest 5 percent of performers are counseled out of the profession annually, and in Washington, DC, in which 33 percent of the teaching force was either dismissed or left voluntarily in the first four years after its teacher evaluation system was introduced. Radical upgrading of the teaching profession in Latin America will require much more aggressive action to weed out the lowest-performing teachers on a continuous basis.

In terms of managerial oversight, the role of school directors in managing teacher performance in LAC has generally been weak. Research in the United States has documented what many LAC education leaders observe: high-performing schools achieve success through skilled management of the teaching force. These schools’ principals attract good teachers, weed out ineffective teachers, and deploy and develop new teachers more effectively than principals at other schools. Effective principals have the capacity to observe teachers in the classroom, give them formative feedback, and manage their “exit” from the school if necessary. Effective principals support teachers’ development and hold them accountable for performance (Branch et al. 2013, Boyd et al. 2008, Loeb et al. 2012).

Recent efforts in Chile, Jamaica, Brazil, Peru, and Ecuador to raise the standards for school directors and train and empower these to be accountable for instructional quality and teacher development are important initiatives. But Colombia’s experience—where directors found it difficult to give teachers critical feedback—suggests that relying only on school directors for teacher performance evaluation can

be problematic. Instead, teacher evaluation needs to be a systemwide function supported by expert external observers and guided by common standards, evaluation processes, and rubrics, both for fairness and for systemwide learning. The goals are to generate actionable, formative feedback to teachers across the system and to weed out the lowest performers on a continuous basis so the average quality of the teaching force keeps rising over time.

**Financial incentives.** Cross-country research suggests that the financial rewards for teaching must meet a threshold level of parity with other professions to attract high talent. As chapter 1 shows, average salaries and the pay trajectory for teachers in some LAC countries are currently below this threshold.

Across-the-board salary increases—which are politically popular and easy to implement—have the potential to shift the overall teacher supply curve outward. But these are inefficient. For the same fiscal expenditure, school systems can achieve higher quality by raising average salaries through a pay scale differentiated by performance. This avoids overcompensating weak performers, can keep overall pension liabilities lower, and creates stronger incentives for the most talented individuals.

The two main strategies for differentiated financial rewards are *career path reforms* and *bonus pay*. Career path reforms typically make permanent promotions contingent on teachers' skills and performance rather than on seniority, and expand salary differentials across different grades. The number of LAC countries that have implemented career path reforms is small but growing. Although it is difficult to evaluate such reforms rigorously, as they are almost always implemented systemwide, by analogy with other occupations it is likely that career path reforms have more powerful selection effects than bonus pay on who goes into teaching. Career path reforms signal a permanent and cumulative structure of rewards for high performance, have attractive pension implications, and are reaped by individual teachers.

Key lessons that can be drawn from the experience with career path reforms in LAC to date are:

- Choosing valid measures of teacher quality and calibrating them appropriately are crucial steps. Global research suggests that comprehensive teacher evaluations are the soundest basis for promotion decisions. An example consistent with global best practice is Peru's 2012 teacher career law, which establishes teacher knowledge and skills, rather than seniority, as the basis for promotions. Ministry proposals for implementing the law call for comprehensive evaluations of teacher quality, including expert observations of teachers' practice in the classroom; and "360-degree" feedback from peers, students, parents, and school directors – all consistent with the best global evidence.

For school systems introducing competency-based promotion and pay for the first time, relying on a well-designed test of subject matter mastery and pedagogical knowledge alone, as in Ecuador, may be a practical first step. To be legitimate, tests should measure what teachers *know* in terms of content, what they *understand* about child development and learning styles, and what they are *able to do* to tailor pedagogical strategies for the delivery of content at different grade levels. Tests must also be benchmarked appropriately; if promotions are gained too easily, as in the early years of Mexico's Carrera Magisterial, or are too inaccessible, incentive strength erodes. Finally, the most recent career path reforms in LAC do not base teacher promotions on student test scores. This appears sensible, given the technical complexity of value-added learning measures and the risks of perverse incentives.

- Who evaluates is important. Although ministries of education should closely control the design and implementation of teacher promotion policies, contracting external agencies to design and administer teacher evaluations increases their legitimacy. For classroom observations, using



well-trained external experts, developing clear and consistent evaluation standards and instruments, and providing teachers with detailed individualized feedback are important.

- The steepness of the salary trajectory affects incentive strength, but there is little evidence as yet to guide reform design. Recent reforms expand the number of promotion levels and decompress the band between top and initial salaries. But across the new programs, these dimensions vary: three different promotion levels are proposed in some systems and eight levels in others. Top-level salaries are 100 percent higher than starting level in some systems, and almost 300 percent higher in others. As most of these reforms are quite new, there is an important opportunity to research their differential impacts on the recruitment of new teachers over time.
- Strategies for managing the long-term fiscal implications of career path reforms are important. Although the permanence of promotions and base pay increases is central to its strength as an incentive, it runs the risk of locking in high compensation for teachers who are promoted but subsequently fail to keep up their skills. Ecuador's reform guards against this by requiring that teachers achieve either further promotion or recertification at the same level every four years, or face a downgrade of level and salary. This is the first case in the region of an "up or out" strategy built into a career path reform. It is an interesting design that deserves evaluation.
- Careful implementation planning of reforms as complex as these is important. The credibility of several programs—Mexico's original Carrera Magisterial, Peru's 2008 Carrera Publica Magisterial reform, and programs in Colombia and Sao Paulo—has been undermined by problems that might have been foreseen and managed differently.
- Incentive power hangs on belief that the program will be sustained under consistent rules of the game. Whenever teachers perceive that the criteria for entry into a new career track are likely to change, soften, or be disbanded, the incentives to acquire new knowledge and apply it to their work erode. Career path reforms that truly signal substantially higher long-term financial rewards for talented teachers probably offer the clearest path to the recruitment of higher-caliber teacher candidates and more effective teaching. Policymakers across the region would gain from careful research on the new wave of career path reforms in LAC.

**Bonus pay.** Bonus pay is the other major instrument for raising the financial rewards for teaching. Bonus pay programs are proliferating in LAC, especially in Brazil. They are politically and technically easier to implement than career path reforms and do not have long-term fiscal or pension implications. Bonus programs typically offer a one-time reward for teachers (or schools) for specific results achieved during the prior school year. There is no evidence yet on the impact of bonus pay programs on the critical long-term question of teacher selection: are bonus pay programs a sufficiently strong financial incentive to attract higher-caliber candidates into teaching? But the experience to date provides some evidence of short-term impacts on teacher and school performance and lessons for program design:

- Bonus pay programs can work in developing country contexts. Although the number of cases remains small, bonus pay programs in developing country settings have produced more consistently positive results than in developed countries (especially the United States) to date. The only two rigorously evaluated cases of bonus pay programs operating at scale (Chile's SNED and the school bonus in Pernambuco, Brazil) are both from Latin America, and both have demonstrated positive results on student learning and grade attainment. Measured impacts across all developing country programs to date are generally in the range of 0.10 to 0.3 SD improvements in test scores, which are significant-sized effects for education interventions. A reasonable hypothesis is that bonus pay incentives—which focus schools on student learning



results—can be productive in systems where other accountability pressures and teacher professionalism are weak.

- Matching incentive design to context is crucial. Much of the experimental evidence to date is from studies that tested alternative bonus designs—group versus individual incentives; teacher versus student incentives; “gain” versus “loss” bonus awards—and it is striking how much the impact of alternative bonus designs can vary within a single context. The optimal bonus size is another design issue on which there is as yet little practical guidance from research; some of the largest reported impacts in the literature are from bonuses that represented a very small increment of teachers’ monthly pay, but significantly larger bonuses -- averaging 1-2 months’ salary -- are becoming common in Brazil. The research base today is far short of providing a guide to the most productive bonus pay designs for a given context. But it suggests that if a given program’s impact appears to be weak, there probably exists a productive alternative design.
- Designing the performance measure(s) to be rewarded is a key challenge. Basing bonus pay on student test scores alone has been problematic in several US settings because of documented cheating and broader concerns that it focuses teachers too narrowly on test preparation and specific subjects, and makes them unwilling to teach at-risk students. No LAC country to date has introduced bonus pay based on test scores alone, and this strategy appears wise. The composite indicator used in Brazil, which is a product of test scores and pass rates, is an interesting model for countries to consider. It discourages automatic promotion of children who are not learning and the reverse strategy of holding children back or encouraging dropout to boost test scores.
- Programs may have heterogeneous impacts on different types of schools. In both of the bonus programs operating at scale, significant heterogeneity has been observed. In Chile’s SNED program, about one-third of schools appear consistently “out of the money” in the bonuses granted every two years, despite the serious efforts made to ensure that schools compete only against similar schools (Contreras and Rau 2012). In the case of Pernambuco, Brazil, the bonus has produced stronger improvements in small schools, where teachers can collaborate and monitor each other more easily than in larger schools. Improvements have also been larger for academically weak and low-income students, suggesting that the bonus has stimulated schools and teachers to focus more effort on these students (Ferraz and Bruns 2014). Research evidence of this type can provide useful guidance for program design.
- Students are a key partner in the production of learning results. The innovative design of the ALI (Aligning Learning Incentives) experiment in Mexico generated powerful evidence that school systems can gain by finding ways to make students feel more invested in their learning progress (Behrman et al. 2014). This is consistent with evidence that student learning performance on international tests is higher for countries with high-stakes examinations for students at the end of secondary school, which create strong incentives for student effort (Woessmann 2012).
- Our understanding of the mechanisms through which bonus pay improves student outcomes is still weak. The logic of incentive pay is to stimulate teacher behaviors that help raise student learning: either increased teacher effort or more effective effort. However, relatively few evaluations have documented changes in teachers’ classroom practice that plausibly explain observed increases in student learning. Research on teachers’ classroom practice is becoming more feasible, with the declining costs of installing video cameras in samples of classrooms and increasing use of standardized methods for coding and analyzing teacher-student interaction.

Systematic inclusion of such analysis in impact evaluations of pay for performance programs will not only illuminate how such programs work but also generate evidence and examples of effective teaching that can more broadly benefit these school systems.

Ultimately, cross-country studies suggest that no education system achieves high teacher quality without aligning all three types of incentives: professional rewards, accountability pressures, and financial rewards. But these studies also suggest that the particular combinations that are most efficient are highly context-specific. Finland, Singapore, and Ontario, Canada, for example, have all built strong professional rewards for teaching, but accountability pressures are much stronger in Singapore than in Finland or Canada. And none follows a textbook approach on financial incentives: Finland has achieved a sharp upgrading of teacher quality over the past 20 years with little increase in teachers' relative salaries. Singapore keeps entering salaries for teachers on par with other professions and offers bonuses for high performance, but has an overall career ladder that is much flatter than in other professions. Ontario pays competitive salaries, but the core of its strategy is team-based professional development at the school level supported by outside experts but not otherwise incentivized. These examples suggest that there are multiple roads to the goal: a balanced set of incentives sufficient to attract talented teacher candidates, establish accountability for results, and motivate continued professional growth and pursuit of excellence.

## Managing the Politics of Teacher Reform

Teachers are not only key actors in the production of education results but also the most powerful stakeholders in the process of education reform. No other education actor is as highly organized, visible, and politically influential (Grindle 2004). Because of their unique autonomy behind the closed door of the classroom, teachers also have profound power over the extent to which new policies can be implemented successfully. By global standards, teachers' unions in Latin America and the Caribbean have been considered especially powerful. They have a history of effective use of direct electoral influence and disruptive actions in the streets to block reforms perceived as a threat to their interests.

Like all organized workers, teachers' unions exist to defend the rights they legitimately earn through negotiations and to oppose policy changes that threaten those rights. Teachers and their representatives are entirely justified in pursuing these goals, and teachers' unions throughout history have been a progressive force in achieving equal pay and fair treatment for women and minority members. But it is also true that the goals of teachers' organizations are not congruent with the goals of education policy makers or the interests of education beneficiaries—including students, parents, and employers who need skilled workers.

Viewed through the lens of teachers' legitimate interests, a number of education policies that governments adopt in pursuit of education quality pose threats: to teachers' benefits (elimination of job stability and reduction or loss of other benefits); to teachers' working conditions (curriculum reforms, student testing, teacher evaluation systems); or to union structure and power (decentralization, school choice, higher standards for teachers at entry, alternative certification, and pay linked to individual skills or performance). Relatively few education policies—higher spending on education, bonus pay at the school level, and lower pupil-teacher ratios—are positively aligned with unions' interests. Unions' ability to challenge policies depends on their structure (i.e., share of teachers unionized), their capacity for collective action, and the effectiveness of their political strategies. The latter include strikes and protests, government capture, legal strategies, and union-sponsored research and policy analysis to influence education debate. All of these strategies have been deployed effectively by unions in Latin America and the Caribbean in national debates over education reform during the past several decades.

But recent reform experiences in Mexico, Peru, and Ecuador suggest that the balance of power between governments and teachers' unions in the region may be shifting. In an age where mass media afford political leaders a direct channel of communication with even the most remote and rural of their citizens, one of the long-time sources of union power—the ability to mobilize their members for large-scale grassroots political campaigning—may be of diminishing utility. In a region where democracy has taken hold in most countries, mass media have become increasingly vociferous in exposing government failure and political corruption. This feeds public demand for more accountable and effective government and resonates particularly strongly in education, which touches every family's hopes and aspirations for its children. Increasingly, political leaders in LAC appear to be calculating that popular support for education reform is a stronger bet for their political future than the traditional quid pro quo of electoral support from teachers' unions in exchange for education policies that do not threaten their interests.

While there is substantial heterogeneity across the region in union power, government reform priorities, and the dynamics of the reform process, the most recent reform experiences support several cautious observations:

- Political leaders can build effective proreform alliances of business leaders and civil society through communications campaigns that paint a compelling picture of the current failures of the education system and the importance of better education for economic competitiveness. Successfully uniting two sides of the stakeholder triangle (civil society and government) in dialogue with the third (organized teachers) can create political space for the adoption of reforms, including three that challenge union interests (individual teacher performance evaluation, pay differentiated by performance, and loss of job stability).
- Reform momentum is greatest if launched at the start of an administration. In most cases, the process is contentious and unions have a strong interest in dragging it out. If leaders move quickly, they capitalize on their point of maximum political leverage and establish education as a top priority. As they begin to govern, administrations are inevitably forced to spend time on a wide range of other issues and suffer some political reversals; this diffuses messages and erodes leverage.
- Hard data on education system results are a crucial political tool. Especially powerful are data on student learning outcomes, results that are internationally benchmarked (such as PISA, TIMSS, SERCE, and LLERCE and data on teachers' performance on competency tests. Political leaders' use of these to build the case for reform has been a factor in all successful strategies to date. Of all international tests, the OECD's PISA seems to resonate most strongly with the business community and civil society groups. This is likely because the comparator countries are those that LAC countries aspire to join, and because it is easy to interpret the results, for 15-year-old youths, as a barometer of labor force quality and economic competitiveness.
- Reform strategies based on confrontation with unions may succeed in securing the legislative adoption of major reforms, but not necessarily their implementation. In many countries, the political space for negotiating major reforms with teachers' unions does not exist. In three recent cases (Mexico, Peru, and Ecuador) confrontation politics has produced the legislative/constitutional adoption of teacher policy reforms that global evidence suggests are needed for education quality: student testing, teacher performance evaluation, teacher hiring and promotions linked to skills and performance rather than seniority, and dismissal of teachers with consistently poor performance. There may be no political alternative to confrontation strategies in many contexts; in Mexico's case, a high-profile government effort to design

reforms in collaboration with the union foundered when the union could not deliver members' adherence with the agreements.. But confrontation strategies imply a major trade-off: they make it impossible to gain input from teachers that could genuinely improve a reform's design and smooth its implementation.

- Sequencing reforms can ease adoption and improve implementation. The region's experience suggests a political logic to a certain sequence of education reforms. The first step is student testing, with transparent dissemination of results, both nationally and to individual schools; this is the anchor that makes it possible to introduce other performance-based reforms. A second step is the adoption of school-based bonus pay, which establishes the concept of pay for performance and focuses schools on student learning progress, but has typically faced less union resistance than individual bonus pay. A third step is individual teacher evaluation on a voluntary basis, with the carrot of attractive financial rewards for teachers who take the risk of being evaluated and perform well. Unions have typically opposed this, but making programs voluntary can avoid confrontation. This sequence of reforms was implemented in Chile between 1995 and 2004, more recently by Sao Paulo state,, and (proposed) in Rio de Janeiro state.

All of the available evidence suggests that the quality of teachers in Latin America and the Caribbean is the binding constraint on the region's progress toward world-class education systems. Low standards for entry into teaching; low-quality candidates; salaries, promotions, and job tenure delinked from performance; and weak school leadership have produced low professionalism in the classroom and poor education results. Moving to a new equilibrium will be difficult, and will require recruiting, grooming, and motivating a new breed of teacher.

Raising the stakes further are the sweeping transformations occurring in global education. The traditional goals of national education systems and the traditional paradigm of teacher-student interaction made teachers the linchpin in the transmission of discrete bodies of knowledge to students in the classroom. The new paradigm is that teachers are not the only or even the major source of information and knowledge available to students. A core role of teachers today is to equip students to seek, analyze, and effectively use vast amounts of information that are readily available elsewhere. Teachers must also develop students' competencies in the broad range of areas valued in an integrated global economy: critical thinking; problem-solving; working collaboratively in diverse environments; adapting to change; and the capacity to master new knowledge, skills, and changing employment demands across their lifetimes. No teacher preparation programs in LAC—or indeed in most OECD countries—are fully prepared to produce this profile of teacher today, let alone the profiles that may be needed over the next decade. But virtually all OECD countries are responding to these challenges by raising their expectations, and standards, for teachers.

Countries across Latin America and the Caribbean are also responding. Virtually all aspects of teacher policy are under review and reform in different LAC countries, and in some areas the region is in the vanguard of global policy experience. By drawing together in one volume the key teacher policy reforms being undertaken in the region today and the best available evidence on their impact, this book hopes to stimulate and support the faster progress that is needed.

#### **Note**

1. Because Peru did not participate in the 2003 and 2006 rounds of PISA, researchers excluded it from the analysis of countries registering the most significant sustained progress between 1990 and 2006.

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