Meeting the Challenges of Secondary Education in Latin America and East Asia

Improving Efficiency and Resource Mobilization

Executive Summary

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THE WORLD BANK

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Executive Summary

While policy makers in many World Bank client countries have shown an increasing interest in expanding and strengthening their secondary education systems, many challenges remain. As many developing countries have boosted primary school enrollment rates to nearly universal coverage, the number of children seeking secondary education has soared. Yet secondary education must fill dual roles: providing skills, knowledge, and technical training for youth planning to enter the labor force, while at the same time preparing others for continuing their studies in higher education. Unfortunately, secondary education often fulfills neither role. A shortage of schools, as well as demand-side constraints such as the inability to pay for education, have slowed the expansion of secondary education coverage, and the quality of secondary schooling often is poor.

The report focuses on the following questions: How can countries address the multiple challenges they face in secondary education? How can they grow their education systems responsibly and efficiently? How do the challenges vary with countries' different development levels? How can countries with different technical and financial capacities address those challenges? The report uses experiences and

data from East Asia and Latin America to explore these overarching concerns.

Latin America and East Asia face key challenges in secondary education and offer a broad range of policies and programs to address these issues. Secondary education has long been the neglected child in the development of public education systems in both regions. Primary school is associated with basic education and socialization, while national development and competitiveness are tied to tertiary education. As understanding grows that secondary education is necessary for a citizen's fundamental education, many countries in these two regions have passed laws making lower secondary—and occasionally upper secondary—part of mandatory education requirements. However, low access to education, unevenness of quality, and differences in access and graduation rates persist.

During the 1990s, many Latin American countries implemented significant reforms to improve the coverage, equity, and quality of their secondary education systems, with an emphasis on innovations in service delivery, such as decentralization and demand-side financing. East Asia, too, has been pushing secondary education expansion more aggressively, with comprehensive education reforms based on effective supply-side policies in the areas of resource mobilization, and efficient and high-quality use of resources, such as creating efficient public-private partnerships and enhancing the relevance of technical and vocational education.

Why analyze the two regions together? Latin America and East Asia offer a similarly broad range of challenges, experiences, policies, and programs, providing the study team with more "degrees of freedom" for analyzing issues and finding solutions than would be found in the study of any one region. In addition, each region is genuinely interested in learning from the other, and a joint study would allow this with economies of scale. Finally, the two regions include countries that vary greatly in economic and social development levels, ranging from the upper- or middle-upper-income countries of the Republic of Korea, Malaysia, Mexico, and Chile, to the lower-income countries of Vietnam, Cambodia, and Bolivia, allowing us to formulate policy options suitable to very different settings.

What are the challenges for the mobilization and use of resources for secondary education? This report centers on access, quality, and equity issues for secondary education in the two regions, while identifying the

main constraints to its expansion and improvement, as well as policy options to address them. Most of these countries allocate too few resources to secondary education and fail to use resources as efficiently as they could to improve coverage and quality, as illustrated by the following: persistent constraints in household demand for education, low accountability for service delivery, poor teacher performance, and costly curricular structures. At the same time, countries in these two regions offer a broad range of policies and programs to address these constraints. The report reviews promising policies for the mobilization and use of resources such as public-private partnerships, revenue decentralization, cross-sectoral funding, school self-financing, demand-side interventions, school-based management, and technical and vocational reforms. In addition, drawing on a few countries that have demonstrated notable advances in addressing secondary education challenges, the report provides additional insights on key policies and how they can be combined and sequenced to effectively expand secondary education. Finally, whenever possible, suggested policies are region- and income-level specific.

Addressing Secondary Education Challenges

Substantial unsolved challenges remain in secondary education in both East Asia and Latin America. Despite many positive changes and an average gross enrollment level of about 80 percent in Latin America and about 70 percent in East Asia, secondary enrollment rates in many countries remain well below average for their level of GDP per capita. In addition, only a little more than half of the children who start primary school complete their secondary education; quality is low; and noticeable income and urban-rural disparities exist. In their efforts to expand secondary education, both regions must strive to ensure equity and quality.

Although these challenges are present to some extent in all countries, their relative importance varies somewhat by country, region, and income level.

From a regional perspective, both regions suffer from internal efficiency problems, with high primary overage enrollment ratios and low secondary completion rates, but typically these problems are more acute in Latin America. Higher pervasive overage enrollment in primary education, which is associated with increased repetition, affects both

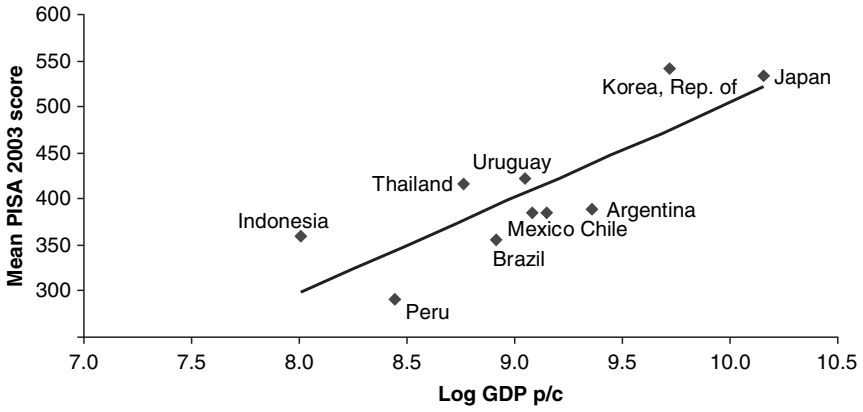
the transition to secondary education and its completion, because older students are less likely to remain in school.

At the same time, the poor quality of primary and secondary education leads to lower secondary school graduation. The quality problems result in academic failure, lack of interest in staying in school, and lower expected income from future professions.

Secondary education quality is of great concern in both regions. Test scores demonstrate that a majority of students fail to acquire basic knowledge and skills. Programme for International Student Assessment (PISA) results, although available for only a few countries, underscore the fact that quality problems are more acute in Latin America, given the countries' income levels (figure ES.1). However, even in countries such as Indonesia and Thailand, which are better performers in relation to their income levels, 50 percent to 80 percent of students perform at or below the first proficiency level in math.

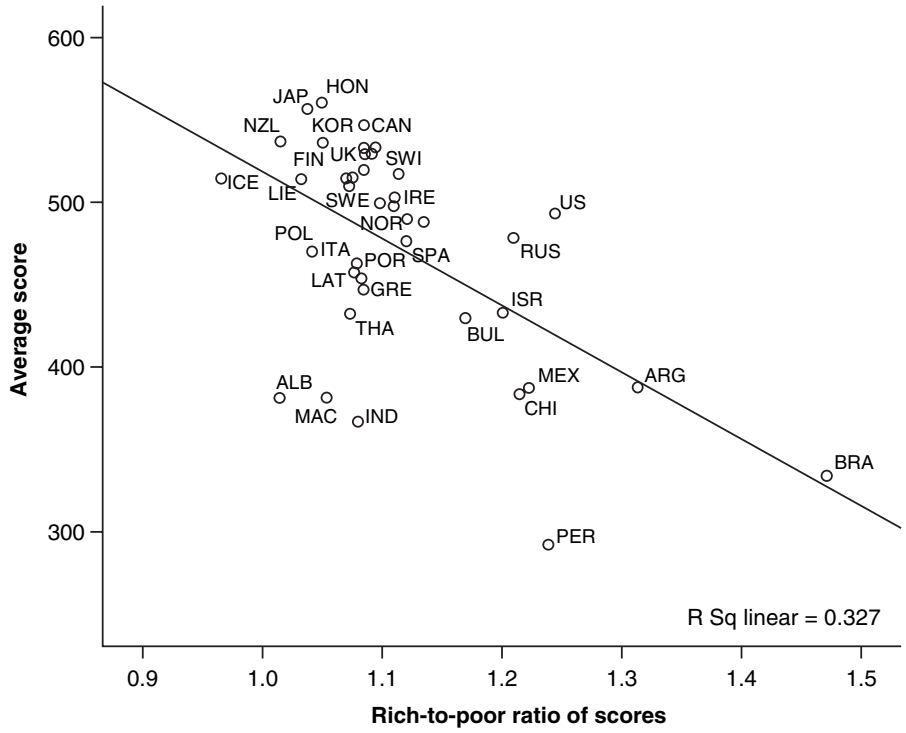
Marked equity gaps based on the urban-rural divide and income inequality are prevalent in both regions. However, income plays a more important role in Latin America. Income inequity is particularly apparent in secondary graduation rates and test scores, showing a strong relationship between efficiency and quality. Figure ES.2 illustrates inequity levels in test scores, showing particularly high inequity in Latin

Figure ES.1. Trend Line of PISA Test Scores against Log GDP per Capita for East Asian and Latin American Countries



Sources: PISA 2003, 2000; WDI 2004 (World Bank 2004f).

Figure ES.2. Performance and Inequality in PISA Scores (Math)



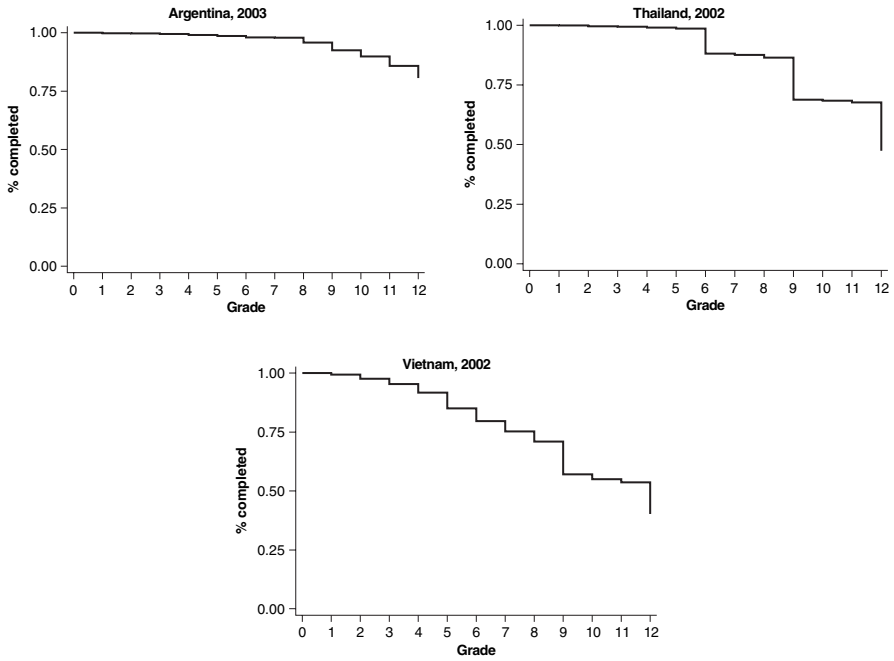
Source: PISA 2000.

America. Interestingly, it also shows that there is a significant negative relationship between average performance and performance inequality. Other reasons for the higher inequity in Latin America will be explored below. East Asian countries such as Indonesia, Vietnam, and China have particularly acute equity gaps between urban and rural areas.

Low overall quality, combined with the inability in many cases to produce strong secondary school graduates who come from disadvantaged environments, is a key issue for Latin America. East Asian countries face substantial challenges in expanding secondary education enrollment (with higher equity in access), while increasing quality and reducing persistent inequities in secondary graduation rates.

From an income perspective, country income is clearly and positively associated with access to, and quality of, secondary education, although the strength of this association varies. Lower- and lower-middle-income countries lag in relation to secondary gross and net enrollment rates and graduation rates. (Figure ES.3 illustrates how graduation rates vary across

Figure ES.3. a, b, and c: Estimated Graduation Rates for Children Aged 13–19



Sources: Argentina Household Survey 2003; Thailand SES 2002; Vietnam LSMS 2002.

countries of different income level.) The widest gap in test scores occurs between upper-income countries and all the others, indicating an important quality gap between what are considered developed, or wealthy, countries, such as Japan and Korea, and the more advanced of the developing countries, such as Mexico and Chile (this gap is visible in figure ES.2).

Inequity in secondary education, however, does not follow clear income lines within countries. There are lower-income, lower-middle-income, and middle-upper-income countries that have high inequity. This suggests that there is a pervasive equity problem even in relatively more advanced economies.

Below, we review some of the main constraints the countries of both regions face as they address access, quality, and equity challenges.

Key Constraints in Access, Quality, and Equity

Both supply- and demand-side constraints for secondary education will need to be addressed. In rural areas in particular, where many students

drop out across education cycles, a lack of schools and specialized teachers can be constraints, creating a possible shortfall in basic access to secondary education. These constraints occur more often in lower- and lower-middle-income countries.

Widespread drop-out rates at all grades of secondary education in both urban and rural areas suggest that constraints go beyond a school shortage and become stronger as basic supply-side constraints are addressed. Once the basic infrastructure is in place, specific measures may be needed to attract the youth who are still not in school. Concerns about school quality and school efficiency come into play.

Chapter 2 shows that demand-side constraints are pervasive, particularly for lower-income households. These constraints are related to uncertainty about labor market returns that might derive from receiving a higher education, the lack of information about schools, and credit limitations.

Private returns to secondary and, particularly, tertiary education, are quite high in both regions, which means they carry a high earning premium. Also, the demand for postprimary education workers is strong and continues to grow across the board. For Latin American and Caribbean countries, skill-biased technological change and domestic market liberalization policies are the main drivers behind the increasing demand for workers with postprimary and, in particular, tertiary education.

Increased labor market demand for postprimary education needs to be matched by an increased supply of graduates. Although there is debate on how elastic, or reactive, the supply of students is to increased returns, the report makes it clear that household demand for postprimary education is key to ensuring a strong supply of graduates. Household demand can be constrained by several factors.

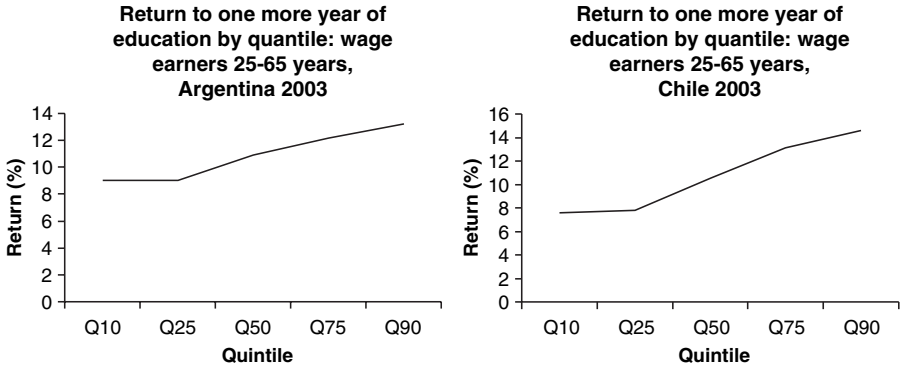
First, young people and their families may underinvest in education and make short-sighted choices about schooling due to uncertainty about future labor market returns that can be achieved by attaining a higher education. They also may lack information about schooling options. These constraints, which are stronger for lower-income youth, will need to be addressed by providing information on labor market opportunities and payoffs, and educational options.

Second, education returns are not necessarily the same across income levels. The report shows that returns tend to be lower for lower-income

households than for upper-income ones in Latin American countries and upper-income East Asian countries (see figure ES.4). This can be the result of public and private sector pay and employment policies and their influence in the labor market. However, at least in Latin America, some evidence presented in the report suggests that this trend may also be the result of socioeconomic segmentation across schools, with the poor attending those of lower quality. This is particularly pronounced between public and private schools.

Access to lower- quality schooling for the poor in Latin America points to a major reason for the higher inequity levels in that region. The political elite in East Asia seems to have made a stronger commitment to providing a good education through a well-functioning public system. Beyond the political elite, having the whole society attach a high value to education makes it easier to provide a more uniform, good-quality education. In Latin America, the low value that society places on education has been addressed to some extent by the private sector, which generally has been much more elite-focused, as illustrated by much more restrictive admission practices, constraining the poor to a low-quality public sector education. Combined with higher uncertainty on returns, the low quality of schooling helps explain the lesser demand for education from the poor, and their lower educational attainment. These results suggest that greater and more equitable access to high-quality schools, whether public or private, is a priority for Latin America.

Figure ES.4. Returns to One More Year of Education by Quintile in Selected LAC Countries



Source: Household Surveys.

Finally, young people struggle with insufficient resources to finance education. In making education decisions, youths and their families face a budget constraint—their school-related expenditures and their investment of time in relation to forgone income. Completion rates are far lower for young people from lower income levels, the direct costs of schooling can be substantial in some countries, and a notable number of youth have to work while they study, or they drop out for work-related reasons.

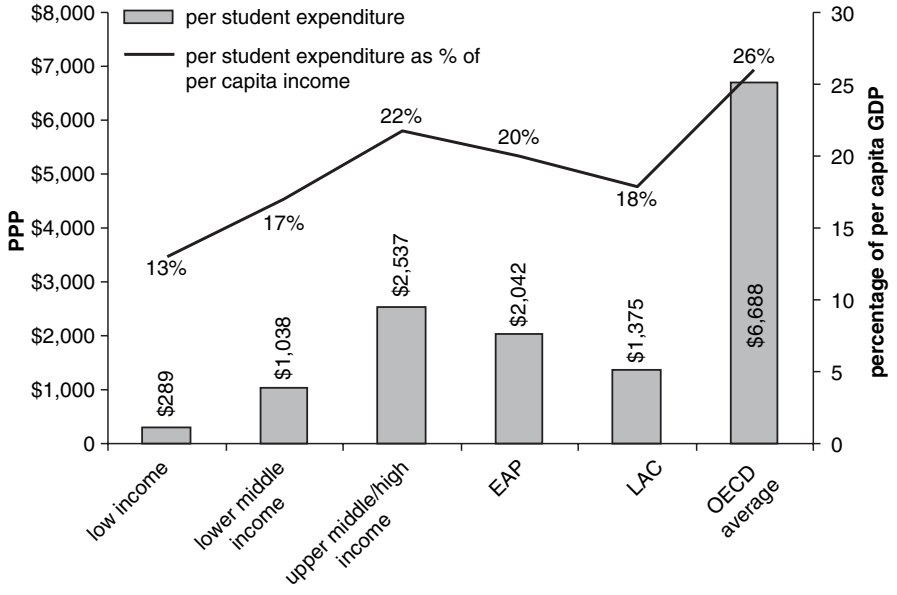
Although other factors have an impact, lack of private resources is a key determinant of access to, and completion of, secondary education. Direct costs are potential constraints to schooling in both regions, although willingness to pay for these costs varies somewhat (appearing to be stronger in East Asian countries). Direct costs represent, for instance, about 22 percent of per-capita household income in Bolivia and 20 percent to 30 percent in China.

Constraints related to forgone income from work are stronger among the poor and in lower- and lower-middle-income countries. For instance, although the percentage of working children and youth is 2 percent in Argentina and Chile, it exceeds 30 percent in Bolivia, Guatemala, Vietnam, and Indonesia, and reaches an astonishing 54 percent in Cambodia. A combination of school and work responsibilities tends to be more common in Latin American countries. Credit constraints can be addressed through targeted grants (e.g., scholarships, conditional cash transfers [CCTs], vouchers) at the lower secondary level, and a combination of well-targeted grants, loans, and savings schemes at the upper secondary and tertiary levels.

Financing constraints at the country level are also pervasive. Although enrollments have increased markedly, education funding has not always followed. As a result, secondary education tends to be underfunded in relation to its share of GDP expenditure per student, and expenditure per student in proportion to GDP per capita (see figure ES.5). These constraints are stronger in Latin America and in lower- and lower-middle-income countries. Expenditure per student in proportion to GDP per capita in lower-income countries is half that of OECD countries. Although quality is much more than an issue of resources, achieving a high-quality education despite such low unit costs is likely to be difficult.

Resources may become an even larger constraint as countries plan to expand and improve their secondary education systems. The growth in

Figure ES.5. Secondary per Pupil Expenditures ($PPP), as percent of per Capita Income, 2002–03 School Year



Sources: OECD 2004; UIS; World Bank 2005h; Yilmaz 2005.

demand for secondary graduates will amplify the need for additional funds to accommodate and attract more students, and expenditure per student may need to rise to address the pervasive quality gap and increasing household demand constraints.

Simulation analyses, assuming unit costs benchmarked at the OECD level (26 percent), show that reaching a target enrollment rate of 85 percent by 2015 (which may still be lower than that demanded by the labor market) would require the regions to double their secondary education share in relation to GDP (table ES.1). The current resource allocation would result in an average fiscal gap of about 1.2 percent of GDP. Low-income countries will face a much tougher financial challenge during the next decade compared with middle-income countries, as illustrated by a large fiscal gap of about 2.3 percent of GDP. These scenarios are somewhat upper-bound estimates because OECD unit costs in proportion to GDP per capita are assumed, whereas somewhat lower unit costs may be enough to achieve important quality improvements. However, resource constraints may become increasingly grave in the future.

This report provides insights into the main options for mobilizing additional resources for secondary education. To finance secondary

Table ES.1. Estimated Expenditure Need at GER2 = 85% and Expenditure per Student as a Percentage of GDP = 26%

	Number of countries	*2003 Resources (% GDP)*	*2015 Needed (% GDP)*	*Annual funds (% GDP)*
Low income	3	0.52	2.84	0.19
Lower-middle income	11	1.09	2.41	0.11
Upper-middle/high income	8	1.65	2.30	0.06
EAP	5	0.78	2.50	0.14
LAC	17	1.34	2.41	0.09
Two regions combined	**22**	**1.21**	**2.43**	**0.10**

Source: Yilmaz 2005.

education, countries can expand public funds, encourage contributions from the private sector, or ask the international community for greater assistance.

The main justification for public financing relies on the "positive externality" argument. Other arguments are based on the equity rationale. Paychecks do not fully reflect the direct and indirect benefits of education, particularly the important social benefits of schooling,[1] and therefore individuals consume "too little" education. Because inequity is potentially quite high in secondary education and is bad for societal development and growth, it makes sense to decrease it through public intervention. This can be done through measures such as easing borrowing constraints and improving the quality of schooling for the poor.

Private financing, however, has a key role to play. Financing from both private institutions and households is crucial (particularly when there is pressure to expand access quickly), and the options reviewed reveal that new financing mechanisms increasingly blur the boundaries between public and private funding. In fact, in many countries, household financing has played a key role in maintaining stable service delivery. At the upper secondary level, there is clearly increasing scope for private financing because of the notable rates of return, which make it a worthwhile investment, and because this education level helps to develop skills and competencies that are of value to private industry. Indeed, private financing is typically greater in upper secondary education.

All countries also face efficiency constraints. Not only could they be spending more on secondary education, but they could be using their

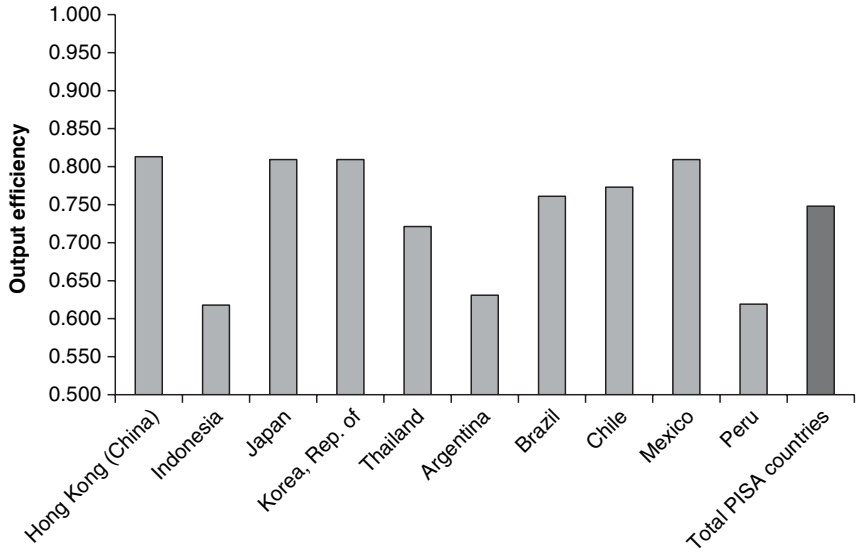
resources more efficiently. To measure how efficient countries or schools are in converting inputs into a set of outcomes, we must analyze the efficiency, or cost-effectiveness, of education resources. This typically requires us to compare the outcomes of the production process (such as academic achievement and educational attainment), with the inputs that are invested. Efficiency in education spending can be analyzed through the use of a production frontier. A production frontier is derived from observing the most efficient operations of countries or schools, demonstrating relatively high output for input. All other observations are then located on the same chart. The further they are from the efficiency frontier, the more inefficient they are.

Output efficiency is particularly useful because it measures the gap between the potential output that could be produced from a given level of resources, and the actual output. Not surprisingly, most countries or schools could be producing more from what they invest. Input efficiency measures how much less countries or schools could hypothetically invest in education and still reach the same output level. This concept is less applicable because system rigidities generally make it more difficult to save on resources, such as teachers or salaries. Instead, it is more relevant to think about using the existing teachers more efficiently. In addition, in this study we are more interested in seeing how we can improve performance rather than save on resources to achieve a similarly unsatisfactory performance.[2]

The efficiency score analysis shows substantial margins for improvement in the two regions. In particular, by controlling for socioeconomic status, schools could, on average, reach academic achievement and grade attainment levels about 15 percent higher for the quantity and quality of teachers employed. In Brazil and Indonesia, for example, these levels could be improved by about 22 percent and 19 percent, respectively. Margins for output efficiency improvements are even more significant when only test scores are considered (figure ES.6), suggesting that it is more difficult to aim for higher academic performance. Finally, there is even more room for achieving higher outcomes with fewer resources.

When examining efficiency results regionally, we find that, in general, Latin American countries have more scope for improving output efficiency than East Asian countries (with Mexico as a clear exception). Secondary education systems in Latin America seem to be both under-funded and inefficient. Many East Asian countries are also constrained by a lack of

Figure ES.6. Output Efficiency (in Terms of Academic Performance) in Selected EAP and LAC Countries—PISA 2000



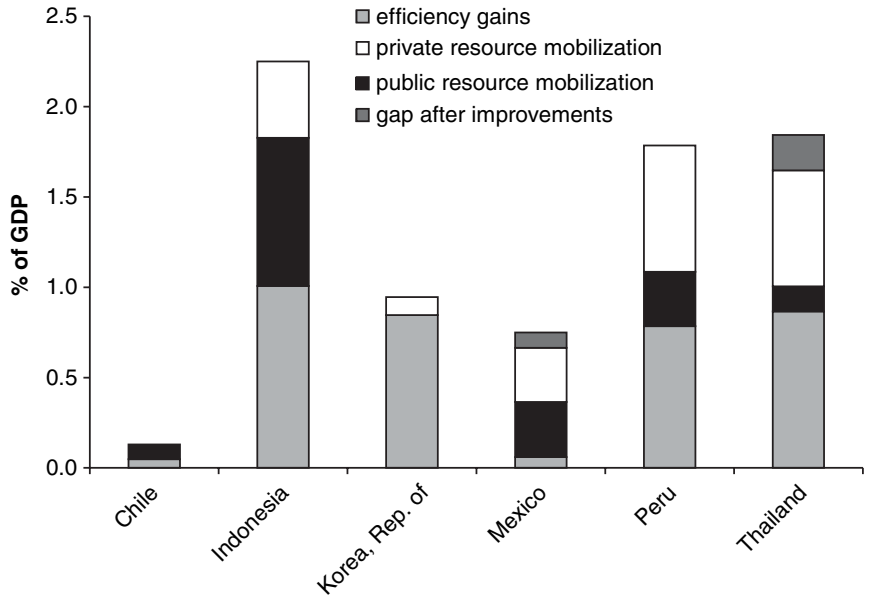
Source: Author's elaboration on the basis of Wilson (2005).
Note: Maximum output efficiency = 1.

resources and, like Indonesia and Thailand, inefficiencies in the way they use them. In general, East Asian countries have more room for improving input efficiency.

Simulation results show that by combining the potential for additional public and private resources[3] with the potential for output and input efficiency improvements,[4] all countries for which we can undertake these simulations would completely or nearly close their fiscal gaps.[5] These results, shown in figure ES.7, must be considered with care, particularly when determining how difficult it could be to save on resources. But they help to make the point that if efficiency gains were realized, countries could keep their resource mobilization efforts reasonable and still be able to reach or come close to ambitious enrollment targets.

There are several key underlying reasons for inefficiency in the two regions: (1) national budget compositions biased toward higher salary shares, with little left for nonsalary items such as learning materials and teacher training activities; (2) weak public management expenditure systems that translate into delays and leakages in the transfer of budgets or inputs to the schools, leading to further underinvestment in certain key inputs, such as textbooks; (3) technical and vocational education systems

Figure ES.7. Reducing Fiscal Gaps through Additional Resources and Efficiency Gains



Source: Author's elaboration on the basis of Yilmaz (2005) and Wilson (2005).

that often are too costly and rigid; (4) poor alignment between curricula and other parts of the system, such as selection mechanisms, student and teacher assessments, textbooks, and teacher training, which hampers instructional improvements; (5) lack of effective use and dissemination of student evaluations; (6) centralized labor market systems; and (7) weak internal and external accountability for service delivery.[6] The seriousness varies by region and income level. From a policy perspective, we will review below several types of interventions that can be efficiency enhancing, although they may not necessarily solve or address all the core constraints.

The next two sections review policy options based on studies of a few key countries, literature reviews, and analytical findings presented in the report. The first section explores policy mixes and sequencings in successful countries; the second provides a more general menu of policy options, with an in-depth review of some.

Different Routes to Secondary Education Development: Learning from Successful Country Cases

A variety of routes to secondary education development exist. Countries prioritize different outcomes as they develop their secondary education

sectors. Many consider educational access and educational quality to be trade-offs. Countries that are expanding access, it is commonly thought, will experience quality declines as ministries of education focus on providing education to more children and stretch to provide teachers, classrooms, and materials, and as more children from less-advantaged backgrounds enter the school system. That, in turn, is thought to reduce completion rates. Conversely, it is thought that countries that focus on providing top-quality schooling may do so at the expense of limiting access. This scenario occurs frequently at the tertiary level, with public funds supporting excellent universities that are available to a relatively small, elite sector of the population.

Countries should aim for broad-based lower secondary education. The dilemma described above fits into the broader debate on whether secondary education should be expanded on a mass scale or should produce an elite group capable of succeeding in tertiary education. Evidence is mounting that a strict access/quality trade-off may not exist, particularly at the lower secondary level. Recent secondary education reforms have tended to defer specialization and selection until upper secondary school or later. They have also increased the duration of compulsory education to cover lower secondary school. Analysis of international test score data shows that early tracking significantly increases inequality in learning achievement and (weakly) reduces mean learning performance, which suggests that there does not appear to be any equity/quality trade-off. The negative impact of early tracking contrasts with the positive effects of compulsory schooling. The practice of limiting secondary school entry through meritocratic exams in Tanzania and Tunisia created overcrowding in primary school and led to more student failures. Countries should therefore opt for broad-based lower secondary education, in which the positive externality argument based on mass literacy is the strongest and the quality/access trade-off is weak.

A trade-off may be more likely to appear between broad-based access to upper secondary education and education excellence, but options exist that could address both concerns, at least in the longer term. Many Latin American countries with upper secondary enrollments exceeding 60 percent do less well on the quality side (both in average performance and equity of performance). An option could be to introduce a high-stakes exam at the beginning of upper secondary, resulting in rationing according to ability, as countries such as Malaysia now, and Korea and

Thailand in the past, have attempted to do, with varying levels of success. Although this could foster elite formation and even promote more equitable quality outcomes if well implemented, it would have negative consequences on access. In addition, the case of Mongolia shows that merit-based selection at the upper secondary level can be very regressive, which reflects in part the fact that the poor attend lower-quality schools, with negative consequences on equity of graduation.

Whenever selection is merit based between lower and upper secondary school, alternative learning options, such as vocational education, could be provided for those who do not make the cut. These vocational tracks should not be dead ends, and students should be allowed to gain access to higher education if they so desire and qualify. Case studies show that an education system that combines selectivity in accessing institutions offering higher-order skills, with more open admission to other higher education institutions, serves the dual role of fostering excellence and guaranteeing coverage and equity. Alternatively, to the extent that selection into upper secondary school responds to fiscal constraints, conditions for private sector participation could be eased and public-private partnerships implemented to decrease the need for selection on fiscal grounds, while quality is preserved or even improved through well-selected, quality-enhancing policies. Korea, for instance, is a good example of a country that managed to produce both mass secondary schooling and education excellence through gradually expanding access to both lower and upper secondary education levels with the help of the private sector.

The comparative nature of this study allows us to informally test the validity of the quality/access trade-off hypothesis. Table ES.2 characterizes Latin American and East Asian countries by their current secondary gross enrollment rates, and their standing when it comes to international assessments and completion rates. This is a static depiction of whether countries tend to fall into high-enrollment/low-quality or high-quality/low-enrollment molds. Figure ES.8 similarly characterizes countries by their enrollment and quality levels, but in a dynamic form. Countries are placed in the table according to whether, since the mid-1990s, they have improved their enrollment rates, and have improved their test scores and/or completion rates. This figure shows whether countries fall into low-quality/high-access or high-quality/low-access patterns *across time*. Equity performance is also considered. The analyses are expected to produce different results because countries with higher and more equitable quality and coverage levels may have less favorable dynamic patterns

Table ES.2. Static Categorization of Countries by Enrollment and Measures of Education Quality*

		Quality (test scores and/or completion)	
		Above average	*Below average*
Enrollment (GER)	**Above average**	Korea, Rep. of Hong Kong [China]	Mexico, Argentina** Chile,** Bolivia,** Philippines, Brazil,** Peru
	Below average	Thailand, Colombia, Malaysia	Indonesia, Vietnam Cambodia, Guatemala

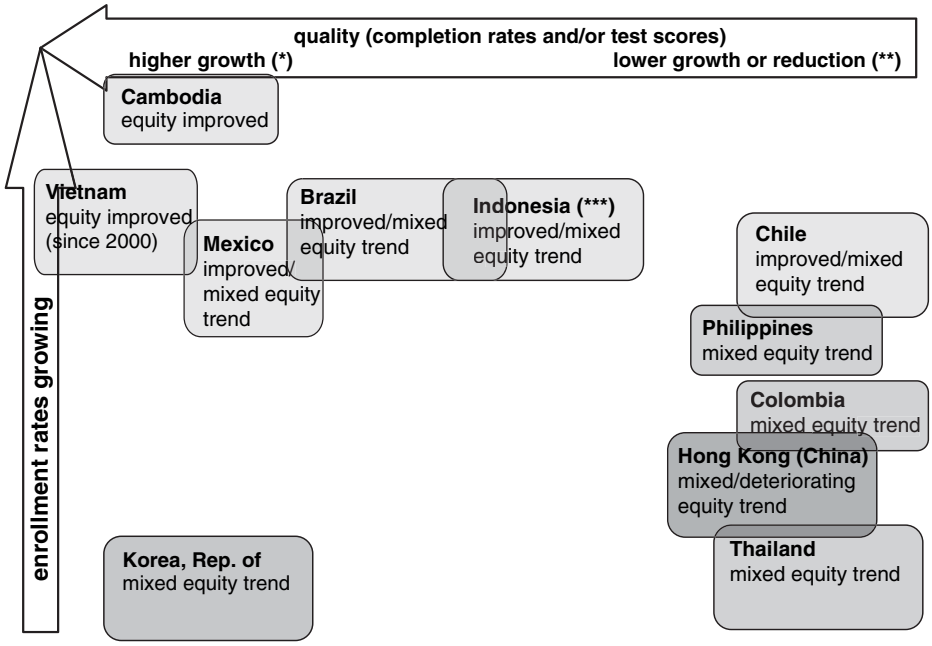
Source: Author's elaboration.
*Each country's performance is compared with the average performance for the whole sample. Average GER is taken to be 77 percent, average 2000 PISA test scores are taken to be 410 (math) and 425 (language), and average completion rate is taken to be 57 percent. TIMSS data were used to rank Malaysia and the Philippines. National information was used to complement information on completion rates and test scores when necessary.
**Above-average completion, but below-average test scores.

(such as Korea and Hong Kong [China]) as it is more difficult to make substantial progress when initial performance is higher. However, both sets of results are included because we are interested in countries that have done well not only in the longer run, but also more recently.

Many Latin American and East Asian countries of all income levels appear to have good results either in access or quality (table ES.2). Latin American countries have achieved more in regard to access. This is also clear from the previous analysis, which shows that Latin American countries have higher enrollment rates than East Asian countries, but also generally have higher primary overage ratios and lower completion rates and test scores for their income level. East Asian countries such as Malaysia and Thailand have achieved more in terms of quality. Although secondary completion and test scores tend to be complementary—that is, countries with high test scores tend to also have high secondary completion rates—it is notable that countries such as Chile, Argentina, Bolivia, and Brazil have relatively high enrollment and completion rates, but relatively low test scores.

However, countries such as Korea and Hong Kong (China) show that the trade-off between quality and access is not absolute; and other evidence that the quality/access trade-off can be overcome emerges from the dynamic analysis of country performance since the mid-1990s. Korea and Hong Kong (China) have high enrollment, test scores, and completion rates, and are also performing reasonably well

Figure ES.8. Dynamic Categorization of Countries by Progress since the Mid-1990s in Enrollment and Measures of Quality



Source: Authors' elaboration.
(*) High growth is taken to be increases higher than 2 percent yearly in the completion rate, or PISA test scores increasing between 2000 and 2003 in at least math or reading, or both. Specific country ranking within the high-growth category is arbitrary.
(**) Low growth is taken to be increases lower than 2 percent yearly in the completion rate, or math and reading PISA scores decreasing by at least 1 percent between 2000 and 2003, or both. National data used for Chile. Specific country ranking within the low growth category is arbitrary.
(***) Indonesia is in the middle because it experienced an evolution of completion rates lower than 2 percent yearly.

in educational equity (table ES.2).[7] Vietnam, Cambodia, Mexico, Brazil, and Indonesia have done well on most counts, showing progress in enrollment, and completion and/or test scores (figure ES.8). The dynamic analysis also confirms that measures of test scores and completion, as well as measures of equity and average quality performance, tend to move in the same direction. Clear inequity reductions are visible between genders in Cambodia; income levels in Vietnam, Brazil, and Mexico; and urban-rural areas in Mexico. Inequity reductions have in turn fostered further improvements in enrollment and quality indicators in these countries.

Korea: high priority on education and effective public-private partnership. Korea's achievements in secondary education rest largely on four interrelated characteristics. First, from the early 1950s, the Korean government viewed building a strong education sector as an integral part of the country's economic development strategy. The high stakes associated with expanding education led to prompt implementation of education policies by dynamic, motivated institutions. Second, motivated by the desire to develop skilled, educated workers, the government focused its secondary education policies on quality, relevance, and access from the earliest days. It did so for all sections of the society, finding innovative ways to involve the private sector in the expansion of secondary education, assigning a key role to technical and vocational education, and implementing key quality-/efficiency-enhancing measures. If there were trade-offs between access and quality, they were only short term. Third, the high value that Korean society placed on education helped push forward expansion efforts: In pursuit of the prestige that education brought to the family, parents willingly took on some education costs (e.g., through private tutoring). Consequently, Korean education policies, which focus mainly on supply-side constraints at the secondary level, achieved considerable success compared with many other countries that followed similar paths. Fourth, between the 1950s and 1990s, the country expanded education cycles one at a time, starting with primary education. Specifics on the policies pursued are provided in table ES.3.

Brazil: focus on lower secondary education and innovative policy mix. Although Brazil still appeared to have a fairly cost-ineffective education system in 2000, plagued by poor and inequitable academic achievement, significant improvements have been achieved recently. Not only has secondary gross enrollment continued to increase steadily (after high growth throughout the 1980s and early 1990s), but from 1996 to 2000 the country also attained widespread reductions in grade repetition, the biggest source of inefficiencies in the Brazilian education system. Since 2000, Brazil has shown clear signs of improved education quality and equity in lower secondary. Brazil's recent achievements appear to lie on four main pillars: renewed priority given to education since the 1980s; strong prioritization of efficiency, quality, and equity from 1996, after a heavy focus on access throughout the 1970s and 1980s; sequencing by education level in the 1990s, with a strong focus on lower secondary education; and an innovative policy mix to address existing constraints since 1996, introducing demand-side policies after basic supply-side policies were put in place (see table ES.3).

Table ES.3. Priorities and Policies of Countries That Have Addressed or Are Addressing Trade-Offs

	Priority Sequencing	*Broad Policy Mix and Sequencing*	*Main Policies*
Korea, Rep. of	• Quality, access, and equity together since the 1950s • Gradual expansion by education level (primary, lower secondary, upper secondary)	• Mostly supply-side policies	• Public-private partnerships • Quality assurance • Private tutoring • TVET reforms (more academic curricula, link with technical colleges) • Increase in public financing, with high nonsalary shares • School-based management • Curricular reform (life-long skills, individualized learning)
Vietnam	• Access and quality together since 1986; equity since 2000	• Mostly supply-side policies	• School self-financing (semipublic schools, private schools) • Cost recovery • Improved school governance • Effective textbook supply • Focus on teacher training and competencies • Recent efforts to eliminate fees
Brazil	• Access in the 1970s and 1980s; quality, efficiency and equity since 1996 • 1990s improvements focused largely on lower secondary	• Combination of supply- and demand-side policies (demand-side policies introduced more recently)	• FUNDEF (financing reform tying municipal and state funds to enrollment to equalize spending) • Focus on teachers' qualifications (including measures such as distance teacher training) • Focus on national testing (SAEB, ENEM) • National minimum curricular standards • Policies to reduce repetition (accelerated instruction, flexible promotion, etc.) • Bolsa Escola, PETI (CCTs for poor families)
Mexico	• Access before the 1980; access and quality since 1992; equity and quality since late 1990s • 1990s improvements focused largely on primary and lower secondary; more focus on upper secondary in 2000	• Combination of supply- and demand-side policies (demand-side policies introduced more recently with equity focus)	• Federalization of primary and lower secondary education (resulting in increased resources) • Telesecundaria (distance secondary) • Curricular reform (including measures such as extension of school year and competency-based secondary curriculum) • New teacher career framework (*Carrera Magisterial,* with performance incentives) • Oportunidades (CCT for poor families) • PEC, CONAFE (compensatory interventions for low quality schools).

Source: Author's elaboration.

Mexico: innovative policy mix and consistency of reforms. Although the 1970s and 1980s were characterized by limited education reforms (with a focus largely on access), and a still heavily centralized education system, the 1992 Agreement for the Modernization of Basic Education began a set of aggressive and diverse education reforms. These resulted in substantial enrollment and secondary completion increases, with decreasing inequity levels. The Mexican reform process was marked by three key characteristics. In the early 1990s, there was a clear focus on quality and access, followed by a focus on equity in the late 1990s. There was also a sequencing by education level from the 1990s, starting with improved quality of primary education and greater access to lower secondary education, and then the efforts extended to boosting the quality of secondary education from 2001 to 2006. And, as in Brazil, there was an innovative mix of supply- and demand-side policies (see table ES.3). Reforms have been fairly consistent since the early 1990s. In particular, the 2001–2006 National Education Program scaled up equity programs and extended quality improvements to the entire education sector. Mexico still has to address key challenges in academic achievement, secondary completion, and equity, which will require sustaining, or even intensifying, the current efforts, particularly in regard to the quality of secondary education.

Vietnam: school self-financing strategies. Although Vietnam is still overall a poor performer, its performance has been dramatically improving since the early to mid-1990s in secondary enrollment and completion. In 1986 the government launched *doi moi*, a broad economic reform that effected the transition from central planning to a market-based economic system. Although the education system was adversely affected during the initial phases of the transition, since 1992 Vietnam has displayed laudable progress in education. Key to this success has been a clear focus on access to education and its quality, implemented through extensive resource mobilization and governance policies, which culminated in a new system of cost sharing or "socialization" of education, including the emergence of semipublic,[8] people-funded private schools, and the introduction of an official fee system at the upper primary and lower secondary levels. These policies were successful in increasing access to secondary education, as well as in mobilizing additional resources that were used for quality-enhancing purposes and improving further governance of the education sector. However, the resulting financial burden on the poor and near poor has been heavy, especially at the secondary level, explaining the persistently high inequity levels along the lines of income, gender, ethnicity, and

province. That led to a recent focus on equity, with national policies identifying the elimination of fees in primary and secondary schools for poor children as a core objective, and concrete efforts to eliminate all types of fees for basic education. As a result, equity has improved significantly since 2000. The country's current priority is to restructure the composition of budgetary allocations in the sector, channeling more public resources toward secondary education to sustain equity improvements, while continuing to raise the quality and internal efficiency of service delivery. Public subsidization of private schools, accompanied by a strengthened quality-assurance system, could also be encouraged.

Can we draw some basic conclusions from these case studies? First, as illustrated by Korea, education systems can address both quality and access issues from early on if good education is highly valued by the state and families alike, and there is sequencing by education level. Under those conditions, opening up access will not necessarily result in decreased quality: In Korea, the state was careful to protect or even increase quality, and when this was insufficient, families invested in private tutoring. This strategy will be easier if countries proceed one education level at a time. Although a latecomer vis-à-vis Korea, Vietnam also illustrates the importance of having a high social value placed on education through its broad and innovative cost-sharing policy in secondary education, which allowed the country to make substantial progress in access and quality (although equity is now at stake).

A sequential approach to objectives will lead to imbalances that will need to subsequently be addressed. In contrast to Korea and Vietnam, Brazil and Mexico, by long choosing to focus largely on access to all educational levels, are more imbalanced. Their more recent prioritization of quality and equity issues and sequencing by education level (with a focus on lower secondary) is, however, starting to bear fruit. It is also important to note that the new focus on quality and equity is in turn having a positive impact on access, as illustrated by the case of FUNDEF in Brazil, which, by providing more resources to poor municipalities, has led to substantial enrollment gains in lower secondary.

At the opposite end of the spectrum, Thailand's heavy focus on quality in the 1970s and 1980s through high school fees, selection exams, diversified technical and vocational schools, and curriculum design reform, with a focus on access since 1992 (with expanded basic education from six to nine years, and accompanying measures to expand primary

schools), has determined the country's stronger performance in quality than in access. It is a bit worrisome that, after a very good enrollment performance up to the mid-1990s, access is stagnating and quality is stagnating or even dropping.

Second, each region can learn much from the other on how to address imbalances. From East Asian countries, Latin America could learn how to design and implement effective quality-enhancing supply-side policies, including innovative resource mobilization. East Asian countries can learn from the recent Latin American experience in designing and implementing demand-side policies (and other equalizing interventions) to increase enrollment of the poor and mitigate some of the undesirable equity effects of resource mobilization policies.

Third, if countries face both supply- and demand-side constraints, ultimately they will probably have to introduce a mix of policies in which measures to improve the quality of schooling for the poor are accompanied by demand-side subsidies. This combination is having a positive impact in Mexico and Brazil, leading to increased equity in completion and quality.

Finally, there is no magic bullet to address secondary education challenges and constraints, but consistency is important. Some countries have concentrated on a few key policies that have allowed them to have a positive impact on more than one challenge (access and/or equity and/or quality), such as Korea's involvement of the private sector and Vietnam's school self-financing and cost recovery, but these policies have also required immediate adjustments (such as Korea's need for a strong quality-assurance system and private tutoring) or longer-term adjustments (such as Vietnam's need for reduced fees for the poor, along with increased public financing). Some other countries, such as Brazil and Mexico, have applied a wider combination of policies, accompanying increased decentralized financing and changes in funding formulas with a variety of quality-enhancing reforms (focused largely on improving teachers' qualifications and incentives, and on curricular improvements) and, at a generally later stage, demand-side interventions (CCTs). Consistent policies are important so they strengthen and complement, rather than undermine, one another. Mexico's continuity in reforms, for instance, is part of the explanation for its recent satisfactory performance, and Korea generally has been very consistent in its reform approach since the 1950s. In contrast, reform inconsistencies probably help explain why Chile, which tried almost all possible education policies, is

experiencing flat graduation rates and test scores, although access is increasing. Examples of its inconsistencies include promoting competition while rewarding poorly performing schools, and introducing automatic promotion in grade 1 before implementing major quality-enhancing programs.

Policy Alternatives to Address Constraints and Challenges

Countries that want to expand and improve their secondary education systems would be well advised to consider a wider range of policy options, which would allow them to pick the policies most suitable to their needs. This section provides a more general menu of policy options by building on country case studies, literature reviews, and analytical findings presented in the report, with an in-depth review of some options (table ES.4).

The menu ranks policy options by main constraints and the challenges they seek to address. A country mainly facing quality challenges and subject to strong demand-side and financing constraints would, for instance, be advised to invest in improving the quality of the schools the poor attend; experiment with vouchers; and apply resource mobilization strategies likely to improve incentives for quality education. In contrast, a country facing mainly coverage challenges and subject to, say, financing and efficiency constraints, should experiment with wider resource mobilization strategies, including increasing tax revenues, and mobilizing resources across sectors, while also improving expenditure allocation and curriculum design; developing nontraditional models of secondary education; and reducing repetition to accommodate new students. In many respects, this is a simplified analysis because it is often difficult to link policies with specific challenges, as they often address multiple issues.

Policy options will need to be both relevant and applicable. The menu also attempts to characterize the policy options by income level and region. Two broad factors are taken into account when making this classification: the applicability of the policy to that particular context, and the need for and relevance of the policy. If one aspect is missing (or less evident) the policy is not highlighted. Both aspects will vary according to income and/or region.[9] Lower-income countries, for instance, are bound to face the toughest institutional constraints regarding regulatory frameworks, information systems, labor market characteristics, and the

Table ES.4. Policy Alternatives by Constraint, Challenges, Income Level, and Region

	Challenge addressed		*Relevance and applicability by income level*			*Relevance and applicability by region*	
Policies to address demand-side constraints	*Coverage*	*Quality*	*Lower Income*	*LMI*	*UM/UI*	*LAC*	*EAP*
Disseminate information on returns and schooling options	X	X	X	X	X	X	X
Target the poor, combining the information above with mentoring and financial incentives (loans)	X				X	X	X
or just mentoring	X		X	X		X	X
Improve quality of schools attended by the poor (report cards, teacher management decentralization, compensatory programs a la *CONAFE* in Mexico)	X	X	X	X	X	X	
Offer vouchers to create choice for the poor (access to good-quality private schooling)	X	X		X	X	X	
Offer Income-Contingent Loans and Individual Learning Accounts	X				X	X	X
Offer Conditional Cash Transfers	X			X	X	X	X
Experiment with nontraditional modalities, such as distance schooling	X	Can move either way	X	X		X	X

(*Continued*)

Table ES.4. Policy Alternatives by Constraint, Challenges, Income Level, and Region (*Continued*)

	Challenge addressed		*Relevance and applicability by income level*			*Relevance and applicability by region*	
Policies to address financing constraints	*Coverage*	*Quality*	*Lower Income*	*LMI*	*UM/UI*	*LAC*	*EAP*
Reallocate resources from tertiary education	X		X	X		X	
Increase cross-sectoral funding for education	X		X	X	X	X	X
Increase tax revenues in proportion to GDP	X		X	X		X	X
Decentralize revenue generation (also using property taxes)	X Be aware of implications on equity	X		X	X	X	X
Introduce taxes earmarked for TVET	X	X		X	X	X	X
Apply formula funding (example: FUNDEF in Brazil)	X	X		X	X	X	X
Promote public-private resource mixes through community schools.	X	X	X	X	X	X	X
School self-financing schemes, and cost recovery	X Be aware of implications on equity	X	X	X	X	X	X
Encourage private tutoring (example: Rep. of Korea)		X		X	X	X	X

Table ES.4. Policy Alternatives by Constraint, Challenges, Income Level, and Region (*Continued*)

	Challenge addressed		*Relevance and applicability by income level*			*Relevance and applicability by region*	
Policies to address efficiency constraints	*Coverage*	*Quality*	*Lower Income*	*LMI*	*UM/UI*	*LAC*	*EAP*
Increase non-salary budget share	X	X	X	X		X	X
Encourage larger secondary schools when possible	X	X	X	X	X	X	X
Apply performance-based salary incentives (examples: *Carrera Magisterial*, SNED)		X		X	X	X	X
Encourage more integrated general-technical curriculum, fewer technical tracks, and links with higher technical education		X	X	X	X	X	X
Improve curricular relevance and make sure curricular reforms are fully applied throughout the system (example: Malaysia)		X	X	X	X	X	X
Encourage government-subsidized private schools	X LAC/EAP	X LAC	X To increase coverage	X	X	X	X To increase coverage
Encourage school decision making in budget generation and composition		X		X	X		X
Encourage school decision making in teacher management		X	X	X	X	X	

(*Continued*)

Table ES.4. Policy Alternatives by Constraint, Challenges, Income Level, and Region (*Continued*)

	Challenge addressed		*Relevance and applicability by income level*			*Relevance and applicability by region*	
Policies to address efficiency constraints	*Coverage*	*Quality*	*Lower Income*	*LMI*	*UM/UI*	*LAC*	*EAP*
Experiment with nontraditional modalities, such as distance schooling	X	Can move either way	X	X		X	X
Reduce repetition by applying a combination of promotion targets and quality improvements (examples: Chile and Cambodia)	X	X	X	X	X	X	
Improve institutional frameworks (information, regulation/quality assurance, public expenditure management, social monitoring, etc.)	X	X	X	X	X	X	X

Source: Author's elaboration.
Note: LMI = lower-middle-income countries; UM/UI= upper-middle- and upper-income countries.; LAC= Latin America & and Caribbean; EAP = East Asia & Pacific.

design and implementation of accountability mechanisms for decentralized service delivery. Caution is suggested in applying some of the policies even though they may be needed, unless these broad constraints are addressed. Similarly, East Asian countries may have certain advantages in terms of better regulatory and quality-assurance frameworks and more flexible labor market structures, which can make it easier to apply certain policies, but also make them less necessary.

In light of evidence in the report, most of the policy options presented in the table can be further characterized according to their basic features and how they could be implemented, giving rise to more concrete policy recommendations. We focus on some of the most promising or innovative ones.

⇨*Options to address demand-side constraints*

Some promising or innovative options to address demand-side constraints, which include both supply- and demand-side actions, are reviewed below.

An approach combining information, mentoring, and financial incentives can be used to address the poor's low demand for education. Young people, particularly the disadvantaged, face multiple constraints, and policies must address their needs in an integrated manner. This is often not fully appreciated by policy makers, who tend to apply piecemeal approaches to foster investment in education from the poor. It is important to understand that lack of decision-making skills, information, and financial resources are apt to be complementary, requiring policies that integrate information, mentoring, and financial incentives. Experience with these policies is lacking in the developing world, but an increasing number of programs in developed countries combine all the above plus academic support, and are targeted toward disadvantaged youth in secondary school to help them go to college and succeed. Generally, these programs have strong positive impacts on academic performance and attendance. Although combined programs seem to be most effective, they may require too many resources to be fully applicable in lower- or lower-middle-income countries. In that case, school-based career guidance services alone—comprised of information about education and job market opportunities, guidance, and counseling—have been applied with some success in certain middle-income and transitional economies.

Improving the quality of schools attended by the poor in Latin America is crucial to address demand-side constraints. For reasons explained above, an integrated approach to address underinvestment by the poor

will require tackling the low quality of schools they attend. Two main options are improving the quality of public schools or creating opportunities in higher-quality private schools. We will analyze this second option in more detail below. How to precisely improve public schooling for the poor in Latin America is generally beyond the scope of our report, but it provides some insights into two interrelated factors: the importance of disseminating information about school performance and of decentralizing more responsibilities to the schools for managing teachers. Evidence about poor rural schools in Honduras and El Salvador suggests that this form of decentralization can compensate for lower school socioeconomic levels, and recent cross-country evidence on PISA test scores confirms its effectiveness. Public schooling also can be improved by implementing compensatory programs that provide, among other things, additional teaching materials and teacher training for vulnerable schools, together with promoting increased parental involvement in school administration (see, for instance, the case of CONAFE in Mexico illustrated in table ES.3).

Introducing vouchers can help address liquidity constraints and poor quality. School vouchers are designed to address these issues by altering the relative price of schooling options. School vouchers are publicly provided funds that students can use to enroll in the school of their choice. Vouchers have been implemented in a few developing countries, including Chile and Colombia. The evaluation of Colombia's PACES program, which offered vouchers to poor individuals to attend private schools, provides robust evidence for the positive impact of targeted vouchers on enrollment and educational attainment, and useful insights on how to implement a program of this sort (box ES.1).

Voucher programs probably will be more effective in middle- or upper-income countries with sound administrative systems and stronger school quality assurance, and capacity to monitor students and schools. Although these programs could apply to East Asia, they seem more promising in Latin American countries as a means to foster higher quality for everybody (through choice and competition), or more specifically for the poor, because of the low quality of public schooling and the existence of a larger pool of high-quality private schools.

Introducing conditional cash transfer (CCT) programs is a promising way to increase the demand for schooling, both by direct means and by reducing the incidence of child and youth labor. CCTs provide cash to

Box ES.1

Lessons from the Colombia-PACES Program

Key factors of success of PACES were: (a) the sound criteria in the selection of the participating municipalities, such as limited public school capacity and excess private sector capacity; (b) the participation of private schools with educational quality generally higher than or comparable to public schools; and (c) the effective targeting of vouchers to poor communities, with the introduction of performance incentives for participating beneficiaries.

However, this type of program can be demanding to implement in terms of administration and monitoring. PACES faced serious delays in disbursement, failure to keep up with the increasing costs of delivery, and difficulties ensuring consistent school quality as new private schools entered the program and the vouchers' relative value decreased. Additionally, political considerations must be taken into account: Teachers' union opposition hampered development and sustainability.

Source: Yilmaz 2005.

poor students or their families, conditional on school attendance or other desired outcomes. CCTs can increase the demand for schooling directly by providing additional resources to poor individuals, as well as indirectly by compensating individuals for the forgone product from their work. Initial evaluations of these programs in Latin America reveal significant effects on school enrollment. The best documented in this family of programs is *Oportunidades*, which has been shown to increase secondary school attendance rates, transition to secondary school, and grade attainment. The impact on enrollment is due mainly to funding based on attendance. The keys to success are well-designed conditionality, good monitoring and evaluation systems, sound targeting methodology, and satisfactory supply and quality of schools. CCTs would be relevant for countries of all income levels (particularly lower income and lower-middle income because of the higher incidence of work), but implementing effective targeting and monitoring systems can be challenging for low-income countries. In addition, CCTs alone do not appear to be enough to reduce work significantly. Evidence from a Program to Eradicate Child Labor in rural Brazil (the so-called PETI program) suggests that after-school programs may be a good complement. Alternative models for secondary schooling, such as the Tutorial Learning System (SAT) in Colombia, are designed specifically to make school more compatible

with work. Students define the schedule, and instruction can occur in different places. Students' academic performance was higher than that of students in traditional schools in the same municipalities. However, in most cases alternative models are more successful in ensuring higher enrollment than good quality (see below).

⇨*Options to address financing constraints*

Countries should diversify their resource mobilization strategies. The options to expand and improve secondary education shown in table ES.4 include a variety of public and private financing choices, whose boundaries are often blurred.

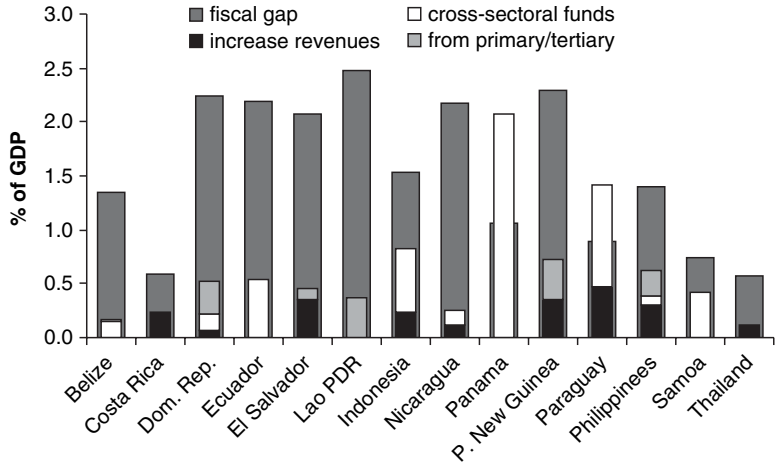
Although public finance is likely to remain the main mode of resource mobilization, some limitations and problems are associated with its use, and some advantages arise from increasing the share of private funds. Increasing public funding could be the easiest way to enhance access to secondary education, and with careful policy design it could also improve the system's quality and efficiency. This is particularly true for countries whose total commitments to secondary education, per-pupil expenditures, and gross enrollment rates are low. However, public funding cultivates a large bureaucratic machine and strong interest groups whose lobbying could result in ineffective education programs and inertia in the education sector; political pressures can lead public sources to overpromise (e.g., opening schools with inadequate resources and underpaid staff); and the funding could be erratic, especially during times of economic crises, shortening planning horizons for schools and students. Complementing public with private funding will therefore be an advisable strategy. In particular, empirical evidence suggests that household financing of secondary education is relatively stable, and may increase the reliability of services, especially during times of political unrest.

Some countries could substantially decrease, or even close, their fiscal gaps through additional public and private resources. Figures ES.9 and ES.10 present back-of-the-envelope calculations of the extent to which additional public and private resources could help close the fiscal gap that some countries in the two regions are likely to face in the next 10 years.[10] We assume that during the next decade, countries will increase their tax revenues to 17 percent of their GDP (this is the current average in the two regions), reassign funds from other sectors so

education expenditures equal 20 percent of all government expenditures, and reallocate funds from primary and tertiary education toward secondary education if they exceed 50 percent and 20 percent of total education expenditures, respectively. Finally, we assume that countries whose private share in education is below the OECD average can achieve that average.[11]

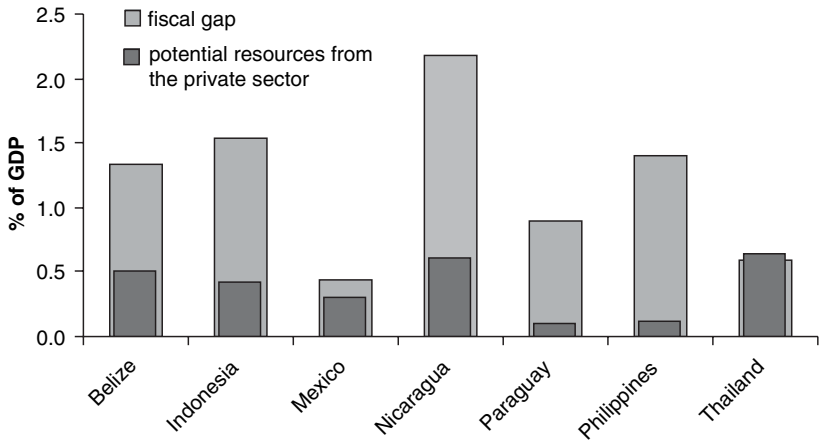
Panama, for example, could close its gap by diverting some existing government expenditures into education, and Paraguay could do so by shifting

Figure ES.9. Closing the Gap with Public Resources



Source: Yilmaz 2005.

Figure ES.10. Closing the Gap with Private Resources



Source: Yilmaz 2005..

government expenditures and increasing tax revenues. The criteria adopted for assessing the potential of the different measures are somewhat conservative; raising additional tax revenue would allow the countries to fill more of their gaps with public resources. In general, lower- and lower-middle-income countries appear to have more room for boosting revenues and shifting resources from tertiary and primary to secondary education.[12] If Thailand were to reach the OECD private expenditure benchmark during the next 10 years, it could cover its entire need, whereas Mexico could make up almost 80 percent of the gap.

Options to increase public and private financing are discussed in more detail below, making use of literature reviews and case studies.

The first potential public source for secondary education is transfers from other education levels. especially tertiary education, in which cost recovery through charges and fees could replace public subsidies. The scope for reallocating funds from tertiary education is stronger in lower- and lower-middle-income countries and Latin America. Nicaragua and Guatemala are two examples in which tertiary spending far exceeds secondary school spending. Timor-Leste is another country that spends a large share of education resources on universities and scholarships. Although the idea of shifting resources is attractive, reducing tertiary funding could be politically difficult because university students are a formidable group: they belong to politically connected families, are generally well organized, and are willing to protest policies that reverse historically free services. Even when political forces permit wide-scale cost recovery programs at the tertiary level, primary education, as well as other government sectors, bid on these resources.

Cross-sectoral funding for secondary education should also be encouraged. Shifting resources from other government sectors is a daunting task, subject to many political objections. Nonetheless, governments must consider generating additional public resources for secondary education by encouraging social programs with pro-education components. Welfare programs, counseling, anti-drug and violence programs, lifelong learning programs, and infrastructure development could create a larger impact on secondary school access and enrollment. In addition, cross-sector funds could help provide ancillary services, such as meals, health programs, school uniforms, and other in-kind transfers, which could increase the demand for secondary education, especially among the very poor.

Mobilizing additional resources may require increasing overall revenue-raising efforts in Latin America and East Asia. The effort to generate tax revenues in these regions generally lags behind world averages, even when controlling for income level differences. This could stem from economic, political, or historical reasons. Sometimes, the formal sector is small and governments are committed to debt financing. Other times, no history of revenue-generating institutions exist, especially in countries that recently moved to market-based models, such as China, Lao People's Democratic Republic, and Mongolia. Generally, tax revenue as a percent of GDP is more of an issue in lower- and lower-middle-income countries (in which it is lower than 15 percent of GDP).

Although prescribing tax reforms is beyond the scope of this study, a promising strategy is the decentralization of revenue-generation powers. Taxing locally could greatly enhance the revenue raised. Resources collected locally are less susceptible to political swings that typically affect transfers from the central government, therefore allowing for better fiscal planning and accountability, while encouraging spending decisions that cater to local needs and preferences. Decentralization may, however, have a negative impact on the equity of delivery, which may require equalization policies (intergovernmental transfers, targeted subsidies, etc.). China is illustrative of a country that has undergone a fundamental structural change from a centralized system with a narrow revenue base to a decentralized, diversified revenue base, with a resulting increase in funds for education (but also large disparities in per-student spending across areas and regions, which the country is trying to address).

Introducing revenues earmarked for secondary education is also promising, particularly for technical and vocational education. Targeted taxes generate funds specifically from those who are the main beneficiaries of an educated workforce. The most widespread forms of targeted taxes in East Asia and Latin America are payroll levies on employees and corporate taxes. These payroll levies vary from 0.5 percent to 2 percent and typically fund vocational and technical programs, especially in Latin America. In Korea, companies with more than 300 employees must contribute to vocational schools by conducting in-house training or through payroll taxes. In Beijing, all salaried employees contribute 2 percent of their paychecks to capital investments for schools. In addition, 2 percent to 5 percent of the turnover or profits of state enterprises go to education funds. However, even earmarked revenues are susceptible to political

manipulation and can fall disproportionately on government employees. In China and, to some extent in Korea, payroll levies and taxes on profit are hard to enforce on privately owned businesses.

Private funding sources should also be explored, with schools encouraged to generate their own resources. Shifting part of the responsibility to raise and manage funds to schools could increase the overall resources available to the secondary sector, improve school performance and efficiency, and help relieve strained public finances.

In both Latin America and East Asia, community schools run by local or religious organizations may have an advantage in eliciting funds from parents and local businesses. These schools rely on various funding formulas, with governments typically funding recurring expenditures and communities financing capital expenditures and additional recurring expenses. Community schools arise to meet excess demand for education, and as they create capacity they mobilize local funds into the school system. Evidence from a small number of studies suggests that these schools have better parental participation and student attendance than private schools.[13] Although community schools increase funding and accountability, if not guided and controlled they may exacerbate regional and socioeconomic inequalities. Local elites might monopolize management decisions, obstructing genuine community involvement. Therefore, community financing programs must institute mechanisms to ensure that neither levies nor corruption prevents the poor from accessing the school.

A recent promising trend is self-generated resources from off-budget items. As funds become scarcer, many public schools are moving into self-financing schemes, including running businesses, asking teaching staff to take on consultancy positions, leasing school properties, and fund-raising. Critics argue such revenue-raising activities could increase inequality by placing additional burdens on parents who must already pay for direct and indirect expenses, and evidence from Vietnam confirms that risk. Others complain that off-budget revenue activities will distract the managers from focusing on education delivery and turn them into businessmen. If well implemented, self-financing schemes can be effective, as in the case of China (see box ES.2) and Vietnam, but countries need to be aware of the possible negative implications for equity in the medium run.

Box ES.2

Self-Financing Arrangements in China

In China, in the face of growing demand for secondary education, especially in urban areas, schools must often rely on off-budget revenues because their funding from city and local governments cannot catch up with the growth in recurrent expenditures, especially increased salaries. For example, schools in Beijing's Haidan district use the budgeted funds from the city almost entirely to pay salaries, and rely on school-run businesses, renting out space (labs, classrooms for night school), fees for an optional foreign language program, and increased tuition collections from foreign students and nonlocal students who come from outside the catchment area for other expenses. Revenues from such activities could reach half the budgeted funds. In another district, schools charged higher fees to students with low entrance examination scores and sought cash and in-kind donations from local benefactors. Elsewhere, schools run cafeterias and use buildings for discos and other revenue-earning entertainment.

A review of schools engaged in off-budget revenue raising shows that those with favorable locations, good reputations, excess land or buildings for rent, and have entrepreneurial management, did very well. The off-budget revenues increased perpupil expenditures significantly—largely boosting teachers' salaries. Finally, the ability to collect fees and cash based on reputation increased interschool competition and improved quality. However, equity concerns related to self-financing policies are leading the government to put renewed emphasis on public funds.

Source: Lewin et al. 2001.

⇨*Options to increase efficiency of delivery*

This section reviews some promising or innovative options for addressing efficiency constraints. It focuses on specific policies to improve education management and technical-vocational education systems, and on efficient ways to provide secondary schooling to disadvantaged target populations. Public-private partnerships and school-based management can be effective for tackling some inefficiency issues, such as centralized labor markets, unsatisfactory public expenditure management systems, and poor accountability. However, other broader policies to improve public institutional frameworks will also be needed.

Encouraging public-private partnerships (PPPs) can be an efficient policy. PPPs can take several forms and serve different purposes. Table ES.5

attempts to present a typology of PPPs according to those two criteria. We have already mentioned two types of PPPs: vouchers for poor students and community schools. Other types include concession schools (as defined in table ES.5) and publicly subsidized private schools. Chile illustrates a large-scale experience with publicly subsidized private school, introducing per-capita public subsidies for all municipal schools and non-fee-charging private schools in 1981. These were designed to promote competition among schools and lead to higher quality and enrollment. The benefits of competition are being debated, with some studies finding no evidence that Chile's universal voucher scheme improved average educational outcomes. However, there is evidence that when schools are put on equal footing, not only can they deliver high-quality services, they also can compete for good students, improving opportunities for both the poor and the rich. Other examples of public-subsidized private schools can be found in several East Asian cases (such as Korea), where private schools have been used to expand enrollment capacity.

Table ES.5. Typology of Public-Private Partnerships in East Asia and Latin America

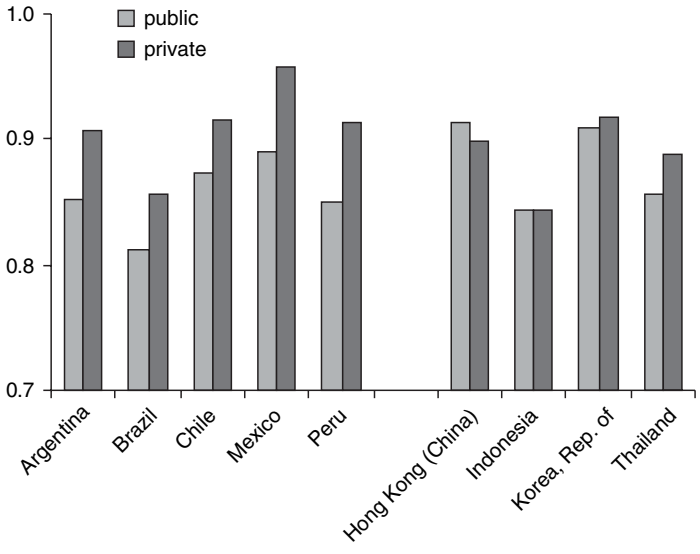
Type of PPP	*Example*	*Purpose*
Management and operational contracts: a private provider is contracted to manage an existing government service.	Concession schools in Colombia.	Improve quality and efficiency of delivery by taking advantage of specialized skills
Service delivery contracts: The government contracts with a private provider to deliver specified services.	Vouchers for secondary schools in Colombia	Use private sector to provide the poor with access to quality schooling
Different financing mixes are possible. Typically, the government pays teachers and the private sector covers capital costs, with non-salary recurrent costs split between the two. Private schools can finance additional teachers or additional teacher income.	Voucher scheme for municipal and private schools in Chile	Improve coverage and quality through school competition
	Education Service Contracting Scheme in the Philippines. Government-subsidized private schools in Thailand, Hong Kong (China), and Republic of Korea.	Use private sector to expand enrollment capacity
	Community schools	Use private sector to expand enrollment capacity, raise additional resources

Source: Author's elaboration.

On strict quality grounds, there is more reason for encouraging PPPs in Latin America, where there is a substantial quality and efficiency gap between public and private schools (see figure ES.11).[14] Public financing of private schools can help lead to both equitable coverage (if poor students are given increased access) and improved quality for similar levels of resources in Latin America. This effect will be all the stronger if there is a larger efficiency gap with public schools, or if private schools have greater capacity to enroll new students. Middle-income countries that have better private schools and quality-assurance systems will probably benefit more from the standpoint of quality. PPPs will remain a relevant means to increase enrollment capacity at a reasonable cost in East Asia.

Increased decision-making autonomy for schools can increase efficiency by taking advantage of the superior knowledge that schools have of conditions, needs, and preferences of families and students, and of their greater accountability to families. In all cases of school-based management, participatory decision making is essential to enhance cost-effectiveness through a clearer expression of preferences and needs, and strengthened monitoring and oversight. Evidence from Central American countries shows that school-based management with strong community participation generates efficiency gains by using teachers and schools in poor, rural settings more intensively. However, little evidence is available about the merits and limitations of school-based management in secondary schooling, although this model is

Figure ES.11. Output Efficiency Scores by Public and Private Management



Source: PISA 2000.

being increasingly applied in both regions. The analysis undertaken in the report allows us to test the impact of autonomy in several key areas (budget generation and management, teacher management, and pedagogical/curricular decisions) on the efficiency of delivery. We find that providing schools, and especially principals, with more autonomy in generating and managing budgets works well in East Asian countries (through higher accountability to communities for results, and higher shares of funds spent on non salary items, such as textbooks and training). However, pedagogical autonomy may decrease efficiency if countries opt to diversify course offerings, hire more teachers, or hire more highly qualified teachers, with little in return. The impact of decentralization is quite different in Latin America. There, transferring decision-making responsibilities for teacher management to schools enhances efficiency, probably because centralized bureaucracies are particularly inefficient in allocating teachers and holding them accountable. This illustrates the importance of regional and national differences in determining the effects of school-based management.

A key issue in the efficient delivery of secondary education is the balance between general and technical education. Fewer technical tracks, more emphasis on general skills, and better linkages with higher technical education can make Technical and Vocational Education and Training (TVET) more cost-effective. Traditionally in both regions, vocational schools have been separated from general secondary schools, with fairly different curricula. A review of 24 studies on 20 countries in Africa, Asia, Latin America, and the United States shows that unit costs of vocational and technical schools are 1.14 to 7.20 times higher than those of academic schools. However, current technical and vocational education trends can potentially decrease unit costs and improve quality and relevance. In particular, a more integrated general-technical curriculum could result in less separation between tracks and schools and, therefore, economies of scale in the use of teachers and equipment, as well as higher-quality technical education. A recent comparison of mean efficiency scores across technical-vocational and general education schools in Korea and Uruguay shows no or little difference in cost-effectiveness. The good efficiency results of Korean vocational schools are due to their emphasis on general skills and the increased linkages between vocational schools and technical colleges. Another innovative case of TVET reform occurred in Chile, where there are strong links between secondary and higher education, and between these levels and the employment sector. This allows continuity and flexibility for technical education. The Chilean system is

also efficient, comprised of only 13 vocational categories, compared to 400 technical specialties prior to the 1980s.

Alternative secondary models can be cost-effective for expanding education if the right balance is found between costs and quality. Often, alternative models such as distance education are designed for those who could not succeed or take part in conventional schools (e.g., rural populations in which youth have little or no access to nearby schools, or economically disadvantaged youth who work during school hours). They seek to address common weaknesses in conventional secondary schools, such as curricula that are irrelevant for these populations, insufficient access, and high per-pupil costs in rural areas. Their most common primary objective is to expand access at a low per-student cost, but they can also improve education quality and completion. A review of alternative programs indicates that they have lower delivery costs than traditional programs for similar target populations,[15] but their test score and completion rate results are mixed. For instance, on average in Colombia, participants in SAT, an education program provided by facilitators on a flexible time schedule, have higher test scores on a national exam than students in traditional schools in the same municipalities. In Indonesia's Open Junior Secondary Schools, an education program provided through TV, radio, and special printed materials, 92 percent of participants who took the national exit exam passed, and there was no significant difference in academic performance when compared to traditional school students. However, recent evidence about Mexico's Telesecundaria shows reading and science test scores are below those of traditional lower secondary programs, which may be a sign that the program's quality is decreasing as access increases.

Frequently, alternative programs are designed to have lower per-student costs than conventional programs, and tend to serve students who have acute learning needs and populations that may have little voice in society. This combination makes these programs very vulnerable to becoming second-rate schooling options. The right balance needs to be found between costs and quality. There is growing consensus on some of the keys to reaching this balance: sustained political commitment and will, knowledge of needs and contexts of target populations, appropriate design regarding the choice of technology and content for particular populations, well-trained facilitators or teachers, sufficient face-to-face contact between participants and facilitators, minimum complexity in design, and popular sentiment that the quality is comparable to conventional programs.

Notes

1. Advantages of mass literacy include a healthier society, fewer social problems, fewer individuals tapping into public safety nets, a stronger democracy; and potential for knowledge creation and, therefore, innovation and growth. The "positive externality" argument may be somewhat easier to make for primary education, in which the impact on mass literacy is clearer, or tertiary education, in which the impact on knowledge creation, and therefore innovation and growth, is stronger. However, the many similarities between lower secondary and primary education, combined with low literacy levels achieved at the end of primary school, suggest that the "mass literacy" argument should also apply to lower secondary education, justifying public financing at that level. Public financing of upper secondary education may be justified on two grounds: the potential to build the skills desired for innovation and growth, and the need to "bridge the gap" between lower secondary and tertiary education.
2. Although, in theory, saving resources should allow us to reinvest them in better outputs at another time.
3. We assume that countries' potential for additional public and private resources depends on the set of criteria developed in the policy alternative section.
4. To make this exercise more realistic, rather than the theoretical efficiency frontier, we take Mexico as the input efficiency benchmark and Korea as the output efficiency benchmark. For each country, we add the two sources of efficiency gains.
5. The fiscal gap is the one obtained with the dynamic simulation analysis shown previously with, however, a 95 percent target enrollment rate.
6. Too many levels of government exist, with blurred functions, insufficient information and regulatory capacity, and limited community participation.
7. Admittedly, these are upper-income East Asian countries, which are generally better positioned than most to achieve higher outcomes and have had their own specific political and institutional characteristics. Korea, however, started from much lower levels not long ago.
8. Semipublic schools use public infrastructure such as classrooms and facilities, but self-finance for most of their recurrent expenditures, such as salaries for new-hire teachers and increasing salaries for experienced teachers. Semipublic schools accounted for 47 percent of total upper secondary enrollment in 2004.
9. Although a country by country analysis will also be necessary.
10. The fiscal gaps are the ones obtained with the dynamic simulation analysis shown in the section on constraints, with the same 85 percent target

enrollment rate. They are smaller than in figure ES. 7 due to the lower target enrollment rate.

11. We take the OECD average as benchmark due to the limited amount of regional observations. The OECD benchmark for private sector contributions (excluding household expenditures) is 0.7 percent of GDP.
12. This generalization needs to be taken with care because of the limited country sample, which tends to be biased toward poorer countries.
13. A study of *Fe y Alegria* schools (a sectarian, nongovernmental organization controlled by the Jesuit Order of the Catholic Church, and which operates at all education levels in the poorest communities) in nine Latin American countries shows that when one factors in community contributions, the unit costs in FyA schools were higher than in public schools; but with these higher costs, the FyA schools achieved better results in terms of repetition and dropout rates.
14. The results reported in the figure control for schools' socioeconomic status and these results are maintained when controlling for student selection.
15. This is generally due to instructional systems that operate at lower cost than conventional schools (generally by using fewer teachers, and instead using volunteers, tutors, etc; or capital costs, either by using existing infrastructure or less infrastructure than traditional models).

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