Disconnected

Skills, Education, and Employment in Latin America

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Foreword

In a globalized, knowledge-based economy, education has become the linchpin of competition, an increasingly critical issue for the future of Latin America and the Caribbean. In recent years, important efforts have been made to improve access to education on a massive scale; however, quality has been sacrificed in this process of expansion. Not surprisingly, several cities in the region have recently seen mass demonstrations in which students expressed their frustration. Facing the accelerated changes in the world economy—a dynamic exacerbated by the recent economic crisis—young people do not believe that they are being adequately equipped with the skills they need for their transition into the workforce.

On the one hand, the achievements are obvious: widespread access to primary education and a significant expansion of secondary educational coverage; substantial growth in the proportion of young people who receive higher education; and even a significant expansion in preschool educational coverage. All of this is helping to improve our long-term educational, social, and economic outcomes, while also reducing the gap that separates us from the industrialized world.

On the other hand, we now face the enormous challenge of quality. Unfortunately, international tests, notably PISA and TIMSS, that allow us to compare ourselves with advanced economies reveal our poor results. From any point of view, the evidence shows that the average Latin American student does not master basic knowledge as well as peers elsewhere in the world and is less able to apply that knowledge correctly to real-life situations.

Considering this evidence, *Disconnected: Skills, Education, and Employment in Latin America* contributes a new and very relevant perspective to the discussion of the quality of education in the region. The results of the empirical research conducted for this volume clearly indicate that within the more general problem of quality there is also a disconnect between the skills that the education system is currently producing and the ones that the market demands from

young people transitioning from secondary school to work, who constitute the largest group of new workers in the region.

Through original surveys of young people in Chile and Argentina, and others carried out in companies in Argentina, Brazil, and Chile, a gap has been revealed between what schools teach and what the market currently expects from young people looking for a job after finishing secondary school. Moreover, the study shows that in addition to academic skills traditionally taught in schools, employers are looking for behavioral or socioemotional skills that include critical thinking, responsibility, teamwork, and problem solving. These are all skills that help to improve young people's chances of securing a good job.

How can these findings help shrink that gap? The authors state that, in contrast to cognitive skills, for which the critical intervention period is limited to early childhood, it has been shown that socioemotional skills are formed over a longer period of time that is likely to extend throughout the educational process, up to and including secondary school. So even those students who start out with a cognitive disadvantage—mainly caused by adverse environments—can have the chance to develop other, equally important skills that are well-compensated by the market. This, in itself, is a challenge that schools should be prepared to address.

The results reported here also have important implications for the Bank's work. We must continue to support research to deepen our understanding of these and other aspects of the quality of education to see that students stay in school and complete their education. We should also assist policymakers in their efforts to design new educational strategies that include these findings, with the goal of ensuring that our young people leave school equipped with the skills they need to move successfully into working life.

With its innovative approach and fresh data, *Disconnected* contributes to the increasingly urgent discussion of the kind of education and skills we must give our young people to help them contribute fully to our shared future.

Luis Alberto Moreno
President, IDB

Preface

All nations are learning a common lesson: The education and skills of their workforce are key drivers of the competitive success of employers and the prosperity of citizens. But what does this really mean? What skills do employers require? What capacities does the workforce offer? Is there a good match between supply and demand? These are hard questions, and they are frequently neither asked nor answered in any depth.

Why are skills such an important driver of success for both employers and employees? It was not always so. In production industries for decades firms were able to compete using standardized production techniques and, by doing so, were able to succeed without drawing on the ideas and contributions of their employees. In service industries, customer service and quality were frequently second thoughts. All of this has changed. Today, modern production systems draw heavily on the contributions of employees via teams and problem-solving groups, and in both services and manufacturing quality is key. Quality cannot be delivered without a skilled and committed workforce.

How effectively have nations in Latin America met these challenges? *Disconnected: Skills, Education and Employment in Latin America* takes on these questions in a fresh and convincing manner via original and creative research and analysis. The focus of the book is on young people entering the workforce and on newly hired employees. In other words, *Disconnected* is about the future: the young people whose efforts and career trajectories will drive the success or failure of their economies and societies. The book asks and answers the key questions that must guide any discussion: What is the relationship between education and labor market success? What skill sets are employers seeking? What skills are young people bringing to the job market?

To address these questions, the authors have brought to bear three original sources of data. They surveyed a sample of 1,200 firms in five industries (automobiles, hotels, retail, finance, and food) in Argentina, Brazil, and Chile. They conducted in-depth case-study interviews of employees and employers.

They surveyed nearly 4,500 Chileans and nearly 2,000 Argentines aged 25 to 30 to learn about their education, skills, and labor market outcomes. This ambitious original research, when combined with standard published data on labor market outcomes and education, enables the authors to address in detail the questions that drive the book.

What do we learn? The educational attainments of youth have increased, on average, in that a falling fraction of young people stop their education at the primary level (decreasing from 54 percent in the 1980s to 26 percent in the 2000s). Unfortunately, there remains a clear correlation of family income and educational attainment. A troubling pattern documented in the volume is that Latin American youth perform notably worse on international achievement tests (the PISA test) than do young people from OECD nations. These concerns lead to a significant problem in labor market performance. In the countries studied, on average, 15 percent of young people aged 16 to 24 are so-called *ninis*—neither in school nor working. Furthermore, the rate of employment in the informal sector is high, indicating that too many young people have failed to obtain high-quality formal sector employment.

What do employers say about this? What are they looking for when they hire, and what is their assessment of the preparation of young people for work? A great strength of the research reported here is that the surveys of employers enable the research team to answer these questions and to paint a quite detailed picture of the demand side of the job market.

Several headlines capture the findings. Over half of the employers surveyed report that their skill requirements have increased in recent years. Employers today place greater weight on the need to hire new recruits with adequate behavioral and personality traits as opposed to concrete technical skills that are specific to the job. Only 12 percent of employers report that they had no trouble finding appropriate people to hire, and 80 percent of employers report that socioemotional and interpersonal behavioral skills are in short supply and represent a barrier to hiring. It is clear from these findings that the school system needs to improve its performance. Like all good research, this book provides clues and points us toward further research that precisely addresses questions such as what changes educational systems must make to improve their performance.

The surveys of youth in Argentina and Chile find that additional schooling is associated with improvement in behavioral skills in Chile but not in Argentina. Furthermore, when employers are asked how they assess the performance of schools in preparing youth for work, more than half of the employers in Brazil and Argentina are critical, whereas 80 percent of employers in Chile are positive about the performance of the school system. These twin findings strongly suggest the value of a careful investigation of the policies and school practices that lead to such divergent outcomes. One possibility suggested by the research

is that the greater emphasis on technical schooling in Chile does a good job of teaching the kinds of problem-solving skills that employers seek.

Disconnected is a path-breaking analysis of the relationship between schooling and employers in Latin America. It is sophisticated in its design, using multiple surveys and multiple methods. It distinguishes carefully among different types of skills and the relationship of each type to employment outcomes and employer needs. It examines both the demand and the supply side of the labor market. And it provides guidance for further work. We commend this book to all readers, scholars, and practitioners concerned with schooling and job markets in Latin America.

Richard Murnane, Harvard University School of Education
Paul Osterman, MIT Sloan School of Management

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Many thanks to Sebastian Galiani for his help in designing the survey questionnaire on trajectories, analyzing the data for Chile, and developing the outlook for young people in Latin America. We would like to express our appreciation to Guillermo Cruces and the team at the Center for Distributive Labor and Social Studies at the National University of La Plata (CEDLAS), Argentina, for their contributions to the analysis of the labor market situation of youth

(chapter 2) based on the Socio-Economic Database for Latin America and the Caribbean (SEDLAC).

Alejandra Torres and her team at the Institute for Social Development of Argentina (IDEAS) did excellent work in preparing the experiences of school-work transition in Latin America and the Caribbean (appendix D), as did Loreto Molina and Ana Maria Troncoso of MIDE-UC with the three case studies presented in chapter 6 and appendix C, which also benefited from the journalistic skills of Javier Cozzolino, who wrote the stories. We are also grateful for the generous collaboration of the three companies that provided the information used to prepare the case studies.

Patricia Ardila deserves a distinctive mention for her contribution in bringing together the original Spanish version. The task of editing the English text fell to Steven Kennedy, who did a remarkable job working from the published Spanish text and an English translation of an earlier version of the Spanish. We owe our special gratitude to Rita Funaro of IDB for her very useful guidance, and for her support throughout the process of editing, designing, and publishing the book.

Last but not least, we want to single out the coordination provided by the Education Division of the IDB and the strong support of the Research Department, without which this book would not have been possible.

The authors

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The World Ahead

The future of the world lies in its youth. Type this short sentence into an online search engine, and you will get millions of results. The wording of each might be slightly different, but the sentiment is the same: "The young are our future." It is simultaneously a cliché, a known truth, and an enormously loaded sentence. In a region like Latin America—where few high school students have access to university and most young people enter the workforce from secondary school, often before graduating—how are the young being prepared to play their part as full members of the "future of the world"?

This is precisely the question that this publication addresses. The authors focus on how secondary students (graduates and nongraduates) transition from school to the workforce. In a complex, demanding, and globalized labor market, what opportunities do they have? With access to education growing massively in the region—and faster than the number of jobs—how will they compete?

Today, young Latin Americans who decide to enter the workforce from secondary school start out at a disadvantage. The tools they bring with them are basically those that they acquired in school. Families, too, play an important role, but schools bear the primary responsibility for ensuring that students gain the skills and competencies they need to succeed at work and in society at large. The diagnostic presented in this book indicates that this is not happening.

What evidence points to the conclusion that the Latin American education system is not doing its job? For one thing, the transition between secondary school and the workplace is more difficult for today's youth than it was for their counterparts just a few decades ago. And the skills acquired in high school are less valued by employers than they once were, as evidenced by the significant drop in the premium paid to workers who have completed secondary education compared with those with lower levels of education. To what extent can that drop be traced to the huge increase in secondary students across Latin America? To what extent can it be traced to the quality and relevance of the education those students receive? The data indicate that while the region has been closing

the gap in access to education compared with developed economies, there are still alarming differences in the quality of that education, as measured by international test results, and in students' command of basic knowledge.

Dwindling returns to secondary education: The question of quality

One of the major developments in the labor market in Latin America over the past two decades has been the drop in the returns to secondary education, a trend well documented in the labor economics literature for the region (and discussed in chapter 2).[1] Meanwhile, the premium paid to workers with postsecondary education has risen. The explanation of these facts lies, on the one hand, in the general increase in the relative supply of workers with secondary education, and, on the other hand, in an increase in demand for workers with higher education that has not been accompanied by growth in supply. The increased demand for educated workers stems from technological advances that require, as complements, the type of skills possessed by educated people and from changes provoked by trade liberalization and other policy reforms implemented since the late 1980s.

Something the labor economics literature has not addressed, however, has been the relationship between the events noted above and the quality of education in the region. Beyond the documented supply and demand factors, to what extent has poor training in secondary schools—if it is in fact poor—contributed to the relative losses recorded for workers with secondary education?

Evidence from the United States, which had a similar wage spread across different educational groups during the 1980s, suggests that the demand for skills changed as new technology replaced routine tasks once performed by workers with secondary education. With that change, the structure of the U.S. labor market became polarized between occupations that require the complex skills typical of more-educated workers and those requiring nonroutine manual skills typical of less-educated workers. The end result has been fewer opportunities for middle-class workers (Levy and Murnane, 2004; Autor, Katz, and Kearny, 2006, 2008).

Apart from changes in wages, the obstacles faced by young workers in the Latin American labor market are evident in other ways. About 15 percent of those who want to work cannot find jobs. This is a sharp increase from the

[1] Among the key articles that document these facts and explain them by differentiating changes in the demand for and supply of labor are those of Sánchez Páramo and Schady (2003); Manacorda, Sánchez Páramo, and Schady (2010); and Behrman, Birdsall, and Szekely (2007).There are also numerous studies for individual countries—among them Attanasio et al. (2005) for Colombia; Galiani and Sanguinetti (2003) for Argentina; and Pavcnik et al. (2005) for Brazil.

early 1980s, when youth unemployment did not exceed 5 percent. Among those working, 54 percent do so informally, compared with 45 percent three decades ago. For young people with primary education, the figure is 70 percent (up from the 50 percent observed in the early 1980s). And among secondary-school graduates, the informally employed make up 50 percent of those working, compared with 30 percent in the early 1980s. Here, it is institutions and labor regulations that have decisive influence, translating changes in demand and supply in the labor market into changes in wages and employment conditions, including unemployment and informal work. But the extent to which today's labor problems stem from a disconnect between the skills demanded by employers and those available in the young labor force remains unknown.

The region's educational performance gap and the varieties of skill

In terms of education, how is the region doing? Ninety-five percent of Latin American children of primary-school age are enrolled in school—very close to the 96 percent observed among high-income countries of the Organisation for Economic Co-operation and Development (OECD). In secondary school, 73 percent of the secondary-school age group are enrolled, still significantly lower than the 91 percent found in the OECD but up from 65 percent during the 1990s. In terms of years of schooling, people in the OECD countries complete an average of 11.9 years, whereas Argentines complete 10.5, urban Brazilians 9.2, Chileans 11, Peruvians 10.7, and Panamanians 9.9—a difference of 1 to 3 years of schooling across the countries compared.[2]

Acknowledging the differences in time spent in school, how much are Latin American students able to learn when compared with students in advanced economies? The results of the Programme for International Student Assessment (PISA) 2009—an international test that measures students' ability to apply basic knowledge of math, language arts, and science to everyday life situations—are enlightening (OECD, 2010a). Of the Latin American 15-year-olds assessed in the PISA, almost 50 percent could not read at the minimum level. That is more than double the average of OECD students in the same situation (less than 20 percent). The results for math are even more alarming: In Latin America, nearly 65 percent of young people did not reach the minimum level, triple the average for OECD students. This indicates that the average Latin American youth—at least in the nine countries of the region that participated in the 2009 PISA—lacks the minimum skills required to solve basic, real-life problems (OECD, 2010a).

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[2] OECD data from OECD (2010c). Data for the Latin American countries are for individuals aged 15 to 24 and were obtained from the Sociómetro database (IDB, 2011a).

The proportion of students who lack minimum math and language skills is much lower in the education systems of the advanced economies (see chapter 3).

And this is the situation of young people who have stayed in school. More complicated still is the outlook for those who drop out before finishing secondary school. The completion rate for the first phase of secondary education (3 years in addition to 6 years of primary education) is a little more than 50 percent among those aged 15 to 19. The graduation rate (signifying completion of 12 years of education) is close to 40 percent among those aged 20 to 24. In other words, only 1 out of 2 young Latin Americans had finished the first cycle of secondary education by age 19 and only 2 out of 5 had managed to complete high school before age 24 (IDB, 2009). So despite significant increases in access to education in the region, more than 50 million Latin American youths go no further than secondary school. It is their last point of contact with the education system, their jumping-off point into the labor market. That is why the secondary-education system in the region has the enormous challenge of keeping young people in school and providing them with the skills that employers and society will later require of them.

But what are those skills? What kind of competencies are employers seeking in the young people they hire? As changes introduced by technological advances have transformed demand for skills in the labor market, research in the fields of economics and psychology has shown that the development of certain cognitive *and* noncognitive competencies explains how students fare both in school and in the workplace (chapter 4). These studies reveal that cognitive skills (mainly related to thinking and the use of knowledge) and socioemotional skills (related to personality traits) are critical in explaining academic and work performance (Heckman, Stixrud and Urzúa, 2006; Carneiro and Heckman, 2003; Urzúa, 2008). The same studies also indicate that the skills essential for various economic and social achievements go beyond the cognitive skills with which school is traditionally associated. In some cases, attributes such as responsibility, self-esteem, and self-control are even more important in explaining differences in outcomes within groups of individuals. This is not to deny the obvious importance of cognitive skills or basic knowledge of core disciplines, such as mathematics and language. The main contribution of this body of research is that it expands the range of relevant skills to include socioemotional skills, once underestimated in the economic literature. Today it is widely recognized that a full portfolio of skills contributes to the attainment of academic and career goals (Maxwell, 2007).

These findings have practical implications of critical importance. In contrast to cognitive or intellectual skills, which are influenced strongly by genetics and susceptible to significant change from environmental sources (including the school environment) only during the early childhood years, socioemotional skills respond to a much greater extent to external stimuli and can develop late

into the teens (until about age 20). Although there is no mathematical formula to define precisely the period of intervention in this area, the window of opportunity is significantly larger than it is for cognitive skills, and secondary school can play a fundamental role in the exploitation of that window.

The fact that a set of proven skills relevant to today's workplace can be acquired, shaped, and consolidated in the course of secondary education is a finding of the first importance. It is not too late to intervene, and the potential returns are high. The secondary-school years can be seen as a second great opportunity to promote additional skills that will have a significant impact on the lives of young people, especially those from vulnerable families. Although the window of opportunity to influence skills related to cognitive development may be closing at this time, it is still possible to develop other relevant skills that can narrow the gaps faced by students from disadvantaged backgrounds.

This does not mean that schools should cut back their efforts to teach the academic content that has been and remains the main task of the primary and secondary curriculum. Instead, the role of schools should be broadened to include a set of skills that has received little attention in the classrooms. Those skills, which can be acquired throughout the teenage years, are key to successful performance at work and in life writ large.

Focusing on the school-to-work transition: A wealth of new data

The signal contribution of the research effort reported in this study is to make up for the lack of empirical data on the transition from school to work in Latin America and on the supply of and demand for skills in the region's labor market. The study fills that void with data from two original surveys. The authors have investigated whether the situation affecting Latin American young people with secondary education partly reflects a gap between the skills acquired in school and those required for good jobs in the region. To arrive at an answer, it was necessary, first, to marshal information on young people's skills (in addition to those measured in knowledge tests) and explore the relationship between those skills and educational and employment trajectories. It was also necessary to describe the skills required by Latin American employers, going well beyond the anecdotal evidence that inspired the authors' hunch that the situation in the region was comparable to that of advanced economies in terms of the so-called soft or socioemotional skills.

With this purpose in mind, two original surveys were designed: one to study young people's skills and trajectories, that is, the labor supply side; and another to determine the demand for labor in five economic sectors that employ a significant percentage of the group that is the focus of this book—young people with secondary education. The first survey—dubbed the Skills and Trajectories

Survey (STS)—was conducted in Chile and Argentina, two countries with similar education systems but also key differences that make the comparison valuable. In Chile, the survey was administered in 2008 to 4,497 individuals aged 25 to 30. In Argentina, the survey was administered in 2010 to 1,800 individuals aged 25 to 30. The second survey—the Demand for Skills Survey (DSS)—was conducted in early 2010 at 1,176 private firms in Argentina, Chile, and Brazil (in the latter case, only in the state of São Paulo).

What does the information reveal? In chapter 5, the authors focus on the trajectories and skills of young Argentines and Chileans, asking two questions: First, is there a relationship between formal education and skills? In other words, do more educated individuals also have higher levels of cognitive and socioemotional skills? Second, what is the relationship between skills and outcomes in labor market? Specifically, how are cognitive and socioemotional skills associated with work performance?

Identifying the relationship between education and skills clarifies the mechanisms behind the positive link between years of schooling and work performance. It is known that more-educated workers do better in the labor market (higher wages, higher employment rates, lower percentage of informal jobs). But what difference does education make in an individual's abilities to achieve results? What, if anything, does the education system add that makes educated people more productive? Chapter 5 examines whether education is associated not only with greater knowledge but also with higher levels of other skills that contribute to improved performance in the labor market.

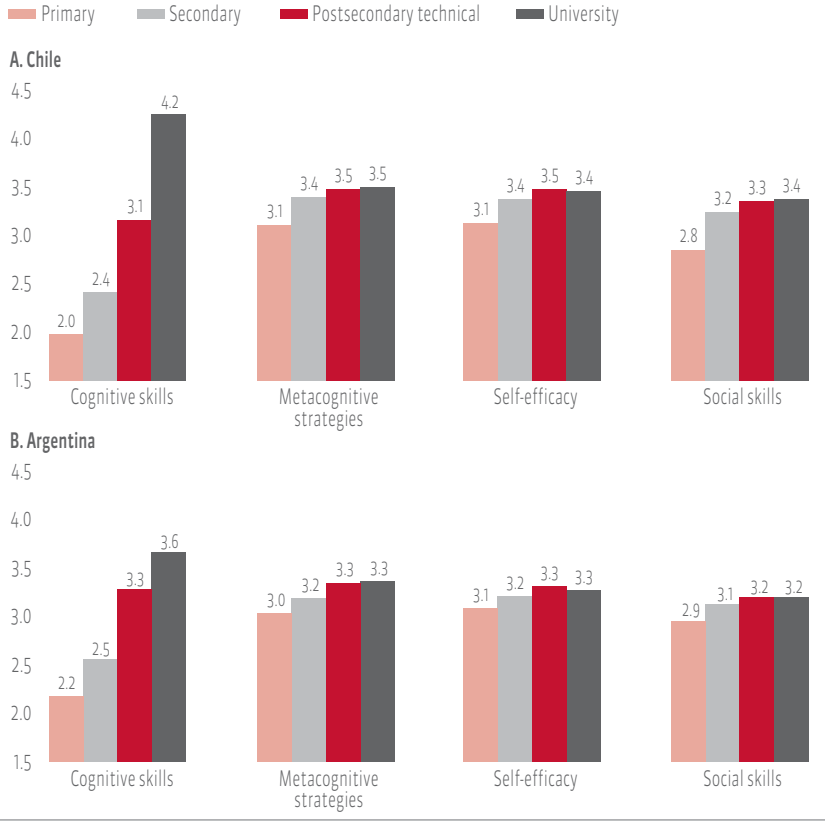
The STS includes a battery of tests to measure four skills in Argentina and Chile. One is cognitive: intellectual ability, correlated with IQ. The other three are socioemotional: (i) social skills, or leadership ability and the ability to relate to others; (ii) metacognitive strategies, or the ability to organize and plan cognitive tasks; and (iii) self-efficacy, or the inclination to perceive oneself as a good student or an effective worker. Moreover, the surveys include a series of questions that allow the investigators to reconstruct the educational and employment trajectory of the respondent (see appendix A).

One of the first findings of the analysis is that the cognitive skill does not appear to be closely correlated with the three socioemotional skills. This means that a person's level of socioemotional skill does not indicate much about his or her intellectual capacity, and vice versa. By contrast, the correlation among the three socioemotional skills is higher, which is to be expected given their nature, the way in which they are affected by the environment and genetic factors, and the developmental period during which they can be modified. These findings confirm those found in the literature on the subject (Ardila, Pineda, and Rosselli, 2000; McCrae and Costa, 1994; Stankov, 2005) and imply that people with higher levels of socioemotional skills have advantages, because they probably also perform well on other noncognitive dimensions.

Foreshadowing the relationship between education and skills explored in chapter 5, the STS (IDB, 2008a and 2010b) indicates a positive association between the level of schooling and cognitive skills, metacognitive strategies, and social skills (figure 1.1). The similarity of the patterns observed in Chile and Argentina suggests that the results are robust. It is worth noting, however, that in the case of self-efficacy, the survey found that university students score lower than students who obtain a technical or vocational qualification. This may be related to the effect of completing a level of education: those who complete a level have higher skills than those who do not, as suggested by the results presented in chapter 5. Since many students drop out of university, the average skill level of university students (those who finished and those who dropped out) is lower overall than the average recorded for the graduates of postsecondary vocational and technical schools.

Figure 1.1

Average levels of cognitive and socioemotional skills by level of education reached (but not necessarily completed)



Source: Authors' calculations based on STS (IDB, 2008a and 2010b).

Although the overall patterns are similar in the two countries, there are also differences. In Chile levels of cognitive and socioemotional skill appear to increase more as the level of education rises. One possible interpretation is that each level of schooling in the Chilean system generates greater value-added (as measured by greater increases in all of the abilities, cognitive and noncognitive, measured by the survey) when compared to the Argentine system. An alternative interpretation relies on possible institutional differences between the two countries, which could explain why the Argentine system produces graduates that are, on average, more homogeneous (in that they display smaller differences in the levels of skill acquired over the course of their education) than their Chilean counterparts.[3]

But the data do not allow one to determine whether the association between education and skills stems from the effect of education or selection. In other words, it is not possible to distinguish whether the school actually instills skills in young people or whether it simply selects those who already possess the skills, ensuring that those with better skills advance farther in the education system. Distinguishing between these effects requires longitudinal data and presents a challenge for future research.

Another noteworthy finding is that technical secondary school graduates exhibit higher levels of socioemotional skills. Whether by selection or education, technical secondary education is indeed associated with the skills that the labor market demands these days, at least more so than traditional secondary schools.

With regard to the skills associated with better labor-market outcomes—for example, rates of participation in the labor force, employment, and wages—the results again indicate that socioemotional skills play a more important role than cognitive skills (figure 1.2). In Chile and Argentina, the relationship between self-efficacy and both employment and wages is positive. The relationship between cognitive ability and employment is also positive for both countries, whereas the relationship between cognitive ability and wages is positive only for Chile. In both cases (wages and employment), the association with cognitive ability is significantly lower than the association with self-efficacy. In other words, self-efficacy is more closely correlated with work outcomes than is cognitive ability. Young people who perceive themselves to be effective students or workers are more likely to be employed and earn higher wages than those who lack this positive self-perception.

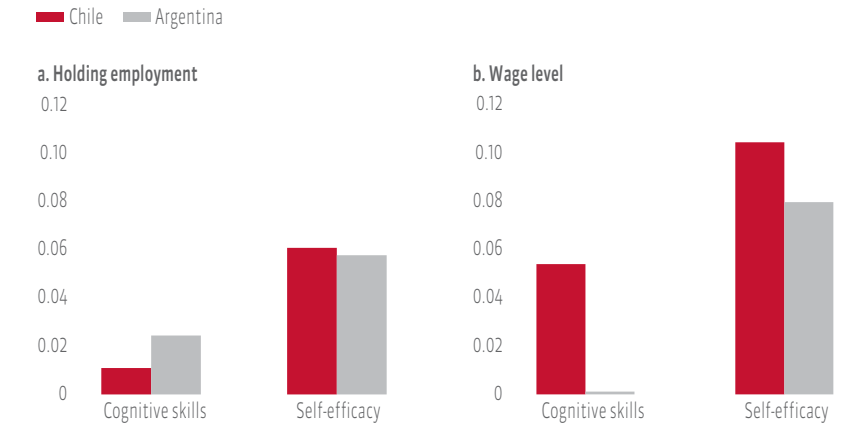
The results of this exercise for the other skills and employment outcomes (such as labor force participation) again suggest a greater association with

[3] As an example of institutional differences, Chile has a system vouchers that allow lower-income students to attend subsidized private schools. These differences are not explored in this book.

Figure 1.2

Correlation between selected skills and employment outcomes

(*Workers aged 25 to 30 in Chile and Argentina*)



Source: Authors' calculations based on STS (IDB, 2008a and 2010b).
Note: Results are obtained from a probit model of employment and a logarithmic regression of wages based on age, sex, education of father and mother, household income, and levels of cognitive and socioemotional skills (not measured based on respondent's education level). In both cases the individuals who were in school at the time of the survey were excluded.

self-efficacy. People with higher levels of self-efficacy reported greater participation in the labor market. This does not necessarily imply that self-efficacy *leads* to improved work performance. It is no doubt also true that success in the labor market has a feedback effect on self-efficacy by improving workers' perception of their own abilities. Still, the association between socioemotional skills and work performance is a first indicator of this relationship, and the causal effect of such skills on labor outcomes requires further attention.

What employers really need: Socioemotional skills

Chapter 6 explores employers' demand for skills using data from the DSS. Here an attempt has been made to identify the skills sought by nearly 1,200 surveyed firms from Argentina, Chile, and Brazil when hiring young people fresh out of high school. The DSS includes information to characterize the demand for such workers (what kinds of jobs exist for this group, and what career paths and growth opportunities are associated with these occupations). The survey also asks about the relative value that employers assign to the following broad categories of skills: (i) skills specific to a given sector; (ii) cognitive, knowledge-based skills (language and communication, reading, writing, problem-solving, critical thinking); and (iii) socioemotional skills (attitude in the workplace, commitment, and accountability; good customer relations; and ability to work

in a team).[4] Finally, the DSS asks about the difficulties employers face in finding young workers with the skills they require.

The DSS shows that good opportunities exist in the region for young secondary-school graduates—in other words, there are jobs available that offer decent wages and opportunities for advancement within the company. Entry wages—as reported by employers—for young people who have completed secondary school are double the minimum wage in the three countries in the sample. Also, the wages reported as average and maximum in these companies suggest the possibility of growth for young workers. But competition to get these jobs and keep them is intense. The wage distribution is relatively narrow for entry-level positions but wider at higher levels of experience. In other words, in the sectors that employ a large percentage of young high-school graduates one finds promising career paths as well as others that tend to stagnate.

When asked about the value of different types of skills, firms report valuing socioemotional skills more than general or industry-specific knowledge. The score assigned to socioemotional skills is almost twice that assigned to knowledge and about four times that given to industry-specific skills. Socioemotional skills consistently receive the highest valuation in the three countries included in the survey (figure 1.3). The average value assigned to each skill group is remarkably similar in all three countries, although they show different variances (responses are somewhat more homogeneous in Chile, especially regarding knowledge-related skills).

Chapter 6 offers a similar analysis of skill valuation, disaggregating the data in various ways—for example, by sector, by firms that pay high wages vs. low wages, by local firms vs. international firms, and so on. In all cases, the socioemotional skills are the most valued, according to employers. But the same employers say they have trouble finding these skills in young people graduating from secondary school. Only 12 percent of respondents reported having *no* difficulty finding the skills their firms need when hiring new workers. There is also evidence that Chilean businesses seem to have less difficulty in this area than their Argentine and Brazilian counterparts. But in all three countries, socioemotional skills are, according to those surveyed, the most difficult to find in the young labor force (figure 1.4).

Finally, the survey results indicate that the gap between employers' requirements and the skills offered by young people graduating from high school is costly, both to graduates (in terms of unemployment and lost opportunities) and to employers, which must invest more in recruitment and training to compensate for these deficiencies.

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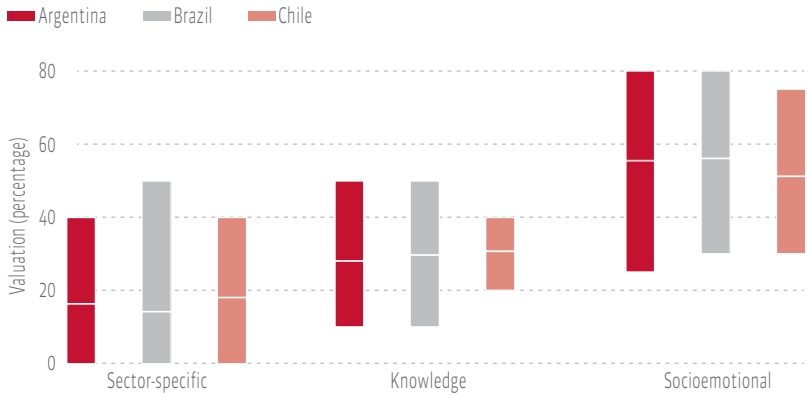
[4] Details on the methodology and content of the DSS are presented in appendix B.

Figure 1.3

Valuation of skills by employers in Argentina, Brazil, and Chile



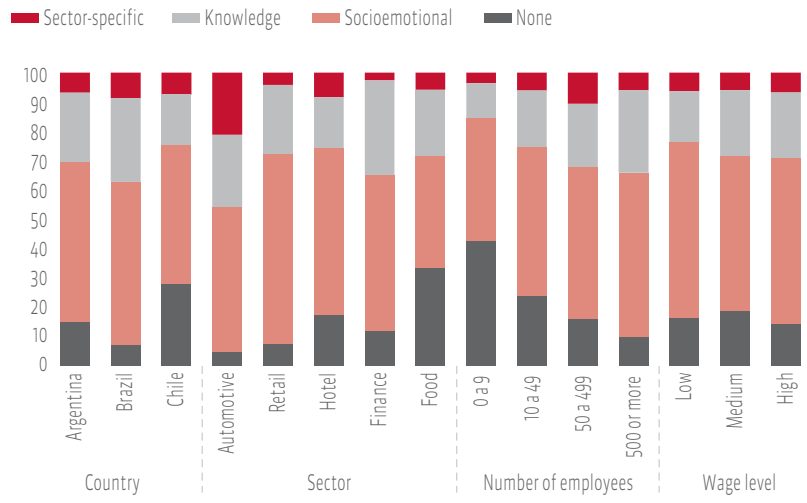
Source: Authors' calculations based on DSS (IDB, 2010c).

The analysis of skills required by firms is complemented by three case studies, summarized in chapter 6 and presented in their entirety in appendix C, that illustrate several of the results of the quantitative analysis of the survey, reflecting in a vivid way the main messages of this book.

Figure 1.4

Employers' reports of difficulty in obtaining different types of skill

(%)



Source: Authors' calculations based on DSS (IDB, 2010c).

The case of a luxury hotel in Chile highlights the deficiencies observed both by the employee interviewed for the study and by her employers in the ability of secondary schools to instill the skills required by young people entering the workforce. Because of those deficiencies, the hotel's management is more interested in the attitudes of those aspiring to work there than in their knowledge.

The case of an automobile firm in Argentina illustrates the importance of having behavioral skills to function successfully in the workplace. "The most important skill for this job is responsibility," said a young man who participated in the study.

The last case, conducted at one of Brazil's largest banks, confirms the role of higher education in compensating for the deficiencies of secondary schools. One respondent from the bank stated, "In Brazil, school is a place that gives grades to get a diploma that is only useful for entering university."

Improving the education system for a smoother school-to-work transition

What should be done about the mismatch between students' skills and employers' requirements? There is more than one answer, and none is simple. That is why the book's conclusions dig deep into the implications of the research for public policy, identifying some of the characteristics and features that will have to be considered in any effort to redefine the requirements of the education system.

The objective behind the research conducted for this book was not only to increase understanding of the skill gap in the region, but also to identify ways to improve the education system so that it smoothes the transition of young people into their first job.

The first step is to recognize the need to widen the scope of schools' interventions. Preparing young people for the twenty-first century requires greater awareness on the part of students, educators, and policy makers of the demands that students will face in their working lives. Their future employers have changed their performance-related requirements and expectations. Schools in Latin America will have to reinvent themselves to keep up with those changes and help young people to compete with their peers—in Latin American and around the world.

The Inter-American Development Bank provides technical support to advance the development of the region. It is appropriate that the bank should contribute to the process of transforming schools to respond to current requirements. The new information presented in this book is an initial contribution to facilitate an urgent and necessary debate. Change must occur soon if the region's young people are to succeed in the workplace, in society, and in a competitive and globalized world.

2

The Outlook for Youth Employment in Latin America: Cloudy

From school to labor market

The transition of young people from formal education to stable employment is influenced by several factors, including the skills they have learned in school and the conditions of the labor market.[1] In Latin America, as in the rest of the world, young people are an especially vulnerable group in this market. Youth unemployment is higher than among adults, the labor force participation rate is lower (even among young people who are not in school), rotation from one job to another is more frequent, and the wages paid are lower than for adults. These stylized facts are widely documented by the international evidence for developed and developing countries.[2] They mean that the work-life trajectory of an average person starts with a high probability of unemployment or inactivity, spending less time in each job, and earning a lower wage than workers with more experience. In a typical working life, such differences are gradually corrected.

Starting with the fact that unemployment, inactivity, and informality are more widespread among young people, and that this situation is part of the typical working life of any worker, the question is whether youth unemployment rates in Latin America reflect this expected process, or whether the employment situation of Latin American youth actually worsened over the period under study—and in what respect—compared with earlier periods.

This chapter describes the situation of young people in Latin America, going beyond the well-known stylized facts described above. It also analyzes

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[1] This chapter is based on the work of Bassi and Galiani (2009) and Cruces, Ham and Viollaz (2010).

[2] See OECD (2007b), ILO (2008), and Ryan (2001), among other works that analyze the international evidence on youth participation in the labor market.

which groups of young people have been most affected by changes over the last three decades (1980–2010). In particular, the chapter examines the evolution of the differences—in wages, unemployment rates, and job quality—between more-educated and less-educated workers in the transition from school to work.

Since the 1980s, developed economies have seen a significant increase in wage dispersion as the wages of more-educated workers have risen faster than those with secondary education. In the United States, for example, the real wages of workers with graduate degrees rose 19 percent between 1979 and 1995, while the real wages of workers with incomplete secondary education fell 14 percent (Katz and Autor, 1999). This well-documented phenomenon (Katz and Autor, 1999; Levy and Murnane, 1992) was studied to find the causes behind the facts (Autor, Katz, and Kearney, 2006; 2008). As Levy and Murnane (1992) point out, wage inequality in the United States among workers grouped by levels of education went within a decade from being a branch hardly studied by labor economists to a core research area. In addition to analyzing the reasons behind the increase in wage dispersion, Levy and Murnane also note that academic research has reflected two general views—first, that the U.S. economy has been creating fewer *middle-class* jobs, and, second, that there is a widening gap between the skills required for new jobs and those present in the work force.

Although there is no consensus on the underlying causes of the widening gap between the wages of the most and least educated in the United States, most of the literature on the subject agrees that the explanation is a combination of an increase in the relative demand for more-educated workers—arising from international trade, skill-biased technological change, and reforms of labor institutions that had protected the wages of the less educated—and a slowdown in growth of the supply of these workers (Autor, Katz, and Kearney, 2006, 2008; Acemoglu, 2002; Card and DiNardo, 2002).[3] As a result, the wage premium paid to workers with college degrees increased by 25 percent from the early 1980s to the mid-1990s (Acemoglu, 2002). Similarly, studies such as those by Autor, Katz, and Kearney (2006 and 2008) and Levy and Murnane (1992) show how, during the 1990s, technological change resulted in a polarization of the U.S. labor market, with growth in employment in occupations with higher and lower wages, to the detriment of employment at the middle of the wage distribution—that is, middle-class jobs primarily held by workers with secondary education.

The literature cited argues that technological change complemented the nonroutine cognitive skills of those with the most education, did not affect the nonroutine manual skills of the least educated, but did replace the routine

[3] The works of Autor, Katz, and Kearney (2006 and 2008) and Acemoglu (2002) are examples of studies that emphasize technological change in favor of jobs requiring workers with higher levels of education, while Card and DiNardo (2002) assign more importance to institutional changes.

skills of workers with an intermediate level of education. Levy and Murnane (1992) argue that the redistribution of employment that took place in various sectors of the economy resulted in lower demand for labor in the manufacturing sector, traditionally considered the high-wage employer of less-educated workers, with the consequent reduction in the number of jobs for the middle class.

In the case of Latin America, the studies on this subject document a decline in returns to secondary education and an increase in returns to higher education since the early 1990s (Sánchez Páramo and Schady, 2003; Behrman, Birdsall, and Szekely, 2007; Manacorda, Sánchez Páramo, and Schady, 2010). In other words, a decade after the phenomenon was identified in the United States, Latin American workers with secondary education began to lose ground with respect to those with postsecondary education and those with only a primary education.

The causes of the changes observed in Latin America have been subjected to study. Using data from five countries, Manacorda, Sánchez Páramo, and Schady (2010) identify the contribution of supply and demand factors in explaining changes in returns to education. These authors conclude that the observed patterns respond: (i) to a marked increase in the relative supply of workers with secondary education, which pushed down the wages of this group, and (ii) to growth in demand for workers with higher education, but without a similar increase on the supply side, which led to an increase in the premium paid to educated workers. Although Manacorda, Sánchez Páramo, and Schady (2010) do not investigate the factors behind the increase in demand for more-educated workers, other studies assess the relation between the trade-liberalization reforms in Latin America in the 1990s and wage dispersion (Sánchez Páramo and Schady, 2003; Attanasio et al., 2005). They discuss at least two factors: (i) changes in employment by industry that adversely affected the lower-wage sectors and employers of less-educated workers[4]; and (ii) transmission of technologies, through trade with more-developed countries, that complement the skills characteristic of more-educated workers.

Behrman, Birdsall, and Szekely (2007) also analyze the impact of a series of structural reforms and economic policy changes on the widening wage gap between more- and less-educated workers between 1977 and 1998. Referred to as the Washington Consensus, those reforms and policies were implemented across the board in the region over the three decades under study. They included the opening of trade and capital markets, privatizations, changes in tax structures, and deregulation of labor markets. Using data for 18 Latin American countries, these authors found that these policies had an immediate and significant impact, increasing wage dispersion. But that impact has decreased over time.

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[4] Attanasio et al. (2005) study the specific case of Colombia.

In summary, the evidence available for Latin America shows a decline in the relative wages of workers with secondary education. Two factors behind that decline are: (i) significant growth in the supply of these workers as a result of substantial expansion of education coverage (discussed in chapter 3), and (ii) growth in demand for workers with higher education, offset only partly by an increase in supply. These findings are important for understanding why high school graduates have fallen behind. But the extensive literature available on the subject does not explore the question of *educational quality*. In particular, there has been no analysis of the extent of the disconnect between the skills demanded by the labor market and those supplied by young workers upon leaving secondary school in Latin America. The lower returns to secondary education could reflect the lower value that employers are assigning to the skills these young people bring from school. This does not necessarily mean that today's secondary-school students acquire fewer skills than did previous generations,—simply that they have not acquired enough skills or the right ones. The disconnect may have appeared because the education system has not kept up with the changes in skills required for jobs in today's labor market. That, in a nutshell, is the theme of this book.

This chapter offers evidence consistent with the literature cited on the decline in the return to secondary education in Latin America. Later sections will describe other equally important indicators for analyzing the labor situation of young people in general, and of those with secondary education in particular. Factors such as the minimum wage, labor unions, and the rules governing hiring and firing, among others cause movements in the supply of and demand for labor that lead, in turn, to changes in wage levels and levels of employment and unemployment. They also affect how such changes are distributed among subsets of workers, as distinguished, for example, by their level of education or experience.

As will be seen later in the analysis of the labor situation of young people in 10 Latin American countries since the late 1980s, the young generally fare badly in the labor market and in many respects are worse off than their predecessors at the same age. Compared with adult wages, youth earnings have increased only slightly in the last three decades, with mixed results in the countries studied. In real terms, there were almost no wage increases for the young during the period analyzed.

Latin American youth, even those who are not in school, have a low rate of participation in the labor market. This is particularly true of women. The share of those who neither study nor work, the so-called *ninis*, has contracted

[5] Authors' calculations based on data for 18 Latin American countries published by ILO (2010).

over the last three decades, but there are still about 14 million Latin American youths aged 16 to 24 (also mostly women) who are in this situation.[5]

Although youth unemployment has fallen since the early years of the new century, it remains at historically high levels. There are differences between educational groups (less-educated youths in general face higher unemployment), but they are not very marked, as in the case of wages. Lower unemployment does not seem to be the biggest advantage of the better educated, at least for young people entering the labor market.

Most young Latin Americans who do work do so in informal employment that offers no social security benefits. Informality is also high among young adults and adults. The figures suggest that youth who enter the informal labor market have a high probability of staying there for much of their working life.[6]

"Working or still in school?"

Following the general overview presented above, this section analyzes the activities of young people based on a sample of seven Latin American countries that have standardized household surveys from the early 1980s to mid-2000s: Argentina, Brazil, Chile, Mexico, Panama, Uruguay, and Venezuela (IDB, 2009). Data from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC) (processed by the Center for Distributive Labor and Social Studies, La Plata National University, Argentina and the World Bank to make them comparable) were the main source in this chapter. Additional data for Honduras, Costa Rica, and El Salvador were analyzed for some indicators.

The group under study comprises young people aged 16 to 24.[7] In the selected countries, they account for more than 70 percent of the youth population of the region. In the past 20 years, the pattern of activity of this group has changed significantly (figure 2.1). The segment remaining outside the work force, and either in school or inactive, is slowly growing, because more people in the group are studying. At the same time, the number who are neither in school nor working has fallen. But given the significant expansion of access to education in the region over the past three decades,[8] a decline of just 5 percentage points in the share of inactive youth outside the school system is not good news, but a problem yet to be addressed. Another negative change revealed by the data

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[6] Although the ideal would be to study working careers over several years with panel data, data for the Latin American countries generally allow tracking of individuals for relatively short periods.

[7] This publication defines "young people" as the 16–24 age group and "young adults" as the 25–30 age group, unless otherwise stated.

[8] This topic will be developed in detail in chapter 3.

in figure 2.1 is the higher unemployment rate among young people who make the decision to enter the labor market.

One of the great transformations of the young labor force in Latin America is the increase in its level of education. The number of young people who postpone their entry into the world of work to continue their education is rising. Whereas in the late 1980s 54 percent of young people aged 16 to 24 had completed only primary education, at the end of the 2000s the proportion of the young who had ceased their education at that level had fallen to 26 percent (figure 2.2). In the same period, the segment of youth with higher education rose from 8 percent to 18 percent.

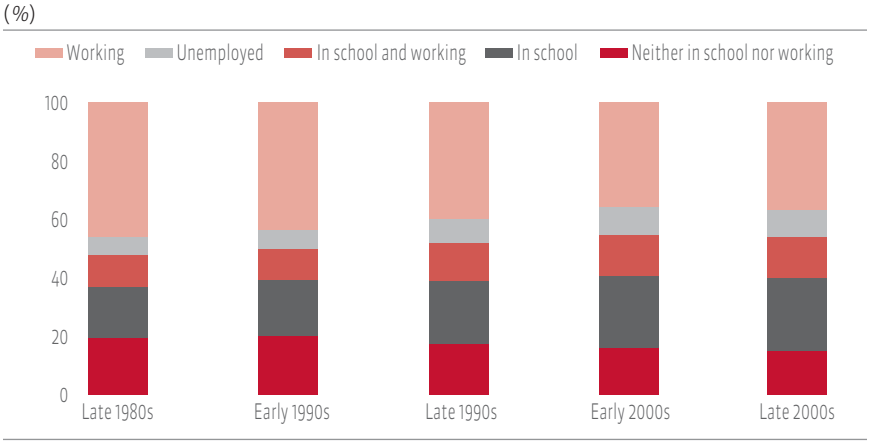
But despite this apparent progress, more than 80 percent of young people in the region still possess no more than a secondary education. It is this latter group that is the focus of this publication and that appears to have been affected most negatively by changes in the labor market in the last three decades.

Wage trends: Winners and losers

In any diagnosis of the labor situation of young people, wages are a basic thermometer. In Latin America, the real wages of this group have virtually stagnated at the levels of two decades ago. Hourly wages (purchasing power parity [PPP], 2005 U.S. dollars) reached $2.2 at the end of the first decade of this century, only 11 percent higher than the $1.97 earned in the early 1990s (table 2.1). The wages of young workers as a proportion of adult wages varied from country to country, but again the changes were not significant. Based

Figure 2.1

Activity of young people in Latin America, 1980–2010

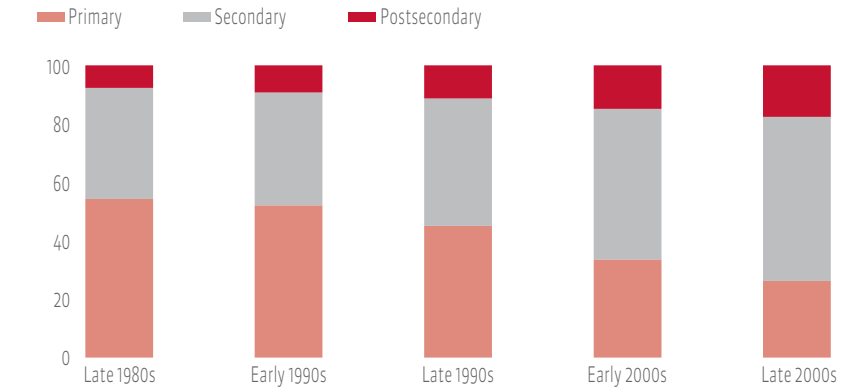


Source: SEDLAC (2009).

Figure 2.2

Education level of youth in Latin America, 1980–2010

(%)



Source: SEDLAC (2009).

on equal conditions (education, gender, economic sector, and so on) young workers earn less than adult workers, largely because of the premium placed on work experience.

On average, according to the latest available data for the sample of countries used here, young people earn 55 percent of adult wages (table 2.2), an improvement of just 3 percentage points from 20 years ago. Young people in Venezuela have the highest wage levels in relation to adults of the countries studied. Uruguay, the country with the lowest relative youth wages, saw a decline from the early 1990s. Of the 10 Latin American countries listed in table 2.2, five improved their relative wages for young people, while five deteriorated. The question, then, is whether clear patterns of wage dispersion between educational groups underlie this stagnated mean and these mixed results on returns to experience within the studied countries.

Not surprisingly, young people who complete higher education earn more than those with secondary education (figure 2.3), and these in turn earn more than those with primary education. Among young people with higher education,

Table 2.1

Hourly wage for youths and adults

(*PPP US$ 2005*)

Real wage	Early 1990s	Late 1990s	Early 2000s	Late 2000s
Youth	1.97	1.95	1.97	2.22
Adults	3.77	3.95	3.72	4.04

Source: SEDLAC (2009).

Table 2.2

Ratio of youth wages to adult wages

(*Hourly wage*)

	Early 1990s	Late 2000s	Change
Venezuela	0.62	0.74	0.12
Panama	0.50	0.60	0.10
Chile	0.49	0.56	0.07
Mexico	0.53	0.57	0.04
Latin America	0.52	0.55	0.03
Brazil	0.47	0.51	0.04
El Salvador	0.69	0.67	–0.02
Costa Rica	0.64	0.62	–0.02
Argentina	0.65	0.62	–0.03
Uruguay	0.53	0.50	–0.03
Honduras	0.56	0.53	–0.03

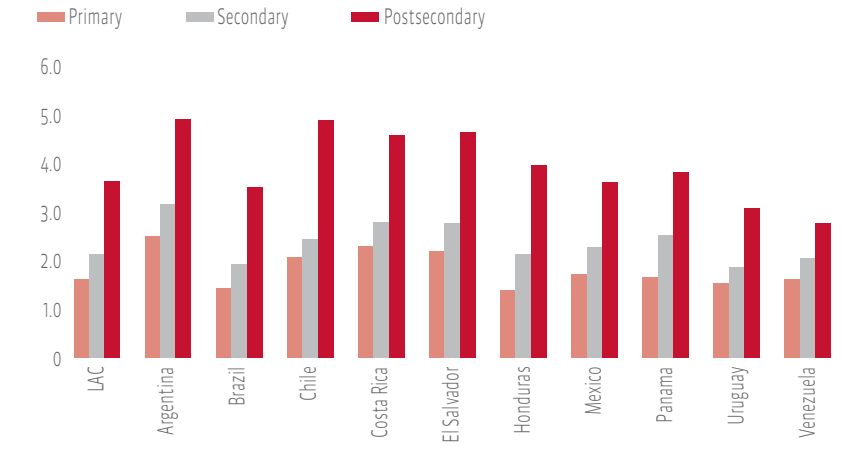
Source: SEDLAC (2009).

Argentines and Chileans are the best paid; Venezuelans and Uruguayans the worst. An Argentine with postsecondary education, for example, earns about 70 percent more than a Venezuelan with the same education. Among young people with primary and secondary education, Argentina also tops the list of best wages. Uruguay is among the countries with the lowest wages for the same educational groups.

Figure 2.3

Hourly wage for young people by education level and country

(*US$, latest data available*)



Source: SEDLAC (2009).

Wage dispersion also varies among countries in the sample. In Chile, a college graduate earns, on average, double the amount of a high school graduate; in Venezuela the difference is only 35 percent. In the complete sample, the hourly wage of a young college graduate is 70 percent higher than that of a high school graduate. This difference is greater among adults[9]: An adult college graduate earns 140 percent more than an adult high school graduate.[10]

Shifting to the gap between secondary and primary education, in Panama and Honduras, young people with secondary education earn 53 percent more than those with primary education; in Chile the gap is 18 percent, the smallest in the sample. On average, in this group of countries, a young Latin American with secondary education earns 30 percent more than one with primary education. As in the case of the premium on college education, among adults the difference between the wage of secondary and primary school graduates is higher (55 percent).

But as mentioned in the first section of this chapter, the returns to education have undergone significant changes in the period studied (figure 2.4). Supply factors (the significant increase in the number of young people with secondary education) combined with demand factors (the increase in demand for workers with higher education, driven by changes in international trade, technological change, and economic policy reforms) have resulted in a decline in returns to secondary education and an increase in returns to higher education. The wage premium on secondary education (the wage gap between high school and primary school graduates) has fallen for youth and adults over the past two decades (figure 2.4), while the premium on higher education (the wage gap between postsecondary and secondary graduates) has increased for adult workers and shown an inverted U-shape for youths, ending at a point lower than at the beginning of the period under study.[11]

The data depicted in figure 2.4 are consistent with the trends documented in the literature on returns to education in Latin America, especially among adults.[12] The premium paid by the labor market for workers with secondary education (in relation to primary school graduates) declined continuously during the study period (especially from the mid- to late-1990s) for both youths and adults.

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[9] Does not appear reflected in the chart.

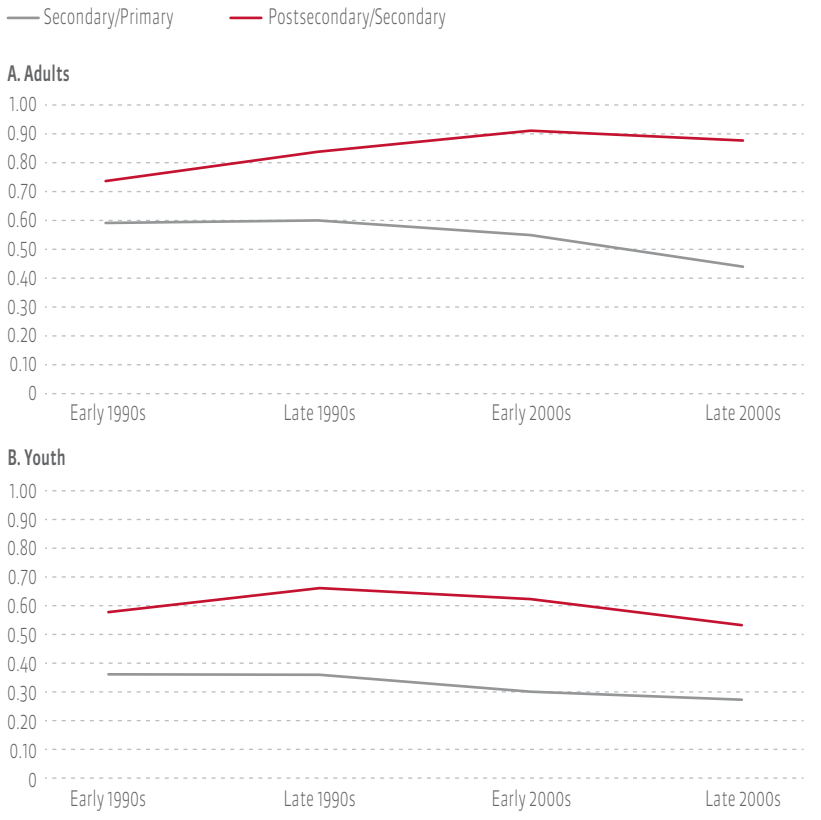
[10] Own calculations based on data from SEDLAC (2009).

[11] The wage premiums were calculated as the differences between the log of the real hourly wage of each educational group. Thus, the premium on secondary education is calculated as the log of hourly wages of secondary school graduates minus the log of the hourly wages of primary school graduates. The premium on higher education is calculated in the same way for postsecondary and secondary school graduates.

[12] The studies conducted for the region usually use data for adult workers (for example, Manacorda, Sánchez Páramo, and Schady, 2010; Behrman, Birdsall, and Szekely, 2007). The returns are usually calculated using Mincer equations, instead of the simple difference of the wage logarithm.

Figure 2.4

Wage premiums by educational group in Latin America



Source: Authors' calculations based on data from SEDLAC (2009).

The difference between youth and adults may be due to the ease with which these groups of workers are able to substitute for each other. For example, if young workers are close substitutes for adult workers, an increase in the supply of young workers with secondary education will depress the wages of adult workers with secondary education. In Latin America, Manacorda, Sánchez Páramo, and Schady (2010) find that young and adult workers are close substitutes. This evidence is consistent with trends in returns to secondary education. Among more-educated workers, the differences in the patterns for youth and adults could suggest that this is not the case. In occupations that require more complex skills, the experience of adult workers may not be easily replaced by the capabilities of a worker just entering the labor market.

Over the period, the wage premium for secondary education fell by similar proportions for adults and youth—about 25 percent (table 2.3). The

Table 2.3

Change in the wage premium by education level of youth and adults, 1990–2010

(%)

	Youth		Adults	
	Secondary/ Primary	Postsecondary/ Secondary	Secondary/ Primary	Postsecondary/ Secondary
Honduras	–25	–6	–45	0
Chile	–35	58	–39	23
El Salvador	–1	17	–38	44
Brazil	–47	–1	–36	22
Costa Rica	–15	5	–15	13
Venezuela	–1	–36	–13	–18
Uruguay	–21	103	–13	109
Argentina	164	10	–9	14
Mexico	19	–25	–6	19
Panama	–20	20	7	11
Latin America	–24	–8	–25	19

Source: Authors' calculations using data from SEDLAC (2009).

decline occurred in all countries among adults (except Panama), most steeply in Honduras and Chile, and least steeply in Argentina and Mexico. Among the young, Chile and Brazil had the most marked reductions in the premium to secondary education, while in Argentina and Mexico the premium increased.

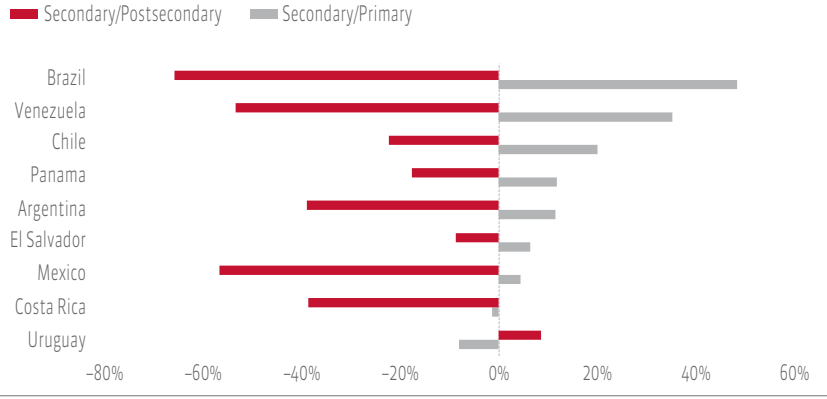
For working adults the returns to higher education grew in all countries, except Venezuela. For young people the results were mixed, with a rise in most countries but a fall in four (Honduras, Brazil, Venezuela, and Mexico). The largest widening of the wage gap in favor of university graduates was observed in Uruguay. In the complete sample, that gap grew 25 percent for adults and fell 8 percent for youth.

To understand the differences in these changes between countries, it is necessary to make estimates that separate the effects of labor demand and supply by educational groups, as Manacorda, Sánchez Páramo, and Schady (2010) do. But a glance at the data on changes in the relative supply of young people with different levels of education offers some insights (figure 2.5).[13]

[13] The data source for the relative supply of workers is the *Sociómetro* of the IDB (IDB, 2011a), which is based on homogenized household surveys of the countries included in the sample. For each country, the figure shown is the latest available before 1990 and 2009. Only urban areas are considered, except for Venezuela. The relative supply was calculated as the ratio between the percentages of youth that completed each education level. This means that the relative supply of workers with secondary education versus

Figure 2.5

Change in the relative supply of young workers by educational group, 1990–2009



Source: Authors' calculations based on Household surveys standardized and processed by the Sociómetro of the Inter-American Development Bank (IDB, 2011a).
Note: For each country the available years nearest to 1990 and to 2009 were chosen. Only urban areas were considered, except for Venezuela. Relative supply was calculated as the ratio between the percentage of youth that had completed each education level. The next step was to compute the change in this ratio between 1990 and 2009.

Although it is not possible to draw definitive conclusions from this simple analysis, the figures suggest significant increases in the relative supply of young people with secondary education in, for example, Brazil and Chile, which are consistent with the observed declines in the wage premium for these workers (both young and adult). By contrast, the decrease in Uruguay in the relative supply of young people with higher education (the only such case in the sample) could be related to the significant increase in the wage premium for the most educated (without considering the effects of higher demand, which would act in the same direction).

An alternative way to graphically demonstrate the relative wage loss of workers with secondary education is shown in figure 2.6, which depicts the trend in the percentage of workers with completed secondary education whose wages are higher than the median—that is, the fraction of workers with secondary education that earns wages higher than at least 50 percent of young workers.

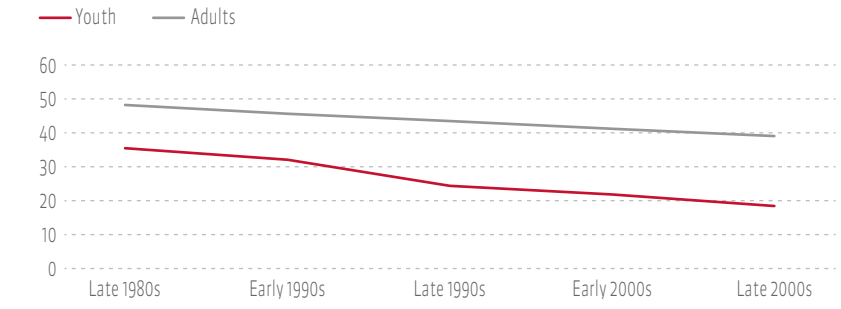
In the complete sample of countries studied, that proportion fell from 38 percent to 20 percent on average, a considerable reduction. This means that at

primary education was calculated as the percentage of workers with secondary education divided by the percentage of workers with primary education. Similarly, the relative supply of workers with higher education was calculated as the ratio between the percentage of these workers and the percentage of workers with secondary education. The changes in these ratios between 1990 and 2009 were then calculated.

Figure 2.6

Wages of workers with secondary education

(*% over median*)



Source: SEDLAC (2009).

the end of the 1980s, about 40 percent of high school graduates earned more than half of all workers, but by the end of the first decade of this century that share had fallen to 20 percent. Considering that among young people, 60 percent had completed secondary education, the disadvantage is more evident. The same pattern is observed for adults. At the beginning of the period, 50 percent of workers with secondary education earned more than half of all employees. At the end of the period, only 40 percent of high school graduates were in the better paid half of the distribution.

In brief, these data confirm the findings of the literature on wage trends by educational group in Latin America. The clear losers in the period were people with secondary education, young or adult. The labor market is paying these workers wages that are increasingly close to workers with less education, while the gap with more-educated workers widens. This mimics the trends observed in the United States in the 1980s, where the dynamics of supply and demand for labor resulted in a polarization of the labor market, with improving conditions for those with the least and most education, and worsening conditions for those with secondary education.

Unemployment, informality, and inactivity: Symptoms of the same problem

The trend in wages is an important aspect of the employment situation facing young people. But the picture would be incomplete without a look at rates of unemployment, informal employment, and participation in the labor market. Labor legislation and institutions influence how markets adjust to changes in labor demand and supply caused by other factors (such as changes in demand for skills resulting from technological change). This causes these changes to

show up as variations in *quantities* (employment, unemployment, and participation) rather than in *prices* (wages). It is possible that the dynamics described in the previous sections have also affected the rates of unemployment, inactivity, and/or informal labor of young workers, and that the effects have been different for the various educational groups. But it is not the purpose of this book to examine the labor situation of young people as it is shaped by institutional factors or labor regulations, but rather to explore complementary and, until now, less-analyzed explanations for observed phenomena, specifically the disconnect between the skills demanded by the labor market and those that young people bring with them from the education system.[14]

The evidence available for developed countries shows that the years following completion of formal education are characterized by frequent transitions between unemployment, temporary or part-time jobs, inactivity, and reentry into the education system. Analysis by Quintini, Martin, and Martin (2007) of panel data for the countries of the Organisation for Economic Co-operation and Development (OECD) shows that it can take young people who complete secondary education 1–2 years to get their first job. Throughout the first 7 years of their working life, moreover, they have frequent periods of unemployment. In Spain, for example, 56 percent of young people experience at least two episodes of unemployment in this phase of their career. Episodic unemployment during the first years in the labor market after high school is less common in countries with dual systems such as Germany or Austria, where work experience is an integral part of the secondary curriculum. The authors show that in these two countries 50 percent of young people find employment immediately or very soon after completing their secondary education.

For Latin America, Cunningham (2009) and Cunningham and Bustos (2011) analyze panel data for Argentina, Brazil, and Mexico. They conclude that the situation of young people is comparable to that in the OECD countries. Cunningham (2009) demonstrates that the higher youth unemployment rate in the Latin American countries is due to a higher rotation of young workers—who enter and leave unemployment more often than adults—and not to longer periods in unemployment. In this author's opinion, frequent job changes in the first years of working life is a nonlinear, dynamic process that reflects young people's search for a stable place in the labor market. Although that is an important conclusion for this analysis, the study does not investigate the differences in these transitions (to and from unemployment) over time, which may have been affected by changes in general level of the youth unemployment rate.

Cunningham and Bustos (2011) study the transitions of young people from school to the labor market, showing that most movements at this stage occur

[14] Heckman and Pagés (2004) offer a complete analysis of the impact of labor regulations in Latin America.

between the education system, the informal sector, unemployment, and inactivity: Most young people enter the workforce through informal employment and go through a period during which they rotate between work, unemployment, and inactivity until finding a stable formal job. The authors conclude that in the case of youth, the informal sector serves as a springboard, functioning as a training ground where young people prepare for a steady job.

Bosch and Maloney (2010) present the same evidence on the role of the informal sector in the same set of Latin American countries. But they also observe that for young workers this kind of training in the informal sector could mask deficiencies in the education system, which may not be teaching the skills and competences in demand in the labor market.

The results of these studies clarify short-term transitions and the dynamics of labor-market entry. But to determine whether informal employment is a gateway to work or a problem, particularly for young people, it is also necessary to analyze trends in the 16–24 age group, along with changes in the informality rate for young adults and adults.

The next section analyzes indicators of unemployment, informality, and labor force participation for cohorts of young people aged 16 to 24 over three decades, with the aim of identifying signs of improvement or deterioration in the known (and irregular) transitions of young people in the labor market.

Trends in youth unemployment: Normal rotation or lasting stigma?

Over the past two decades, the high level of unemployment in Latin America has been a major labor problem and a serious social concern (IDB, 2004). According to the International Labour Organization (ILO, 2011), the average unemployment rate in the region is the fourth-highest in the world (after Africa, the Middle East, and Central Europe), and young people are the hardest-hit group.[15] On average, youth unemployment in Latin America is three times higher than adult unemployment. This proportion varies from country to country, as shown in figure 2.7. In Mexico and Chile, youth unemployment is nearly four times that of adults (although in Mexico both levels are low compared with other countries in the sample).

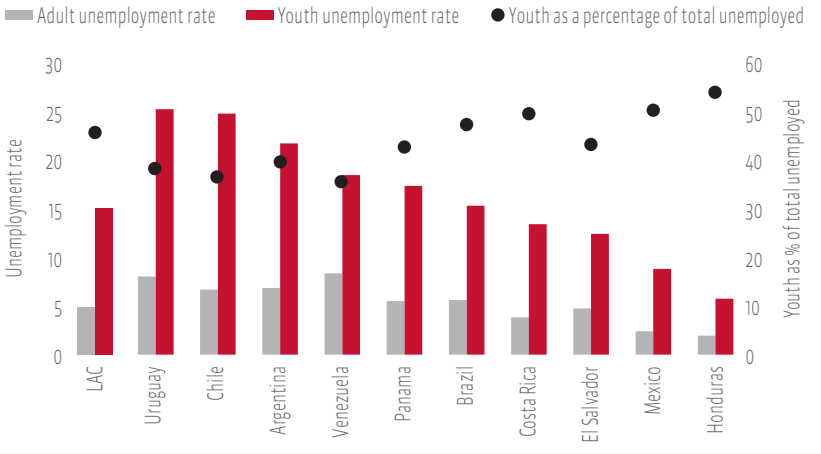
The high rate of youth unemployment in Latin America is not unusual. According to the ILO (2010), youth unemployment in relation to adult unemployment ranges from 1.8 times greater in Africa (the lowest level of world regions) to 4.5 times greater in Southeast Asia (the highest level of world regions). In developed economies and the European Union (EU) it is 2.3 times greater. This

[15] Data for 2008. IDB (2004) and Bassi and Galiani (2009) include unemployment figures by region.

Figure 2.7

Adult and youth unemployment rates and youth unemployment as a percentage of total unemployment in selected Latin American countries

(*%, late 2000s*)



Source: SEDLAC (2009).

ratio held true even during the recent crisis, which has had a disproportionately negative effect on youth employment.

In the sample analyzed in this chapter, 47 percent of all unemployed persons are in the 16–24 age group. This is remarkable, considering that young people account for only about a quarter of the region's workforce (ILO, 2010). In some countries, such as Honduras and Mexico, the proportion is over 50 percent. Uruguay, Chile, and Argentina are the countries with the overall highest rates of youth unemployment.

In explanations of high youth unemployment, two schools of thought predominate.[16] One holds that frequent job rotation among the young responds to young workers' need to find an activity that suits them. The experience that workers accumulate in their search for the right job later proves valuable to both employers and the employees themselves, thereby facilitating the process of successfully joining the labor market (Mincer and Jovanovic, 1981; Bosch and Maloney, 2010; Cunningham, 2009; Cunningham and Bustos, 2011).

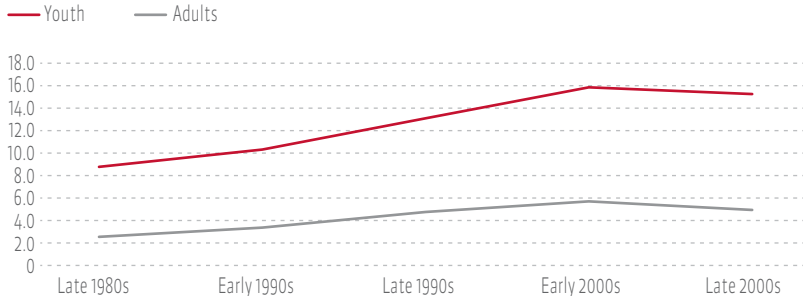
The other view is that long periods of unemployment may stigmatize workers, adversely affecting their future employment prospects and consequently their income stream (Mroz and Savage, 2001; Neumark, 2002). Thus, excessively high (long or frequent) unemployment at this stage could have lasting

[16] Bassi and Galiani (2009) include a brief description of this literature.

Figure 2.8

Adult and youth unemployment rates in Latin America, 1980–2010

(%)



Source: SEDLAC (2009).

consequences on the working lives of individuals, in addition to its direct and immediate impact on income during the period of unemployment. The works of Cunningham (2009) and Cunningham and Bustos (2011) cited earlier show that high rates of youth unemployment in Argentina, Brazil, and Mexico have more to do with frequent occurrences of unemployment than with long periods without employment. But in the absence of the longitudinal data needed for a more extensive follow-up over time, the conclusions of these studies are based on short transitions and do not consider possible changes over time.[17]

One the most noticeable changes in the employment outlook in Latin America in the last three decades has been precisely the increase in unemployment, particularly among young people (figure 2.8). In the sample used here, unemployment has risen by about five points since the start of the 1990s. With the exception of two of the countries analyzed (Panama and El Salvador), the increase was general. Venezuela had the sharpest increase: seven points (table 2.4).

Among young people, some groups are more vulnerable to unemployment than others. The role of education is not obvious. The relationship between unemployment and education is the result of the supply of and demand for each type of skill and of how labor-market adjustments are made (via wages or via unemployment). More-educated workers should be able to perform well in jobs that require fewer skills; for that reason, job opportunities for the better educated should be more numerous and unemployment lower. On the other hand, more-educated workers may be expected to have greater resources, allowing them to

[17] As noted earlier, although the ideal would be to study working careers over several years with panel data, data for the Latin American countries generally allow tracking of individuals for relatively short periods.

Table 2.4

Change in the youth unemployment rate in selected countries, 1990–2010

(%)

	Early 1990s	Late 2000s	Change
Argentina	16.7	21.8	5.0
Brazil	10.5	17.2	6.7
Chile	14.7	21.3	6.5
Costa Rica	8.1	13.4	5.3
El Salvador	14.2	12.4	–1.8
Honduras	5.0	5.8	0.7
Mexico	8.1	8.8	0.7
Panama	20.8	17.4	–3.4
Uruguay	21.1	25.3	4.2
Venezuela	11.4	18.5	7.1
Latin America	10.4	15.1	4.6

Source: SEDLAC (2009).

sustain longer periods of unemployment until they find the right job—in which case unemployment could be higher among the more educated.

The figures for the sample of Latin American countries studied suggest that, in general, less-educated workers suffer higher unemployment. Specifically, young people with secondary education have the highest unemployment rates in 6 of the 10 countries for which comparable data are available. This may be related to the significant increase in the relative supply of this group, as mentioned in previous sections. In Argentina, Brazil, and El Salvador, there is indeed a marked difference between unemployment among the less educated and more educated. But in general, no pattern of significant difference in unemployment rates has been found for the group with secondary education, as shown in figure 2.9.

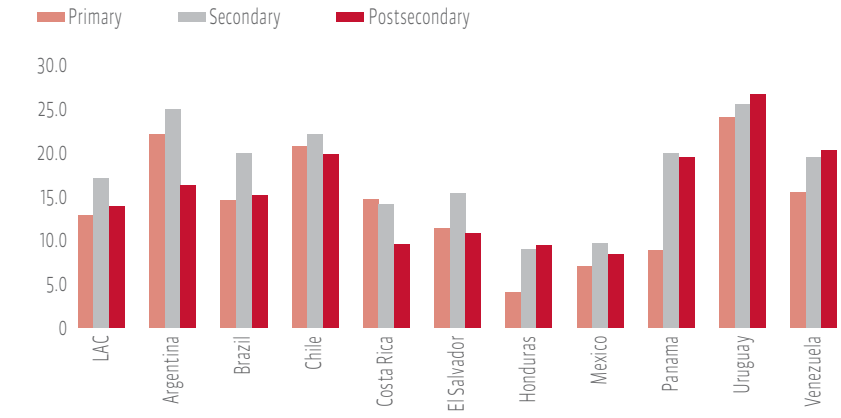
The differences are more marked between countries than between educational groups within each country. In this respect, a comparison of figures 2.7 and 2.9 shows that countries with high rates of youth unemployment (figure 2.7) tend to exhibit high unemployment rates for all educational groups (figure 2.9). The average rate of youth unemployment, then, is not related to differences in the composition of the young population (at least not by educational group) but to other factors, which may be related to institutional issues affecting labor-market adjustments in each country. Evidence consistent with this conclusion can be found in the negative correlation between unemployment and informality, which will be documented in the next section. Countries with low unemployment rates, such as Mexico, have a high proportion of informal workers.

The duration of unemployment among different educational groups varies from one country to another, although the differences are not very marked. Young

Figure 2.9

Youth unemployment rates by level of education

(%)



Source: SEDLAC (2009).

people with secondary education tend to have shorter periods of unemployment than average, probably because they rotate more often between inactivity, employment, and unemployment. The average duration of unemployment for young people in the sample is 8 months, ranging from 8.8 months for workers with primary education, 8.0 months for those with secondary education, and 8.6 months for those with higher education. Here the differences between education groups in the selected countries are not great, except in the case of Panama, where individuals with postsecondary credentials remain unemployed for longer periods (figure 2.10).

Again, the largest differences are between countries, which could shed light on the extent to which unemployment rates reflect a higher rotation of young people in the labor market or a structural factor in the national market. For example, Chile has a high youth unemployment rate, whereas El Salvador's is at the median. Both countries have the shortest period of unemployment for young people, which is consistent with a high frequency of rotation in and out of unemployment.

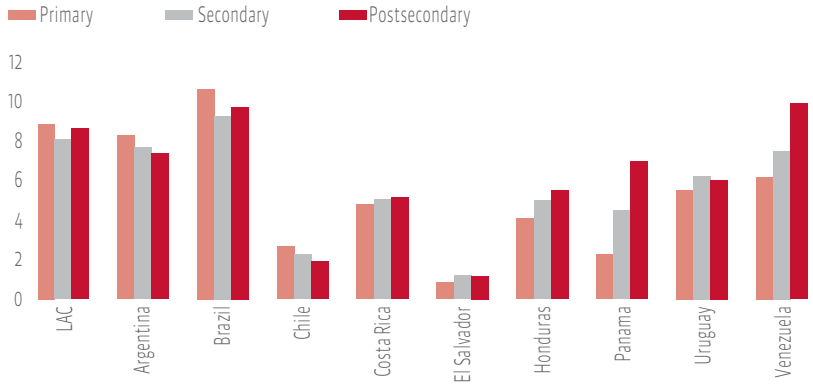
Trends since the late 1980s also show increases in unemployment for the three educational groups studied. In the aggregate data, the group with secondary education has the highest unemployment—and the gap is maintained throughout the study period (figure 2.11).

Although unemployment is not the only measure, or even the principal one, of youth labor problems in Latin America and the Caribbean, its significant short- and long-term impact on the working lives of young people and its relation to other serious social problems such as poverty, exclusion, and crime

Figure 2.10

Duration of youth unemployment by education level in selected Latin American countries

(*Months*)

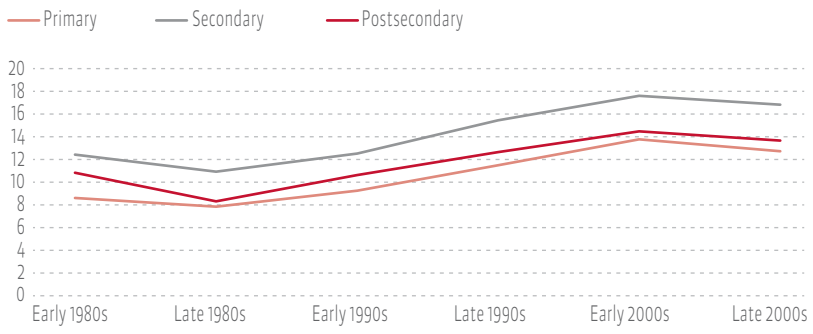


Source: SEDLAC (2009).

Figure 2.11

Youth unemployment by education level, 1980–2010

(%)



Source: SEDLAC (2009).

have made it a priority in the labor policies of several countries in the region. To date, youth unemployment has been dealt with mainly through targeted labor policies and programs, which expanded most rapidly in the 1990s. In fact, nowhere in the developing world have as many labor initiatives aimed at the young been implemented as in Latin America.[18] Given the instability of the

[18] Twenty-five percent of youth employment programs in developing countries since the 1990s were in Latin America (Bassi and Galiani, 2009, based on World Bank data).

region's economies, the issue of youth unemployment is even more urgent, not only because of its relevance to development, but also because the employment situation of young people is particularly sensitive to economic cycles.

The results of efforts to reduce youth unemployment have been mixed. Although the youth unemployment rate has seen some improvement in the last 10 years, it remains high for young people at all educational levels,[19] which is why it is considered one of the signs of a worsening employment situation for Latin American youth.

Informality: Gateway or escape valve?

Another feature of the labor markets of Latin American economies is the high incidence of informal employment, especially among young workers. Most people in the 16–24 age group are not working, and many are seeking employment. Among those who work at paid jobs, more than half do so in informal jobs, traditionally defined as jobs that do not provide social security benefits, such as unemployment insurance, health insurance, pension contributions, and paid leave.

The proportion of young people working at informal jobs varies between countries (figure 2.12). In Honduras, nearly all young people who work do so informally (along with a high percentage of adults). In contrast, in Chile, informal youth employment is about 30 percent. The figures show an inverse correlation between youth unemployment and the size of the informal sector. Countries with higher levels of youth unemployment, such as Chile and Uruguay, also have a lower incidence of informal employment. By contrast, Honduras and Mexico, where youth unemployment rates are the lowest among the countries analyzed, have the highest levels of informality.

One possible interpretation of this phenomenon is that informality acts as a safety valve in the labor market. Given the difficulties of entering the work world, young people eventually turn to informal activities that are unstable,

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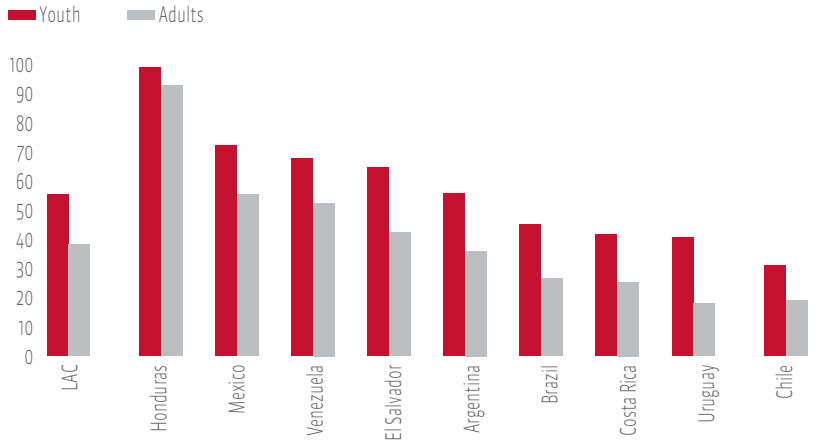
[19] Ibarrarán and Rosas Shady (2009) review the results of youth training programs in seven Latin American countries that have been subjected to rigorous impact evaluations. The authors find that program results vary from modest to significant, with a range of impact on employment ranging from 0 to 5 percentage points. The effect appears to be greater for specific groups, such as women, in some of the countries studied. On the positive impact of these programs, Attanasio, Kugler, and Meghir, (2011) experimentally evaluated Youth in Action, an effort implemented in Colombia from 2001 to 2005, and found that it had a significant impact on women in terms of wages and employment. Card et al. (2007) evaluated, also experimentally, a program implemented in the Dominican Republic in the same period. These authors found no impact on participants' employment and a small but statistically significant effect on wages and quality of employment (measured by health coverage).

Figure 2.12

Informal employment among youth and adults in selected Latin American countries

(*%, late 2000s*)



Source: SEDLAC (2009).

poorly paid, and lack benefits as an alternative to remaining unemployed. A basic estimate based on the data available for the early and late 2000s shows that for every four-point increase in the informality rate, the unemployment rate drops one point in the countries in the sample.[20]

Based on their analysis of the figures for Argentina, Brazil, and Mexico, Bosch and Maloney (2010) show that within the pool of informal jobs it is important to differentiate self-employed workers from informal wage earners. Working independently (self employment) seems to be a desirable option for some workers in the region (and for those with the necessary capital to do so), whereas informal wage employment appears to be a temporary situation, a way to earn a living while looking for a position in the formal sector. Bosch and Maloney show that informal wage-earning jobs have a shorter duration and more frequent rotation than formal or self-employed work. It should be noted that young self-employed workers constitute a small group, about a third the size of the group of young informal wage earners.[21]

Informality affects young people with different levels of schooling in different ways—and in this case the differences are significant. The most clearly disadvantaged are those who have no more than a primary education, the group

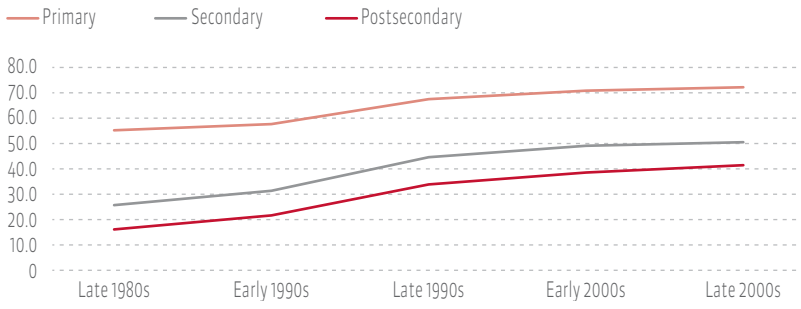
[20] Bosch and Maloney (2010) also show an inverse correlation between unemployment and informality with time series data for Mexico.

[21] Only in Mexico are the groups of similar size.

Figure 2.13

Informal employment by education level in Latin America, 1980–2010

(%)



Source: SEDLAC (2009).

that is most likely to be working in informal employment in all of the countries studied here (figure 2.13). Except in Chile and El Salvador, informality among young people and adults at all levels of education has increased in the region since the late 1980s. In general, the increase has been faster for workers with a secondary education, while among youth (but not adults) the growth has been faster among the highly educated (table 2.5). Chile is a special case. There, informality has fallen for all groups (by age and education)—except for young people with higher education. This may reflect a choice among growing numbers of educated young people, especially women, to be self-employed, although a rigorous analysis would be needed to confirm this conjecture.

As mentioned earlier, informal jobs seem to be the gateway to the labor market for most young people in the region. To learn whether this is actually true, it would be necessary to track those who enter the labor market as informal workers to determine their later path in the labor market. Tracking individuals over a long period requires longitudinal data, which is not available at this time in the region. But Bosch and Maloney (2010) have studied transitions over shorter periods that suggest that workers employed in the informal sector at a given time are more likely than those who were not then informally employed to be there later. In other words, it is possible that workers whose first jobs are informal, remain in that condition for an extended period.

The same authors also found that informal employment is not necessarily bad, nor does it always indicate a lack of alternatives. Many people choose this type of activity because they value flexibility and other associated benefits. But in general, informal jobs (particularly as employees) pay lower wages and do not match workers' preferences (Bosch and Maloney, 2010). The growth of informal employment therefore can be seen as another negative trend in terms of job opportunities for young people in Latin America.

Table 2.5

Informal employment by education level for youth and adults in Latin America, 1980–2010

(%)

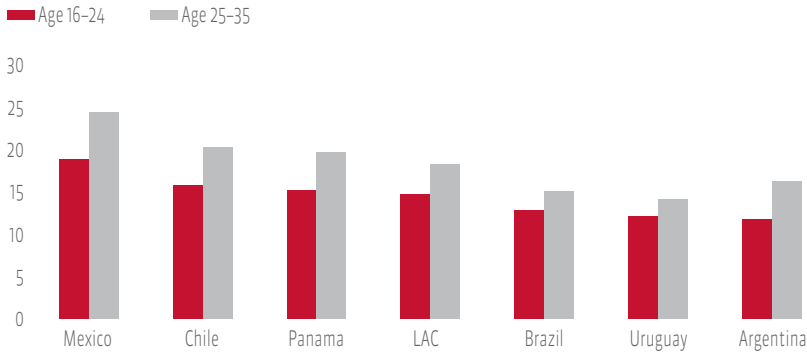
	Primary			Secondary			Postsecondary		
	Late 1980s	Late 2000s	Change	Late 1980s	Late 2000s	Change	Late 1980s	Late 2000s	Change
Youth									
Argentina	54.6	78.3	23.7	42.3	59.1	16.8	27.8	40.3	12.4
Brazil	55.1	63.7	8.6	23.9	38.0	14.1	14.9	30.2	15.3
Chile	60.3	44.8	–15.5	38.4	28.5	–9.9	28.2	32.2	4.1
Costa Rica	46.6	57.2	10.6	23.8	37.9	14.1	21.0	21.3	0.3
El Salvador	83.6	81.4	–2.2	48.3	46.2	–2.1	30.0	28.9	–1.1
Mexico	80.5	86.6	6.1	58.8	69.5	10.8	47.4	62.1	14.6
Venezuela	71.3	82.2	10.8	52.9	67.0	14.2	29.9	47.4	17.5
Latin America	55.3	72.0	16.7	26.2	50.7	24.4	16.8	41.8	24.9
Adults									
Argentina	28.8	56.5	27.7	15.1	36.4	21.4	11.7	17.8	6.0
Brazil	34.7	39.6	4.8	9.1	17.4	8.3	5.2	9.7	4.5
Chile	41.7	31.1	–10.6	28.0	18.1	–9.9	14.7	10.2	–4.4
Costa Rica	27.6	38.9	11.3	13.5	24.3	10.8	6.9	8.0	1.0
El Salvador	67.1	63.1	–4.0	20.8	24.3	3.5	11.7	9.6	–2.1
Mexico	74.8	78.5	3.6	40.3	49.6	9.3	30.8	31.9	1.1
Venezuela	43.0	71.0	28.1	27.9	52.1	24.2	12.6	26.6	14.0
Latin America	34.7	54.4	19.7	11.0	31.3	20.3	6.4	18.7	12.4

Source: SEDLAC (2009).
Note: The initial data for Venezuela and Mexico relate to the late 1990s. The initial data for El Salvador are from early in the respective decade.

Figure 2.14

Youths and young adults in Latin America who are neither in school nor at work

(*%, late 2000s*)



Source: SEDLAC (2009).

Ninis *with a woman's face*

The high percentage of young people who are neither in school nor working—referred to as *ninis,* or "neither-nors"—has also been a matter of concern and the subject of study in the region. Although it is true that this phenomenon has been declining steadily since the late 1980s, youth inactivity remains high. And an analysis of the proportion of ninis in the various age groups reveals that their percentage not only is not declining but is actually *increasing* among young adults, as shown in figure 2.14 for the six countries for which data are available. In the region, on average, 15 percent of the 16–24 age group are neither in school nor at work (a pool of more than 10 million young people in the 10 countries in the sample), whereas in the 25–35 group the proportion rises to 18 percent (about 16 million young adults in the countries sampled).

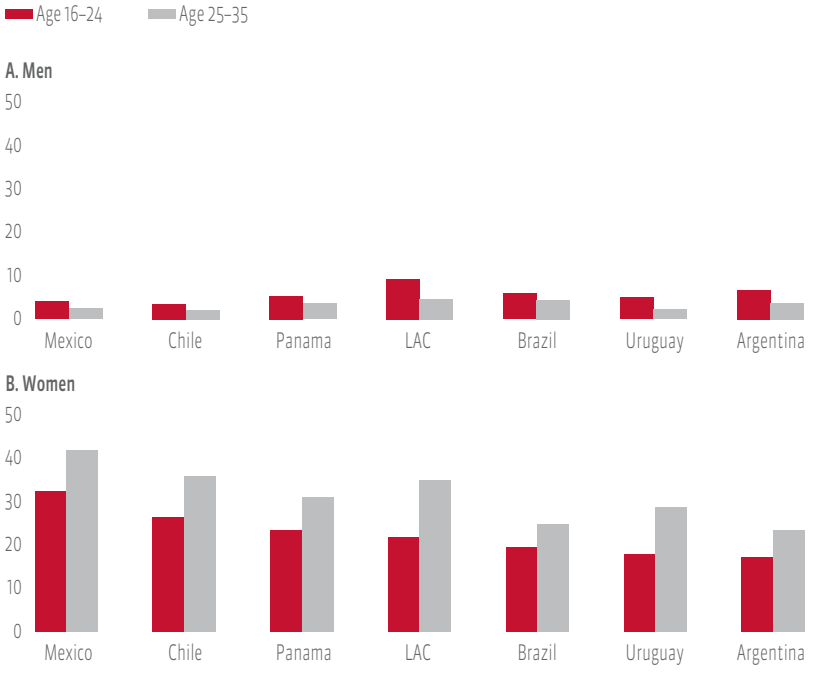
A breakdown of data by gender shows that ninis are significantly more likely to be women (figure 2.15).[22] Also, the fact that the proportion of ninis does not decrease, but instead increases with age, can be traced to the low labor-force participation of women aged 25–35. Among young adult women, 31 percent are neither in school nor working, compared with just 4 percent of men in the same age bracket. Among youths aged 16–24, female ninis are also more common than the male variety: 24 percent of young women are ninis as opposed to 6 percent of young men.

[22] Box 2.1 presents in graphic form additional evidence of the low level of female participation in the labor force. The low level is even more evident when Latin America is compared with the United States.

Figure 2.15

Latin American men and women who are neither working nor in school

(*%, late 2000s*)



Source: SEDLAC (2009).

The proportion of women in Latin America's inactive population is high in international terms. According to an ILO report (2010), 60 percent of young inactives in the region are women, while in the European Union and the developed economies as a whole the ratio is close to 50 percent. Latin America's share is only slightly below that of South Asia and comparable with the Middle East and North Africa.

The low participation of youth in the labor market could be considered a problem if it acts as *hidden unemployment*—that is, if young people remain inactive because of lack of opportunity in the workplace. The evidence shows that high levels of unemployment discourage youth participation in the labor market (ILO, 2010). In that respect, comparing the trend in the labor-force participation rate of all young people with that of those who say they are outside the education system may shed light on the reason for the stagnation in labor-force participation among young people in Latin America.

At one extreme, if there were an increase only in the number of young people who continue studying (holding constant the willingness to work), the total youth participation rate would fall, but the rate for those outside the

education system would not change. (The percentage of those young people as a share of the total would be lower, but not their labor-force participation.) At the other extreme, if there were a decrease only in the number of young people outside the education system who were looking for work and who became inactive because of lack of opportunities, then both indicators would decrease: the participation rate for all youth and that of those not in school. Divergence in the trends of participation of these groups would suggest that the education effect was dominant, while if both indicators moved together it could represent a disincentive effect—that is, lack of employment opportunities for young people.

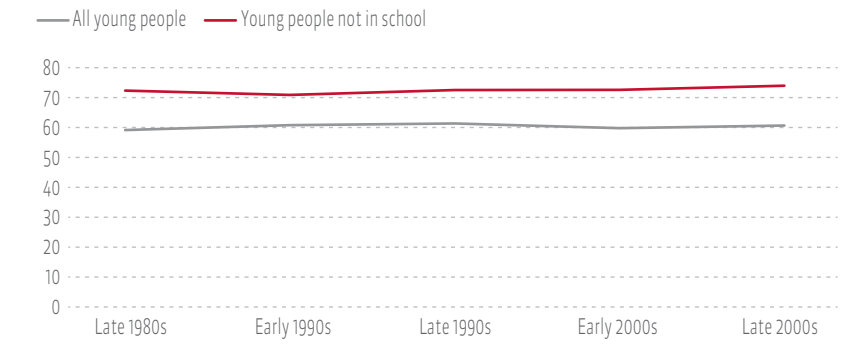
For the sample of Latin American countries used here, the figures show that in general the indicators have moved in parallel and are stagnating (figure 2.16). By country, the data are mixed (table 2.6). In Chile, Brazil, El Salvador, Honduras, and Costa Rica, the gap appears to have widened following the decline—or stagnation—of total youth participation and a slight increase in those not in school. In the case of Brazil, both groups (those not in school and all youth) show very similar and relatively high levels of labor force participation (close to 70 percent). What is surprising is the lack (except in Panama) of overall growth in the labor-force participation of young people who remain outside the education system, which is another way of viewing the nini phenomenon described above.

These findings lead to the conclusion that, still, a significant number of young Latin Americans—especially women—are neither in school nor in the labor market. Thus, the ninis constitute one of the most vulnerable groups of young people today. Their presence in such high numbers reflects the untenability of their employment situation, which may be affected by the obsolescence of the skills they acquired in school. Those skills may no longer be enough to make it in an increasingly demanding and competitive labor market.

Figure 2.16

Labor force participation rate of young people in Latin America, 1980–2010

(*%, all young people and young people not in school*)



Source: SEDLAC (2009).

Table 2.6

Labor force participation rate of young people in Latin America, by country, early 1990s to late 2000s

(*%, All young people and young people not in school*)

	Early 1990s	Late 2000s	Change
Argentina			
All youth	57.9	54.0	–3.9
Youth not in school	78.8	74.0	–4.9
Brazil			
All youth	68.9	68.2	–0.8
Youth not in school	74.8	77.3	2.5
Chile			
All youth	44.3	40.2	–4.1
Youth not in school	64.9	66.2	1.3
Costa Rica			
All youth	57.0	53.6	–3.3
Youth not in school	68.7	72.3	3.6
El Salvador			
All youth	52.9	50.7	–2.2
Youth not in school	63.4	66.3	2.9
Honduras			
All youth	53.6	52.6	–1.0
Youth not in school	62.2	63.3	1.1
Mexico			
All youth	52.8	54.1	1.3
Youth not in school	64.7	70.8	6.1
Panama			
All youth	45.3	52.8	7.5
Youth not in school	62.4	72.8	10.4
Uruguay			
All youth	64.2	57.8	–6.3
Youth not in school	83.1	77.0	–6.1
Venezuela			
All youth	47.7	51.3	3.6
Youth not in school	65.0	66.3	1.3

Source: SEDLAC (2009).

Box 2.1

Latin America versus the United States: High unemployment, particularly among young people and women

To understand the labor-market situation for youth and adults in the region, it is useful to make comparisons with trends in developed countries. This box compares the labor situation of men and women in Latin America with their counterparts in the United States. This is not done to explain the gap between the two economies, but to identify, by age group, differences in trends in labor-force participation, employment, and unemployment.

The comparison yields two clear findings. First, the differences in labor-force participation are among women, particularly young women. Latin American men have similar participation rates as their peers in the United States, both among adults and the young. Second, there are significant differences in unemployment among both men and women. Especially salient is the general increase in unemployment in Latin America, a trend that is most acute among young people.

The following graphs summarize the trends in labor-force participation, employment, and unemployment in Latin America and the United States for youth and adults, as well as women and men. Panel A shows the *labor-force participation rate* for these groups in both regions. The low labor-force participation rate of young people suggests that this group is increasingly delaying their entry into the labor market so as to invest more time in education and so increase their human capital. But the apparent delay could also result from discouragement caused by high rates of youth unemployment or the poor quality of employment opportunities. The difficulties in finding a good job could mean that temporary unemployment ends up as a permanent withdrawal from the labor force.

Youth labor-force participation is similar in both regions and less than the participation rate of adults. It has remained relatively constant since the early 1990s, with a slight downward trend among youth in the United States. The proportion of labor-force participation by young people and adults fell slightly (–0.08) in both cases, although in Latin America the drop is explained by the increased participation of adults, whereas in the United States it results from lower youth participation.

But the most notable difference in this international comparison is clearly among women. In the United States, levels of female labor-force participation are significantly higher than in Latin America. At the beginning of the period, the participation of young women (aged 16–24) in the United States was even higher than for adults in Latin America. Among young women in Latin America, labor-force participation remained at very low levels, while adult women entered the labor market in growing numbers. In fact, in Latin America only about 40 percent of women under 25 participate in the labor market, versus 60 percent in the United States. This proportion has increased only slightly, especially compared with adult women.[1]

There is abundant literature on the factors behind the increase in female participation in the United States and other developed countries (where the same phenomenon occurred in the second half of the twentieth century), and in Latin America. Several studies link this trend to higher levels of education, cultural factors, wage improvements, and labor-saving household appliances, among other factors. But the salient fact in the context of this chapter is the low and relatively stable rate of participation of young Latin American women in the labor market.

(*continued on next page*)

Box 2.1 (*continued*)

Latin America versus the United States: High unemployment, particularly among young people and women

The question, then, is whether these levels of participation primarily reflect (i) a high level of inactivity among young women who are neither in school nor working, or (ii) additional time spent in secondary and higher education. The problem posed by the first case would be the more serious one, even if there were a wide margin for young Latin American women to increase their participation in the labor market.

Panel B of the figure shows that *employment rates* for both adults and youth are higher in the United States than in Latin America. Adults have higher employment rates than young people in both economies, although the gap between youth and adults has widened in Latin America, so that young people now represent a smaller proportion of total employment than they did 20 years ago. In the early 1990s, youth employment was 71 percent of adult employment; by the late 2000s that figure had fallen to 61 percent. The drop mainly reflects the increase in the participation of adult women (not young women, partly because young women were acquiring more education). In the United States over the same period, youth employment as a share of adult employment fell from 74 percent to 68 percent.

Again, there are significant gender differences: Employment rates for men are similar in Latin America and the United States, but for women there are significant differences. Although employment among adult women is growing in Latin America, employment among young women remains low at about 30 percent—only one in three young Latin American women engages in paid work.

Finally, panel C shows *unemployment rates,* one of the basic indicators of youth labor problems, which are becoming even more serious in the region. Young people in both Latin America and the United States face higher unemployment than adults. Although higher unemployment increases the vulnerability of young people, it does not necessarily reflect a weak employment outlook overall. Economists who specialize in this topic have offered various arguments in support of this assertion, including the short duration of contracts for young people (Leighton and Mincer, 1979) and the fact that the transition to stable employment requires shopping to find a job that matches one's aspirations and skills (Mortensen and Pissarides, 1999). On the other hand, another extensive branch of this specialized literature argues that unemployment can have lasting consequences because it sends a bad signal to future employers, while also limiting the future options of the unemployed (Spence, 1973).[2]

In Latin America, the problem appears in the growing—and even accelerating—trend of unemployment among young people making the transition from school to the labor market. That trend stands in contrast to the United States, where unemployment fell for young and adult workers, men and women alike, during the period. The widest gap between the two regions is again among young women, who in Latin America face an unemployment rate close to 25 percent—about 15 percentage points higher than their U.S. counterparts and adult women in the region.

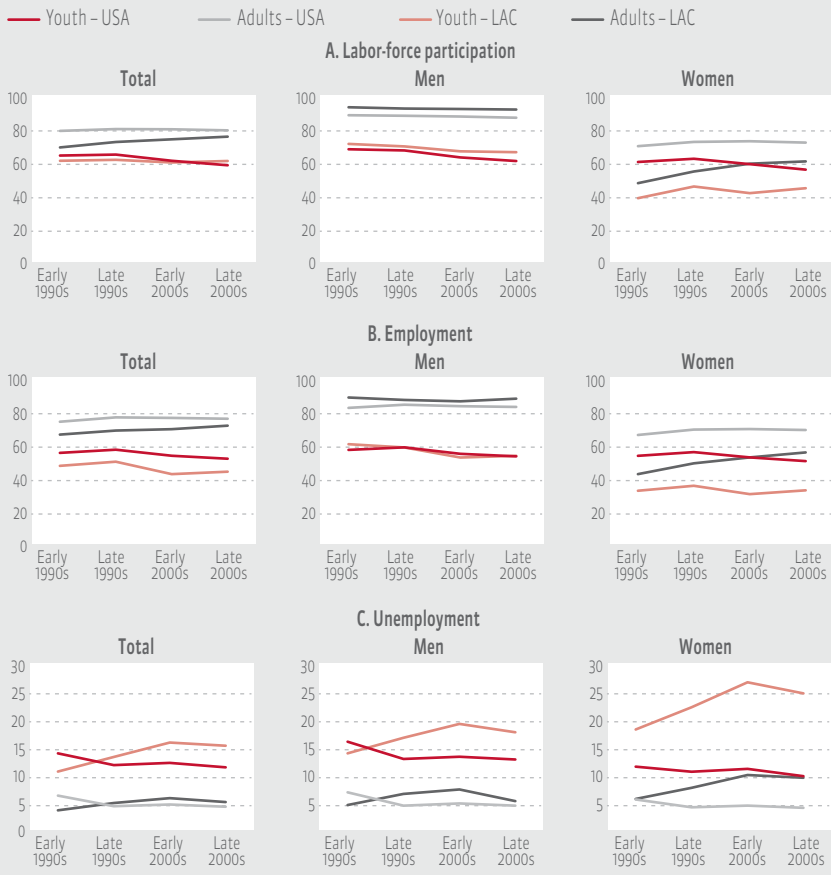
In summary, comparisons of the labor situation of young people in Latin America and the developed economies yield two warning signs: (i) low and stagnating labor-market participation, which may not be entirely traceable to expanded access to higher education; and (ii) high unemployment, which makes it hard for young people who decide to work to find an occupation. In both cases, women are the most-affected group.

(*continued on next page*)

Box 2.1 (*continued*)

Latin America versus the United States: High unemployment, particularly among young people and women

Labor trends for youth and adults in Latin America and the United States, 1990–2010



Source: Bassi and Galiani (2009) using data from SEDLAC (2009) and annual current population survey (March).

[1] *The subject of female labor-force participation in Latin America has been extensively studied. See, for example, the analysis in IDB (1999).*

[2] *Bassi and Galiani (2009) include a brief review of the literature on the impact of long-term unemployment, which begins almost half a century ago with works such as those of Becker (1964) and Spence (1973). The most recent studies, which aim to prove empirically the existence of long-term after-effects of unemployment, include those of Arulampalam, Booth, and Taylor (2000), Gregg and Tominey (2004), Jacobson, Lalonde, and Sullivan (1993), Mroz and Savage (2001), Rhum (1991), and Stevens (1997).*

Educational supply: Changing the recipe?

This chapter has shown that over the past three decades important changes occurred in the labor market for young people in Latin America. The supply of workers with secondary education grew sharply as a result of a massive increase in the coverage of the region's education systems, exerting downward pressure on wages. At the same time, the skills represented by a secondary-school diploma do not appear to be as highly valued by the labor market as they were at the start of the period under study. Conversely, increased demand for workers with higher education (resulting from technological change, trade liberalization, and policy reforms) has raised the wage premium attached to higher education (especially among adults), which contributes to the relative loss for workers with secondary education.

With the average youth wage stagnant (both in real terms and in comparison with adult workers), unemployment high, and informality on the rise, the labor outlook for the young in Latin America today is not promising. Whatever the explanation for these circumstances, an analysis is needed of the extent to which the labor problems of young people, particularly those with secondary education, can be traced to the quality of their education—in other words, to a disconnect between the skills demanded by the market and those that Latin American schools continue to teach.

The evidence from the United States, which in the 1980s went through a similar situation that affected workers with secondary education, shows that employers seek workers with complex skills as well as nonroutine manual skills. Routine skills, by contrast, have steadily been replaced by technology, resulting in job losses in the occupations historically performed by workers with secondary education.

In this context, it becomes necessary to analyze the effectiveness of the education system in preparing young people for successful entry into the changing world of work and equipping them with the skills they need to perform well in their careers and lives. Although there is a wide range of possible responses to these problems, the aim of this book is to understand the role the school currently plays—and can potentially play—in this process. The next chapter discusses the state of education in Latin America to determine whether or not education systems are imparting to young people the competencies and skills that the labor market will demand of them.

3

The Education System: Quantity without Quality

Accumulating human capital: Education is key

In the 1960s the economist Gary Becker coined the term *human capital* to describe certain assets that, despite being intangible, are nonetheless critically important to economic and social welfare. Becker explained that education, training, investments in health, and even punctuality and honesty are capital, since they contribute to higher earnings, better health, and good habits that pay off over a lifetime. In this sense, generating human capital—both quantitatively and qualitatively, including education, one of its main components, leads to a higher quality of life for individuals and greater social welfare.[1]

Specialized literature has shown that a positive relationship exists between education (measured in years of schooling) and economic development, and more recently, between educational quality (measured in terms of developed cognitive abilities[2]) and economic development (see chapter 4). There is also evidence that the cognitive and socioemotional skills (personality traits[3]) affect education achievements, salaries and employment opportunities (Murnane,

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[1] Becker (1964, 1993) suggests that education is the most important source of human capital, knowledge, and the abilities that enable personal development.

[2] Based on the Third International Math and Science Study (TIMSS), Hanushek and Kimko (2000) suggest that results in math and science have a significant, consistent, and stable impact on economic growth. Lee and Barro (2001), also using TIMSS data, distinguish between quantity (measured in years of schooling) and quality (measured in internationally comparable test results); they too suggest that although both quantity and quality are important for economic growth, quality has a higher impact. Likewise, Hanushek and Woessmann (2009) propose that the deficient economic performance of the region can be explained by the TIMSS and PISA evaluations, which show low levels of knowledge and cognitive skills in the areas of reading, math, and science.

[3] Often referred to as noncognitive skills.

Willet, and Levy, 1995; Currie and Thomas, 1999; Heckman, Stixrud, and Urzúa, 2006; Cunha et al. 2006).

To understand how education systems affect the job prospects and performance of Latin American youth (discussed in the previous chapter), this chapter analyzes both the quantity and quality of schooling offered in countries across the region. In the process the chapter poses several key questions: How is the region doing in terms of education? After a well documented increase in the access to the education system, did more years in school translate into more knowledge and more job-relevant skills?

Widening access to education

Schools in Latin America are not keeping up with the challenges of today's fast-changing and increasingly competitive labor market. The system's capacity to absorb students has increased substantially, but the same cannot be said of its capacity to keep them in school or to impart the skills and competencies that they need to make a successful transition into the labor market. When this situation is compared against the evidence emerging from countries in other regions, it becomes clear that although the coverage gap has narrowed, the gap in skills and competencies has widened. As a result, the region is facing a serious risk of a cumulative setback in education compared with a good part of the world.

Over the past two decades, the countries of Latin America and the Caribbean have registered significant increases in levels of access to education for children and young people (figure 3.1). In fact, growth in educational access has been faster here than in the rest of the world. That success is due to specific and deliberate government policy, including legal measures to expand compulsory schooling and greater investment in education. New investment has financed the growth of educational supply, both in terms of infrastructure and teaching personnel.

On average, public spending on education in 14 selected countries (as a percentage of gross domestic product, GDP) increased from 3.66 percent in the second half of the 1990s to 3.91 percent toward the end of the 2000s (table 3.1). This includes changes of more than half a percentage point in countries such as Argentina, Bolivia, the Dominican Republic, El Salvador, Guatemala, Mexico, and Uruguay.

Most countries in the region require children to receive 9 years of education (also known as basic secondary schooling); the compulsory period is extended in some countries to 12 years—a complete secondary education.[4]

[4] López (2007) analyzes the new education laws in Latin America and highlights the clear trend toward longer periods of compulsory schooling.

By rewarding parents for sending their children to school and keeping them there, the conditional cash-transfer programs that have been implemented in the region over the past 20 years promote both school enrollment and

Figure 3.1

School attendance rates in Latin America and the Caribbean, 1990–2000

(%)

Source: Authors' calculations, based on data from the Homogenized Household Surveys (IDB, 2009).

Table 3.1

Public spending on education

(*Percentage of GDP*)

	1996–1998	2006–2008	Change
Argentina	4.04	4.93	0.89
Bolivia	5.52	6.31	0.79
Brazil	4.87	5.08	0.22
Chile	3.43	3.40	–0.04
Colombia	3.93	4.06	0.13
Costa Rica	4.87	4.74	–0.12
Dominican Republic	1.23	2.19	0.95
El Salvador	2.32	3.01	0.69
Guatemala	1.56	3.04	1.48
Mexico	4.21	4.77	0.56
Panama	4.84	3.83	–1.01
Paraguay	4.91	4.00	–0.91
Peru	3.21	2.51	–0.70
Uruguay	2.24	2.85	0.60
Latin America	3.66	3.91	0.25

Source: UNESCO Institute for Statistics Data Centre (2010).

attendance[5] and appear to have succeeded in encouraging demand for education.[6] Although the methods and design of these programs, together with the level of compliance and conditions, vary from country to country, all make the payment of benefits conditional on the school attendance of minors.

The rapid growth in access and attendance seen in most countries of the region has occurred at all educational levels (preschool, primary, and secondary), albeit with a more pronounced increase at the preschool level (students aged 4–5) and the secondary level (13–17). It has been less substantial at the primary level, because primary coverage—already relatively high 10 years ago—is now practically universal.

Halfway there

Although it is true that the widening of access in recent years has been accompanied by an increase in graduation rates at all educational levels, those rates remain inadequate, particularly at the secondary level. Leaving aside for the moment the level of learning, competency, and skill of the region's secondary-school graduates, the low secondary graduation rate suggests that a large proportion of young people are not obtaining the minimum credential they need to enter the labor market. Growing numbers of jobs now require applicants to have a secondary-school diploma, even for low-productivity, low-paid work.

The completion rate for basic secondary education (among all students who enroll and finish the first year) has increased in most countries in the region—but not by much. Of the 10 Latin American countries analyzed in chapter 2, only two have shown a (slight) drop in the completion rate (table 3.2). The advances in the other eight have been moderate, on average: from 50 percent in the early 1990s to 54 percent at the end of the 2000s. This means that, at most, only 54 percent of students aged 15–24 who start the secondary cycle actually complete it. This statement, however, masks the differences observed across the region. In Honduras, only 38 percent of those who start secondary education finish it, whereas in Chile the rate is 78 percent. Several studies have shown that the highest dropout rate from secondary school is seen in the first two years.[7]

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[5] *Oportunidades* program in México, *Familias en Acción* in Colombia, and *Bolsa Familia* in Brazil, among many others.

[6] Fiszbein and Schady (2009) review the literature on this theme. In their table 5.1 (page 128) they report the impact of transfer programs conditioned on school enrollment and attendance in seven Latin American countries and four developing countries outside the region. The effects reported are generally positive and statistically significant.

[7] For example, De Janvry and Sadoulet (2006) and Schady and Araújo (2008) show the continuation rates for Mexico and Ecuador, respectively, as falling in the last years of primary education (sixth grade) and in the first two years of secondary education. This in turn means that the data on dropouts—including for those who leave school in the

Table 3.2

Conditional secondary-school graduation rates in selected countries, 1990–2010

(*%, individuals aged 14 to 25 in urban areas*)

	Early 1990s	Late 2000s	Change
Argentina	49	52	4
Brazil	60	64	3
Chile	67	73	6
Costa Rica	54	52	–2
El Salvador	48	55	7
Honduras	36	38	2
Mexico	40	45	6
Panama	55	54	–0
Uruguay	40	48	9
Venezuela	47	54	7
Latin America	50	54	4

Source: Sociómetro-BID (IDB, 2011a).
Note: Graduation rates for all students who enter and finish the first year of secondary education.

The figures show that Latin American education systems still have not managed to convert the financial, human, and institutional resources invested in widening access to education into higher graduation rates.

In other words, supply-side policies, with a strong emphasis on educational infrastructure and teachers' salaries (supplemented in many countries by conditional cash transfer programs), have widened access to education but have not kept students from dropping out at alarming rates, particularly from secondary school. This may suggest an imbalance between educational policies that have favored the financing of inputs (such as infrastructure and teachers' salaries) over those that emphasize concrete results, such as the number of students finishing secondary school. The fact that only half of the young people in the region manage to complete secondary education places a huge question mark over the competitive capacity of Latin American countries to confront the challenges of a globalized society.

Completing secondary school: A long road

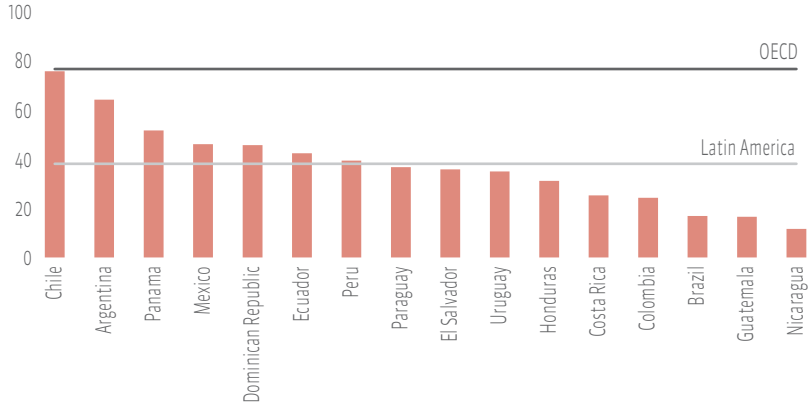
One point of reference and comparison in terms of education achievement is the Organisation for Economic Co-operation and Development (OECD), whose economies are the most advanced in the world and whose education indicators

first year—would be greater than are shown in table 3.2, which comprises only the pool of students who complete at least the first year.

Figure 3.2

Rate of completion of secondary education (12 years of school)

(*% of people aged 20 to 24*)



Source: Authors' calculations, based on the Homogenized Household Survey database (IDB, 2009).

have been, for many years, a reference for countries in the region, especially those that have made the greatest gains. That OECD governments concerns about the quality and performance of their own education systems suggests widespread agreement that education, and particularly education of high quality, is a key factor in the ability of their economies to compete successfully in a globalized world.

The indicators of Latin America and the Caribbean compare poorly with those of the OECD. Almost 80 percent of young people in the OECD countries graduate from secondary school (without limiting the pool to those who complete the first year); in Latin America this figure barely approaches 38 percent[8]—a gap of more than 40 points (figure 3.2). The enormous gap between the number of young people who begin secondary education and those who complete it is an alarm bell for the region and an indicator of high inefficiency. It has already been shown that, despite the region's impressive improvements in educational access over the past 20 years, its educational investments appear to be frustrated by the inability of regional education systems to retain students. This does not bode well for the younger generation.

[8] The graduation rate for the OECD is 75.8 percent, a calculation based on figures by Barro and Lee (2010) that exclude Mexico and Chile (which are members of the OECD). The figure covers the percentage of the population from each age group that reach a grade in the first phase of secondary education (middle school) and that complete secondary education. Unlike table 3.2, these figures are not limited to the pool of students who begin secondary school or complete at least the first year. Calculations based on the EuroStat figures (2010) for the European countries only yield a similar proportion of graduates (76.9 percent).

Access to education: Still unequal and insufficient

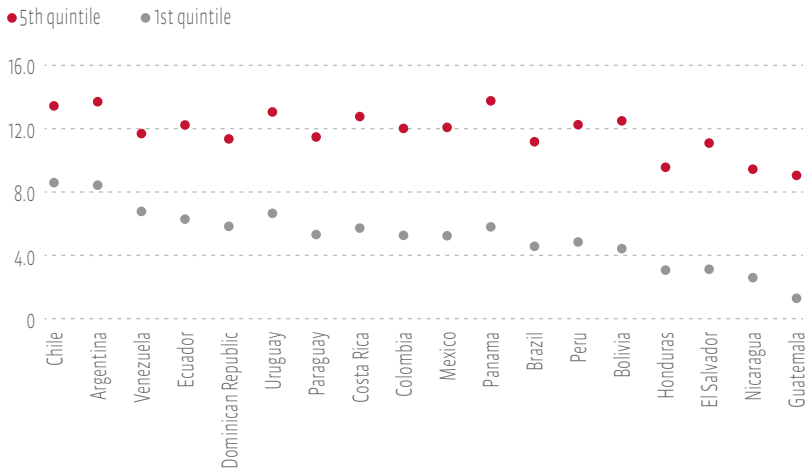
The new students being brought into the education system, particularly into secondary school, belong to low-income families that traditionally had been excluded from it. But it is also these students who leave school prematurely and do not manage to complete full levels of education. Only 30 percent of young people from the quintile comprising the poorest students and those from rural areas actually complete their secondary education, compared with 83 percent of those from the wealthiest quintile and 60 percent of those from urban areas (IDB, 2011a).

At the start of the 1990s, adults in the region had an average of 7 years of education; today that figure is more than 9 years, or equivalent to the first phase of secondary school. Looking at that increase across the quintiles with the highest and lowest incomes, it is apparent that the advance in the highest-income quintile was from 10 to 12 years of education (equivalent to the completion of secondary school). In the poorest quintile, by contrast, the advance was from 3 to 5 years of education (equivalent to an incomplete primary education). In other words, there is a difference of 7 years of education between the richest and poorest parts of the population, and this has remained constant over the past 20 years. The inequality across income groups is shown in figure 3.3, which reports the difference between the average number of years of education of the top- and bottom-income quintiles in each country—from 5 years in the case of Chile, to over 8 years in Bolivia.

Figure 3.3

Average years of schooling, by income quintile

(*Population aged 25 and over*)

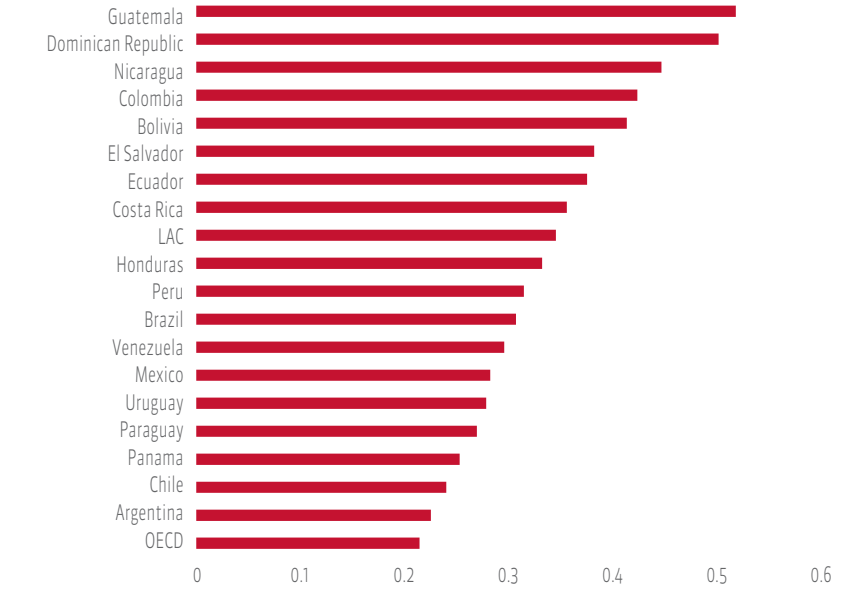


Source: SEDLAC (2009).

Figure 3.4

Inequality in years of education completed

(*Gini coefficient, 1999*)



Source: Földvári and van Leeuwen (2011).

The importance of family and socioeconomic variables to education results has been widely documented in the specialized literature (Behrman and Knowles, 1999; Heckman, Stixrud, and Urzúa, 2006). The economic status of the family not only determines the type of schools that children attend[9] but can also determine—especially in low-income households—whether children begin to work at an early age. Similarly, because parents of lower socioeconomic status tend to have fewer years of schooling than those of higher socioeconomic status, it is to be expected that their children complete fewer years of education than those from more affluent families.

This inequality, expressed in terms of years of schooling completed by children and young people from homes of different socioeconomic levels, is nothing new, especially in the Latin American context. Educational inequalities are more pronounced in the region than in other parts of the world, notably the OECD. The inequality indicator used in figure 3.4 is the Gini coefficient for education, a traditional measure of income dispersion which can also approximate

[9] In Latin America, families with higher incomes generally send their children to private schools.

the magnitude of educational inequality between countries. It ranges from 0 to 1 and the greater the coefficient, the greater the inequality. The Gini coefficient based on the years of education attained in each country indicate that Latin America has maintained high levels of inequality compared with other, more developed regions. Whereas the average Gini coefficient in Latin America was 0.34 at the end of the 1990s, in the OECD countries it was 0.21. It should be noted that the data from Földvári and van Leeuwen (2011) for the 1980s shows a drop in educational inequality in Latin America and the Caribbean—from a Gini of nearly 0.36. But the gap with developed nations is still substantial. Meanwhile, the OECD countries are more homogeneous in terms of years of schooling than the 18 Latin American countries included in figure 3.4.

Students who leave secondary school early come generally, but not exclusively, from poor households. They also have the highest rate of grade repetition, which often precedes dropping out. Unfortunately, there is a lack of comparable data between countries that might make possible a rigorous regional analysis of the causes of the high dropout rates. Several individual countries, however, have collected descriptive information through general household surveys on why students leave school. In a study of eight Latin American countries, Espíndola and León (2002) consider two sets of reasons. Firstly, factors related to the family socioeconomic context appear as important determinants of dropout in this study. Young people from broken families and those living in circumstances of poverty, marginalization, and violence tend to leave school early. The second set of reasons for giving up on school include factors related to the structure and responsiveness of the school system. Where teachers and staff are not trained to support pupils who come to school with behavior problems or cognitive disabilities associated with situations of poverty and violence, an adverse environment is created that often discourages students from continuing school.

The authors report that in seven of the eight countries considered, economic concerns rank high among the reasons that young people give for dropping out of school. Lack of interest is another, cited more often than poor school performance.

In contrast, a study on school dropout rates in Brazil, carried out by the Getulio Vargas Foundation (FGV, 2009), concluded that among youth aged 15 to 17—the years, when students are most likely to drop out,—lack of interest was the main reason cited for leaving school. Over 40 percent of the young people surveyed stated this as their cause, followed by 27 percent who cited economic reasons or job-seeking, and 11 percent who mentioned difficulty in access (such as the distance to school, availability of public transport, and so on).

Other studies on the causes of school dropouts in Latin America point to reasons of both supply and demand among the main factors (for Mexico, see Abril et al., 2008; for Chile, see Santos, 2009). Traditionally, the reasons coming from the demand side has been addressed through the provision of cash

transfers or other subsidies conditional on school attendance, as noted earlier. But the latest evidence points increasingly to the supply side factors, notably the lack of relevance of the academic programs offered in school and the absence of further educational opportunities beyond secondary school. (see, for example, Cabrol and Heinrich, 2004.) This last reason may discourage young people from successfully finishing secondary school.

The urgency of transforming secondary education into relevant and appealing training that can slow the school dropout rate among young people is more and more evident. However, other policies and programs may exert an influence on students' decisions whether or not to stay in school and should be analyzed in order to improve secondary graduation rates. Among those policies and programs are the following: (i) conditional cash transfer programs to encourage school attendance at various educational levels—primary, basic secondary (9 years), and complete secondary (12 years); (ii) programs to improve the transition between primary and secondary education with an eye to reducing the high repetition rates observed in the first year of secondary education in many countries of the region[10]; and (iii) postsecondary options and opportunities and their impact on school retention and completion of secondary education.[11]

Finally, the effective supply of jobs for secondary-school graduates (see chapter 6) should be analyzed. Students and their families need to be made aware of the benefits of finishing secondary education, in terms of both job opportunities and earning power.

What about quality? The evidence from PISA

Since the early 1990s, the region has seen significant advances in the development of evaluation systems (box 3.1).[12] Numerous countries have implemented systems to measure academic knowledge and performance; more recently, some have progressed in the development of systems to assess competencies. Meanwhile, many have participated in international comparative assessments. In 2007 a total of 16 Latin American countries took part in the Second Regional Comparative and Explanatory Regional Study (SERCE)[13] for pupils in the third

[10] For instance, in the case of Uruguay, the repetition rate for the first year of secondary school reached 40.5 percent in 2008 (Corbo, 2010). For the period 1998–2006, the rate fluctuated between 36 percent and 44 percent (Cardozo, 2010).

[11] The Chilean case can be analyzed from this perspective. In that country, the expansion of access to and completion of secondary education has gone hand in hand with an explosive growth in the supply of postsecondary education.

[12] Chile and Colombia started to develop their school evaluation systems in the 1980s.

[13] The more recent research based on the SERCE confirms two recurring topics in the educational literature: the substantial impact of the socioeconomic status of the family (Duarte, Bos, and Moreno, 2010a) and the concurrent role played in learning by school resources and processes (Duarte, Bos, and Moreno, 2010b).

Box 3.1

Systems for the assessment of academic knowledge and performance in Argentina, Brazil, and Chile

Argentina, Brazil, and Chile all developed systems of assessment of school performance and participate in international comparative tests. The national tests in Brazil and Chile are census based, whereas the Argentine test is based on a sample. The level of dissemination of the results is considerably higher in Brazil and Chile than in Argentina. Also, in the first two countries the results are used more widely, not only as a source of information and feedback on student performance vis-à-vis the education system, schools, parents, and the students themselves, but also as an incentive for the improvement of quality indicators. The Brazilian and Chilean systems include specific goals. In Brazil those goals are aligned with national objectives for the international tests, such as PISA, which serve as a reference point in tracking the results of the education system. This element appears to be absent, to a great extent, in the case of Argentina. The evaluation processes of the three countries are described below.

Argentina. The National Assessment Operations (Operativos Nacionales de Evaluación, ONE) have been carried out periodically in the country's 24 jurisdictions since 1993. The ONEs use sample evaluations that are completed in both public and private schools in rural and urban areas. Math, language, and science components are assessed in the third and sixth grades at the primary level, and in the eighth, eleventh, and twelfth grades at the secondary level.[1] The ONEs are administered to gather accurate and reliable data on what students have learned in the educational process, with the understanding that such information is a useful input in the design of educational policies and the improvement of institutional management, the learning process, pedagogical practices, and other aspects of educational quality.[2] The country's educational authorities hope that ONE results will find their way into national and international studies conducted by school systems, universities, research institutes, and others interested in educational processes. The National Directorate of Information and Evaluation of Educational Quality (DiNIECE), which publishes the ONE results, also prepares pedagogical analyses containing methodological recommendations, teaching guidelines, learning aids, and other studies for use by teachers, administrators, and staff to improve the learning process. The published results shows the performance of each jurisdiction in the knowledge areas and subjects assessed.

The sample-based design of the evaluation permits a representative diagnosis but limits the possibilities of returning results to the evaluated institutions. Census-based information would enable comparisons between the different disciplines evaluated with respect to the average, the highest result, and a desirable or optimum result that could be fixed as an institutional, provincial, or national goal. Under current regulations,[3] DiNIECE safeguards the identity of students, teaching staff, and educational institutions to avoid stigmatization. But there are plans to report to the schools the results of the 2010 ONE evaluation, which was census-based at the secondary level. It is worth noting the low external impact that this subject has among the players in the

(*continued on next page*)

Box 3.1 (*continued*)

Systems for the assessment of academic knowledge and performance in Argentina, Brazil, and Chile

education system. The results are seldom mentioned in public debates, in the media, in Congress, or in salary negotiations with teaching staff.

Brazil. Established in 2005, the Index of Basic Educational Development (Índice de Desarrollo Educativo Básico, IDEB) seems to have been a catalyst for the improvement of teaching by providing an effective system of accountability. The IDEB is based on a national evaluation of the teaching of Portuguese and math to students between grades 4 and 8, and of performance in promotion, repetition, and graduation of students in grade 11 in Brazil's 200,000 public and private schools. The data on each school are converted into an index from 1 to 10. The federal government sets objectives to be met by each educational center every two years, based on their performance. The biennial objectives have been set from 2005 to 2021. They are calibrated to Brazil's goal of matching the average PISA scores by 2021.

Working with the municipality and monitored by the state government, each school develops a strategic plan for improvement and progress that is consistent with the established goals. The IDEB results are distributed at the school, municipal, state, and national levels. Parents, students, and the community have access to the information. Because of the emphasis placed on comparing the established objectives with the actual situation that emerges from the IDEB, communities push their schools to improve. Schools that show significant progress are given greater autonomy in their decisions, while those that persist in their low achievement receive additional attention and technical support.

Chile. The National System of Education Quality (Sistema Nacional de la Calidad de la Educación, SIMCE) defines its objectives as contributing to the quality and equity of education through the dissemination of results on the performance of students. The system was initiated in the 1980s and has steadily expanded and improved. Currently, it evaluates the achievement of objectives and minimum content requirements in language, math, and natural and social sciences for grades 4, 8, and 10. In 2010 English was also evaluated for grade 11. The SIMCE evaluations are census based and cover all pupils and schools—public and private—in the country.

The dissemination and use of results has become a central aspect of SIMCE's activities. Data are disseminated at three levels: (i) the Ministry of Education, to be employed as an instrument for the monitoring and evaluation of performance by area, of schools and specific programs, and of incentives; (ii) school teachers and principals, to be used as a tool for monitoring courses, students, programs, and teaching practices, and for setting goals; and (iii) parents and families, to enable them to evaluate their children's performance compared with their peers, and to make comparisons between schools. In this sense, the dissemination of the results is viewed as being consistent with freedom of choice for parents (in that it refers to their children's schools, public or private) and with a system of resource allocation based on the number of students at each school. The information divulged by the Ministry of Education depends on the

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Box 3.1 (*continued*)

Systems for the assessment of academic knowledge and performance in Argentina, Brazil, and Chile

social context and legal status of each school. Chile is planning to create an educational quality agency that will be responsible for assessing learning and school quality, and for disseminating those assessments.

The Chilean system for evaluating educational performance has been a pioneer in Latin America and the Caribbean. It may have the best capacity for dissemination and, as such, the greatest impact on public opinion through distribution of the results of educational evaluations. But SIMCE could do a better job in helping parents understand and interpret its results, for example, to make decisions about school selection.

Source: Information compiled by the authors.

[1] As of 2000, the ONE was carried out annually. Starting in 2002–03 it has been done every two years. By 2007, 12 ONEs had been completed. The last was concluded in 2009–10.

[2] Argentina's new national education law provides that the goals of the ONE are: (i) to evaluate national student achievement in terms of skills and content at various levels and in various areas; and (ii) to provide statistical and pedagogical inputs from the "evaluation of student learning and associated factors" to improve the development of educational policies through information that reflects real conditions in the classroom.

[3] The National Education Law no. 26.206, article 97, and annex I of CFE Resolution no. 116/10.

and sixth grades. Six Latin American countries (out of 57) participated in the 2006 Programme for International Student Assessment (PISA); nine in the 2009 PISA. Some countries in the region have also taken part in the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading Literacy Study (PIRLS), and Civic and Citizenship Education (ICCS), all conducted by the International Association for the Evaluation of Educational Achievement (IEA).

PISA, administered to a sample of 15-year-old students from each participating country, measures fundamental competencies in specific areas of knowledge. It focuses on how well pupils are able to apply knowledge and skills learned in reading, math, and science to real-life problems and challenges, rather than on the amount of knowledge acquired in these areas (with reference to a given curriculum). This is fitting, since, despite the complexity of the concept of *educational quality,* any analysis of the topic must consider both the level of knowledge acquired by pupils in various fields *and* their capacity to apply that knowledge to simulations of real-life situations that they will face in the future.

PISA has been administered every three years since 2000. Managed and coordinated by the OECD, the test is useful for comparative analysis in several ways. First, because it is an assessment of 15-year-old students, it provides a snapshot of the cumulative effect of expanded school attendance—theoretically through the completion of basic secondary education (nine years), the compulsory minimum in many countries of the sample. Second, it makes possible comparisons between countries of the region, and as well as the region

as whole, with other countries and regions worldwide, especially those at a higher level of development.

Little is learned

According to PISA data, at 15 years of age, the levels of learning of students in Latin America and the Caribbean are in the lower third of participating nations and well below the mean (figure 3.5). For the vast majority of countries in the region, the point gap compared with the OECD countries is very large in language as well as math and science (panels A, B, and C of figure 3.5). Despite the advance registered by some participants in the most recent assessment, the countries of the region are still among the worst in the sample.

The PISA evaluation sorts students into levels of competency based on their capacity to solve problems of various degrees of difficulty and complexity. The results indicate that a very high proportion of students in Latin America and the Caribbean fail to reach what are considered to be the most basic levels of competency. In reading, 8.2 percent of the OECD pupils had a high achievement level (levels 5 and 6); this figure is around 1 percent for students in the region. At the other extreme, the percentage of Latin American students who score below level 2 is extremely high, ranging between 44.5 percent for Mexico and 79.5 percent for Peru. This indicates that around half of young people in the region do not reach the basic level needed to cope effectively and productively with life, compared with 19.3 percent in the OECD countries.

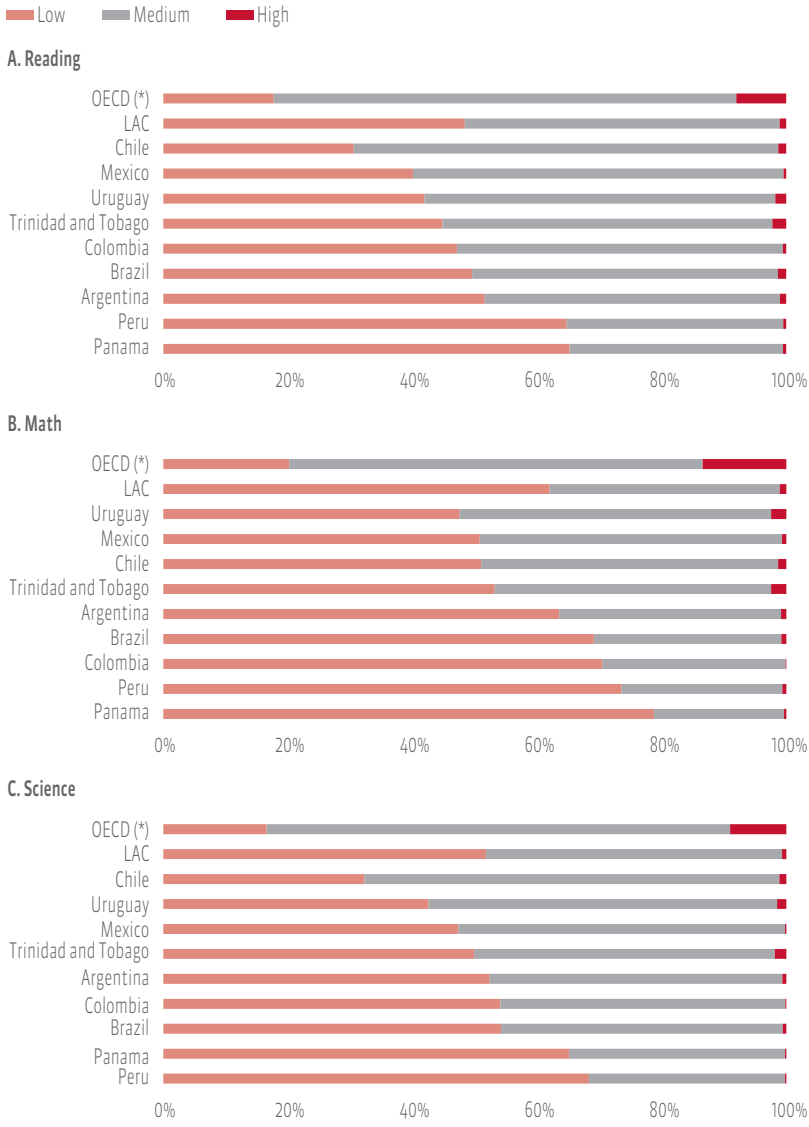
Knowing what to do with what you know

One can get a clearer idea about the skills of students in the region, and their respective levels of competency, by looking at the types of questions presented to them in the PISA test (box 3.2). The data reveal that one in four students (22.4 percent) in the region do not understand what they read in basic texts—one in three in the case of Panama and Peru (OECD, 2010a). These results show a marked contrast with the OECD countries, where the proportion of students unable to respond to questions at this degree of complexity is only 5.3 percent (1 in 20 pupils). In other words, among 15-year-old students in Latin America and the Caribbean, almost one in four is incapable of finding one or more discrete pieces of explicitly identified information, recognizing the principal theme or purpose of the author in a text on a known subject, or making a simple connection between the information in the text and everyday knowledge.

For mathematics, the situation of the countries in the region is even more worrisome: 35 percent of 15-year-old students are unable to identify information and perform routine mathematical operations (close to 50 percent in the

Figure 3.5

Distribution of PISA scores according to levels of performance



Source: OECD (2010a).
Note: In figure 3.5 the lower level of performance corresponds to the percentage of pupils at level 1 or below according to the performance levels measured by PISA (in the case of the reading test, comprehension below level 1b and level 1a). The average level includes students who scored at performance levels 2, 3, or 4. The high level includes students who scored at performance levels 5 or 6.
(*) The average scores for the OECD exclude results for Chile and Mexico.

Box 3.2

Example of a Level 1a question in the PISA 2009 reading test

The Miser and His Gold
(Aesop's Fables)

A miser sold all that he had and bought a piece of gold, which he buried in a hole in the ground next to an old wall where he used to go to see it every day. One of his workers saw the miser visiting the place frequently and decided to watch him. The worker soon discovered the secret of the hidden treasure; he dug down, found the piece of gold and stole it. On his next visit, the miser found the hole empty and began to pull out his hair and complain loudly. A neighbor, knowing the reason and wanting to help him overcome his grief, said to him: "Please don't worry. Take a stone, put it in the hole and imagine that the gold is still there. It will be just as useful to you; because when the gold was there you didn't have it and you never made the least use of it.

Use the fable "The Miser and His Gold" on the previous page to answer the following questions.

Read the sentences and number them according to the sequence of facts described in the text.

- The miser decided to exchange all of his money for a piece of gold.
- A man stole the misers' gold.
- The miser made a hole and hid his treasure there.
- The misers' neighbor told him to replace the gold with a stone.

Source: OECD (2010a).
Note: To receive credit the sequence should be organized in the following way: 1, 3, 2, 4.

cases of Panama and Peru).[14] In other words, only a little more than a third of the region's students can respond correctly to relatively obvious and clearly defined questions based on everyday situations and for which all the relevant information is provided (box 3.3). The proportion of 15-year-old students who lack this skill in the OECD countries is just 7 percent (OECD, 2010a).

Comparing the entire distribution of the PISA test scores in Latin America and in the OECD reveals additional information of the substantial skill gap between the countries of the region and the developed economies. This comparison shows that a large group of the region's students with the highest scores just reach or fall below the average for students in the OECD countries (figure 3.6).

Of course, one finds students in Latin America and the Caribbean whose scores match the average of the best-performing country on the 2009 PISA 2009 (Shanghai, China) as well as students who score at the level of the

[14] Latin American countries tend to favor a model for teaching math that is based on an instrumental understanding of the world, in which the pupil resolves mathematical problems using instruments or formulae. In the alternative focus the importance lies not in the use of formulae but rather in understanding why they work.

Box 3.3

Example of a Level 1 question in the PISA 2009 math test

Currency Exchange

Mei-ling is from Singapore and was preparing to go to South Africa as an exchange student for three months. She needed to change some Singapore dollars (SGd) to rands (ZAR), the currency used in South Africa.

Mei-Ling found out that the exchange rate between the Singapore dollar and the South African rand was 1 SGD = 4.2 ZAR.

Mei-Ling exchanged 3,000 Singapore dollars to South African rands at this rate of exchange. How much money, in South African rands, did Mei-Ling receive?

Source: OECD (2010a).
Note: To receive complete credit for this question the pupil should give the response 12,600 ZAR (unit of currency not required).

worst-performing country on the same test (Kyrgyzstan). But the proportions are completely different. While fewer than 1 percent of pupils in the region reach the average score for Shanghai, China, more than 20 percent are found near the average for Kyrgyzstan (figure 3.7).

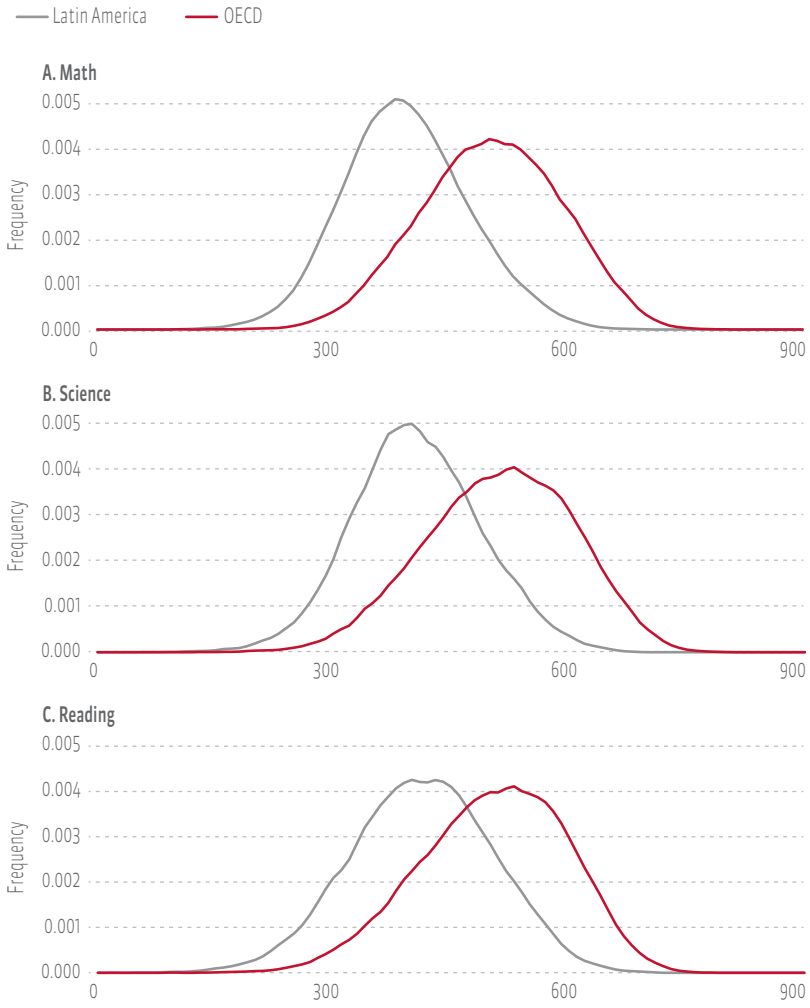
If one were to extrapolate from these results to gauge the prospects for preparing young people to enter the labor market and compete in a globalized market, the conclusions would be discouraging for the region. The countries of Latin America and the Caribbean are closer to the worst in the sample than to the best.

The results of the 2009 PISA tests also show large gaps in academic achievement within each country between students from households of higher and lower incomes. The averages for Latin American countries are bad enough, but the results for lower-level socioeconomic groups are even more troubling. Among Latin American countries participating in the test, the reading scores of students in the high-income brackets was between 1.2 and 1.5 times (for Mexico and Peru, respectively) higher than the scores of students in lower-income brackets. The OECD average for this gap is 1.3 times, comparable to that of Chile. In Shanghai, Hong Kong, and Finland—which had some of the best results on the 2009 test—the gap is lower (figure 3.8). Emerging countries such as Thailand and Indonesia also show lower inequality in their results than the nine participating Latin American countries.

These gaps show the marked inequality in educational results for 15-year-olds in Latin America and the Caribbean. But it should be borne in mind that cognitive skill gaps appear long before adolescence, and especially before school age. At bottom, this means that the observed differences between different income groups from different incomes emerge in the first six years of life (Schady, 2011).

Figure 3.6

Distribution of scores of Latin American and OECD students on the 2009 PISA tests



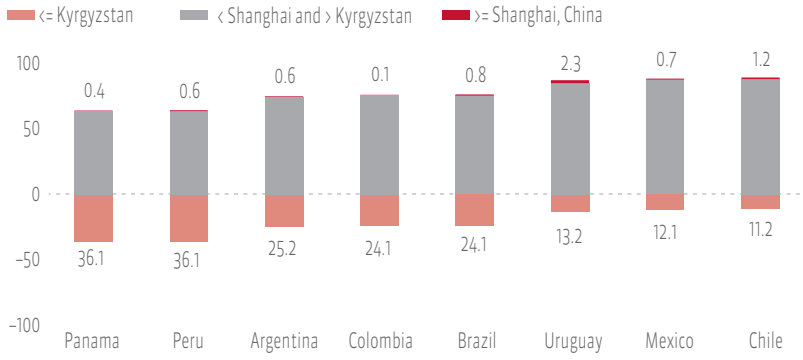
Source: Authors' calculations, based on the 2009 PISA database (OECD, 2010d).
Note: The countries of the region included in the sample are: Argentina, Brazil, Chile, Colombia, Mexico, Panama, Peru, Trinidad and Tobago, and Uruguay.

Other international tests such as the SERCE, administered to the third and sixth grades in 16 Latin American countries in 2006, also show significant differences in the academic performance of children from families at different income levels. For example, Duarte, Bos, and Moreno (2010a) analyze the SERCE data and show that while the probability of reaching a satisfactory level in third-grade math is 48 percent in the highest-income quintile, in the poorest

Figure 3.7

Latin America and the extremes in math scores on the 2009 PISA test: Shanghai and Kyrgyzstan

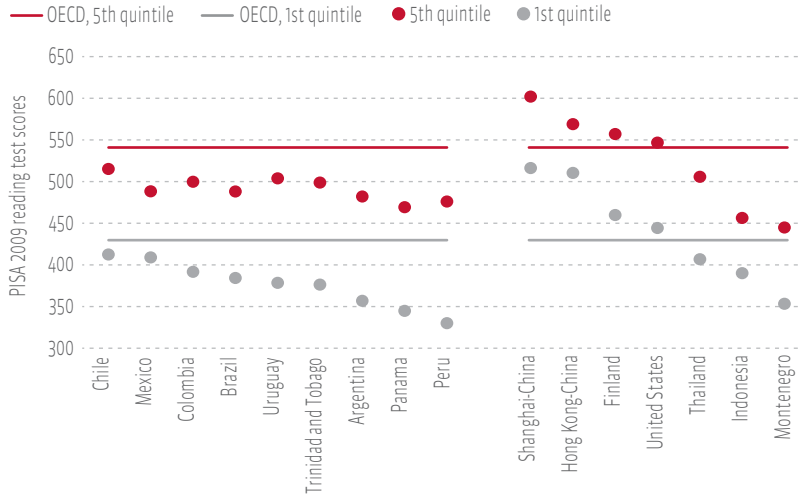
(%)



Source: Authors' calculations, based on the PISA 2009 database (OECD, 2010d).
Note: The average score for Shanghai, China, on the math test was 600 points, whereas that of Kyrgyzstan was 331 points. The figures over the top bar indicate the percentage of students from each country who scored above the average for Shanghai, China. The figures below the lower bars indicate the percentage of students who scored lower than the average for Kyrgyzstan.

Figure 3.8

Score gap on the 2009 PISA reading test, by socioeconomic quintile



Source: Authors' calculations, based on the PISA 2009 database (OECD, 2010d).
Note: The quintiles are constructed from the index of socioeconomic and cultural levels put together by the OECD for the PISA test. The fifth quintile is the richest; the first quintile, the poorest.

quintile it is barely 10 percent—a troubling situation by any measure. The differences for the sixth grade are also marked. Whereas 66 percent of the children from the wealthiest families (fifth quintile) obtained at least a satisfactory level in the math test, only 26 percent of children from the poorest families (first quintile) managed the same level of achievement. It is clear, then, that there are significant differences in cognitive abilities between the groups from different income levels and that these have their origins early in life.

The long road ahead: Accumulation is not enough

Despite the evidence presented so far, the scores recorded in most of the countries of the region over the past decade show a positive trend (table 3.3). Two caveats are in order: When considering the evolution of scores in the participating countries, the proportion of young people who are in school at 15 years of age must be taken into account. It is to be expected that the scores achieved in the tests will be negatively affected when this proportion increases, since students coming into the test pool who were not previously included come from the poorest families. The same observation applies when comparing countries.

The second caveat is this: It is possible that the changes in average scores are due to changes in the PISA results of students at the highest and lowest levels of performance. For that reason, it is necessary to complement the score analysis not just with the respective rates of educational coverage among 15 year olds, but also with the change in the proportion of pupils at the various competency levels.

What cannot be ignored, however, is that if the rate of increase in scores on the PISA tests administered between 2000 and 2009 is maintained, it will take Latin America at least 21 years to achieve an average of 500 points on

Table 3.3

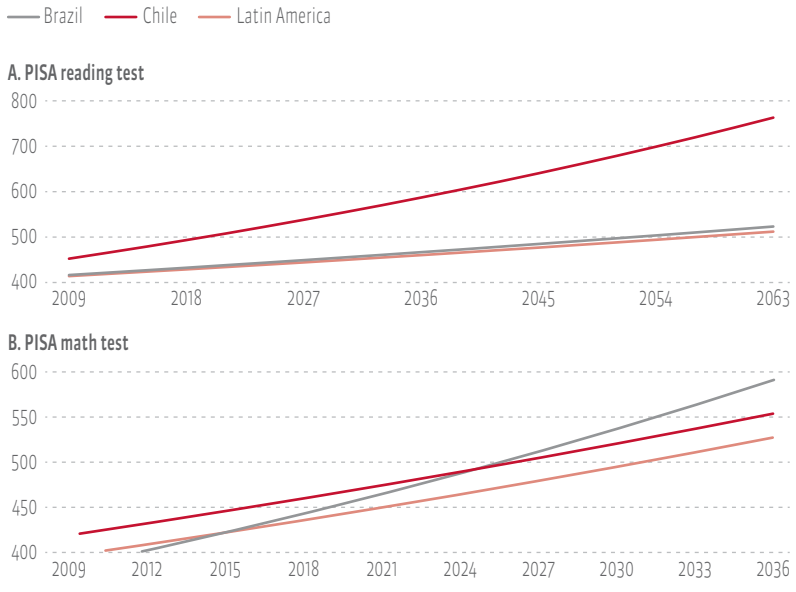
Change in PISA test scores in reading, math, and science in participating Latin American countries, 2000–2009

	Reading				Math				Science			
Country	**2000**	**2003**	**2006**	**2009**	**2000**	**2003**	**2006**	**2009**	**2000**	**2003**	**2006**	**2009**
Argentina	418		376	398	388		381	388	396		391	401
Brazil	396	403	393	412	334	356	370	386	375	390	390	405
Chile	410		442	449	384		411	421	415		438	447
Colombia			385	413			370	381			388	402
Mexico	422	400	410	425	387	385	406	419	422	405	410	419
Peru	327			370	292			365	333			369
Uruguay		434	413	426		422	427	427		438	428	427
OECD	500	500	500	493	500	500	500	493	500	500	500	501

Source: IPES figure 6.3 based on OECD (2001, 2004, 2007a, 2010a).

Figure 3.9

Projected future performance from PISA scores recorded in Latin America between 2000 and 2009



Source: Authors' calculations, based on PISA tests between 2000 and 2009 (OECD, 2001, 2004, 2007a, and 2010a).

the math test (that is, approximately 2030). The period would be longer in the case of the reading tests—approximately 49 years—while in science it would be almost 42 years.[15]

When the annual growth rates from 2000–09 are used to predict the evolution of scores on the reading test, Chile is the first country in the region to reach 500 points, taking approximately 10 years from the 2009 test (figure 3.9). Brazil, despite having sustained growth, would take about the same time as the region as a whole to reach the 500 mark: almost 44 years. On the other hand, considering that the rate of improvement in math and science is higher, it is possible that Chile and Brazil may take less time to reach the average OECD scores—16 and 25 years respectively. Having set the goal of reaching the PISA average by 2021, Brazil will need to quicken the pace of improvement in scores from the rates recorded since the year 2000 (figure 3.9). Mexico is another country that has set teaching objectives specifically linked to the PISA. Its goal is to achieve an average reading and math score of 435 by 2015.

[15] The projections are from the authors' own calculations, based on the results from the PISA tests conducted between 2000 and 2009.

This basic analysis of the possible trajectory of national PISA results could vary significantly depending on several factors. For example, in Latin America, where only a minority of students score at least at the basic levels, an improvement among the lower-performing students could make a substantial contribution toward raising the average national performance. Because of this, a deliberate strategy focused on this group would serve two purposes: reducing inequality of achievement between the higher and lower income segments while also raising the nation's average performance over time.

Over the past 20 years the region has made substantial progress in accumulating human capital by widening access to the school system. This is certainly true for the countries that participate in the PISA sample (Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay), where rates of completion of nine years of compulsory education range from 76 percent in Chile to 45 percent in Brazil, but also for the other countries, depending on their positions at the beginning of the 1990s. The problem stems from the fact that the PISA results suggest that efforts and investments aimed at increasing access to education and keeping young people in school—notably by eliminating or reducing the opportunity cost of studying—bear little relation to learning and its use in the labor market.

In this regard, there have been important discussions in recent literature that have questioned the benefits of simply accumulating human capital, both for individual welfare and for the development of countries. Hanushek (2006) states that cognitive skills and abilities (academic knowledge) have a powerful impact on individual income, income distribution, and economic growth, and that the educational situation is actually much worse than the access and completion rates at various stages of schooling suggest. Within the Latin American context, this means that advances in access and completion will not have the anticipated impact unless they come together to effectively develop academic abilities. In fact, from the analysis of PISA results and their links to variables such as the percentage of full-time teachers and full-time certified teachers, the ratio of computers to pupils, and the ratio of teachers to students, among others, there emerges no consistent correlation between test results and the quantity of resources invested in education, whether in terms of education spending as a percentage of GDP or per pupil. The considerable variation in the results from participating countries cannot simply be attributed to differences in the relative development in their economies. Although it is true that the wealth of countries influences their educational results, per capita income explains only 6 percent of the international differences in the PISA results. This means that countries with similar levels of economic development can produce very different educational results (OECD, 2010a), as will be seen in the following section.

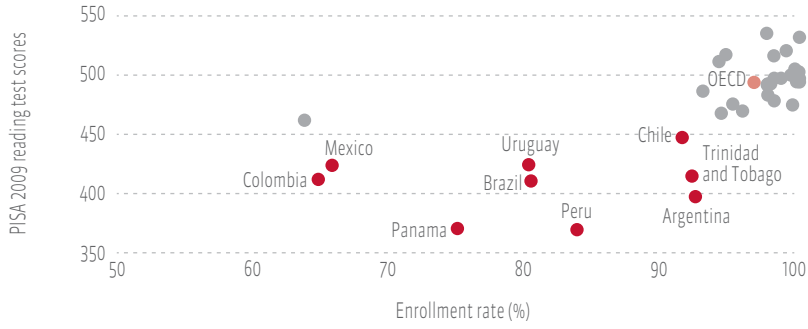
If the majority of youth in the region were in school, the quality situation might be even worse, as noted earlier. It bears repeating that in the countries of the region a significant proportion of 15-year-olds remain outside (or drop out from) the school system. As of 2009, the share of 15-year-olds enrolled in grades 7 to 12 in a selection of countries was as follows: Brazil, 80.6 percent; Chile, 91.6 percent; Colombia, 65.2 percent; Mexico, 66.2 percent; Panama, 75.3 percent; Turkey, 64.3 percent; Israel, 91.5 percent; Portugal, 93 percent; and Indonesia, 74.0 percent (OECD, 2010a). These differences suggest that the PISA score gap between Latin America and the Caribbean and the OECD countries might be even more marked if a greater proportion of young Latin Americans were enrolled in the education system (figure 3.10). As noted previously, this is due to the fact that young people not in school tend to be poor; if included in the evaluations, they would likely bring down the average.

Investment: No guarantee of quality

It was mentioned in the previous section that differences in national wealth (as measured in terms of GDP per capita), in the percentage of GDP spent on education, and in per capita spending on education are among the arguments commonly used in some countries of the region to justify poor education results. The proponents of such arguments typically assert that it is practically impossible to achieve the same performance as countries with greater resources. But the data prove that there is no linear relationship between per capita wealth or spending on education and educational quality, at least as measured by PISA. In fact, several PISA participants that have a GDP similar to that of countries in

Figure 3.10

Enrollment of 15-year-olds in seventh grade or higher and 2009 PISA score



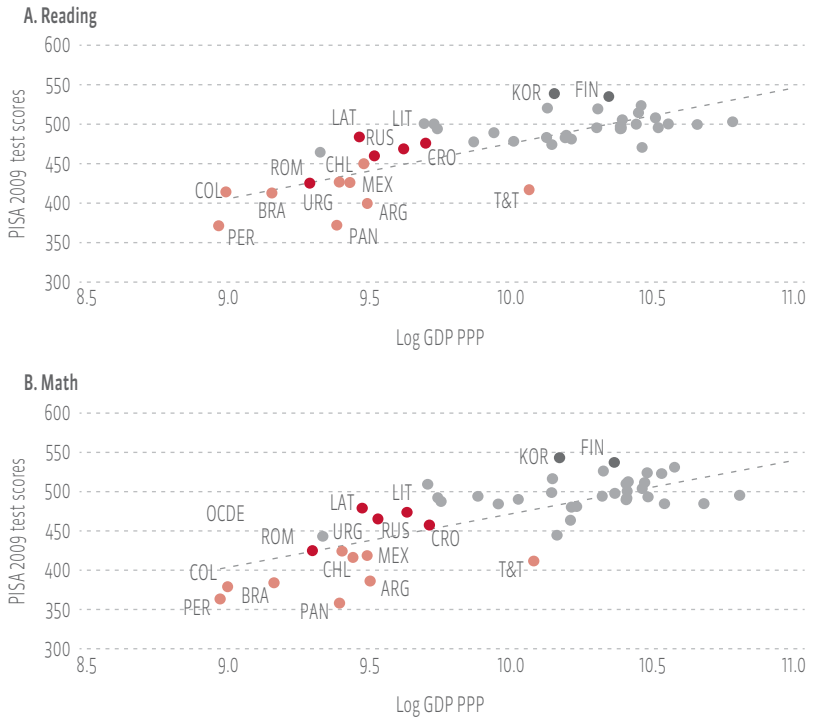
Source: OECD (2010a, table A2.1).Note: The enrollment rate is calculated by dividing the number of 15-year-old students enrolled in the seventh grade or higher by the total number of 15-year-old students. The gray dots signify other countries participating in PISA.

Latin America and the Caribbean manage to achieve higher scores (figure 3.11). For example, Latvia, which has a per capita GDP close to that of Chile and Mexico, achieved a math score almost 70 points higher. With respect to per capita spending on education, the contrast is even more pronounced—for a level of per capita educational expenditure similar to many nations in the region, many countries show higher performance (figure 3.12).

Although per capita investment in education can have a bearing on quality, various countries in the sample show a significantly higher performance than others in the region that spend a similar amount on education per capita. This suggests that using lower investment in education as a justification of poor

Figure 3.11

GDP per capita and PISA results, 2009

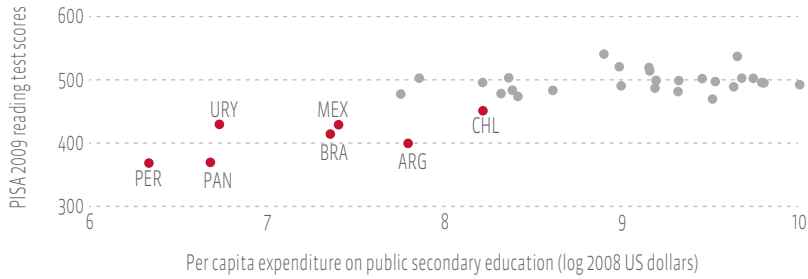


Sources: For 2009 PISA scores, OECD (2010a); for GDP per capita in 2005 (PPP US$), World Bank (2010).
Note: Abbreviations: LAT, Latvia; LIT, Lithuania; RUS, Russia; CRO, Croatia; ROM, Romania; KOR, South Korea; FIN, Finland; ARG, Argentina; BRA, Brazil; CHL, Chile; COL, Colombia; MEX, Mexico; PAN, Panama; PER, Peru; T&T, Trinidad and Tobago; and URG, Uruguay. The dark gray dots indicate the countries that typically achieve the highest scores in the PISA tests. The red dots indicate countries that have a GDP comparable to Latin American countries but score higher than one would expect given their GDP level. The brown dots, by contrast, indicate that in Latin America the PISA results are lower than GDP levels would suggest. The pale gray dots signify other countries participating in PISA.

Figure 3.12

Per capita expenditure on secondary-level public education and PISA results

(*Log 2008 US dollars*)



Sources: Scores on PISA tests: OECD (2010a); per capita expenditure on public education by level estimated using GDP in 2008 dollars: IMF (2010) and World Bank (2010); enrollment and percentage of total public expenditure on education and expenditure broken down by education levels and percentage of GDP: UNESCO (2010).
Note: The gray dots signify other countries participating in PISA.

quality is not sufficient, and that beyond widening access, the fundamental issue of prioritizing cognitive and socioemotional abilities as essential elements of educational and labor development still needs to be resolved.

What is not being measured

During the past several years, the important role that noncognitive skills (that is, socioemotional skills, those related to personality traits) play in the functioning of society has been widely discussed. Among those skills are perseverance, motivation, and self-control (see chapter 4)—most of which are being required of those hoping to enter higher education and the labor market (see chapter 6 and annex C). The literature also reveals growing evidence of the multidimensional character of those skills, since cognitive and noncognitive (socioemotional) skills combine, mutually influence, and complement each other in the effects they produce on individuals (Heckman, Stixrud, and Urzúa, 2006). In this context, noncognitive abilities would have a direct effect on the lives of young people in critical areas such as earnings (keeping the level of education constant), school performance, teenage pregnancy, smoking, crime, and achievement tests (Cunha et al. 2006).

Cognitive and noncognitive abilities affect people's socioeconomic success, and both are strongly influenced by the family and social environment. The old dichotomy between genetically determined—and thus unmodifiable—abilities and acquired abilities is obsolete, although it still permeates economic literature.

Abilities are influenced both by genes and environment (Cunha et al., 2006), a subject discussed in greater detail in chapter 4.

Recent studies have suggested that it is much more efficient and equitable to invest in the development of *cognitive* abilities during infancy and early childhood (Cunha and Heckman, 2010). A good case can be made, therefore, based on equity and efficiency, against investing in the development of purely intellectual ability later on—for example, during students' youth and adolescence. (This is not to discourage investment in the development of academic knowledge at any age.) In the case of *noncognitive* abilities, the argument based on age is not as clear as it is for intellectual ability, since the window for learning socioemotional skills stays open much longer than that for the cultivation of intellectual ability. This means that there is room to develop noncognitive abilities in secondary education.

During a person's life cycle, the formation of skills and abilities seems to be the result of the combination of various interventions, many of which do not occur in the school environment. In the same way, an interaction occurs between cognitive and noncognitive abilities, the early acquisition of which constitutes the basis for the formation of other skills in the future (Cunha et al., 2006). There is evidence that even in low-productivity jobs, for which young people with complete secondary education are hired, the demand for both cognitive and noncognitive skills is decisive (Maxwell, 2007). It is for this reason that schools must be aware that both types of ability contribute to the transition from school to work.

It is obvious that the traditional measurements of education, such as those analyzed here, reflect only partially the skills demanded by today's labor market. The tests reviewed aim to measure cognitive abilities and academic achievement. Noncognitive (socioemotional) skills are not measured in the education systems of Latin America and the Caribbean, a deficiency not unique to the region. For the moment, tests of this type are in the trial phase, in particular in the OECD countries.[16] Obviously, these skills need to be developed before they can be measured.

For reasons glimpsed in this chapter, Latin America generally lags behind the OECD countries in terms of the quality of education provided to

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[16] A recent pilot study on innovative teaching and learning (carried out in Russia, Senegal, Finland, and Indonesia in 2009 and 2010 by a consortium in which UNESCO, the International Society for Technology in Education, Microsoft, and the OECD participated) hints at the enormous difficulties that teachers face in getting students to acquire new skills that are considered necessary to cope in everyday life and work. Among those skills are critical thinking (the ability to process information, draw conclusions, and make decisions), teamwork (collaborative work with peers), and leadership (the capacity to direct peers and communicate ideas efficiently). The results of this pilot test suggest that teachers are in the early stages of teaching these skills. In general, the teaching staff are unaware of them and lack the support they need to develop and measure them in their students. They continue to emphasize the development of the more conventional cognitive abilities.

children and adolescents, as measured by the development of cognitive skills. But it is not just cognitive skills that young people need in the school-to-work transition; socioemotional skills are critical as well, as discussed in detail in chapter 6. Therefore, efforts to identify such abilities and to define strategies to develop, reinforce, and complement them within the education system are vitally important.

4

In Search of the Keys: Where and When Are Cognitive and Socioemotional Skills Formed?

For lack of a better measure, years of schooling are commonly accepted as an indicator of potential productive capacity. It is expected that the higher a person's level of education, the greater his or her productivity in the labor market. By this simple logic, which has driven most theoretical and empirical studies in labor economics, more-educated individuals should enjoy better working conditions. But are years of schooling really the decisive factor in a good match between employer and employee, particularly when considering individuals who are seeking their first job? How much do years of education reveal about a worker's skills (quality) and the likelihood of his or her successful transition from school to work? And, more generally, what role do skills play in determining an individual's work performance? These are the questions that the next few chapters will try to answer.

People are differentiated by broad sets of abilities (skills and talents) that shape the socioeconomic outcomes obtained over the course of their lives. This principle has been amply documented in the relevant literature in economics and psychology (Borghans et al., 2008a).

Although many different dimensions of skill can characterize an individual, the specialized literature has tended to group skills into two broad categories: (i) cognitive and (ii) noncognitive or socioemotional. In this book, *cognitive skills* have to do with cognition (which is correlated with intelligence) and knowledge (mathematics and language); these are the skills that underpin the successful acquisition of academic knowledge. *Socioemotional skills* are those that pertain to behavior or that spring from personality traits. They are often considered "soft skills."

Research on this subject has shown that both cognitive and socioemotional skills are shaped by aspects of the environment in which a person develops, such as family characteristics and school. But the malleability of the different types of skill and the window within which they can be modified varies (Cunha et al., 2006). Researchers also agree that differences in skills, both cognitive and socioemotional, and the outcomes they generate, appear at a very early age, and that gaps can be reduced only partially by well-designed public policy interventions (Cunha et al., 2006; Behrman and Urzúa, 2011; and Schady, 2011). The earlier these interventions take place in the life of a child, the better the chances of successfully remedying disadvantages originating from family characteristics or an adverse environment.

Both cognitive and socioemotional skills have an innate inherited component and a component shaped by upbringing and training. Those components vary by individual, by type of skill, and over time. But the primary role of the family in skills development—through genetics and the stimuli and experiences the family provides, even during pregnancy—is indisputable. Researchers also know that the hereditary component is relatively greater in cognitive skills than in socioemotional skills, and that the critical period for building and shaping cognitive skills is shorter than the window of opportunity for socioemotional skills (Carneiro and Heckman, 2003).

Several studies have documented the existence of some degree of complementarity between cognitive and socioemotional skills (see, for example, Cunha et al., 2006). For example, cognitive skills can result in successes that reinforce children's self-esteem and self-confidence, which are considered socioemotional skills. Conversely, socioemotional skills such as motivation and perseverance stimulate learning and can reinforce the development of cognitive skills. This intense interaction between the two dimensions gives rise to the complete skill set of each individual and explains why contemporary specialized literature considers the "nature versus nurture" distinction almost obsolete.

The international evidence compiled so far confirms the importance of cognitive and socioemotional skills in individual academic and work performance (Heckman, Stixrud, and Urzúa, 2006; Urzúa, 2008, Cunha et al., 2006). But little is known about their specific role during the school-to-work transition period, which is the main topic of this book. The book offers ideas about the types of policies that can strengthen young people's skills, ensuring better performance by young people in the workplace and a better quality of life for the population as a whole.

This chapter introduces the conceptual framework for analyzing the roles of individual skills of the two types discussed above and of the education system as factors that influence the work performance of young people in transition from school to work. The study will identify and conceptualize cognitive and socioemotional skills, analyze the available evidence on the role played by those

skills at the outset of young people's careers, and provide a brief diagnosis of the situation in the region in this area.

Conceptualization and identification of skills

Although analysis of the role played by skills has traditionally been the preserve of psychology, economists have shown growing interest in the topic.[1] And while economists and psychologists have used different concepts to identify cognitive and socioemotional skills,[2] several of those concepts are essential to understanding the relative importance of various skills. First, studies show that while it is theoretically possible to separate the two sets of skills, the distinction is very difficult in practice. Second, there are differences in the dynamics of cognitive skills and those associated with personality: the former develop and increase during childhood, reaching their peak at the end of adolescence and slowly decline during adulthood.[3] In the case of socioemotional skills, developmental changes vary with each specific skill. Most socioemotional skills, however, increase from childhood through to the final stages of adulthood (Borghans et al., 2008b). Responsibility, for example, follows this pattern.

What psychology says about cognitive skills

The dictionary of the American Psychological Association (VandenBos, 2007: 187) defines cognition as "all forms of knowing, including perception, imagination, remembering, reasoning, judgment, and problem solving." Cognitive skill is defined as "the skill or aptitude for perception, learning, memory, understanding, awareness, reasoning, intuition, judgment, and language" (VandenBos, 2007: 187). Intelligence, on the other hand, as expressed by the intelligence quotient (IQ), refers to the results of intelligence tests.[4]

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[1] Borghans et al. (2008a) define and discuss in detail the concepts of cognitive skills and personality traits (socioemotional skills). This study is an effort to unify the language and concepts used in economics and psychology.

[2] Economists have concentrated mainly on measurement of parameters of preferences (discount factors, risk factors, preferences for leisure, and altruism and social preferences), whereas psychologists have concentrated on describing personality traits. It is interesting to note that the parameters of preferences and personality traits can be interpreted as conceptually identical variables (for example, responsibility is related to risk aversion, preferences for leisure, and time discount).

[3] For example, there are studies showing that IQ before age 4 or 5 is not a good predictor of its level in adulthood. After age 10, IQ stabilizes, so this measure in a child of that age or older can predict IQ in adulthood with some accuracy (Cunha et al., 2006).

[4] One of the best-known intelligence tests is Raven's Progressive Matrices scale, which will be described in detail in chapter 5, where it is used to analyze data.

In psychology, the study of cognitive skills recognizes the existence of a dominant component known as the "g factor," which expresses the overall level of an individual's cognitive skill (Spearman, 1904). The g factor predicts most of the items on intelligence tests and has been used to understand their great explanatory power in a wide range of dimensions of human behavior (Herrnstein and Murray, 1994).[5]

Noncognitive or socioemotional skills: Personality traits

Because personality traits are very diverse, it is no wonder that no dominant factor equivalent to the g factor has been found to encompass them. In contrast with cognitive tests, socioemotional tests are not designed to associate skill levels with specific variables such as academic performance or professional success; instead they are designed simply to understand individuals' personality differences.[6] The obvious complexity of this task explains the development of a variety of taxonomies (or scales) for studying the socioemotional skills of the population.

The most recognized taxonomy so far is that of the Big Five personality traits (table 4.1), which defines the following dimensions: openness to new experiences (intellectual or cultural), conscientiousness, extraversion, agreeableness, and neuroticism.

Despite its widespread use, this taxonomy suffers from important limitations. Its components do not necessarily constitute an exhaustive list, especially with respect to their potential to predict outcomes or performance. Note, for example, that this scale does not consider motivation, which has been recently studied in the specialized literature.

The wide range of personality measures obviously complicate practical analysis. Among the best-known alternatives to the Big Five scale are Hans Eysenck's PEN model (psychoticism, extraversion, and neuroticism), Tellegen's Multi-Dimensional Personality Questionnaire (negative emotionality, restrictions, positive emotionality, and absorption), the Zuckerman-Kuhlman Personality Questionnaire (neuroticism-anxiety, aggression-hostility, impulsive sensation seeking, activity, sociability), the Cloninger scale (harm avoidance, cooperativeness, self-directedness, persistence, novelty seeking, reward dependence, self-transcendence), and the nine major personality traits (adjustment, friendliness,

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[5] The literature also documents the existence of second-order cognitive factors associated with particular skill dimensions. These second-order factors are separated into fluid skill (skill in solving new problems) and crystallized skill (knowledge) (Carroll, 1993).

[6] James (1907) was the first to ask why individuals with equal levels of intelligence reach different results, something that psychology has tried to explain for more than a century but without producing a clear answer (Duckworth et al., 2007).

Table 4.1

The domains of the Big Five personality traits and their definitions

Factor	Definition
Openness to new experiences	The extent to which an individual needs intellectual stimulation, change, and variety.
Conscientiousness	The extent to which an individual is willing to enforce rules and conventional norms.
Extraversion	The extent to which the person needs attention and social interaction.
Agreeableness	The extent to which the person needs pleasant and harmonious relationships with others.
Neuroticism	The extent to which the person sees the world as threatening and beyond their control.

Source: Duckworth et al. (2007).

rugged individualism, reliability, self-control, performance, affiliation, power, and intelligence).

This long list shows that there is little consensus on the critical components of personality. While cognitive skills can be ranked in terms of their power to predict outcomes over the course of a person's life, this is not the case with socioemotional skills, for which various scales and orders coexist. For the time being, there is no single answer to the question of what are the most important socioemotional skills.

Dynamics between cognitive and noncognitive skills

How much do an individual's skills change over a lifetime? The evidence indicates that individuals become more extroverted, responsible, and emotionally stable as they age (Borghans et al., 2008a). In contrast, although sociability and openness to new experiences increase during the early stages of life (ages 20–30), they then decrease in old age. Changes in personality traits usually occur during early adulthood (ages 18–30).

Psychological research finds that genetic factors are responsible for the stability of personality traits in adulthood, while the environment causes changes (Blonigen et al., 2006). Borghans et al. (2008a) offer evidence suggesting that personality traits also change with the transformation of social roles. But the effects do not appear to be long term. Only permanent changes in the environment appear to sustain prolonged changes in personality (McGue, Bacon, and Lykken, 1993).

Unlike personality traits, research shows that cognitive skills are developed during childhood and then decline during adulthood, especially after about age 55. Genetic factors are more important than the environment in

explaining this dynamic. Between 60 and 80 percent of cognitive skills in adulthood are hereditary, and the role of genes increases over time. For personality traits, on the other hand, the hereditary component (40 to 60 percent) is stable throughout life.

The results of both cognitive and socioemotional tests can be modified by the environment. The analyses of Heckman, Stixrud, and Urzúa (2006) and Urzúa (2008) demonstrate the importance of family environment (specifically the mother's education) and the education level of the test-taker as determinants of scores on the cognitive and socioemotional scales. This finding can be used as the basis for interventions designed to improve the skills of individuals entering the labor market. Studies show that this type of program is more effective with young people who are still enrolled in high school[7] (Cunha et al., 2006; Heckman and Lochner, 2000).

The evidence thus indicates that various types of interventions aimed at forming and strengthening cognitive development need to be implemented early in life if they are to have any effect. Interventions that aim to do the same for socioemotional skills have a longer window of opportunity, since these are formed gradually over the years. This is a key finding for designing policies to support a successful school-to-work transition through appropriate actions in settings where cognitive and noncognitive skills are formed and developed.

Skills as determinants of educational and labor outcomes

The effects of cognitive skills on academic, work, and social outcomes have been extensively analyzed (Cawley, Heckman, and Vytlacil, 2001; Herrnstein and Murray, 1994; Neal and Johnson, 1996; Gottfredson, 1997; Hartigan and Wigdor, 1989; Mulligan, 1999; Murnane, Duhaldeborde, and Tyler, 2000; Lazear, 2003). For example, many studies have documented the relationship between skills and wages. The empirical results show that although the exact magnitude of the effect depends on the characteristics of the population (such as race and education level), on average the wage return to cognitive skills (that is, the percentage change in wages from a change of one standard deviation in skill

[7] This is particularly true for programs designed to keep students in school. The Learning, Earning and Parenting (LEAP) and Teen Parent Demonstration (TPD) programs in the U.S. state of Ohio offered financial assistance to allow school-age parents to continue their secondary education. The outcomes of LEAP showed increases in high school completion rates, while TDP had ambiguous educational outcomes. But both programs showed positive effects on wages and employment of students who were in school at the start of the intervention. Outcomes were less positive for individuals who had already suspended their education when they were offered the program.

level) exceeds 12 percent (Mulligan, 1999; Murnane, Duhaldeborde, and Tyler, 2000; Lazear 2003; Heckman, Stixrud, and Urzúa, 2006; Urzúa, 2008).

The role of personality traits or socioemotional skills has received less attention in the literature, at least until recently.[8] Bowles and Gintis (1976) were the first to analyze the impact of personality dimensions on the labor market, specifically on income. Their study shows that employment stability and confidence are traits valued by employers.[9] Heckman, Stixrud, and Urzúa (2006) and Urzúa (2008) document the impact of socioemotional skills associated with self-esteem and self-control on a variety of outcomes in employment (wages, occupational decisions, experience), education (highest level of educational attainment), and social life (drug and alcohol consumption, crime, delinquency, teenage pregnancy).[10] These authors document a significant effect of socioemotional skills in each of these dimensions and find that in many cases the impact is even more important than that found for cognitive skills.[11]

Borghans et al. (2008a) give further evidence of the relative importance of cognitive and socioemotional skills. These authors analyze the correlations between cognitive skills (IQ), socioemotional skills (the Big Five personality traits), a leadership index,[12] job performance,[13] longevity, university qualifications, and years of education. The results show that, in general, intelligence trumps personality in academic achievement. Among personality traits, *conscientiousness* appears to be the best predictor of outcomes in postsecondary education and the second-best predictor (after *openness to new experiences*) of total years of education. Of all the personality traits, conscientiousness has the highest correlation with leadership indices, where its role is even more important than intelligence. Conscientiousness also predicts job performance, but its role in this case is dominated by intelligence.[14] This study also suggests that the importance of intelligence (IQ) increases with work complexity as measured by

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[8] Bowles, Gintis, and Osborne (2001) and Heckman, Stixrud, and Urzúa (2006) provide a detailed review of the literature.

[9] Other studies that demonstrate the importance of socioemotional skills in the labor market are Nyhus and Pons (2005) for emotional and wage stability, Salgado (1997)for emotional stability and responsibility on wages, Mueller and Plug (2006) for the effect of the Big Five personality traits on wages, and Duckworth et al. (2007) on the effect on job performance of responsibility, self-control, and the search for long-term goals.

[10] These studies analyze the Rosenberg self-esteem scale and the Rotter self-control scale.

[11] Bowles, Gintis, and Osborne (2001), and Segal (2007) also demonstrate the role of persistence as a determinant of outcomes in employment and education.

[12] Leadership is defined as the degree to which individuals are perceived by others as leaders, and by performance in directing group activities. See Borghans et al. (2008b).

[13] Job performance is defined by three criteria: competence at work, competence in training, and personal data (wages, experience). See Heckman, Stixrud, and Urzúa (2006).

[14] In the context of the scale of the Big Five personality traits, Barrick and Mount (1991) conclude that conscientiousness is more highly correlated with "success at work" than the other components.

the number of levels of information to be processed.[15] But the evidence on the role of IQ in long-term performance is inconclusive. In fact, some studies suggest that personality traits may be better predictors of long-term performance (for example, Goff and Ackerman, 1992).

In summary, an abundant empirical literature documents the relationship between skills (cognitive and socioemotional) and various labor, educational, and social outcomes. Studies are conclusive about the impact of cognitive skills on individuals' income levels and on educational outcomes. In terms of socioemotional skills, the varied findings are pieces to a puzzle that is all the more complex because of the inherent difficulty of describing the various personality traits in the population. But some of these—such as self-esteem, self-control, and responsibility—appear time and again as key determinants of performance at work, in school, and in society.

Caveats on drawing conclusions from the international evidence

To correctly interpret and draw lessons from the results presented above, one must consider the difficulty of separating the effects of cognitive skills from the effects socioemotional skills. Although, it is conceptually possible to separate the skills themselves, in practical terms it is extremely difficult to isolate their effects (Borghans et al., 2008a). For example, it is easy to assume that tests designed to measure intelligence may be affected by the subject's motivation and perseverance. Similarly, tests designed to define personality traits may depend on the brain's capacity to perform cognitive processes. This is why it is essential, when attempting to identify the function played by each skill dimension on individual job performance, to have a set of tests that have been validated for the target population and to use appropriate statistical methods.

Another factor to consider, particularly when drawing lessons from existing research, is that most of the available evidence of the role of cognitive and socioemotional skills comes from developed countries. This obviously limits the possibilities of extrapolating finds into Latin American countries. In one of the few studies to analyze the case of developing countries, Glewwe (2002) summarizes the evidence on the relationship between education and cognitive skills and on the role they play in labor market outcomes.[16] The author

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[15] This confirms the analysis of Schmidt and Hunter (2004), who find that cognitive skills are more important among teachers, scientists, and managers than among semi-skilled or unskilled workers. But this contradicts the analysis of Barrick and Mount (1991) who find that the role of conscientiousness does not change substantially in relation to the complexity of the work.

[16] The cognitive tests considered in this study are Raven and standardized tests of math and reading.

draws two main conclusions: (i) that little is known about educational inputs that can improve students' cognitive skills, and (ii) that cognitive skills are a significant determinant of employment outcomes, but only when not controlled for years of schooling.

Analysis of the long-term impact of early interventions in children is an additional source of evidence of the importance of skills on individual development. Jamaica and Guatemala present interesting cases. In these countries, analysis of data collected over several decades has demonstrated how early psychosocial stimulation, coupled with good nutrition, can affect education and employment outcomes during adulthood (Hoddinott et al., 2008; Walker et al., 2005; Schady, 2011). Unfortunately, these studies are an exception in the region (Behrman and Urzua, 2011). Moreover, the studies do not precisely identify the role of the school in generating skills or the kinds of skills most in demand in the labor market.

Which skills are critical to job performance?

In the literature reviewed so far, a specific strategy has been used to study the importance of skills. That strategy is, first, to identify individual skills, and then to find out how those skills affect various dimensions of individual development, particularly job performance. An alternative strategy, however, is to begin by identifying the skills required for a given level of job performance and then find out if the population has them.

The U.S. Department of Defense has probably done the most research on the importance of skills applied to the performance of tasks in the workplace. One of its studies analyzes in detail the historical development of different evaluation methods used to select job candidates, distinguishing between methods aimed at identifying innate skills and those designed to assess performance in certain tasks (Sticht, 1997). It is precisely this distinction that differentiates the two strategies mentioned above.

The study by O'Neil, Allred, and Baker (1997) is a good example of efforts to identify the skills required to perform well in the workplace. These authors examine and categorize the skills identified in five earlier studies carried out in the United States.[17] All use information obtained from interviews with public

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[17] The studies are: (i) *What Work Requires of Schools (SCANS)*, in 1991 by the U.S. Department of Labor; (ii) *Workplace Basics: The Essential Skills Employers Want*, by the American Society for Training and Development (ASTD), sponsored by the U.S. Department of Labor; (iii) *The Michigan Employability Skills Employer Survey*, by the Michigan Employability Skills Task Force; (iv) *Basic and Expanded Basic Skills*, by the New York Department of Education;and (v) *High Schools and the Changing Workplace: The Employers' View*, by the U.S. National Academy of Sciences.

and private sector employers, labor unions, workers and supervisors in various sectors, and academics.

The five studies identify four general skill groups required for good performance in the workplace: basic academic skills (reading, writing); higher-order thinking skills (creativity, knowing how to learn, problem solving); interpersonal and teamwork skills (communication, negotiation, conflict resolution); and personal characteristics and attitudes (self-esteem, motivation, responsibility).[18] A comparison of the needs of U.S. employers with respect to each of these skill sets reveals a greater appreciation of social and teamwork skills compared with academic skills (Mehrens, 1989). Thus, the U.S. labor market seems to demand interpersonal, behavioral and teamwork skills more than skills related to basic academic knowledge.

This is particularly important for the design of public policies to increase the relevance of school, especially secondary school. Socioemotional skills are increasingly identified by employers as fundamental for the job performance of their workers. Although the vital role of basic cognitive skills is not disputed, the evidence points to a broader range of relevant skills. This is consistent with the conclusions of the previous section, which summarized the literature documenting the effects of this type of skill on job outcomes. But, as mentioned above, evidence for Latin America on the type of skills that employers demand is practically nonexistent. Chapter 6 describes the results of a survey developed with this objective in mind, which suggest that the situation in the region is similar to that found in the studies done in the United States.

The school-to-work transition: Skills mismatch?

The abundant literature on the transition from school to work has not paid particular attention to the role of skills. The study by Maxwell (2007) is an important exception, analyzing the role of supply and demand for different skills in the San Francisco labor market. The underlying idea is that a better matching of workers' skills (supply) with those required by employers (demand) would lead to significant gains in efficiency (Vickers, 1995). It is this very idea that has motivated the preparation of this book.

The types of job considered by Maxwell (2007) correspond to those open in the school-to-work transition to individuals with relatively low levels of

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[18] The taxonomy of workplace skills proposed by O'Neil, Allred, and Baker (1997) was also considered in Maxwell (2007), Cannon-Bowers et al. (1995), Murnane and Levy (1996), and Oliver et al. (1997), among others. Based on analysis of cases in the area of administrative practices, Murnane and Levy (1996) organize the skills required in the workplace into general skills of time management, hard work, positive attitude, basic skills (reading, math, problem solving, communication), and computer skills.

human capital. On the demand side, the study examines the skills needed for low-skill entry-level jobs, and, on the supply side, the characteristics of people aged 18–24 with low levels of education (no postsecondary study).

The study is based on data from 766 households and 405 companies across five manufacturing sectors and contains questions on comparable sets of skills.[19] The author distinguishes between "academic skills" (English: basic reading and writing, complex reading and writing; mathematics: algebra, applied math, measurement); "new basic skills" (communication: communication with consumers, communication with coworkers; problem-solving: prioritization, evaluation, leadership; computer skills: increased productivity, multimedia, finance); and "workplace skills" (office and factory). The combination of information obtained from employees and employers, together with measurements of skill, make this study a unique contribution to the understanding of the school-to-work transition.

The results of this research show that the great majority of jobs require different skills simultaneously; almost all require some type of academic skill and two of the new basic skills: communication and problem solving. An individual analysis of each skill also produces interesting results: 90.8 percent of jobs require the ability to interact with other workers in the pursuit of an objective (the skill most in demand), while 85.3 percent require the ability to receive verbal or nonverbal information from other workers (second most in demand). In fact, the three skills most in demand are among the new basic skills. Cognitive or academic skills appear only between fourth and eighth place. The first academic skills on the list are related to reading; this is consistent with evidence that demonstrates the importance of literacy in the labor market, although it also illustrates the importance of nonacademic skills.[20] Comparing the demand for and supply of skills, Maxwell (2007) concludes that the demand for advanced language, algebra, applied mathematics, leadership, and software mastery is low. In contrast, basic language, the ability to interact with other workers, and the ability to prioritize tasks are among the scarcest skills (high demand and low supply).[21] The study also examines the effect of skills on individual work performance. In general, the evidence does not necessarily

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[19] The productive sectors examined were food preparation and serving, construction and maintenance, sales, office and administrative support, production, and transport. At least two-thirds of jobs for young people who work in entry-level positions in the geographic area analyzed are in one of these categories.

[20] With respect to specific sectors, the study considered services (business, health and education, and others), manufacturing, retail trade, and others. The services sector exhibits higher demand for all skills. Manufacturing is the sector that demands fewer skills in relative terms.

[21] These results are consistent with the proposal of Maxwell (2007) that schools teach academic skills (reading, writing, and math), communication, and problem-solving to students who are preparing for the labor market.

Box 4.1.

The conventional view of the school-to-work transition: Public policies and institutions

Many studies have examined the transition from school to work, highlighting the role of individual characteristics (education and family history), the education system, and labor market conditions as determinants of employment and educational outcomes during the transitional period (Wolpin, 1987; Topel and Ward, 1992; Wolbers, 2003; Gangl, 2003). Another important body of research examines the role of interventions specifically designed to improve the school-to-work transition, such as internships and training programs.

One of the studies that demonstrates the importance of public policies and institutions during the school-to-work transition is that of Neumark and Rothstein (2007). These authors analyze the effects associated with various programs to support the school-to-work transition in the United States,[1] emphasizing the effect of these efforts on the "forgotten half," namely, the 50 percent of individuals who have a lower probability of getting a postsecondary education. This research is particularly relevant in the case of Latin America, where the "forgotten half" comprises substantially more than 50 percent of the youth population.

The authors' findings indicate that, especially among women, the effects of school-to-work transition programs on performance in the labor market are usually positive, particularly those that offer training through apprenticeships and internships. In contrast, the outcomes of initiatives concentrating on postsecondary education are ambiguous. Although largely negative for women, their effects for men are generally positive and significant. In practical terms, this study shows that the various forms of intervention can have different effects depending on the population they serve, which represents a challenge for the development of public policies on the school-to-work transition.

[1] Specifically, the authors analyze the programs associated with the School-to-Work Opportunities Act of 1994. This law created incentives for the development of programs to improve the employment outcomes of students in the last years of secondary education. These include "job shadowing,""mentoring" (partnerships between students and companies), cooperative education (combined academic and vocational education), work in companies partnered with schools, technical education (programs leading to a given career), and training through apprenticeships, traineeships, and internships.

support the hypothesis of a high return associated with scarce skills, in that it does not find that employees who possess such skills are paid more. The author argues that this may be due to the difficulties of identifying or measuring specific skills with potentially high demand. A good example is leadership, a skill that is probably scarce and well-paid that nevertheless does not appear on the list of skills with a high estimated return. Maxwell (2007) argues that the difficulty of quantifying an individual's degree of leadership based on a survey would explain why it does not appear in the list of highly paid skills.

The conclusions of the Maxwell study suggest the possibility that labor outcomes during the school-to-work transition are highly influenced by a skill mismatch or gap between labor demand and supply. The following chapters

will explore this hypothesis in the context of Latin America, with the intention of showing that, owing to the characteristics of education and labor systems in the countries of the region, this mismatch is an issue that requires special attention. The poor work performance of youth in general—and the drop in returns to secondary education, in particular—may be the result not only of the dynamics of supply and demand described above or rigidities in the labor market, but also an expression of the gap between what the education system supplies and what the labor market demands.[22]

The challenge: Analyzing the school-to-work transition in Latin America

The data available for the countries of Latin America are insufficient for a detailed analysis of the determinants of a successful school-to-work transition and of the role that skills play in that process. Although several countries have made substantial efforts in the last few decades to collect more and better data at the microeconomic level, the design of the collection efforts has not been suitable for developing a detailed analysis of this important topic. For example, in contrast to the situation in the United States, most Latin American efforts to gather new data involve major cross-sectional household surveys but neglect the collection of longitudinal data. The same trend is observed in the case of existing information on educational performance. In general, based on these data, it is not possible to follow students for long enough to record their educational and career development, let alone to analyze the relationship between educational performance and the transition to work.

Latin American countries also lack adequate information on the skills of the population. Only the Chilean Social Protection Survey of 2006 (Bravo et al., 2008) has included questions designed to measure levels of self-esteem and self-control. Certainly, information from standardized tests of educational performance and learning such as Chile's Education Quality Measurement System (SIMCE), Mexico's National Assessment of Academic Achievement in

[22] In this context, the study of Oliver et al. (1997) is significant. These authors describe a reform that probably represents the most ambitious effort yet to develop the skills required by the labor market in school. The education reform known as "Skills for Success" (SFS) began in 1989 in the U.S. state of Maryland. It emphasized both academic and general multidisciplinary skills that facilitate the transition to the labor market. The reform considered five skill categories: learning, thinking, communication, technology, and interpersonal skills. Its aim was to equip students with useful tools for learning not only during the school years but throughout life. This concept has fundamental implications for the education curriculum. Curricula must be modified to ensure that the skills offered in school are relevant to what students face in the labor market (such as the use of math as a tool for problem solving and language as a tool of communication and thought).

Schools (ENLACE), and Argentina's National Study of Evaluation and Conceptual Considerations (ONE) can be very useful for developing public policies in the area of education. But their data are neither explicitly cognitive nor explicitly socioemotional. The interpretation of standardized performance tests is much more complex, because their primary purpose is to measure not a particular skill dimension but rather students' performance in relation to a curriculum (SIMCE and ONE) or their ability to apply knowledge in real situations (ENLACE).[23] In this context, the results of educational achievement tests such as those described above need to be interpreted as the output of a process that involves the skill set of individuals, the quality of education they have had access to, and the family environment they have developed in.

The impossibility of interpreting the results of performance tests as indicators of cognitive and socioemotional skill levels among students does not mean that these results should not be part of the analysis of the school-to-work transition. On the contrary, because they express multiple and critical factors, the results of such tests can and should be very useful for understanding the role played by the characteristics of school, family, and the individual in the transition process.[24] But the lack of longitudinal data for the region—specifically the scarcity of data at individual level, which would make possible simultaneous observation of the results of school achievement tests (collected during the primary or secondary years) and the labor market results of a representative sample of the population—precludes this type of analysis. Collection of this information should be the next step in facilitating the studies needed in this vitally important area.

In this respect, the characteristics and objectives of the tests of the Programme for International Student Assessment (PISA, see chapter 3) and the SIALS project (Adult Population Literacy Survey) are important. The PISA tests measure the relation between education and employability, with emphasis on the role of reading skills. They are given every three years to 15-year-olds, but there is no tracking over time. The SIALS project measures the ability of adults to process and transmit written information in the context of home, community, and work, and analyzes the determinants of literacy levels in the adult population, emphasizing the role of employment and training.[25] But like the PISA test, its objectives do not include tracking participants over time, so

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[23] Box 3.1 of chapter 3 provides detailed information on these three tests.

[24] Guzmán and Urzúa (2008) present an example of using standardized tests to analyze the determinants of the educational and labor success of the population. These authors analyze the case of Chile based on data from SIMCE and CASEN.

[25] In this context, literacy refers not only to skills in reading and writing but also the skill of understanding and using written information to meet one's obligations in the workplace, community, and home. Accordingly the concept of "functional literacy" is used to refer to the quality of a person's participation in the economic and social life of a country.

the results cannot be used to determine whether literacy levels produce better employment conditions or, conversely, if better employment conditions produce higher levels of literacy.

In summary, the results of the PISA and SIALS projects document a strong correlation between levels of literacy and preparation for (PISA) or performance in (SIALS) the labor market. This finding is consistent with the evidence described above on the critical role of academic skills (writing and reading) in success achieved in the labor market. In this respect, the collection of new information that contributes to the study of job performance in the region, including analysis of the school-to-work transition, should be based on a description of the literacy of the population.

The next step: Collecting longitudinal information

The international evidence reviewed in this chapter confirms the role of cognitive and socioemotional skills in an individual's academic and work performance. In many cases, socioemotional skills are even better predictors of performance than cognitive skills (Heckman, Stixrud, and Urzúa, 2006; Urzúa, 2008). The distinction between cognitive and socioemotional skills is complex, but it is critical to differentiate them, particularly because the two groups of skills develop over different spans of time and because the school's role in their development varies, which has important implications for public policy making.

Unfortunately, at present there are no rigorous studies that analyze these issues for Latin America. The information available in the region does not permit a detailed analysis of the role of cognitive and socioemotional skills in the transition from school to work. Obtaining longitudinal data of good quality—data that include measurements of the skill levels of the population before entering the labor market—is a critical step toward understanding the elements that make for a successful transition. Such information is also invaluable in the design and implementation of educational and labor policies to improve individuals' experience in the school-to-work transition. Efforts in Latin America should move in this direction. The evidence discussed in the following chapters is a first effort.

5

Skills Factory? What the Education System Contributes to the Labor Market

The challenge for education systems in the region

The previous chapters have explored the most salient aspects of the realities experienced by the region's young people in the education system and, later, in the labor market. Chapter 2 revealed that young people reap low returns from secondary education; they face high unemployment, show low rates of participation in the labor market, and earn low wages. It showed that few improvements to this situation have been made in recent decades. In fact, the evidence suggests that some problems have worsened, such as the wage premium for secondary-school graduates.

Chapter 3 analyzed the region's education systems, documenting not only significant increases in coverage but also a considerable gap in the mastery of basic skills—as measured by the results of international tests such as the Programme for International Student Assessment (PISA)—between the countries of the region and the more-developed economies—and even between Latin America and other countries with similar income levels. Thus the evidence shows the need to supplement the enormous efforts made to expand educational coverage with well-founded initiatives to improve the *quality* of education in Latin America.

For several decades, the economic literature has tried to explain labor market phenomena in terms of what happens—or does not happen—in the education system. In particular, several studies have shown how increases in the supply of young workers with secondary education can result in a deterioration of their conditions of employment. Katz and Autor (1999, for example, analyze the situation in the United States, while Manacorda, Sánchez Páramo, and Schady (2010) do the same for Latin America). This phenomenon may be reinforced

by the rigidities inherent in the labor markets of the region (a high minimum wage, high severance costs, and information asymmetries, among other factors), which further erode the employment situation of the less-educated groups of the population (Heckman and Pagés, 2004). Technological changes have also prompted companies to hire workers who are not only more educated but also better prepared (Acemoglu, 2002, and, for Latin America, Sánchez Páramo and Schady, 2003, and Attanasio et al., 2005). Mediated by institutional conditions, market forces forge a natural link between young people's job performance and the "output" of the education system. This chapter provides further evidence of this link—but from a different angle: the relationship between *skills*, education, and the labor market.

Although the relationship between education and work is hardly a new topic, the economic literature has only recently begun to examine the link between skills, education, and the labor market. The emerging conceptual framework has revealed the need to consider a broader spectrum of abilities in light of evidence of the importance of socioemotional as well as cognitive skills in the determination of various social, economic, and education outcomes—a topic discussed in detail in chapter 4.

Against this background, one may ask whether the poor results obtained by young people in the Latin American labor market are also in some way an expression of the failure of the region's education systems to endow graduates with the full set of skills and competencies they need to perform well in today's world. The aim of this chapter is to supplement the traditional yardstick (which measures students' success in mastering the curriculum) with a new dimension—the relationship between education, skills, and the labor market, all for the purpose of shedding new light on the matching of labor supply and demand in Latin America.

This chapter attempts to answer the following questions:

- Do more-educated individuals have higher levels of cognitive and socioemotional skills than less-educated individuals?
- How far can differences in the labor market be explained by these differences in skills?

Collecting evidence on the relationship between human capital, skill levels, and labor market outcomes is a first step toward identifying the mechanisms that explain the positive correlation of years of schooling and job performance. Although there is evidence for developed countries on this last point, the scarcity of data has frustrated efforts to explore this topic in Latin America. Understanding these mechanisms opens the possibility of detecting failures in the education system, designing better educational policies, and ultimately improving the conditions of employment of young people and adults.

Human capital and job performance: Transmission mechanisms

The positive association between employees' job performance and the level of human capital that they possess—usually approximated by the years of schooling they have had—is probably one of the most studied issues in economics and in social science in general. The evidence is very clear: more-educated individuals tend to display higher rates of participation, employment, and compensation. This association holds true irrespective of the age and gender of the groups studied. Consequently, more-educated young people perform better in the labor market than less-educated youth. The same is true for adults. So, if more-educated individuals tend to enjoy better conditions of employment, what is the nature of the change that education produces at the individual level? What exactly does the education system impart to raise the productivity of individuals as they acquire more years of education?

This analysis is based on the plausible hypothesis that accumulation of human capital not only provides more knowledge but also enhances an individual's skills and capabilities, which ultimately raises employability and productivity. According to this logic, the association between education and skills explains at least part of the empirical correlation of education and labor market performance. In other words, skills are the variables on which education acts to raise the job performance of the population.[1]

The possibility of providing solid empirical backing for this hypothesis depends fundamentally on the availability of individual-level data that combine information from job performance, educational experiences, and skill levels in a representative sample of individuals. That critical information was lacking until the Inter-American Development Bank (IDB) developed and conducted in 2008 and 2010 a Skills and Trajectory Survey (STS) that makes possible an empirical analysis of the proposed hypothesis. The STS was conducted in Argentina and Chile, two countries that share a long border and whose education systems, while similar in important respects, differ markedly in their political and economic organization, making the analysis even more instructive.

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[1] It is also possible that education does not impart skills but rather reflects them, providing evidence of their presence in the educated student (Spence, 1973; Altonji and Pierret, 2001; Bedard, 2001). In this sense, a higher level of education would be an outcome of skills already acquired,rather than the converse. Good students (those with higher degrees of skill) are better able to complete levels of education without being required by the system to acquire new knowledge. In this view, the education system selects students with higher levels of certain skills, students already amply endowed with skills who are likely to find it easier to complete successive levels of education. Regardless of how education affects skills—whether through learning, selection, or both—it is still valid to ask whether their impact on workplace performance stems from a positive link between education and certain key skills.

Description of the sample and variables studied

The STS, conducted among Chileans and Argentines aged 25 to 30, was specifically designed to analyze the association between the education level of the population and performance in the labor market, taking into account the roles that cognitive and socioemotional skills play in that performance. In other words, the surveys were designed for the specific purpose of answering the questions framed above on the translation of human capital into job performance. The surveys are comparable in their samples and in the content of the questionnaires used (appendix A).

The Chilean survey contains information on 4,497 individuals aged 25 to 30 in 2008. The Argentine survey contains information on 1,600 individuals aged 25 to 30 in 2010. The questionnaires contain specific questions on the characteristics of the respondents, their work and educational records, and their cognitive and socioemotional skills (appendix A). This information can be used to:

- Analyze the impact of education and early work experience (before age 20) on wages and employment conditions at approximately age 30.
- Quantify the association between skills (cognitive and socioemotional) and labor market performance.
- Quantify the association between education level and cognitive and socioemotional skills, controlling for individual socioeconomic variables.

With respect to skills, to ensure comparability, both surveys used exactly the same battery of cognitive and socioemotional tests, including tests of intellectual ability, metacognitive strategies, self-efficacy, and social skills. The instruments for measuring skills were developed and field tested by psychological experts.[2]

Cognitive (intellectual) skills. These skills were detected using a series of eight figural analogies completed by each individual respondent. The results of this test have proven to be highly correlated with measures of general intellectual ability (Centro MIDE UC, 2008). It is therefore viewed as a hard (or objective) measure. Its results are expressed as the number of correct analogies, meaning that individuals score between 0 (no correct analogy) and 8 (all correct).

[2] The part of the questionnaire on skills measurement was developed by the MIDE UC Center, at Department of Psychology of the Pontificia Universidad Católica de Chile (see appendix A).

Metacognitive strategies (task-planning skills). The level of metacognitive skills was measured using a set of 12 questions aimed at characterizing how individuals approach various tasks and use critical thinking. Test items are of the following type: "I adapt the way I study to suit the requirements of new tasks" or "I question ideas or theories to decide if I find them convincing."

Self-efficacy. The self-efficacy test defines how individuals perceive their capability to organize and achieve their goals. In this case, the 12 items considered are of the following type: "I feel I'm capable of performing the tasks and meeting the challenges" or "If I try hard enough, I could be one of the best in my studies or work."

Social skills. The objective of this test is to characterize individuals with respect to how they deal with others (communication, leadership, and so on). Twelve items of the following type were used: "I find it difficult to get others to pay attention to me and listen to my opinions" and "I find it difficult to reach agreement when I'm working with other people and we have disagreements."

Because of their nature, metacognitive strategies, self-efficacy, and social skills are considered socioemotional skills. The decision to measure these specific skills stems from the existence of empirical evidence of their relevance to the education and employment outcomes described in the previous chapter. The feasibility of developing instruments to measure the skills in the context of a household survey was also considered.

For metacognitive strategies, self-efficacy, and social skills, the responses depend on the individual's level of approval of the statement formulated. This means that these measurements reflect self-perceptions and report how far the statements presented reflect the respondents' usual behavior or attitudes. The respondent was asked to choose one of four graduated responses indicating the degree to which the statement applied to him or her: (1) "very little," (2) "somewhat," (3) "moderately," (4) or "strongly" (4). The average of the responses on each test were used for the empirical analysis in this chapter.[3]

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[3] From a technical standpoint, two important aspects have to be considered when using these tests. First, one must recognize the limitations involved in identifying the direction of causality between skills and labor market performance. For example, individuals who achieve good employment outcomes may feel more effective, while feelings of efficacy may lead simultaneously to better employment outcomes. The difficulty in avoiding reverse causation is inherent in the nature of cross-sectional data, such as those used in this study. Regardless of the method used to measure these skills (whether self-reporting or "hard" measures), reverse causality is a possibility. Recognizing the possibility of reverse causality, the study refers only to *associations* between the various skills and the educational and labor outcomes of the population, which is an essential first step in exploring these themes. Second, the analysis follows the conventional practice of using self-reporting for

Table 5.1

Correlations between skills by country

	A. Argentina			
	Cognitive skills	Metacognitive strategies	Self-efficacy	Social skills
Cognitive skills	1.0	——	——	——
Metacognitive strategies	0.097	1.0	——	——
Self-efficacy	0.103	0.482	1.0	——
Social skills	0.157	0.361	0.614	1.0

	B. Chile			
	Cognitive skills	Metacognitive strategies	Self-efficacy	Social skills
Cognitive skills	1.0	——	——	——
Metacognitive strategies	0.079	1.0	——	——
Self-efficacy	0.094	0.414	1.0	——
Social skills	0.122	0.337	0.532	1.0

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: All correlations are statistically significant (99% confidence level).

Skills may well not be independent. That is, it is entirely possible that individuals with a higher level of skills of one type will also have a higher level of another type. To understand the association between different types of skills, table 5.1 presents the correlation matrices for the Argentine and Chilean samples.

Results of the surveys

The results are similar in both countries. The most pronounced correlations are those between self-efficacy and social skills, and between self-efficacy and metacognitive strategies. These are followed by the correlations between metacognitive strategies and social skills, and lastly those between cognitive

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the socioemotional skills included in the study, because in addition to their being the conventional approach to measurement of the skills under study, it is the only approach compatible with a household survey. Even so, there are no obvious reasons to suspect false reporting of information (such as might occur if the scores were associated with serious consequences). The alternatives to self-reports, which certainly are incompatible with the survey format, are physiological measurements that can be used only in experimental settings, especially with respect to emotions. Implicit measurements (such as implicit attitudes) are used in areas where subjects may be motivated to falsify self-reports (as is common in the measurement of prejudice). Implicit measurements require the use of a computer, which also makes them incompatible with the survey format. In summary, for the skills measured in this study the conventional practice (which is compatible with the context of a survey) has been self-reporting.

skills and the socioemotional skills. The weak correlation between cognitive and socioemotional skills is particularly relevant because, as will be seen later, the labor market rewards both cognitive and socioemotional skills. Individuals who exhibit higher levels of socioemotional skills have an advantage, because the chances of having high levels of skills in several socioemotional areas (all potentially valued by the market) are high.

The strong correlations found between the components of the socioemotional skill set was, in some ways, predictable. As explained in the previous chapter, research has shown that all skills are determined to some extent by the interaction between the inherent characteristics of individuals (genetic factors) and the stimuli they receive from their environment.

In summary, results from both Argentina and Chile show that the three measures of socioemotional skills are more strongly correlated with each other than with cognitive skills. Because of the importance of socioemotional skills, it bears repeating that the STS data are the first to permit the simultaneous study in the Latin American context of (i) individual employment and academic histories and (ii) cognitive and socioemotional skills. Analysis of the data obtained from these surveys offers a unique opportunity to identify and compare the determinants of individual educational and career achievements in Argentina and Chile.

Education and skills

The early chapters of this book established the fact that although today's young people complete more years of schooling, the effectiveness of education cannot be measured solely by this yardstick. This is why it is important to evaluate the association between schooling levels and skill levels in the population. A positive association between these two variables would suggest the presence of a relationship between the level of human capital (years or levels of schooling) and the skill levels of the population. The stronger the association, the more the hypothesis proposed here will be supported, namely that education (by training or selection) increases the skill levels of the population, which raises their productivity and consequently improves their job performance.

Before examining the relationship between education, skills, and employment outcomes, however, it is necessary to describe some of the important characteristics of the samples from Argentina (2010) and Chile (2008). Table 5.2 presents the distribution of educational achievement in both samples.

On average, in both Argentina and Chile, most of the new generation of workers included in the surveys at least complete secondary school, and 40 percent also have at least some postsecondary education. Only 10 percent of individuals aged between 25 and 30 report primary education as their highest

Table 5.2

Levels of schooling in Argentina and Chile

(*Individuals aged 25 to 30*)

	Argentina	Chile
Average years of schooling	12.58	12.82
Highest level completed (%)		
Primary	8.17	9.35
Secondary	49.86	45.88
Postsecondary technical/vocational	17.68	15.86
University	24.30	28.91

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The statistics were based on the total number of individuals in the respective surveys (including those enrolled in school at the time).

level. These high levels differ significantly from the levels of only a couple of decades ago, when most of the population completed only high school.

The introduction provided a first glimpse of the link between levels of education and the skills of the population. Here, two important points should be repeated. First, as already seen, reaching a given level of schooling is not the same as completing it. For example, of the 24 percent of individuals who stated in the Argentine survey that they had started university, only one in three said they had completed it (versus almost half in Chile). It is important to take into account the possible differences between individuals who indicate that they have started an education level versus those who report actually having completed it.

Second, one must distinguish between the various types of secondary education in the region. Both Argentina and Chile have two types: (i) traditional academic programs (known as scientific-humanistic in Chile), and technical/vocational programs. Each has its own curricula and goals. Whereas the traditional system is intended to build the skills and capabilities required to continue on in the university system, technical/vocational schools aim to build technical skills and abilities that can be used in the workplace or in postsecondary technical studies. In Argentina 39 percent of secondary school graduates are from technical/vocational schools; in Chile, the proportion is 48.6 percent.

A high correlation between skills and education

Figure 5.1 confirms the high correlation between skill levels and educational levels reached (completed), especially in terms of cognitive skills. The effect of completing a specific level of education shows a clear pattern. In general, when comparing the skill levels of individuals who reach a certain level of schooling but do not complete it with those who do complete it, the latter show much

Figure 5.1

Average cognitive and socioemotional skills by level of schooling

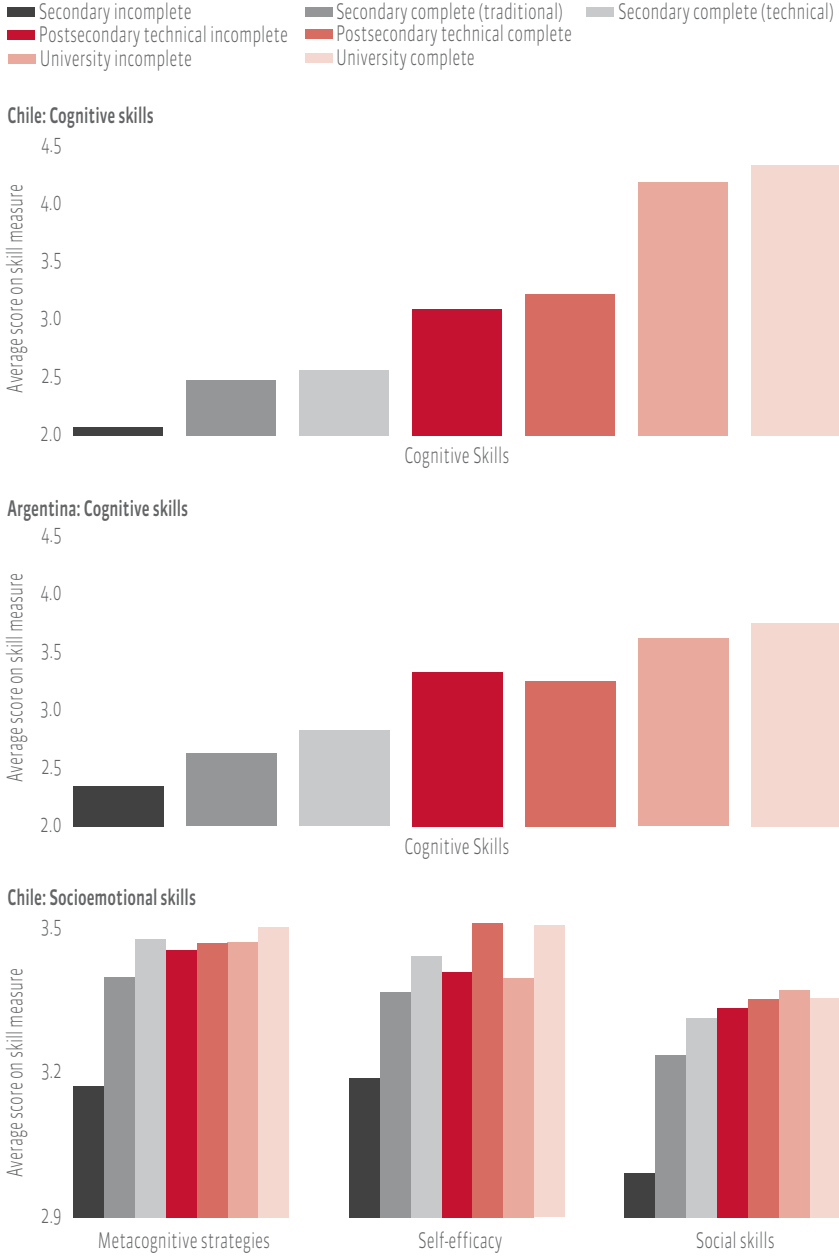

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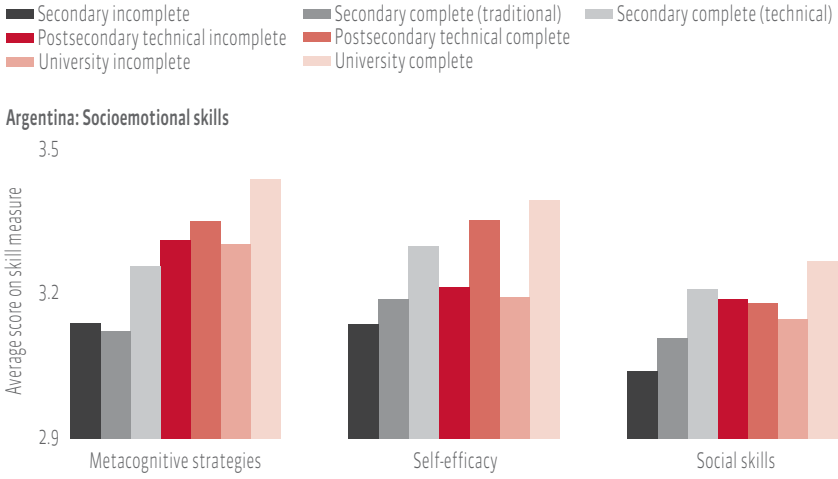
Figure 5.1 (*continued*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).

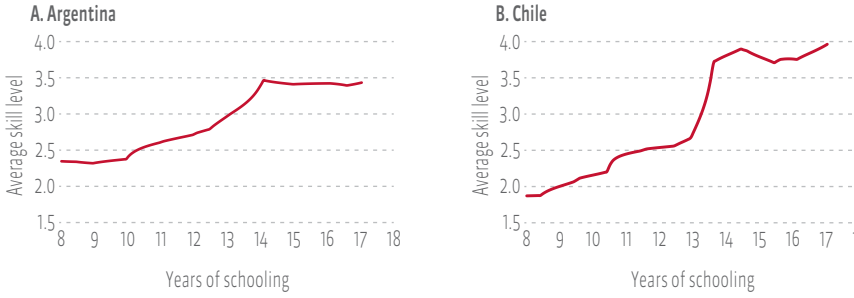
higher levels of skill. This is particularly clear for self-efficacy in the case of postsecondary education, where a substantial increase in the level of this skill is associated with the completion of postsecondary studies. These results are confirmed for both Argentina and Chile and suggest the need to create conditions conducive not only to reaching—but also to completing—higher levels of education.

At each level the education system either imparts skills or selects individuals who already have them, so the most able individuals at each level will be those who manage to graduate. Irrespective of education's role in shaping skills (possibly through both selection and formation), these results show that completing a level of schooling indeed provides information on individual endowments—that is, it "certifies" a certain level of skills.

Another remarkable finding represented in figure 5.1 is related to the high levels of socioemotional skills associated with technical/vocational education at both the secondary and postsecondary levels. In Argentina and Chile, the socioemotional skill levels of graduates of secondary technical/vocational programs are higher than those reported by graduates of traditional academic programs. In addition, levels of socioemotional skills among graduates from postsecondary technical/vocational education are higher than for individuals who reach but do not complete university education, and comparable to those of university graduates. This is an interesting sign of how different types of education can lead to differences in individual skills and capabilities. How the labor market values those skills will determine the returns to each type of education.

Figure 5.2

Levels of cognitive skill by years of schooling



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).

How do skills grow over the school cycle?

After establishing the positive association between levels of schooling and skill levels, the question becomes whether it is possible to identify a pattern in the development of skills across students' educational trajectory. Do skills improve gradually over the years of study, or is there a jump at some particular level? A more detailed analysis by year, rather than by education level, might be able identify critical periods of development (or selection) of cognitive and socioemotional skills. It might also yield information on additional factors underlying the differences between the two countries. Figures 5.2 and 5.3 show how cognitive and socioemotional levels evolve with each additional year of education. The figures present the average levels of skill by years of schooling reported.[4]

In both Argentina and in Chile, cognitive skills (figure 5.2) are associated strongly with the number of years of postsecondary education completed. Although there is a positive association between skills and education during the years of basic schooling (years 8 to 12), levels of cognitive skill increase significantly between years 13 and 14. One possible interpretation of these results is that the highest dropout rates occur in the first years of higher education. It is reasonable to suppose that young people with lower levels of cognitive skill may be more likely to drop out, and that those with higher levels may be more likely to stay. Moreover, young people with lower levels of cognitive skill may self-select into shorter technical careers that require other types of skills. Both effects would contribute to the break observed in the "evolution" of cognitive skills by years of education.

[4] Owing to the characteristics of the data it is not possible to measure the development of skills in individuals over the course of their schooling. Reported in figures 5.2 and 5.3 is the level of skills of groups of individuals having completed a given number of years of education.

In contrast, the results for socioemotional skills (figure 5.3) differ for Argentina and Chile. With regard to metacognitive strategies, for example, in Argentina there is no association between 8 and 13 years of schooling. After 13 years a slight positive association appears. In the case of Chile, by contrast, one sees a significant increase in levels of skill with metacognitive strategies in secondary education (between 9 and 12 years of schooling). It is during this period that individuals are known to develop critical thinking and strategies for performing tasks and achieving objectives.

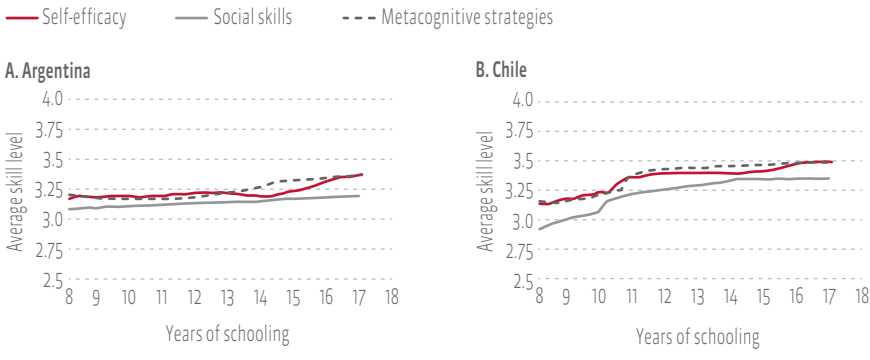
The pattern observed for metacognitive strategies is repeated for another socioemotional skill: self-efficacy. Although it is not possible to identify critical periods for the development of self-efficacy in the Argentine sample, in Chile the period between 9 and 12 years of education appears to be important. Lastly, in the case of social skills, there is a clear increase after 14 years of schooling in Argentina, whereas in Chile the trend is stable and positive throughout the years of education, with a slight uptick between 10 and 11 years of schooling.

The above results confirm the positive correlation between skills and education. But what is new are the important differences between Argentina and Chile, particularly with respect to socioemotional skills. The Chilean sample shows a significant leap in the development of socioemotional skills during secondary school. In Argentina, by contrast, the increase is much less pronounced and usually occurs at the postsecondary level. The pattern for cognitive skills is the same for both Argentina and Chile, increasing steadily during primary and secondary education and accelerating during higher education.

The very weak association between socioemotional skill level and years of schooling in Argentina may point to deficiencies in the education system related to the development of these critical skills or to the identification of students who have the skills needed to complete a given level of education. It is not easy to

Figure 5.3

Levels of socioemotional skills by years of schooling



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).

conceive of an education system that provides value added or requires minimal skill levels without this being expressed clearly in some critical period.[5]

The average is not all that matters

Although averages are informative, an analysis of the distribution of skills can offer a more complete picture of the relationship between education and skills. Averages indicate the skill level of a typical person with a certain level of schooling, whereas distributions represent the degree of similarity in the skill levels of the members of a given educational group. The greater the dispersion, or variance in skill distribution, the greater the heterogeneity—that is, the greater the skill differences between individuals in the same group. That means that within the same educational group, one finds people with high levels of skill alongside people with low levels of the same skill. Figures 5.4 and 5.5 show the distributions for each level of schooling for Argentina and Chile. The narrower the curve, the lower the variance or dispersion (that is, the greater the similarity of the members of the group with respect to the skill in question).

In the case of cognitive skills a clear pattern appears in both countries: The higher the education level, the higher the level of skills (the distribution moves to the right). Interestingly, aside from the gradual nature of the increase in skills, each level of schooling successively increases cognitive skill relative to the previous level.

Using a similar logic it is possible to study the changes in dispersion between levels of education for each country. In both Chile and in Argentina the degrees of dispersion of cognitive skill increase with the level of schooling. This means that more-educated young people are more heterogeneous with respect to their level of cogntive skill than are less-educated youth. Among young people with a primary school education, the average level of intellectual skill is similar. By contrast, among postsecondary students, one finds people with very high levels of intellectual skill and people with very low levels.

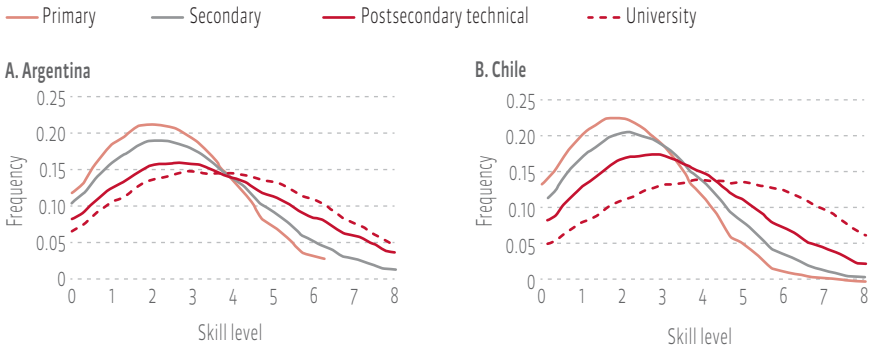
In contrast to the situation for cognitive skills, it appears that for socioemotional skills dispersion decreases or remains constant among more-educated groups (figure 5.5). In other words, more-educated young people are more similar to one another in their socioemotional skills than are young people who have only a primary education. These results are observed in both Argentina and Chile, strengthening the pattern.

These results may have important implications in identifying differences in how skills are generated and the possible role of the education system in that

[5] It is worth repeating here that these results do not imply that the skills are developed by the education system, but they do suggest a correlation or association between years of education and skill levels.

Figure 5.4

Distribution of cognitive skills by level of education reached



Source: Authors' calculations, based STS (IDB, 2008a and 2010b).

process. Is the education system shaping these skills or simply using them to select students who should move ahead?

The production functions of cognitive and socioemotional skills

It was noted in chapter 4 that the economic literature has paid growing attention to the factors that influence the development of cognitive and socioemotional skills. In that literature, skills are considered to be the outcome of a production process in which various factors such as family, individual characteristics, and level of schooling play important roles (Heckman, Stixrud, and Urzúa, 2006). The following analysis is based on this literature.

It has been assumed that the skill levels of individuals can be explained by socioeconomic variables and levels of education. To test the validity of that assumption, econometric estimates are used to isolate the impact (or correlation) of these each factors.[6] The main objective of this exercise is to measure the association between education and the level of various skills, isolating the

[6] The following regression model was used:

$$T_i = \beta X_i + \sum \phi_\tau D_{\tau,i} + \varepsilon_i \qquad (1)$$

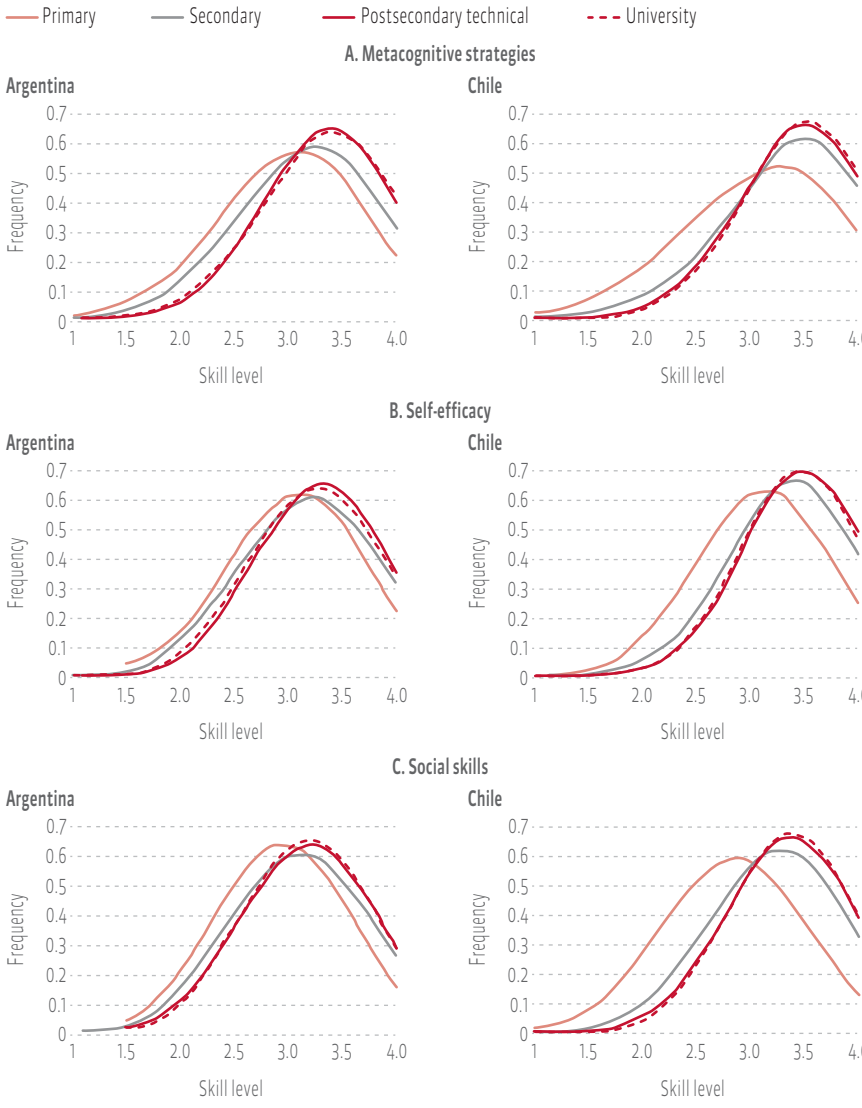
where

T_i represents the skill level of the individual
X_i is a vector of socioeconomic variables
$\{D_{\tau,i}\}_{\tau=1}^{T}$ is a set of binary variables that characterize the individual's education level,
ε_i is the error term.

Following this analysis, the effect of education is quantified by the term $\{D_{\tau,i}\}_{\tau=1}^{T}$.

Figure 5.5

Distribution of socioemotional skills by level of education reached



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).

effect of education from that of other individual characteristics (such as parents' schooling, among others).

To make the estimates, five levels of schooling are considered: (i) incomplete primary or secondary education, (ii) graduation from secondary technical/vocational program, (iii) graduation from secondary traditional program,

Figure 5.6

Association between education and individual skill levels in Argentina and Chile (controlling for other factors)

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b). The bars indicate the differences in skill levels between individuals at each education level and the base group. The differences are expressed as a percentage of a standard deviation in each test.
Note: The list of controls includes: age and gender of the individual, whether or not the individual was enrolled at the time of the survey, parents' education, household income when the individual was age 5, whether the individual had preschool education, whether the individual ever repeated a grade, months of unemployment before the survey, and months of inactivity before the survey.

(iv) completion from postsecondary technical study, and (v) graduation from university. Figure 5.6 shows the estimated values for the coefficients associated with these variables[7] in Argentina and Chile. The estimates use the lowest education level (primary or incomplete secondary) as a reference point, so each coefficient represents change relative to this level.[8]

[7] The ϕ_τ in expression (1) in the previous note.
[8] The results are also presented as a percentage of a standard deviation in the respective test (standardized coefficients).

Several findings are apparent in the figure. First, in the education systems of Argentina and Chile there is a positive association between levels of education and skills, even after controlling for other characteristics. People who have similar characteristics (parents' education, age, gender, family income, and so on), but who differ in level of education, also tend to differ in level of skills. In general, the higher the level of schooling, the higher the skill level.

Moreover, both panels show that even after controlling for the effect of other variables that affect the learning of socioemotional skills, there is a strong correlation between the latter and technical/vocational secondary education. In particular, very significant results are obtained for social skills, very similar to those estimated for university education. This confirms the importance of gaining a better understanding of the elements of technical/vocational secondary education that combine to produce higher levels of socioemotional skill. The uniformity of the low coefficients found for traditional academic secondary education is also surprising. This can be interpreted as an expression of the low value-added of this type of education relative to incomplete secondary education.

Argentina versus Chile

The foregoing analysis of the relationship between education and skills is entirely based on comparisons between educational levels within each country. All the exercises confirm a strong correlation between education and skills: More educated young people have higher levels of cognitive and socioemotional skills. Although this is evident in both Argentina and Chile, Argentina exhibits smaller skill differences between educational levels than does Chile. In particular, Chilean students seem to make a big jump in socioemotional skills during secondary school, which is not seen in Argentina. Perhaps in Argentina, for each education level, skill levels are higher than in Chile because of skills learned at home or elsewhere outside of school. Thus the education system might not make as great a difference, since young people's skill levels were already high. If that were the case, young Argentines with secondary education, for example, would have higher skill levels than young Chileans with the same level of education.

Table 5.3 presents the results of the comparison between skill levels in Argentina and Chile by level of schooling. On average, university graduates in Chile uniformly show higher levels of skill than their counterparts in Argentina. This pattern is verified in most of the comparisons (levels of education and skills), except with respect to cognitive skills.

Similarly, levels of dispersion or heterogeneity can be compared between countries within a given educational group. In general, one finds a greater dispersion of skills among Argentinean students than among Chileans at each level of schooling (see table 5.4).

Table 5.3

Are average levels of skill higher in Argentina or Chile?

Level of education	Cognitive skills	Metacognitive strategies	Self-efficacy	Social skills
Primary	Argentina	Chile	Chile	Argentina**
Secondary	Argentina*	Chile***	Chile***	Chile***
Postsecondary technical/ vocational	Argentina	Chile***	Chile***	Chile***
University	Chile***	Chile***	Chile***	Chile***

Source: Authors' calculations based on STS (IDB, 2008a and 2010b).
Note: Differences statistically significant at *10%, ** 5%, and *** 1%.

Chile shows greater dispersion for most skills at the primary level. Argentina clearly has a greater dispersion of cognitive and socioemotional skills at the higher levels of schooling.

This is particularly interesting in view of the finding presented earlier (figure 5.2) that Argentina had higher degrees of homogeneity *among educational groups* than did Chile. In light of these results it can be concluded that although there are major differences in Chile between the average level of skills possessed by groups of individuals at various levels of education, the dispersion of those skills *within* each level is higher in Argentina. The Chilean education system seems to generate greater differences between groups, but greater homogeneity within each; in the Argentine system, the opposite seems to be the case. In other words, the Chilean education system shows more marked differences between more- and less-educated youth, whereas at a given level of schooling young Chileans are relatively homogeneous. Whether by learning or selection, the Chilean education system seems to be more effective in creating differences in skills and ensuring a more homogeneous group. Therefore, the

Table 5.4

Is the dispersion of skills greater in Argentina or Chile?

Level of education	Cognitive skills	Metacognitive strategies	Self-efficacy	Social skills
Primary	Chile	Chile	Argentina	Chile
Secondary	Argentina	Argentina	Argentina	Argentina
Postsecondary technical/ vocational	Argentina	Argentina	Argentina	Argentina
University	Argentina	Argentina	Argentina	Argentina
Total	Chile	Argentina	Argentina	Argentina

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The comparison is based on the coefficients of variation of skills between countries for each level of education.

Box 5.1

Gender and skill learning

Gender differences are important for understanding how the education system contributes to the accumulation of skills. The table presents the results of comparing average skill levels for men and women by country and level of education, reporting the group with the highest levels of each skill under study. Analysis of these averages independent of the level of schooling (see the rows marked total) reveals that in both countries men have higher levels of self-efficacy and social skills, while women seem to have higher levels of metacognitive strategies (task-planning skills). Lastly, in the case of Chile the levels of cognitive skill are higher for men than women, while in Argentina the opposite is the case.

Do men or women have higher levels of skill?

Skill	Level of education	Argentina	Chile
Cognitive	Primary	Women	Men
	Secondary	Men	Men
	Postsecondary technical	Women	Men
	University	Women***	Men
	Total	Women	Men***
Metacognitive strategies	Primary	Men**	Men
	Secondary	Men	Women
	Postsecondary technical	Women	Women***
	University	Women**	Women***
	Total	Women	Women***
Self-efficacy	Primary	Men***	Men***
	Secondary	Men***	Men***
	Postsecondary technical	Men	Men
	University	Women	Women
	Total	Men***	Men***
Social	Primary	Men**	Women
	Secondary	Men	Men*
	Postsecondary technical	Women	Women
	Universitaria	Women	Women
	Total	Men	Men*

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: Statistically significant differences at *10%, **5%, and ***1%.

The skill differences between men and women at various levels of education display interesting patterns. In Argentina, women educated to the postsecondary level possess higher levels of the three socioemotional skills, while men outdo women at the lower levels. Among less-educated individuals, men seem to have greater socioemotional skills than women, while the pattern is reversed among the more educated.

(*continued on next page*)

Box 5.1 (*continued*)

Gender and skills training

A comparison of men's and women's levels of cognitive skills by level of education does not reveal a clear pattern. While in Argentina women have higher skill levels than men on average, in Chile the opposite is the case. These differences may be influenced by cultural factors and require a detailed analysis that is beyond the scope of this book.

This analysis documents the existence of differences in the skill levels of individuals with different levels of schooling, but it also shows that individuals having the same level of education but different characteristics (such as gender) exhibit different levels of skills. Consequently, it is possible to infer how individual characteristics, institutions, and educational levels affect skill levels in the population.

Source: IDB (2008a and 2010b).

level of education of an individual schooled in Chile should convey more information about that individual's skills than would be the case for an individual schooled in Argentina.

The value of education and skills in the youth labor market

The economic return from investing in human capital

Millions of families in Latin America see the education of their children as a chance for a better future. Education has become, justifiably, the mechanism of choice for reducing poverty and improving income distribution in the region. But how much of a difference does a better education actually make in the world of work? How much does it influence the employee's future? These questions are particularly important in societies where doubts may persist about the quality of education, as seen in chapter 3.

Although several empirical studies have established the positive association between success at work and individual human capital, there is no consensus on the strength of that association in Latin America. There are many reasons for this. First, the marked heterogeneity of education systems and labor markets in the region makes it difficult to extract quantitative patterns. Second, the specialized literature usually focuses on wages or earnings, neglecting the importance of employment and participation in the labor market. Lastly, no surveys had previously analyzed the value that the labor market assigns to education taking into account differences in individual skills.

This section analyzes the value that the labor market assigns to the education of young people in Latin America, examining the influence of education on labor force participation, employment, and wages. In each case, statistical

models are used to isolate the effects of other individual characteristics such as age, gender, parents' education, and household income. The results show the degree to which various aspects of employment conditions improve with the education of individuals, while controlling for differences in the factors just mentioned.

But before presenting the results, certain limitations imposed by the available data need to be borne in mind. Specifically, as mentioned earlier in this chapter, it is not possible, using the data available, to do more than identify associations (correlations) between skills, education levels, and performance in the labor market (participation, employment, and wages)—the results cannot and should not be interpreted as reflecting a causal relationship between these variables. In the future, after collecting longitudinal or experimental data, it may be possible to identify causal relationships.

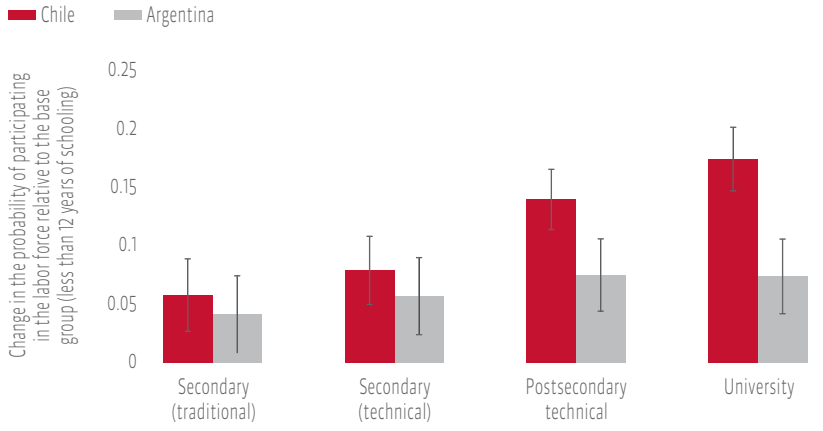
Education and labor force participation, employment, and wages

Economic theory suggests that, on average, more-educated individuals are more likely to participate in the labor market (versus the alternative of inactivity). Figure 5.7

Figure 5.7

Association between level of education and labor force participation, by country

(*Workers aged 25 to 30*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: Results are obtained from a probit model of participation in the labor market regressed against level of education, age, gender, parents' education, and household income when the individual subject was age 5. In both cases the estimate excludes individuals who were enrolled at the time of the survey. For each bar, the vertical line defines the confidence interval associated with each estimator (95%).

shows the association between the education level of the population and labor force participation in Argentina and Chile.[9]

For both countries, figure 5.7 shows that individuals who have higher levels of education also exhibit, on average, higher rates of labor force participation. This association is particularly clear in Chile, where the relative advantage of a higher level of education on the probability of participating in the labor market (measured as the correlation between education level and the probability of participating in the labor market) increases steadily with the level of education. Note also the differences in levels between the two countries, especially in the more educated groups. The relative gain in participation from postsecondary education in Chile is more than twice that in Argentina. This is seen with some regularity when comparing the results between the two countries, as discussed below.

Figure 5.8 shows the association between education level and probability of being employed.[10] Again, the pattern of results differs for the two countries. While in Chile the gain in likelihood of employment from technical/vocational secondary education is as high as that associated with university education, in Argentina the gain from technical/vocational postsecondary education is almost double the gain from the other levels of schooling. These results illustrate the differences between the labor markets of the two countries, while also suggesting the high value of technical education. The case of Chile is particularly interesting, given the marked increase in recent years in the supply of skilled workers with postsecondary degrees.[11]

A possible limitation of these results is that they could be affected by the individual's occupational status in the period immediately following graduation (or leaving school). This bias may be detrimental to those who spent longer periods in school. But the 25-to-30 year-old age range is probably wide enough to prevent this problem. Moreover, irrespective of possible biases, the period directly following graduation (or leaving school) is essential to the study of the trajectories of young workers and to understanding how the labor market values human capital acquired in the course of formal education.

Figure 5.9 shows the association between levels of education and wages.[12] The estimate is based on a linear regression model in the spirit of the Mincer

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[9] The estimates presented below use the lowest education level (less than 12 years) as a baseline or reference group, so that each estimate represents the correlation between a given education level and a variable of labor market relative to the same correlation for the reference group.

[10] The variable of interest is the employment situation at the time of the survey, particularly the likelihood of being employed, taking as base all individuals participating in the labor market.

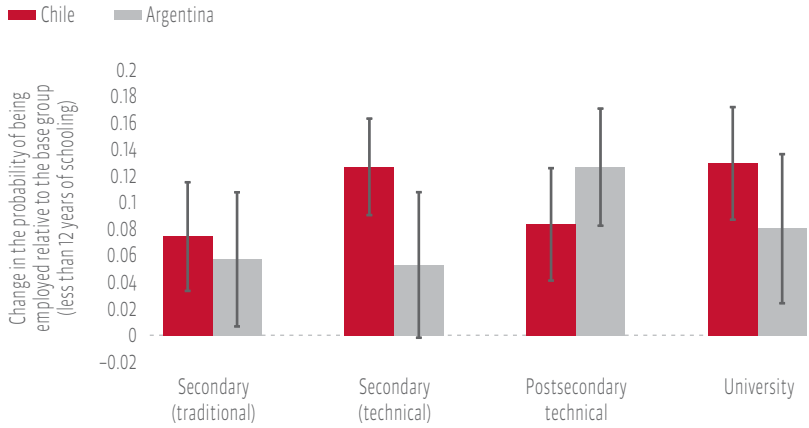
[11] In recent decades, the number of students in the higher education system has more than tripled.

[12] The variable of interest is the monthly net wage (if employed).

Figure 5.8

Association between education level and probability of being employed, by country

(*Workers aged 25 to 30*)

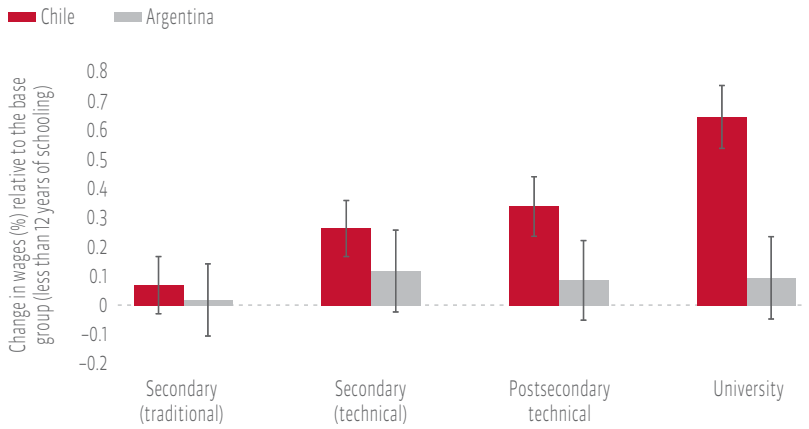


Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: Results are obtained from a probit model of employment regressed against level of education, age, gender, parents' education, and household income when the individual was 5. In both cases the estimate excluded individuals who were studying at the time of the survey. For each bar, the vertical line defines the confidence interval associated with each estimator (95%).

Figure 5.9

Association between education level and wages, by country

(*Workers aged 25 to 30*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The associated results are obtained from a linear regression model of the wage logarithm as a function of individual education levels, age and gender, parents' education, and household income when the individual was aged 5. Individuals who were studying at the time of the survey are excluded from the estimate. For each bar, the vertical line defines the confidence interval associated with each estimator (95%).

wage model (Mincer, 1958, Heckman, Lochner, and Todd, 2006). The set of control variables (regressors) considered here is similar to that used for the labor force participation and employment models. This means again that young people who have different educational levels but are otherwise similar are being compared.[13] The estimates also use the lowest level of education (incomplete secondary) as a reference point or baseline, so that each estimate represents the association relative to that level.

Interesting findings emerge from the data. A comparison of the results suggests significant differences in the value that the Argentine and Chilean labor markets assign to education (in terms of wages). In Argentina, returns on education do not exceed 15 percent and are very similar at all levels of education except traditional academic secondary education, where the return is close to zero. In Chile, by contrast, the returns are relatively high, increasingly so as the level of education rises. The returns associated with university education are pronounced. This is a constant in studies that analyze the relationship between the labor market and levels of education in Chile (Contreras, Melo, and Ojeda, 2005). Another interesting result for Chile is the high value placed on technical education: technical-vocational secondary education produces a return of close to 26 percent, and the return on postsecondary technical education is more than 30 percent.

For Argentina the return associated with secondary technical/vocational education is also high (at around 11 percent, compared with 2 percent for traditional secondary education), but the same does not hold true for postsecondary technical education (9 percent, slightly lower than the return on secondary technical education).[14]

Skills and labor market outcomes

This section explores the link between individuals' cognitive and socioemotional skill levels and their labor market outcomes, an important topic that has received

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[13] The wage data pertain only to individuals who work. In this context,estimations that took into account the potential bias associated with self-selection were also carried out (Heckman, 1979). These results are not reported here, as they do not differ significantly from the results presented in this section.

[14] At first glance, the weak correlation between higher levels of education and salaries may seem surprising. Moreover, it may appear to contradict the discussion in chapter 1. However, the phenomenon may be related to the fact that in the Argentine survey, a high percentage of subjects reported being studying. Specifically, 30% of the Argentine subjects aged 25 to 26 stated that they were still in school, whereas in Chile the percentage was about 20%). Even though the proportion drops with age, it remains high, even in the group aged 29 to 30, where it is about 12% (whereas in Chile, just 4% of 30-year-olds reported being in school). Therefore, the weak link detected between postsecondary education and earnings in Argentina may be an artifact of the characteristics of the group in question. In other words, prolonged periods of study delay entry into the labor market and push down the average earnings of the group.

very little scrutiny in the Latin American context. Establishing a positive link between skills and employment for young people with a given level of education opens the possibility of designing public policies to increase employment, as well as labor participation and earnings, through interventions to improve the skills of the population. The analysis presented here also identifies whether cognitive skills or socioemotional skills exhibit a stronger association with performance in the labor market. For that purpose, the coefficients associated with cognitive skills, metacognitive strategies, self-efficacy, and social skills estimated will be analyzed in the context of the participation, employment, and wage models described earlier. But it is important to emphasize that the results should be interpreted as associations (correlations) and not as a reflection of the impact of skills on labor market outcomes.[15]

Analyzing the association between labor market participation and levels of cognitive and socioemotional skills makes it possible to determine whether young people with higher skill levels are more likely participate in the labor market, holding their level of education constant.[16] Figure 5.10 shows the association of each type of skill with labor force participation.

The results show the dominance of self-efficacy in the association between socioemotional skills and participation rates in both Chile and Argentina. In both countries the results are positive (and significant for Chile), indicating that higher levels of self-efficacy are associated with increased labor force participation. Something similar is found for cognitive skills, although with a lower magnitude (not significant). The results for metacognitive skills are positive (and significant) in Argentina. For Chile, the result is close to zero (not significant). The same is true for social skills, which do not show a positive (or significant) correlation with labor force participation. The fact that so few skills show a statistically significant correlation with participation is counterintuitive,

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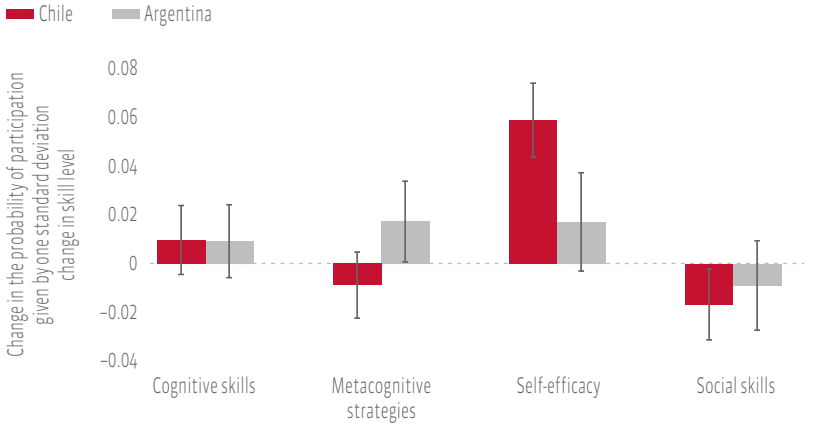
[15] Formally, the data cannot distinguish whether the higher skills levels "cause" better performance in the labor market or vice versa. Another element that must be considered when interpreting the results is the possibility that the cognitive and socioemotional test scores are affected by measurement error. This is a problem that affects not only the results of this chapter, but also much of the literature. Measurement error means that the results of skill tests reflect not only the actual skills of individuals, but also elements unrelated to those skills (errors). Examples might include the individual's mood on test day, factors associated with the context in which the test was given (the interviewer's mood, temperature, noise, lighting, and so on), or characteristics of the test itself (clarity of the questions and their length). Although formally it is difficult to anticipate the effect of measurement error when multiple variables affects are used simultaneously as exogenous variables in regression models, intuition suggests that the effect would be to underestimate the true effect of skills on the various dimensions of labor market performance.

[16] To ensure a clearer comparison between Argentina and Chile, each skill variable was standardized (mean 0 and variance 1) in each country.

Figure 5.10

Association between skills and probability of participating in the labor force

(*Workers aged 25 to 30*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: Results are obtained from a probit model of participation in the labor market regressed against education level, age, gender, parents' education, household income when the individual subject was age 5, and the cognitive and socioemotional skills under study. In both cases the estimate excludes individuals who were enrolled at the time of the survey. For each bar, the vertical line defines the confidence interval associated with each estimator (95%).

though the results confirm that the socioemotional variables are correlated with the probability of participation.

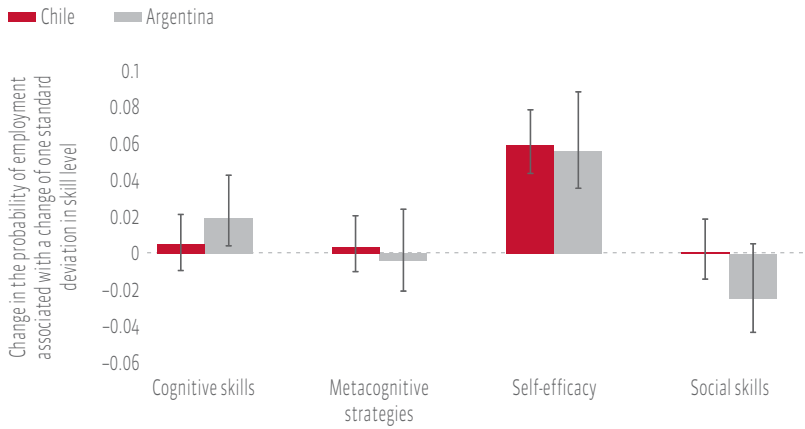
With respect to the probability of being employed, the patterns found are similar to those observed for labor participation. The results are positive for self-efficacy in both Chile and Argentina (figure 5.11). Cognitive skills show a positive coefficient but of lesser magnitude than the estimate for self-efficacy (and statistically significant only for Argentina). The results for the metacognitive strategies are close to zero, while the results for social skills are not significant. This confirms that the skill with the greatest association is self-efficacy, which seems intuitively correct. This means that young people who value their own capabilities as students or employees are more likely to participate in the labor market and to be employed.

Figure 5.12 repeats the analysis, but this time for wages. Again, for each country and type of skill the estimated parameter is shown with the associated confidence interval. The results for wages confirm the importance of self-efficacy as a variable that is highly correlated with better performance in the labor market. In both countries, the magnitudes of the estimated correlations suggest an increase of at least 10 percent in wages for an increase of one standard deviation in self-efficacy. The increase may seem marginal, but it is significant.

Figure 5.11

Association between skills and probability of being employed

(*Workers aged 25 to 30*)

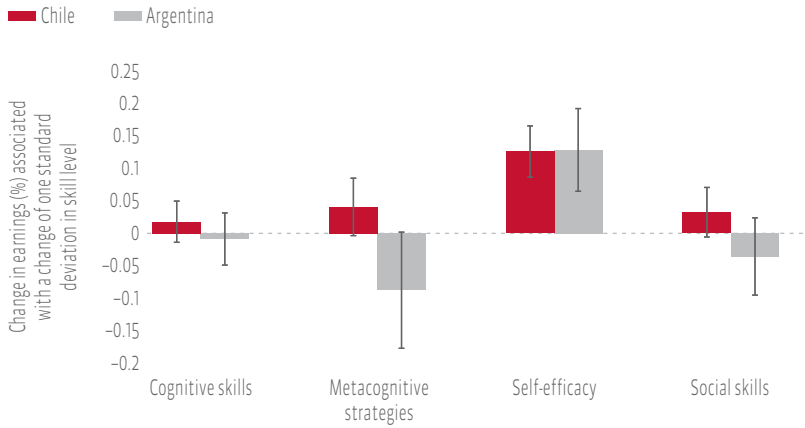


Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The results associated with the model are obtained from a probit model of employment regressed against education level, age, gender, parents' education, household income when the individual subject was age 5, and levels of cognitive and socioemotional skills. In both cases the estimate excluded individuals who were enrolled at the time of the survey.

Figure 5.12

Association between skills and earnings

(*Workers aged 25 to 30*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: Results are obtained from a linear regression model of the logarithm of wages as a function of education level, age, gender, parents' education, household income when the individual subject was age 5, and levels of cognitive and socioemotional skills. In all cases individuals who were enrolled at the time of the survey were excluded from the estimate.

The correlation of wages with levels of social skills and metacognitive strategies in Chile is positive but of low magnitude, and it is negative for Argentina. (In both cases the correlation coefficients are not statistically different from zero.) Social and cognitive skills show similar behavior. This could indicate that intellectual abilities do not seem to mark a difference in the wage levels of employees with similar levels of education. This implies that among young people who have the same education, those with higher levels of cognitive skill on average do not earn higher wages.

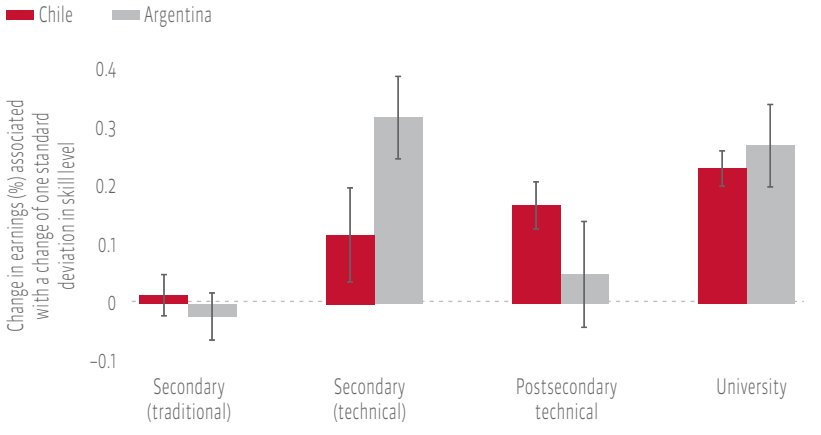
Finally, given the importance of understanding the source of the link between self-efficacy and wages, figure 5.13 illustrates the relationship at different levels of education. In both countries, there is a significant correlation between wages and self-efficacy at the postsecondary level, whereas the same correlation among those with a traditional academic secondary education is very weak. The results also suggest that the Chilean market values self-efficacy more among workers with higher technical education relative to the secondary technical education group, although in both cases the associations are high (and significant). In Argentina, the strongest association is found among individuals with secondary technical education—it is even higher than among university graduates.

The results presented here confirm the importance of socioemotional skills, particularly self-efficacy, for success in today's workplace. This association is clearly present in both Argentina and Chile.

Figure 5.13

Association between self-efficacy and earnings, by education level

(*Workers aged 25 and 30*)



Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The results relate to the coefficients associated with different types of skills and to their interaction with gender. In all cases individuals who were enrolled at the time of the survey were excluded from the estimate.

Discussion and implications of the results

This analysis provides suggestive evidence of the role of skills in the link between education and wages. Using the results presented in the previous section, it is possible to determine the extent to which that link may reflect the correlation of wages, education, and skills.

The percentage of the return to each level of education that can be traced to differences in the skill levels of the sample is shown in figure 5.14. In other words, the figure identifies the association between education and wages among individuals who possess a given level of skill. This is particularly important in light of the previously documented differences in degrees of skill between education levels.

The results suggest that almost 90 percent of the estimated return to university education is maintained even after comparing individuals with similar socioemotional and cognitive skills. By contrast, this percentage is less than 50 percent for traditional academic secondary education, and between 70 and 80 percent for secondary and postsecondary technical education.

Figure 5.14

Return to education associated with differences in skill level

(*Workers aged 25 and 30*)

Source: Authors' calculations, based on STS (IDB, 2008a and 2010b).
Note: The results are constructed from a comparison of the estimates of two regression models of the logarithm of earnings as a function of education level. The first model excludes levels of cognitive and socioemotional skills, while the second includes them as controls. Both models include age, gender, parents' education, and household income when the individual subject was age 5 as exogenous variables. Thus, using the comparison of the coefficients associated with education levels in the model that excludes skills and the coefficients obtained with skills included, it is possible to infer the percentage of the association between earnings and education that can be imputed to skills.

These results also indicate that a possible increase in skill gaps (inequality) between educational levels would have the strongest impact on the least educated. It may be inferred that such an increase would heighten the differences in returns between the various levels of education, primarily as the result of a fall in the (relative) return to education for the least-educated groups. For example, a simultaneous increase of 0.2 standard deviations in the cognitive and socioemotional (self-efficacy) skill gaps among individuals with secondary education and those who reach the university system would mean a 3.5 percent increase in the gap between returns to education between the two sectors. That effect is explained primarily by a 15.5 percent drop in the return to secondary education, rather than by the 2.1 percent increase in the return to university education. In other words, the less-educated groups apparently lose more because of the potential increase in skill gaps. The extent to which the changes in returns to education documented earlier in this book can be explained by greater inequality of skills requires further analysis. The results discussed here show that inequality of skills plays an important role in explaining inequalities in the labor market.

Lessons for the region

The evidence gathered from the STS on the relationship between human capital, socioemotional and cognitive skills, and individual performance in the labor market in Argentina and Chile has yielded some interesting results. First, it suggests that technical education, both secondary and postsecondary, offers high returns and should therefore receive more attention, given its potential as a tool for improving labor market outcomes.

In addition, the data indicate that although cognitive and socioemotional skills are not highly correlated, the different types of socioemotional skills are, a finding that confirms the need to move toward a better understanding of what is meant by skills. This means that people with moderate levels of cognitive skills may be able to excel if they possess socioemotional skills that contribute to success in the labor market.

It has also been established that education is correlated with both cognitive and socioemotional skill levels. More-educated individuals show higher levels of both sets of skills.

Significant differences were detected between Argentina and Chile in the relationship between levels of skill and education. Every level of education seems to be accompanied by greater increases in skills in Chile than in Argentina. For cognitive skills, the jump seems to occur during higher education, while in the case of socioemotional skills, secondary education appears to make the difference. While these dynamics cannot be interpreted as causal relationships (only as associations), they do illustrate differences between the two education

systems. Supplementing these findings, it was also shown that at every level there is more homogeneity among Chilean students than among Argentines, which suggests that while there are greater skill differences between educational levels in the Chilean education system, within a given level Chilean students are more alike than are their Argentine counterparts.

Another important result of the analysis is the significant association between skills and employment outcomes (participation in the labor market, employment, and wages). Self-efficacy stands out as the skill that is most highly valued in the labor market (at least from the point of view of its high correlation with the results analyzed). This finding needs to be explored in detail in future research.

The results for Chile and Argentina also show the importance of understanding the role of the education system and what it contributes to conditions of employment. Finally, they underline the importance of gathering more and better data for all countries in the region on the links between education, skills, and the labor market.

6

Demand for Skills: Companies Speak Out

What are employers looking for?

The transition from school to work can be separated into two stages. In the first stage, young people choose from among available options (and subject to certain restrictions) the education that they believe will enable them to attain their career goals. Generally, these decisions include choosing the type of school they will attend (traditional, technical, or commercial), gauging how much effort to devote to their studies, choosing their courses, and deciding whether or not to (i) finish secondary school or (ii) pursue a postsecondary degree of one type or another. The second stage occurs when young people leave the education system to join the labor market. That decision shapes the future of their trajectory in the labor market.

As shown in chapter 2, the second stage is commonly marked by instability. In the member countries of the Organisation for Economic Co-operation and Development (OECD) and in Latin America young people who finish secondary school and enter the labor market show relatively low levels of employment, tend to change jobs often, earn low wages, and enjoy few fringe benefits. Part of that instability reflects young workers' search for jobs that best fit their preferences. However, an erratic work history early in one's career may also translate into a loss of current income and affect one's future employability.

For young people who do not go on to higher education, secondary school is the springboard to a first job. To make a successful transition from school to work, learning acquired in the classroom must be relevant to the needs of employers. Unfortunately, little is known about the transition from schools into the labor market in the countries of the region, about what makes a transition more or less successful, and about the types of skills and knowledge sought by firms.

To better understand how young people's trajectories start and how they evolve, a range of questions framed from the perspective of the firms of the region need to be answered—among them the following:

- What type of work is performed by young people transitioning from school to the labor market?
- What skills are they expected to have when they join a company? Has the demand for skills changed in recent years?
- How easy or difficult it is for the companies of the region to find workers with the required skills?
- How do firms handle mismatches between the skills they need and those that young people have?

The results presented here come mainly from data collected through a Demand for Skills Survey (DSS), conducted in early 2010, that gathered information from nearly 1,200 firms in Argentina, Brazil, and Chile.[1] Based on the data from that survey, this chapter describes the jobs available to young people. It then asks if there is a gap, or mismatch, between the demand for skills and the supply of skills presented by young workers. It finishes by exploring the ways in which that gap can be costly for both firms and workers.

With respect to job characteristics, the study focuses on firms that hire young workers with a secondary school diploma and little work experience. In the economies of Latin America there are indeed employers who seek young secondary graduates for relevant positions. Most of those positions are in a few distinct categories and are usually entry level. The wages offered are high relative to the legal minimum wage and often provide opportunities to grow and build a career within the company. The study results revealed a positive wage gradient that suggested opportunities for advancement. It is true that there is a wide range in the wages that workers earn. Within the same occupation one can typically find very different career trajectories existing side by side. When joining the firm all workers tend to earn a similar wage, but, over time, some achieve significant wage increases; others, only small ones.

Considering that these young people are all secondary school graduates, why do some do so much better than others? The hypothesis examined here is that some young people are productive enough to justify their hiring and retention, whereas others are not. Because it is difficult to observe the productivity of a worker, the emphasis is placed on the type of skills that firms say they are

[1] The survey, funded by the Inter-American Development Bank (IDB), was designed by the authors and carried out in the field by the firm MBC-MORI (Argentina) and its partners in Chile and Brazil.

seeking. The hypothesis, in other words, is that diametrically opposed work outcomes can be explained by mismatches between the type of skills required by firms and those that young people bring to the labor market which raises the question about the type of skills that Latin American employers demand. In this chapter, three main groups of skills are considered: (i) knowledge skills—a kind of cognitive ability—that can be used in many different occupations; (ii) specific skills, corresponding to technical capabilities required to perform a particular job; and (iii) noncognitive or socioemotional skills, referring to an individual's personality traits (see chapter 4).

The skills that employers seek in new hires have changed over the past five years. More than half of all companies have raised their requirements in terms of the skills they deem necessary to do jobs that are directly related to their core business. Furthermore, evidence suggests that the surveyed firms attach greater importance to socioemotional skills than to knowledge skills or skills specific to the sector in which the employer operates—whether the analysis is done by country, sector, firm size, company type, or type of occupation. The data also reveal a positive relationship between skills in demand and wages paid by employers.

Regarding the second aspect under study—namely, the existence of a gap or mismatch between supply of and demand for skills, as well as the associated cost for both firms and workers of locating and training qualified personnel—the findings indicate that only 12 percent of companies reported having no problem finding the skills they were looking for. About 80 percent said that the skills that are hardest to find are those related to behavior and attitudes. This finding raises questions about the kinds of policies and programs that can be promoted both in school and at work to narrow the identified gaps and ensure that young people make a successful transition from school to work.

The Demand for Skills Survey (DSS): What the sample shows

The DSS was administered in early 2010 to 1,176 employers in Argentina, Brazil, and Chile. It was specifically designed to capture information from firms that hire young people fresh out of secondary school and with little work experience for jobs related to producing goods or providing services. The survey was conducted in areas of economic activity that typically require such workers. The sample was also designed to include manufacturing and service sectors dominated by private firms. The DSS focused on companies in automobile manufacturing, retailing, food products, the hotel industry, and finance. Appendix B provides a detailed description of the sampling design and methods used for the collection of data, as well as tables with descriptive statistics on the key variables used in the chapter.

To corroborate the choice of sectors, table 6.1 presents data from household surveys on the distribution of employment by sector for secondary-school graduates aged 17 to 25 who are not enrolled in higher education. The sectors selected for the DSS represent a very large share of all jobs for this age group: 57 percent in Argentina, 42 percent in Brazil, and 36 percent in Chile.

Table 6.1 also shows that some important sectors were left out of the SSD. Social services, transportation, and telecommunications were not included because they are dominated by public or subsidized firms, which may affect their hiring process. The construction sector was excluded because the occupations most closely linked to the main activity of the sector (such as manual labor) are generally performed by workers who do not complete secondary school. The manufacturing sector includes several subsectors, two of which were selected for the DSS: the automotive and food industries.

Within the five chosen areas, the DSS captures information from various kinds of companies. Because it was deemed desirable to include firms in each of the chosen sectors in all three countries, the cells of the sample tend to be of similar size (table 6.2). To capture the heterogeneity of labor practices in

Table 6.1

Industrial sectors that employ young people

(*% of secondary-school graduates aged 17–25 not enrolled in an educational institution*)

	Argentina	Brazil	Chile
Sectors included in DSS			
Automotive	0.3	1.6	0.1
Retail	49.4	30.0	22.9
Hotel	3.8	4.6	5.3
Finance	0.5	2.4	1.6
Food	3.0	3.4	5.7
Total, sectors included in DSS	*57.0*	*42.1*	*35.6*
Other sectors			
Undefined activities	0.0	0.1	1.2
Agriculture and fishing	6.9	2.1	9.3
Mining	0.1	0.4	2.6
Manufacturing	11.1	17.6	7.0
Electricity, gas and water	0.0	0.4	1.3
Construction	6.2	3.5	7.5
Transportation and communications	5.0	5.7	8.4
Real estate	3.1	10.2	7.1
Social and community services	10.7	18.0	20.1
Total, other sectors	*43.0*	*57.9*	*64.4*

Source: Argentina, INDEC (2008); Brazil, IBGE (2008); Chile, Ministry of Planning (2010); and IDB (2010c).

Table 6.2

Sampled firms by sector

(%)

		Automotive	Retail	Hotel	Finance	Food
Country	Argentina	50.0	34.2	35.6	34.8	31.4
	Brazil	50.0	42.9	31.5	37.4	36.9
	Chile	0	23.0	32.9	27.8	31.8
Size (number of employees)	0 to 9	11.1	48.1	39.1	22.5	29.4
	10 to 49	25.9	35.6	46.0	47.1	51.4
	50 to 499	48.2	14.8	13.5	17.7	17.3
	500 or more	14.8	1.5	1.4	12.8	2.0
Unionization (% of unionized employees)	None	29.6	16.8	15.9	11.8	14.9
	Less than half	42.6	70.2	70.6	70.6	72.9
	More than half	27.8	13.0	13.5	17.7	12.2
Scope of activity	Local	20.4	62.5	75.4	16.6	74.9
	Regional	11.1	13.3	7.6	20.9	8.6
	National	40.7	18.4	12.5	43.3	11.0
	International	27.8	5.9	4.5	19.3	5.5
Total number of firms	**1,176**	**54**	**391**	**289**	**187**	**255**

Source: Authors' calculations, based on DSS (IDB, 2010c).

different sectors, the survey covers firms of various sizes, with varying degrees of unionization, and of varying scope of operation (local, regional, national, international). The automotive industry has a greater concentration of large companies (63 percent have more than 50 employees). By contrast, the retail and food products samples are made up chiefly of small businesses (more than 80 percent). In general, companies in all the chosen sectors show a low degree of unionization, except for the automotive industry.

Work for young people

What kind of work is performed by young people who join a company in the selected sectors? In the DSS each company was asked to answer questions about up to three occupations that met the following characteristics: (i) the occupation is essential to the company's business (that is, the employee is directly engaged in producing one of the company's main goods or services); (ii) the activities related to the occupation must be such that they can be performed by young workers, that is, those without work experience; and (iii) the occupation is performed by someone who has graduated from secondary school.

In total, the firms provided information on 110 occupations. To simplify the analysis, and following the *Dictionary of Occupational Titles (DOT)* of the

United States Department of Labor, these were classified into six major categories that were broad enough to cover all possible occupations reported by the employers in the sample:

- *Professional, technical, and administrative.* Occupations related to business administration and managerial, technical, and professional functions.[2]
- *Clerical.* Occupations related to the collection, recording, and reporting of data. Cashiers are classified in this category.
- *Sales.* Occupations that are directly related to sales transactions.
- *Services.* Occupations related to transportation, security, and storage, as well as individual services for commercial institutions and other establishments.
- *Processes.* Occupations related to the processing of materials and products. Such occupations require a good understanding of the process and the use of specialized machinery.
- *Operation of machinery and equipment.* Occupations broadly related to the installation, use, and repair of specialized machinery. This category also includes work related to the use of tools in the manufacturing, installation, assembly, and painting of structures.

In the automotive sector, young workers usually enter the production line as operators of machinery or equipment (table 6.3). In the retail sector, most hold clerical and sales jobs, whereas in the hotel sector they primarily provide services or perform clerical duties. In the financial sector they join firms primarily as clerks, but in the food sector they enter via a wider range of occupations: 41 percent work in processing, and the remaining 59 percent are distributed more or less evenly among the other occupations.

To convey a clearer idea of the activities performed by young employees, figure 6.1 depicts a word cloud (in Spanish) for each sector where the size of the word is proportional to the frequency with which the occupation was mentioned by employers in the sample. In the automotive and food sectors—both part of manufacturing—the technical occupations stand out. These include occupations such as operators, assemblers, packers, turners, and cooks—with some exceptions, as in the case of sales personnel in the food sector. In the financial, retail,

[2] While this category is not usually occupied by secondary-school graduates with no work experience, the decision to include it was made for two reasons. First, the *Dictionary of Occupational Titles (DOT)* applies to all possible occupations (regardless of the characteristics of those who perform them). Second, some respondents listed occupations that indeed fell into this category. Usually they were low-ranking supervisory positions offered to workers with relatively little education who were still young but had a few years of work experience.

Table 6.3

Distribution of occupations of workers aged 17 to 25, by sector

(%)

	Sector					
	Automotive	**Retail**	**Hotel**	**Finance**	**Food**	**Total**
Professional	0	6.2	0	6.3	0	2.6
Clerk	0	42.9	31.7	68.4	14.1	32.2
Salesperson	0	32.4	1.6	21.3	13.4	14.4
Service worker	0	14.2	66.3	4.1	10.1	22.6
Processor	6.6	4.3	0	0	41.2	11.0
Operator	93.4	0	0	0	21.2	17.4
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Authors' calculations, based on DSS (IDB, 2010c).

and hotel industries—all part of the service sector—the occupations most often mentioned are ones in which workers are in direct contact with the customer: salespersons, receptionists, and cashiers. In all sectors, the jobs held by young people with little work experience seem to be dominated by few positions. As expected, they are usually entry-level positions.

Figure 6.1

Frequency of the main occupations performed by young people, as reported by employers

Using original Spanish terms for occupations in the sectors described in table 6.3

Source: Authors' calculations, based on DSS (IDB, 2010c).

In the automotive sector, the occupations of operator, assembler, turner, and machine stamper tend to be most prevalent. In retailing, the positions of salesperson and cashier are the most common. Receptionists, waiters, and maids are the most common posts in the hotel/hospitality sector. In food, the occupations of cook, packer, and salesperson predominate. In the financial sector, the jobs that most frequently come up are those associated with customer service or administration, while occupations related to managing loan portfolio are less common and are usually reserved for workers with postsecondary education.

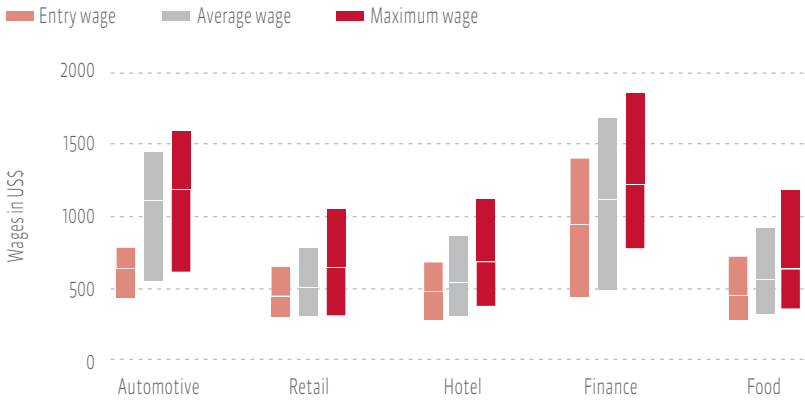
Are these good jobs? In simple terms, their quality can be measured as a function of three variables that determine the earnings that young people can expect when taking a job in these sectors: the entry-level wage, the possibility of future wage increases, and the duration of employment (the amount of time the worker stays at the company). Figure 6.2 presents information on the entry-level wage, average monthly wage and maximum wage for the different industries. The horizontal break in each bar indicates the average in the sector. The upper limit of each bar measures the 90th percentile of each wage distribution and the lower limit measures the 10th percentile of the same. A firm in the 90th percentile pays higher wages than 90 percent of the firms in the sample. Similarly, a firm in the 10th percentile pays less than all but 10 percent of the sampled firms. The length of the bar is a measure of the distribution of wages in this sector.

Figure 6.2 reveals several interesting facts. First, the average entry wage tends to be relatively high in all sectors. As a reference point, in late 2009—when

Figure 6.2

Entry, average, and maximum monthly wages paid by sampled firms to employees in selected occupations

(*US$*)



Source: Authors' calculations, based on DSS (IDB, 2010c).
Note: The horizontal break in each bar indicates the average wage. The upper limit corresponds to 90% of the wage distribution and the lower limit to 10%.

the data were collected for the DSS—the legal minimum monthly wage was $355 in Argentina, $286 in Brazil, and $325 in Chile. That means that, on average, entry-level positions in the sampled firms pay between 80 and 100 percent more than the minimum wage.

There are, however, important differences in entry-level wages for each sector. The financial and automotive sectors pay higher entry wages than others, on average. This could indicate that the activities performed by workers in those areas are more complex and therefore require higher levels of education and skill.

Second, the maximum salary that can be earned in a particular occupation is greater, across all sectors, than the average monthly salary in that occupation. The average monthly salary, in turn, is greater than the average entry salary for that occupation. This positive wage gradient indicates that workers have opportunities for advancement within the firms in these sectors.

Third, although the average entry wage is high relative to the legal minimum wage, there is a marked heterogeneity as to what a worker can earn when entering these sectors. This is especially true in the financial sector. The heterogeneity is explained by the differences between the entry-level positions in each sector and the differences among firms. Small and local companies tend to pay lower wages than larger firms or firms that operate on a regional or international scale.

Fourth, it should be noted that even in those sectors where the distribution of entry-level wages is narrow (as in the automotive or retail sectors), the wage distribution widens as one approaches the maximum wages paid for the same occupation at the same company. That widening of the wage distribution indicates that very different career paths coexist in the same occupation and in the same firm. When joining the firm all workers earn about the same, but over time, as they approach the maximum salary paid for a given occupation at a given firm, some workers achieve significant wage increases, whereas others receive only small ones.

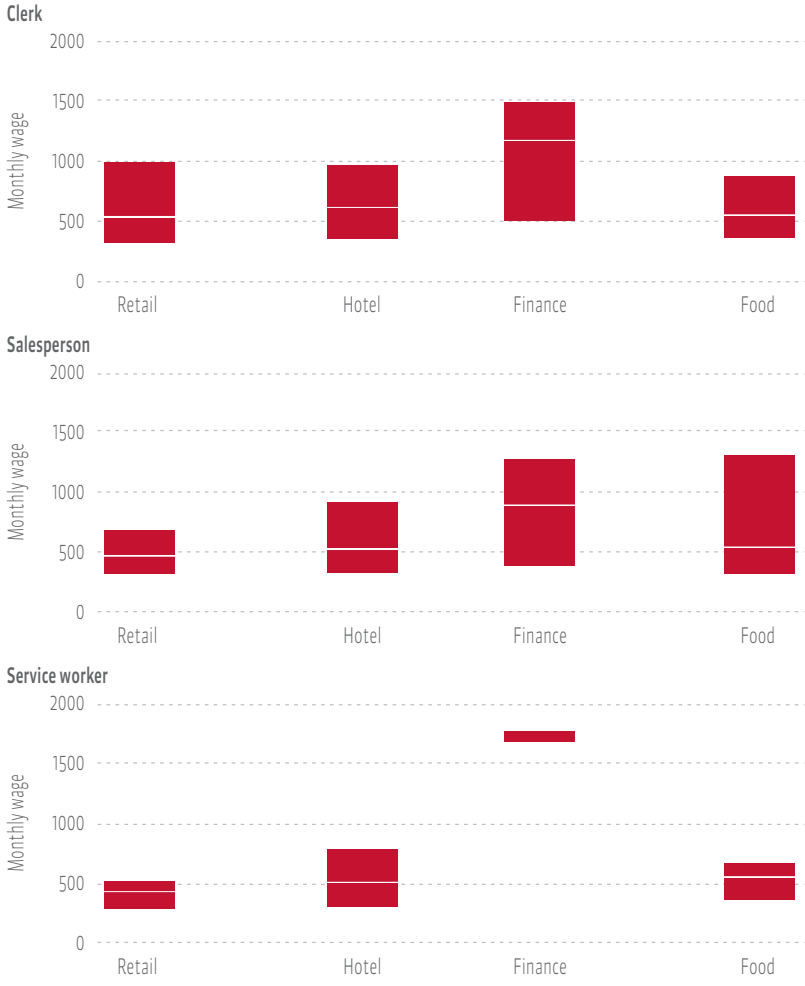
It might be assumed that each type of occupation considered in the study requires similar skills regardless of the industry. For example, a salesperson in the retail sector might be doing work similar to that of a salesperson in the food or hotel sector. If that were true, the wages earned by workers performing the same task in different sectors should be relatively similar. Are they? Figure 6.3 shows the monthly wage in each sector for three occupations: clerical personnel (office workers), sales personnel, and service workers.

Most office workers tend to hold one of the following positions: cashiers in the retail and the food-service industries, receptionists in the hotel industry, and cashiers and administrators in the financial sector. The average monthly wage and wage dispersion are, in general, very similar across all sectors. The exception is the financial sector, where the wage to which a worker can aspire

Figure 6.3

Monthly wages by occupation: Clerks, salespeople, and service workers

(*US$*)



Source: Authors' calculations, based on DSS (IDB, 2010c).
Note: The horizontal break in each bar indicates the average wage. The upper limit of the bar corresponds to the 90th percentile of the wage distribution; the lower limit to the 10th percentile.

is much higher, but where there is also greater dispersion. Cashiers in the financial sector, unlike other sectors, have a greater responsibility in managing money, because they typically deal with larger amounts. They also handle an important part of the firm's relationship with the customer.

Sales personnel are a more homogeneous group of workers than clerical personnel. In all sectors they are engaged in selling the company's primary goods or services. In the financial sector, sales people also include agents or representatives who typically require in-depth training and knowledge of the firm's operations. Again, salespeople earn similar average wages across sectors, except in the financial sector, where wages are higher. Workers in service jobs typically perform maintenance and cleaning duties as well as auxiliary tasks of various kinds. Again, these workers earn a similar average wage in sectors such as retail, hotels, and food.

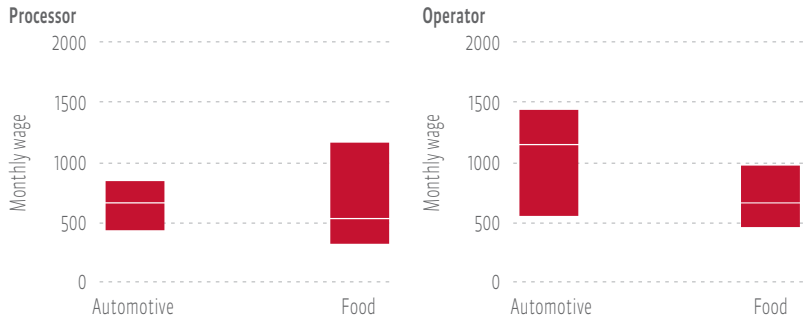
Figure 6.4 shows the monthly wages—and their dispersion—in jobs that commonly require a higher level of sector-specific knowledge. In the automotive sector the jobs that fit that description include, among many others, those of the founder or packer, while in the food sector it includes those of bakers and cooks. In both sectors, jobs related to operations include plant operators and assemblers. Wages for these types of positions tend to be higher and more differentiated (showing greater differences between occupations) than other positions, a reflection of the differential capabilities required for each.

A second dimension of good (high-quality) jobs has to do with the length of employment that a worker can expect when joining a company. As noted earlier, most employees with a secondary-school diploma begin as clerks, salespeople, service workers, processors, or equipment operators. Is the average length of employment in these occupations shorter or longer than the average tenure in professional occupations, which generally are held by workers with more education? Figure 6.5 shows the average length of time (in months) workers

Figure 6.4

Monthly wages by occupation: Processors and operators

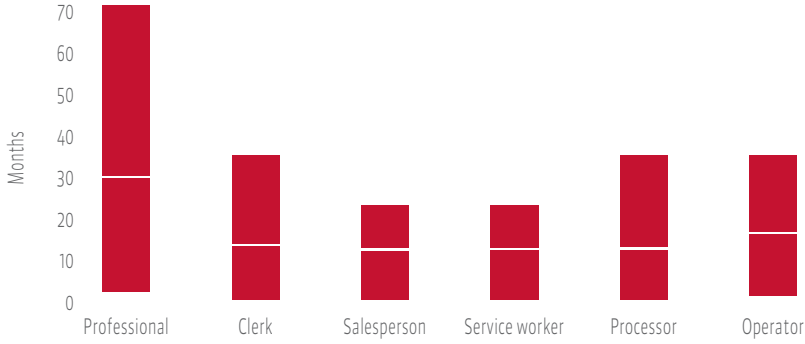
(*US$*)



Source: Authors' calculations, based on DSS (IDB, 2010c).
Note: The horizontal break in each bar indicates the average wage. The upper limit of the bar corresponds to the 90th percentile of the wage distribution; the lower limit to the 10th percentile.

Figure 6.5

Length of employment of secondary-school graduates in selected occupations



Source: Authors' calculations, based on DSS (IDB, 2010c).

remains in each occupation, and the dispersion of those tenures. On average, young workers who enter the workforce directly from secondary school remain at the firms for 15 months. The length of employment is significantly shorter than in professional occupations where, on average, workers stay in their jobs for about 30 months. The causes and consequences of this high turnover were discussed more generally in chapter 2.

Also, among workers who completed secondary school, equipment operators tend to stay at their jobs for a longer period, which is not surprising. On the one hand, the demand for operators is greater in industries such as automobiles, where the better pay would tend to dissuade workers from resigning or seeking other employment. On the other hand, because operators typically possess a set of skills specific to the requirements of the firm, they may be less susceptible to layoffs than workers who lack specialized skills.

The employment relationship is interrupted when the company dismisses an employee or when the employee resigns. According to the DSS, the chief reason cited by workers for quitting a job was to search for a better one. This last stylized fact is consistent with a familiar hypothesis about employment volatility, namely workers' need to find a job that best suits their preferences. On the business side, the reasons for dismissing a particular worker are mainly three: low productivity, behavioral problems, and lack of commitment to the job. These reasons relate to the various kinds of skills that companies watch for once employees have been in their jobs for a few months.

In summary, many companies in the region seek secondary-school graduates to fill positions that are vital to the functioning of the firm. Many of these companies pay relatively high wages and provide opportunities to grow within

the firm, enabling workers to build a career. With the stipulation that the employment situation of young people is generally more unstable than that of older workers, why do some young workers join these firms and grow in their jobs while others suffer an erratic job transition characterized by low wages and short periods of employment? In other words, why do some young people manage to grow into careers while others do not?

Demand for skills: What should young people have in their backpacks?

To justify recruiting and retaining an employee, a firm must obtain a return, measured in terms of the value of the goods and services produced by the employee, that is greater than or equal to the cost of hiring and retaining that worker (wages and benefits paid to the employee).

Each worker brings a set of skills to the firm to produce a good or service. That set of skills determines how productive the worker can be. Those with more skills will be more productive and therefore more profitable for the employer than those who arrive with fewer skills. With this framework in mind, the success of the transition from school to work can be explained in terms of the skills sought by firms and the skill sets that new hires bring with them as they leave secondary school.

What, then, are the skills sought by companies in the region? As mentioned at the beginning of the chapter, the skills that employers seek when filling new positions have changed over the past five years. More than 50 percent of companies have increased their requirements in terms of the skills needed for occupations directly related to their main activity, and more than 40 percent have changed their requirements. This pattern holds true for companies of different sizes, different pay scales, and different scope (box 6.1).[3]

Based on data from the DSS, figure 6.6 illustrates changes in the demand for skills in various occupations. In all occupations typically filled by workers with secondary education, most companies reported needing additional skills to perform clerical tasks, sales, and service delivery. More than 50 percent state

[3] Boxes 6.1, 6.2, and 6.3 of this chapter summarize three extensive case studies that are included in full in appendix C of this publication. They describe the experiences of secondary-school graduates in the types of occupations that are open to them in the Latin American labor market. They derive from 40 hours of taped interviews and a large amount of administrative information provided by the companies that agreed to participate, even if they did not grant formal permission to publish their names. The real stories of young employees in these firms, as recounted in their own words and in those of their employers, shed light on the nature of the gap between the demand for skills and the supply available to fill that demand. The names of the interviewees have been changed.

Box 6.1

What is behind an assembly line?

Foreign investment is one of the most powerful engines of growth in the world. In the 1980s an international automobile company entered Argentina, building two assembly plants that created many jobs for young secondary school graduates. In the mid-1990s, the company opened a new industrial complex that had the capacity to produce 30 cars per hour. The company's total investment was $270 million. The plant's production line is now 3.5 kilometers long and produces a car every two minutes. The industrial site has nearly 4,000 employees, the vast majority of whom are operators. Seventy percent are between ages 18 and 35. In total, the company provides more than 5,500 direct jobs in its manufacturing facilities in Argentina.

The industrial complex created in the mid-1990s is divided into three zones: body, paint, and assembly. It is in the last that Jorge and Martin work, two young men who live near the factory. Martin explains his interest in joining the firm: "I live near here. In late 2007, I was working somewhere else, but I needed something more secure because I have a young son. I stopped by and dropped off my resume. I think it was a month from that moment until the day I started working at the plant. I had all the interviews, took all the tests, and was hired." Jorge, meanwhile, had abandoned his degree program in physical education and was unhappy in his job processing credit applications when he decided to try his luck with the automaker. "I learned about the opportunity because I have three brothers who work in the company. I think they picked me because of how I handled myself in the interviews. When I spoke, I reflected my education," he says, alluding to his manners and vocabulary.

Paola, a human resources supervisor who is responsible for the selection and training of applicants, confirms the accounts of Jorge and Martin. "For guys who have completed their secondary education working here is very important. They start with good wages and can earn even more if they do overtime. That is why we've had a good turnout whenever we've recruited—so far."

Marcelo is head coordinator of the assembly area. With nearly 15 years of experience at the company, he describes the circumstances that helped Jorge and Martin find work. "We had a qualitative change in requirements for secondary education. Until 2005 we had a lot of people with at least 10 years of seniority who did not have these credentials. But with the launch of a new model that year we began to require a secondary school diploma. In 2005 we hired 180 graduates, and in 2007 nearly 400. The new hires changed the profile of the plant operators. Today, about 80 percent of our people are between the ages of 25 and 35. It is important for the company that these people have a technical background, which is as valuable as their manual skills and availability for rotating shifts."

Paola points out that reality is often complicated: "Getting technical skills is difficult because of the quality of secondary technical education. That is why, when we start a selection process, we have many meetings with the officials who will be in charge of these people. Together we determine what the company needs at that time. Sometimes we select people with a mix of profiles—some with a complete secondary education plus others enrolled in postsecondary technical or engineering programs who want

(*continued on next page*)

Box 6.1 (*continued*)

What is behind an assembly line?

to start as operators, because we also want to train people from the bottom up to move into higher positions."

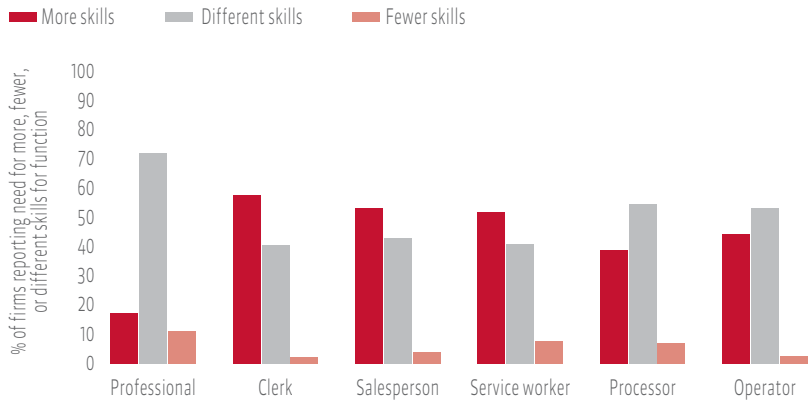
As technological evolution has changed the profile required of operators, the automaker's human resources department believes that some adjustments to the secondary school curriculum and content are necessary to help young people better meet the demands of industry. In this regard, Paola says that the Argentine education system needs to ask the following question: "What are the fields of study that will help the country to develop economically, so that kids can be encouraged to pursue degrees in those fields?" Paola says that "as long as the situation continues as it is, we are more interested, in our hiring, in finding people with the right attitude. When we find people who meet those conditions, we give them technical training on site." It would appear, then, that the company's basic requirement in the current climate is the ability to learn.

Since 2005, the company has been engaged in a program to train young people oriented toward manufacturing and receptive to new technologies, to make future graduates more employable, and to create cohorts of future collaborators already trained in the corporate culture and values. Delivered in a training center belonging to the company, the three-year program is offered to 10 young people who have achieved the best grade averages at the local technical school. Students follow a dual-track program, attending morning classes and workshops at the company's training center and pursuing their academic studies in the afternoon. Most trainees accept offers of employment from the company.

Figure 6.6

Change in skill requirements over the past five years

(%)



Source: Authors' calculations, based on DSS (IDB, 2010c).

that they require different skills for work in occupations related to processing or operation of equipment.

An abundant literature argues that a part of this change in skill requirements can be traced to technological advances over the past three decades (Acemoglu, 2002; Card and Di Nardo, 2002 and 2006; Handel, 2000; Kuhn and Weinberger, 2005). Murphy and Welch (1993a, b) find evidence of a strong increase in the demand for skills over the past five decades. That increase in the importance of skills, along with the transition from manufacturing to services in the economy, has changed the nature of the skills required for most jobs. Jobs have become increasingly less routine, with a verifiable shift from manual to analytical and interactive tasks (Autor, Katz, and Krueger, 1998; Levy and Murnane, 2004)—all of which has led to a change in the mix of skills demanded of new hires. Osterman (1995) finds that the work typically performed by less-qualified individuals now requires more complex skills than was previously the case for 39.7 percent of cases and different skills for 12.9 percent of cases. By comparing the new low-skilled jobs with professional jobs what can be observed is that skills like "general behavior" have gained in importance in the low-skilled category.

The rapid spread of information and communication technologies (ICTs), as well as the use of computers as a work tool, requires more highly skilled workers. This is because it is less costly to teach workers with better skills to use new technologies, and because such workers' skills are better complements for capital goods than are those of less-skilled workers. On the other hand, ICTs have lowered the costs of monitoring and supervising activities, so that workers have more room to set aside routine activities and take on a broader set of tasks (Milgrom and Roberts, 1990; Garicano and Rossi-Hansberg, 2004). This change has also resulted in a change in the demand for skills.

Autor, Levy, and Murnane (2003) provide empirical evidence of the computer-related changes discussed above. Their findings show that in different industries and occupations, and at different educational levels, computers have made it possible to replace workers who had been engaged in routine tasks (such as performing calculations and operating telephone switchboards). The story is different for positions that require flexibility, creativity, conflict resolution, and more complex communication skills. The change has increased the marginal productivity of those workers who have an advantage in the skills necessary to perform the new nonroutine tasks.

Today, the skills demanded by companies vary depending on the goods and services they generate. For the sake of simplicity, the skill requirements of companies have been grouped into three major categories, according to Murnane and Levy (1996).[4] These are (i) knowledge (or academic) skills,

[4] Maxwell (2006) and O'Neil, Allred, and Baker (1997) follow the same classification.

(ii) skills specific to the workplace (usually technical skills), and (iii) socioemotional skills.[5]

Knowledge skills are defined as any form of knowledge absorbed through mental structures that interpret the information acquired. They include reading, writing, mathematical computation, and the ability to reason and think critically when faced with a problem. In the surveys presented in chapter 5 for workers in Chile and Argentina, the objective was to capture this type of skills by measuring cognitive or intellectual skills.

Specific skills are technical skills applicable to a particular occupation. They include, for example, the use of a lathe in the auto industry or the ability to operate a computer system specific to the financial sector. These skills are not easily transferable between industries, so there are greater incentives for firms to train workers and to offer incentives so that trained workers stay at their jobs for a longer period of time.

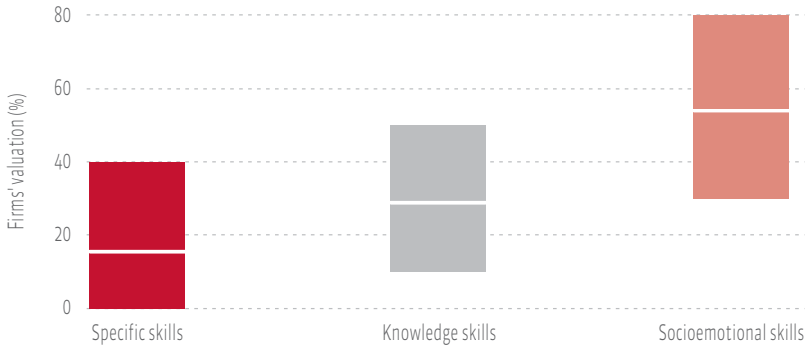
Socioemotional skills relate to an individual's personality traits and therefore have a broader base. There is evidence that these skills are weakly correlated with cognitive skills (Cunha and Heckman, 2007, 2008; Borghans et al., 2008a, Heckman, 2007; Carneiro and Heckman, 2003; Heckman et al., 2011). Therefore, a person's level of knowledge skills does not necessarily reflect his or her socioemotional skills. Moreover, it is difficult to observe and measure these skills when deciding to hire a worker. In the surveys used in chapter 5 for workers in Chile and Argentina the objective was to capture socioemotional skill by measuring metacognitive skills, self-efficacy, and social abilities. To do this from the perspective of employers, the DSS questions dealt with attitudes in the workplace, commitment and responsibility, good relations with customers, and the ability to work as a team. Generally, employers discover whether their employees have the skills needed to function productively in the workplace only after they have started work.

To measure the demand for skills, the DSS respondents were asked to distribute, for each of up to three occupations on which they chose to focus, a total of 100 points among the three groups of skills (knowledge skills, specific skills, and socioemotional skills), based on the importance of each for the company. The result of that distribution reveals the relative demand for skills (figure 6.7). As in the previous figures, the horizontal line within each bar shows the average valuation for the skill in question. The height of the bar shows the difference between the valuation of the 90 percentile and 10 percentile of employers, offering a glimpse of the dispersion of demand for skills.

Figure 6.7 demonstrates that firms demand more socioemotional skills than knowledge skills, and more knowledge skills than specific skills. From

[5] In the literature, these are also known as new basic skills, twenty-first century skills, noncognitive skills, or behavioral skills.

Figure 6.7
Demand for three general categories of skill



Source: Authors' calculations, based on DSS (IDB, 2010c).

a total of 100 points, on average, firms allocated 55 points to socioemotional skills, approximately 30 points to knowledge skills, and only 15 points to specific skills.

Figure 6.7 also shows a relatively large dispersion in the demand for skills. Ten percent of firms undervalue socioemotional skills (allocating less than 30 points to them), favoring instead knowledge or specific skills. But there are also 10 percent that gave them a very high value (80 points) to the detriment of the other two categories. A similar pattern was observed for specific skills and knowledge.

These results are extremely robust and hold true when the analysis is performed by country, sector, firm size, firm type, and occupation type. Table 6.4 shows that the highest valuation given to socioemotional skills is found in firms that pay high wages as well as those that pay low wages, regardless of sector and size. The only major difference in the pattern of skills assessment was found in the automotive industry, where specific skills are relatively more valued than in other sectors.

The higher relative value attributed to socioemotional skills has been well documented in literature for developed countries. Maxwell (2007) found that the three most popular skills fall into the category of behavior. O'Neil, Allred, and Baker (1997) note that in at least two investigations into the requirement of skills in the United States (The Michigan Employability Skills Employer Survey and Expanded Basic and Basic Skills Study), the study has found that employers value behavioral skills over those of knowledge.

In principle, these three types of skill may take different forms depending on the occupation. For example, in a position in the automotive sector, which

Table 6.4

Demand for skills by type of firm

(*% of valuation*)

	Socioemotional skills	Knowledge skills	Specific skills
Degree of unionization			
None	57.4	25.8	16.8
Less than half	56.4	26.8	16.8
More than half	53.5	30.7	15.9
Scope of firm's activity			
Local	52.5	30.8	16.7
Regional	56.0	28.8	15.2
National	53.0	31.7	15.4
International	57.4	25.8	16.8
Size (number of employees)			
0 to 9	55.0	30.0	15.0
10 to 49	53.0	30.2	17.0
50 to 499	50.0	32.2	18.0
500 or more	59.0	26.6	14.2
Wage level			
Low	49.1	34.6	16.3
Medium	55.2	30.1	14.7
High	56.3	28.8	14.9
Country			
Argentina	55.5	28.1	16.4
Brazil	56.1	29.7	14.2
Chile	51.3	30.7	18.1
Industry			
Automotive	44.0	29.2	26.8
Retail	57.2	29.3	13.6
Hotel	54.4	30.5	15.1
Finance	53.8	31.0	15.2
Food	58.6	27.3	14.1
Type of occupation			
Professional	54.0	35.6	10.8
Clerk	57.0	31.5	11.3
Salesperson	56.0	29.0	14.9
Service worker	53.0	28.3	18.7
Processor	56.3	28.0	15.7
Operator	49.0	27.3	23.7

Source: Authors' calculation based on DSS (IDB, 2010c).

demands a high degree of socioemotional skills, commitment to the job, and flexibility to work unexpected shifts may be favored. In contrast, in the commercial sector, an employee with the same required level of behavioral skill might be expected to be able to pay careful attention to customer needs over and above the employee's commitment to the job. A breakdown of relative demand for skills will yield a better understanding of the sorts of specific skills that are needed within the general skill groups.

Demand for knowledge skills

The DSS specifies four types of knowledge skills: (i) language and communication skills, referring to the ability to listen, ask questions, and express concepts and ideas effectively; (ii) reading and writing skills that enable the worker to read and communicate effectively in writing; (iii) the ability to solve basic math problems; and (iv) the ability to apply critical thinking to understand and solve a problem based on analysis of its parts.

Figure 6.8 shows the relative value that firms assign to different knowledge related skills in different occupations. In general, language and communication skills, as well as critical thinking, are very important in all occupations. They also are the most difficult of the four knowledge-related skills to detect in the hiring phase. But among the occupations some relative differences in the weighting of those skills can be observed. For clerical posts, sales jobs, and service workers communication skills are the most important. This makes sense, since these types of workers tend to spend more time in contact with the firm's customers. On the other hand, for equipment operators and processing workers the most important knowledge-related skill is critical thinking.[6]

Demand for socioemotional skills

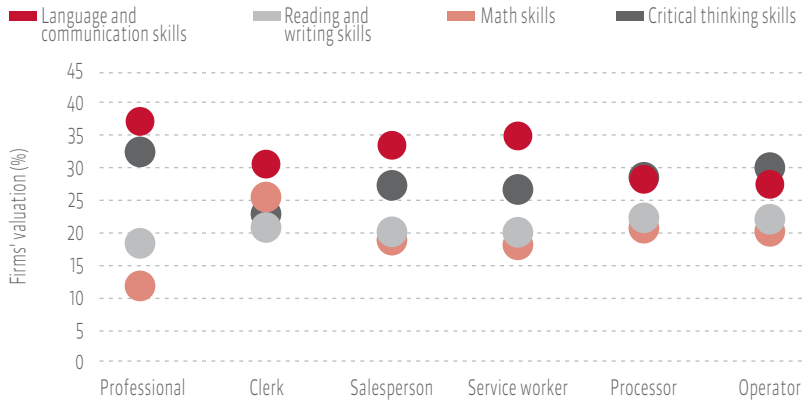
The DSS specifies three types of socioemotional skills: (i) attitudinal skills (the ability to work cooperatively with others while controlling one's emotions and avoiding negativity), (ii) responsibility and commitment to the organization's objectives and to the performance of assigned tasks, and (iii) customer service skills (friendliness, good personal presentation, and respect, among others).

There is consistency in the socioemotional skills required for occupations that demand a high level of customer contact (figure 6.9). Attitudes such as empathy, friendliness, adaptability, and courtesy are highly valued

[6] Knowledge skills and socioemotional skills are broken down into more detailed components in appendix B.

Figure 6.8

Demand for knowledge skills, by occupation

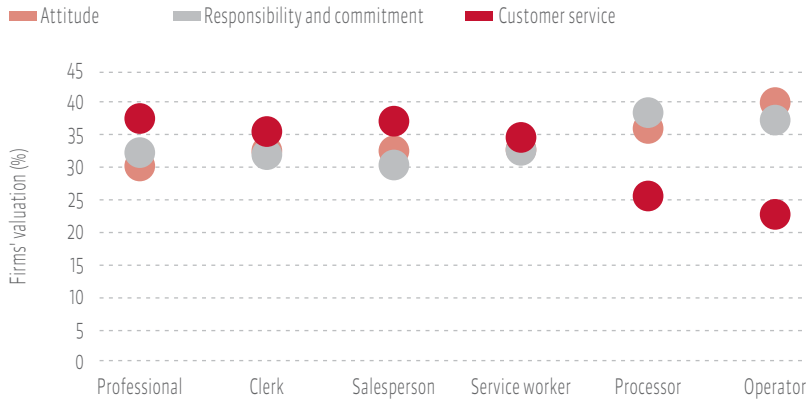


Source: Authors' calculations, based on DSS (IDB, 2010c).

by employers. The same is true for responsibility and commitment (box 6.2). Customer service is also the most important category of socioemotional skill for office workers (including cashiers), salespeople, and ancillary service workers. The main difference is a lower relative value assigned to the ability to provide good customer service in those occupations where there is little or no contact with the end customer, such as equipment operators and workers involved in production processes.

Figure 6.9

Demand for socioemotional skills, by occupation



Source: Authors' calculations, based on DSS (IDB, 2010c).

Box 6.2

Hire for attitude, train for skill

The hotel industry is one of the largest employers of secondary-school graduates in Latin America. According to the DSS, hotels account for 3.8 percent, 4.6 percent, and 5.3 percent of youth employment in Argentina, Brazil, and Chile respectively (see table 6.1). The selection criteria used to recruit young people in the sector illustrates the priorities and challenges that hotel human resources departments face. Alejandro is a psychologist who directs personnel selection for a high-end hotel in Santiago, Chile: "For us, an attitude of service is more important than education. In the search for young people, our hotel emphasizes what are called 'soft' skills (responsibility, commitment, communication, expression, and self-control under pressure). We receive about 800 applications from each recruitment cycle, out of which we hire between 25 percent and 30 percent. The first phase consists of an interview with me; the second is with human resources. Then we review documents and other routine matters. If we have more time we ask for references and additional background information."

Two hundred and fifty-one people worked in the hotel subsidiary located in Santiago, as of December 2009. Of these, 58 were young secondary-school graduates, some of whom were enrolled in higher education. According to representatives of the human resources department of the hotel, it is the young people who greet the guests at different times during their stay who "embody the promise of service that differentiates our brand." These jobs are thus directly related to the core business of the hotel. In 2009, 36 employees occupied these key positions, mainly people aged 18 to 25. These employees serve as assistants, receptionists, janitors, maids, assistant waiters and bartenders, cashiers, receiving agents, minibar stockers, and concierges.

Alejandro describes the details of a recent hiring process: "As for the difficulties we faced, the first was that young people weren't coming in, which was what we wanted. We put an ad in one of the largest daily publications in Chile, in English, to filter, but we overdid it.... We had been hoping to get 1,000 applicants but only got 350, and half of them barely met the position's requirements. We didn't get many applications from people with a lot of hotel experience, but we wanted young people, and we didn't get them, either. Finding young people is part of the hotel's profile. Once we found them, the key was a positive, committed, fresh service attitude. We were looking for warm, friendly people. The general manager and I were the last filter in the search process. During the interview, young people mainly tried to show their talents, and if they knew English, so much the better. In the end, the people we selected were from modest backgrounds, in need of work, critical thinkers, skilled in reading, writing, and mathematics, but lacking in soft skills. They were people who didn't know what pressure or teamwork were until they started working."

Alejandro explains why the right skills are hard to find: "The requirements for key positions have changed because the client is more demanding. And in this respect secondary school does not help. It does not prepare young people for the workplace. It focuses more on tools and hard skills, leaving out the softer ones. In our hotel, as in any service area, soft skills are key. If school offered more preparation in these types of skills, the hiring process would be much easier. Secondary school also lacks

(*continued on next page*)

Box 6.2 (*continued*)

Hire for attitude, train for skill

specialization, which doesn't mean more years of study, but rather focusing the student on one thing. Training here in Chile is generalist. So what happens is that many leave their jobs. Some use the excuse of compensation; they come in with a lot of misinformation. They do not know what the market pays and feel that any compensation is undervaluing them. Others do it because they have unrealistic expectations and think they can move up in a short time. They show up with such immediate expectations and then get frustrated. Others leave because they can't stand the normal pressures of the job. As a result, the rotation is, on average, 30 percent per quarter. That means that for every 100 young people hired, 30 leave within three months. We would like to see that rate drop to 15 percent."

Ariel, a 25-year-old young professional with degrees in architecture and business administration, serves as head of training for the hotel. He described management's expectations and its willingness to fill gaps in the following words: "In our hotel, good performance is demonstrated by attitude and inclination. This is a line of work that requires a lot of sacrifice."

Ariel notes that secondary school graduates have difficulty expressing themselves and communicating. "Slang is widely used in Chile, which is socially acceptable, but in a setting like ours, which is multicultural and where you have to be understood, it doesn't work. In short, you have to really prepare young people. There are kids with great potential; the challenge is for them to develop it. Nobody here is going to lose their job by not knowing the date of Chile's independence. But they cannot lose control under pressure. That's why we take the time to train in these soft skills, because beyond our philosophy we are aware of the real world around us. We are a new brand that has to make the effort to develop people."

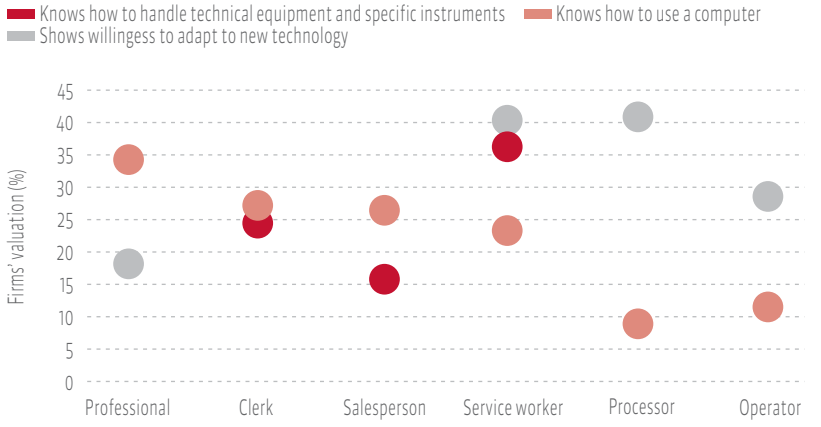
Demand for specific skills

By definition, the sector-specific skills required by employers are difficult to classify uniformly in all cases. For this reason, firms were asked not for the relative value of the specific skills used in production, but rather how much they value an employee's willingness to acquire new skills that are specific to their employer's business (usually those skills related to handling equipment in the company's daily tasks). The results are shown in figure 6.10.

In general, knowing how to adapt to new technology is highly valued. Companies in the automotive and food sectors assign a higher relative value to workers who know how to use tools and equipment specific to their field of activity. This is reflected in occupations related to processing and the operation of machinery and equipment, which tend to predominate in these sectors. It is noteworthy that the use of computers does not seem to receive a relatively high value in any occupation.

Figure 6.10

Demand for specific skills by type of occupation



Source: Authors' calculations, based on DSS (IDB, 2010c).

Wages and the value assigned to skills

The relatively high value that employers assigned to socioemotional skills would seem to imply a greater willingness to pay to obtain those skills. In other words, one would expect that those who express the highest need for a given set of skills to offer higher pay to attract applicants who possess that set. Unfortunately, it is not possible, using the data available, to assess the causal effect on entry wages of the values that firms assign to certain skills.[7] What is possible, however, is to try to establish whether a correlation exists between the wages firms pay and the skills they seek.

As shown in chapter 5, noncognitive skills are positively correlated with employees' earnings. Some authors suggest that cognitive and noncognitive skills are equally important in explaining various aspects of the social and economic life of individuals (Heckman and Rubinstein, 2001; Heckman, Stixrud, and Urzúa, 2006). Salgado (1997) argues that "emotional stability" and "responsibility" predict an individual's job performance. Using surveys completed by employers in four U.S. metropolitan areas, Holzer (1998) investigated the effect of the demand for skills on wages and employability of workers without higher education. The results show that higher wages are paid to workers with higher

[7] This would require controlling a large number of variables that cannot be observed by the researcher. Variables include the attitudes of those who hire, gender or race discrimination, and the characteristics of employers and employees that could affect wages and skill assessment.

Table 6.5

Wages and skills valuation

(*in logs*)

	Socioemotional skills	Knowledge skills
Without controls	0.341***	0.324
	[0.105]	[0.331]
With controls	0.397***	0.434
	[0.111]	[0.369]

Source: Authors' calculations, based on DSS (IDB, 2010c).
Note: The controls are set by fixed effects (sector by country by firm size), age of firm, experience of the workforce, worker education, unionization, percentage of male workers, competition encountered in the market, foreign equity participation, international certification, and type of occupation. Standard errors at firm-level clusters are shown in brackets.
* Indicates that the result is statistically significant at 10%, ** at 5%, and *** at 1%.

skills, even after controlling for age, education, the nature of the occupation, and economic sector. There is a wage premium for knowledge applicable to the specific tasks that an employee will perform once hired (computer use, math, customer interaction).[8] Using an original and representative survey with employment information from a sample of occupations in the United States,[9] Autor and Handel (2009) document the fact that the tasks vary substantially within the same occupation and that the difference between the tasks assigned to each worker is related to their abilities. The tasks that workers perform are significant predictors of the hourly wage.

Table 6.5 shows the relationship between wages and the valuation of skills in the present study, using a regression model similar to that used in chapter 5, but this time with information about firms and occupations, not workers.[10] The first column shows the relationship for the group of companies that places a relatively higher value on socioemotional skills; the second, the relationship for the group of companies that assigned a relatively higher value to knowledge skills. The first row indicates the simple correlation with no controls, while the second reports the results of a multivariate regression with a set of controls that include features of both the firm and its workforce. The occupations used were the ones in which the majority of young people aged 18 to 25 worked. The results show that for this group of workers, firms that place the greatest value on socioemotional skills pay wages that are 34.1 percent higher than the rest of the sample. Knowledge skills also appear to be important. But the estimate

[8] Very few jobs did not require these skills.
[9] Many questions were adapted from the survey "Skills, Technology, and Management Practices (STAMP)" designed and directed by Handel (2007).
[10] The dependent variable is the natural logarithm of wages and the main independent variable is the logarithm of the assessment of skills.

is not measured accurately enough (large standard deviation) to reject small (even no) correlations.[11]

The positive relationship between wages and socioemotional skill levels tends to reverse with age. One possible interpretation of this result is that socioemotional skills outweigh knowledge for entry-level positions, but as the employee accumulates seniority and higher levels of other skills essential to the firm's success the relative importance of skills changes (Borghans, ter Weel, and Weinberg, 2008; Bowles, Gintis, and Osborne, 2001).

Skills: The gap between supply and demand

In a free and competitive labor market characterized by full information and in which all participants are price-takers, wages should increase if the demand for employees with a certain set of skills exceeds supply. This higher salary gives employees the signal and incentives to acquire the skills in relatively short supply (or relatively high demand), so that over time any gaps or mismatches between supply and demand are closed (Allen and Vries, 2004). But economists have long understood that this is not how the labor market always works. Wages cannot always be adjusted quickly; the job search process is costly; information is often imperfect and asymmetric; and some firms are not always price-takers. This means that even when firms pay a premium to obtain certain skills, the excess demand can persist for a long time. The result is a decoupling of supply from demand.

In many economies certain labor market regulations prevent wages from sending the signals that companies need higher or different skills. Severance payment regulation, taxes, labor unions, and other factors artificially inflate the costs of hiring and firing (Heckman and Pagés, 2004) and keep real wages from being adjusted upward and downward (Elsby, 2009). On the other hand, information in the labor market is costly, increasing friction in the adjustment of wages. When firms need to fill a vacancy they must invest resources to advertise, consider applications, conduct interviews, and select applicants. Individuals seeking employment must invest time and resources in the search. Information on vacancies and workers willing to fill them is basically a public good, and as such it will not be provided in sufficient quantity by the market. Finding workers with the necessary skills is not a simple process for firms.

But even when information about the excess demand for certain skills does come to be reflected in higher wages, it is not clear that students—future workers—will invest resources in acquiring those skills. The reason is twofold.

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[11] Note that it is possible that different types of firms attract different types of workers. Therefore, this result does not necessarily indicate that there is excess demand for certain skills.

First, suppose that while in secondary school students are unaware of the returns the labor market is offering for different sets of skills. That lack of awareness may keep them from investing in acquiring the more highly valued skills, even though the wage shows that demand is high. Jensen (2010), for example, found that when secondary school students were provided with information about employment options and their respective returns, many of them changed their decision to continue studying and hence also changed their implicit decision about which job to pursue once school ends.[12] Second, even if employees had information about the excess demand for certain skills, there might be limitations on the acquisition of those skills. In principle, as discussed in chapter 3, the production of skills during the school years depends on the school, family, and student. Therefore, it is a complex process that requires effort from all parties involved.

In short, there are various theoretical reasons that make the gap between skills' supply and demand hard to close. These theoretical reasons have an empirical correlate, as shown in figure 6.11. To construct a measure of that gap, companies were asked if they found it difficult to hire workers with a given skill. If the answer was yes, that skill became part of an index of decoupling (or skill gap measurement), taking the same value that the firm gave to that skill when the firm was first asked to assign relative values to each of the skills within the knowledge, socioemotional and technical sets. The index of the mismatch for each type of skill is the sum of those values for the different skills within a specific set, and the average was estimated for the entire sample.

To better understand how this index works, consider two firms that during the interview assigned socioemotional skills a value of 30 (out of 100): both assigned 10 points to attitude, 10 to responsibility and commitment, and 10 to customer service. But the first company responded that they had no problem finding workers with these three skills, while the latter declared that they had a difficult time finding workers with the capabilities to serve customers, but it was easy to find workers with good attitudinal skills and high levels of responsibility and commitment. In this case, the first firm shows no skill mismatch, whereas the second firm shows a mismatch of 10 for socioemotional skills. Intuitively,

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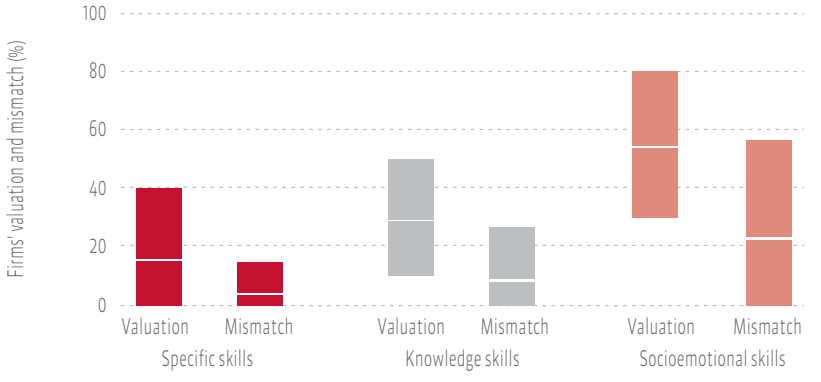
[12] In a general sense, the evidence shows that these information gaps exist in many markets. Mainly using controlled experiments, Chong (2011:228) examines how the use of ICTs can contribute to economic development. The author states that "one of the ways in which these technologies can help achieve this goal is by reducing disparities and gaps in information(asymmetric and imperfect information) markets. For example, individuals and enterprises can use ICT to find out product prices, seek employment, or identify potential buyers for their goods. This may be especially relevant to certain groups which are at a disadvantage compared to others, because they either lack information, they have a delayed access to it, or because the information is of lower quality."

Figure 6.11

Firms' valuation of skills and the difficulty of finding employees with those skills



Source: Authors' calculations, based on DSS (IDB, 2010c).
Note: The skill gap expresses the difference between the point value the firm assigns to a given category of skill and the ease or difficulty of finding employees with that skill. If a firm reports difficulty finding a given skill, the point value that the firm attributed to that skill is counted toward that firm's skill gap.

the skill mismatch measure expresses the value of the skills that the firm has trouble finding in the market.[13]

Figure 6.11 shows the results. The first bar shows the value (in points) placed on the skill (as reported in figure 6.7), whereas the second shows the existing mismatch in that skill. Notice that it is more difficult for firms to find socioemotional skills than the other two types of skill (specific and knowledge).

Once again, there is a marked heterogeneity among firms. Some show a very small skill mismatch, whereas for others the mismatch is significant (table 6.6).

This pattern is consistent among firms from different countries, sectors, and sizes. They all seem to have more trouble finding workers with the right socioemotional skills to perform the required tasks. In general, larger firms and

[13] More formally, a J_i variable binary is defined that takes the value of one if the firm claims to have difficulty finding applicants with the ability *j*, and zero otherwise. It also defines V_a as the value (relative) that the firm assigned to skill *j*. The mismatch measure D_H is

$$D_H = \sum_{j \in H} \{D_j V_j\},$$

where H is the set of specific skills covered by a general skill. Thus, in the case of socioemotional skills, H represents a set containing the following skills (j): attitude,responsibility, and commitment, as well as customer care and service. In the case of knowledge skills, H represents a set containing the following skills (j): language and communication,reading,writing,math, and critical thinking. Finally, in the case of specific skills H includes only skills (j) related to the use of equipment. This gap measurement has the advantage that it is directly comparable with the valuation measurement of skills.

Table 6.6

Difficulty of finding skills by country, sector, and company attributes

(*Points assigned to skills reported by firms as difficult to find*)

	Socioemotional skills	Knowledge skills	Specific skills
Country			
Argentina	22.7	8.6	3.6
Brazil	29.8	12.8	5.9
Chile	16.2	4.8	3.8
Industry			
Automotive	20.8	10.4	14.0
Retail	28.6	9.3	2.4
Hotel	24.4	7.1	4.4
Finance	25.4	11.5	1.1
Food	16.3	7.8	3.3
Size (number of employees)			
0 to 9	15.0	4.2	1.5
10 to 49	19.0	6.7	3.2
50 to 499	22.0	8.8	6.4
500 or more	27.0	10.6	3.5
Wage level			
Low	20.5	6.9	2.5
Medium	23.3	8.8	3.2
High	26.0	9.1	3.8

Source: Authors' calculations, based on DSS (IDB, 2010c).

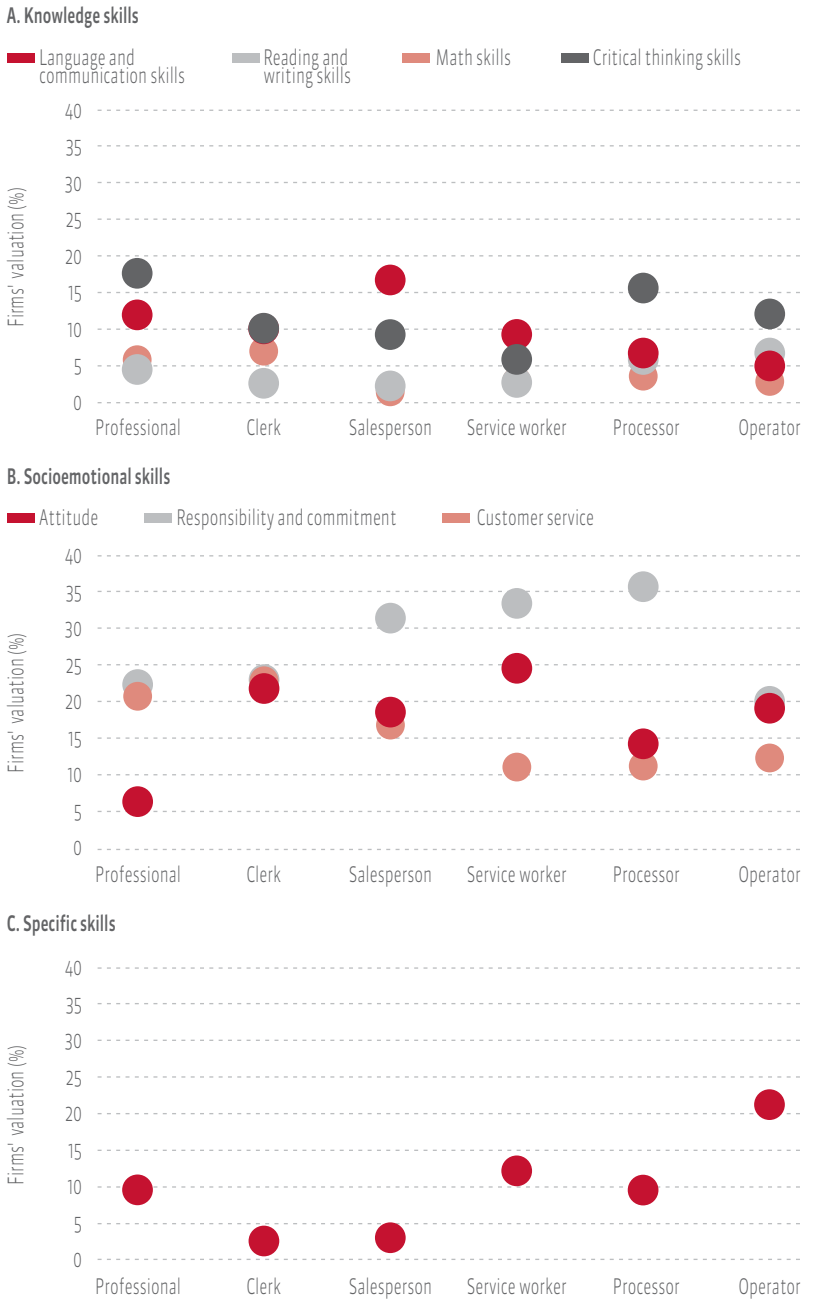
those that pay higher wages tend to exhibit a greater mismatch in socioemotional skills than the others.

Firms report having less trouble finding concrete knowledge skills (math, reading, and writing) than the more abstract ones (critical thinking, language, and communication) (figure 6.12a). They also report having difficulty finding workers with sufficient levels of responsibility and commitment (figure 6.12b). The supply-and-demand mismatch in specific skills appears slight for all occupations, except in the case of operators (figure 6.12c).

If one accepts that secondary school is responsible for helping students acquire both concrete and abstract knowledge skills, as well as socioemotional skills, it is not clear why firms should have more difficulty finding abstract knowledge skills and socioemotional skills than concrete knowledge skills. One possibility is that it is easier to train students in concrete knowledge skills or that schools emphasize such skills or provide more incentives to acquire them, possibly because they are easier to measure (through tests, for example). Another explanation is that in the formation of abstract and socioemotional skills there are greater complementarities between schools and families than in the case of concrete knowledge skills.

Figure 6.12

Difficulty in finding skills, by type of occupation



Source: Authors' calculations, based on DSS (IDB, 2010c).

The supply-and-demand mismatch for skills is costly for employers and employees alike. Firms must invest in more rigorous searches and hiring processes than they would if the typical worker could be counted on to arrive with the skill set needed to perform the job for which he was hired. Workers who turn out not to have vital skills may need to be trained. The cost of training may have to be borne at least in part by the company, especially if the training relates to processes and activities specific to the firm. Employees with skill deficiencies may have to share the cost of training (reflected in lower wages) when training provides skills that can be transferred to another firm.

To determine the cost of this mismatch, the following section will explore (i) the process of integrating an employee with little work experience into a company and (ii) the links between personnel search strategies, skills assessment, and the skill mismatch reported by firms. For simplicity, this process is divided into two stages: (i) seeking and selecting applicants and (ii) training and provisional or probationary employment.

Personnel search and selection

The process of recruiting staff begins with the placement of notices of vacancies in newspapers, on radio stations, at industrial sites, and through labor exchanges, or through other means such as informal contacts, educational institutions, human resource consulting firms, and databases. In the absence of data on the relative cost of each of these methods for the firms in the sample, it will be assumed that the higher the number of methods used to recruit personnel, the greater the cost incurred by the company. Table 6.7 shows the relative value placed on various types of skills and the skill gap or mismatch for firms that use less than three search methods and for those using between four and eight methods. It is observed that firms that use more methods tend to place a higher value on socioemotional skills (58 percent versus 52 percent) and report a wider gap between demand for and supply of this type of competency (73 percent versus 68 percent).

It is also possible to approximate the cost invested in the recruitment process based on the number of methods companies use to choose whom they will hire from among the universe of interested workers considered during the search process. Among the methods available, some are expensive (personality and knowledge tests, personal interviews), while others are less costly (references and evidence of education, experience, age, gender, physical fitness, or physical appearance). In general, there is confirmation that firms that use more methods to select their staff are those that place the greatest value on socioemotional skills and that report the biggest mismatch in the supply of those skills.

The most important components of personnel selection vary by occupation. To select workers for professional occupations in which socioemotional

Table 6.7

Distribution of the valuation and mismatch of skills by number of search and hiring methods used by firm

(%)

	Number of search methods		Number of hiring methods		
	0 to 3	4 to 8	0 to 3	4 to 7	8 or more
Skill valuation*					
Specific skills	17	15	16	17	15
Knowledge skills	31	27	29	30	22
Socioemotional skills	52	58	56	53	63
Skill mismatch**					
Specific skills	8	11	6	13	0
Knowledge skills	24	16	25	18	10
Socioemotional skills	68	73	68	69	90

Source: Authors' calculations, based on the DSS (IDB, 2010c).
* Refers to the skill assessments that the company carries out using various search and recruitment methods.
** Refers to the ratio between the skill gap discussed in the previous section and the number of methods used in the recruitment process.

and knowledge skills are highly valued and difficult to find, firms tend to rely heavily on personal interviews and various tests. For occupations with low valuation and mismatch of socioemotional skills, firms tend to substitute personal references for interviews. For occupations characterized by high values and mismatch in specific skills, such as plant operators, formal education is a favored selection criterion.

Personnel training and trial periods

Once the new workers have been selected, firms must decide whether or not to train them.[14] Companies have incentives to train workers in those tasks specific to the production of the goods or services the company provides that cannot be used in other firms (Becker, 1964). In a competitive market, if companies provide general skills training, workers can change jobs to take advantage of economic benefits resulting from the increased productivity they gained from training. Nevertheless, certain regulations (unionization, minimum wages, and search costs) tend to encourage firms to invest even in general skills because firms can derive a profit from better-trained employees.

[14] This is a simplification. In general, firms' recruitment policies are linked to training. Typically, the recruitment strategy reflects the skills that the company intends to develop through training after hire.

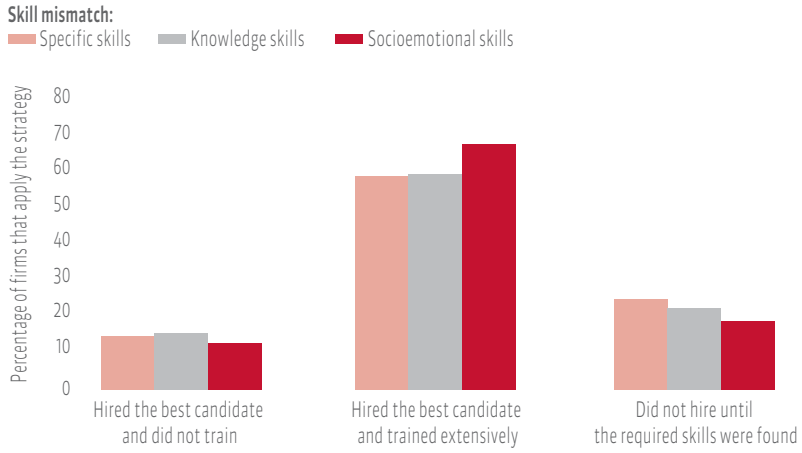
Based on a composite sample of industries and regions throughout the United States, Bassi and Ludwig (2000) document the types of training provided by companies and on the financing of that training. These authors state that most of the analyzed firms are willing to pay for general training—what is not so clear is whether they are able to recover their investment. The programs that these companies provide focus on general skills and are developed through courses in schools or communities, or within company classrooms. Neumark and Joyce (2001) analyze the influence that youth training programs have on the likelihood of employment and on subsequent decisions that young people make while still in secondary school. These authors find that training does not change decisions about education after controlling for fixed effects of the school, but it does alter the odds of earning a secondary school diploma and finding employment.

The firms in the sample followed three typical strategies with respect to hiring and training job applicants during the recruitment drives: (i) to hire the best applicant from the drive and to provide no training; (ii) to hire the best applicant and train intensively; and (iii) to defer hiring until the ideal applicant is found (figure 6.13). Firms are organized according to the magnitude of the mismatch in each skill category: specific skills, knowledge skills, or socioemotional skills.

Regardless of the type of skill gap, firms tend to hire the best applicant and then provide intensive training. This means that companies choose to try to make up for the deficiencies of their young hires. In general, larger firms and firms that pay higher wages offer more training, which usually takes place in-house. There are, however, special cases, such as professional workers, who

Figure 6.13

Recruitment strategy adopted to compensate for the absence of applicants with required skills

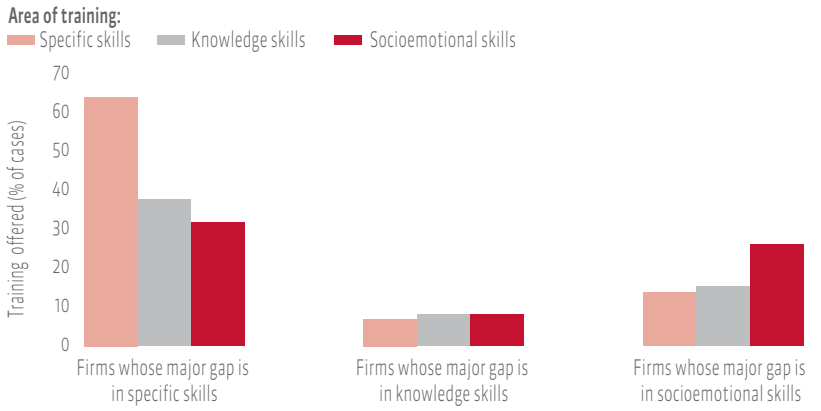


Source: Authors' calculations, based on DSS (IDB, 2010c).

Figure 6.14

Skills prioritized for training, by firm's predominant skill mismatch

(*by skills mismatch*)



Source: Authors' calculations, based on DSS (IDB, 2010c).

tend to be trained outside the company, and operators, who are trained within the company but by outside personnel.

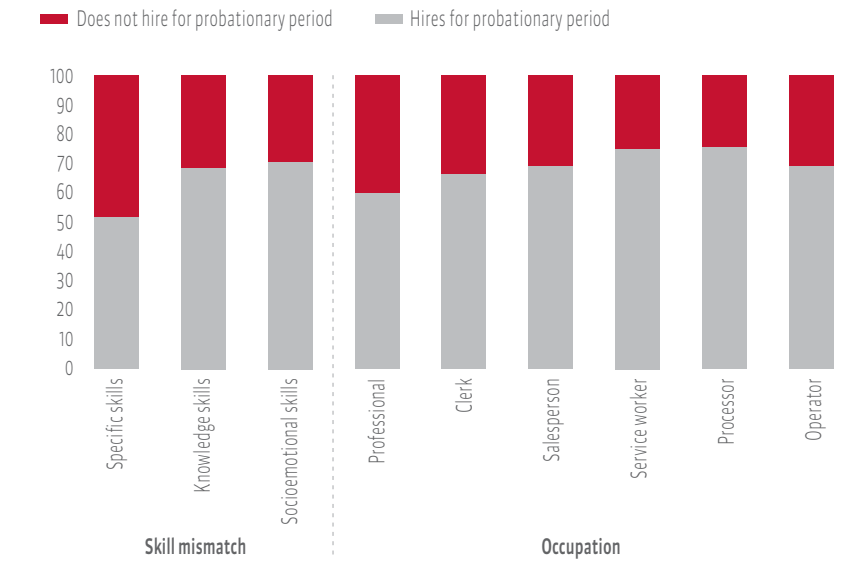
Companies tend to focus on training in areas where the mismatch between demand and supply and is widest. Figure 6.14 classifies firms in the same manner as in figure 6.13. As expected, most train in specific skills that are not transferable to other firms. But the companies with the greatest mismatches of specific skills tend to train even more on these skills. The same goes for companies that register a gap in socioemotional skills. This being so, schools must help students acquire the more general and transferrable socioemotional skills, as firms do not appear to have incentives to train in that dimension. In other words, since the supply of this type of training will be insufficient, schools should be responsible for developing such skills.

Another way to select and train staff is through periods of probationary employment. In such cases, workers are hired provisionally, with permanent employment dependent on performance. During the probationary period, the employer usually provides training or teaches employees the rudiments of the job as they begin to perform it. But trial periods are costly for the company for two reasons: first, because employees on probation are less productive than employees who arrive on the job fully qualified; and second, because if the employee must be dismissed after the probationary period the firm must find a replacement, with all of the costs that entails.[15]

[15] Note that, depending on the country's labor institutions, there may be legal costs associated with termination.

Figure 6.15

Percentage of firms hiring for probationary periods, by skill mismatch and occupation



Source: Authors' calculations, based on DSS (IDB, 2010c).

Despite the costs of trial periods, companies tend to use them extensively (figure 6.15). Firms that reported gaps in socioemotional skills use trial periods more frequently than do firms that report a gap in specific skills or knowledge skills. The use of probationary employment also appears to be greater for occupations related to services and processes rather than those related to sales or clerical functions.

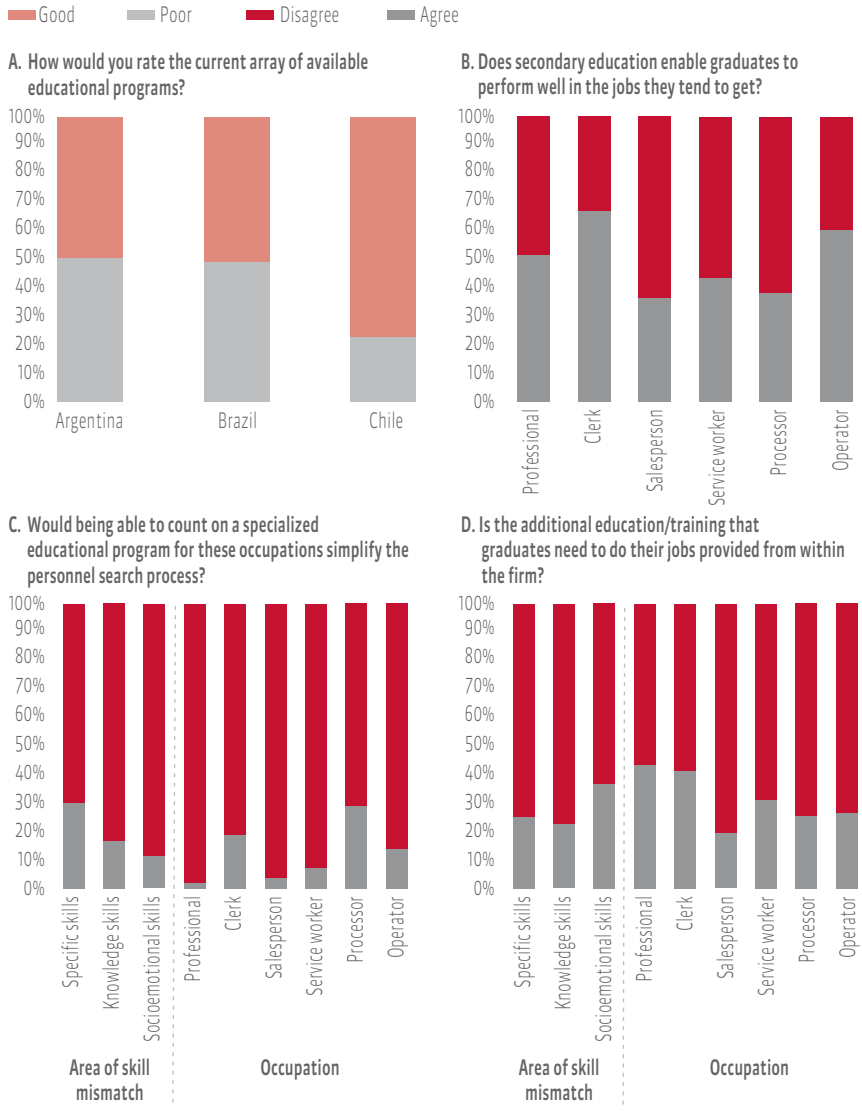
In summary, there is a gap or mismatch between the skills demanded by firms and those that secondary-school graduates bring to the labor market. That mismatch is costly for employers and employees alike. Employers, in particular, are obliged to divert resources to finding, selecting, and training personnel.

How do employers rate the secondary schools?

How do employers in Argentina, Brazil, and Chile view the secondary schools on which they must depend for a large share of their employees? In Argentina and Brazil, half of the companies involved in the DSS considered the schools in their countries to be deficient, whereas the views of Chilean firms were more favorable: almost 80 percent felt that the education system was doing a good job (figure 6.16).

Figure 6.16

Employers' views of the secondary schools in their countries



Source: Authors' calculations, based on DSS (IDB, 2010c).

In general, across all occupations, at least 30 percent of companies believe that the secondary schools do not adequately prepare graduates to perform the tasks associated with their educational program. These figures are particularly high in the case of clerical personnel and operators, who must have very different skills. Most companies believe that more specialized educational programs

would facilitate recruitment. At least 60 percent of companies report that they address the deficiencies they find in secondary-school graduates by providing training within the company.

Is it the role of secondary education to prepare students for the workplace? Or should it prepare them instead for higher education (box 6.3)? The results from chapter 5 indicate that these goals are not mutually exclusive. On the one hand, it is true that the cognitive skills of university graduates are much more developed than those of graduates from technical programs at the secondary level, which are supposed to prepare students to enter the labor market. But when one compares the levels of socioemotional skills found in young people from the same two groups, the differences are much smaller. In this sense, chapter 5 suggests that secondary school today provides young people with a common foundation of socioemotional skills regardless of whether they decide to stay in school or to go to work.

The results reported here indicate that that common foundation is inadequate.

Bridging the skill gap

This chapter described and analyzed the demand for skills from young secondary-school graduates, based on a survey conducted among firms in Argentina, Brazil, and Chile. The analysis yields three main conclusions.

First, the chapter offered a complex picture of the employment conditions faced by young people who have completed secondary education, but who do not have higher education. The labor market seems to offer good employment opportunities for a few, but great instability for the vast majority of young people in the region. Good opportunities exist for some young people in Latin America in entry-level positions that pay high wages and offer opportunities for advancement within the company. But many others lack such opportunities or are not equipped to make the most of them.

Second, the analysis revealed that firms in the region value socioemotional skills over knowledge skills and occupation- and firm-specific skills. Moreover, firms report that they have trouble finding applicants with the required levels of the valued socioemotional skills. Confirming several studies conducted in the United States, the evidence in this chapter indicates that firms change their demand for skills in response to technological advances, which illustrates the importance of having a work force that is able to acquire and use new skills.

Evidence suggests that some of the instability affecting young workers is explained by the presence of a disconnect between the skills that young people possess and those that companies demand, particularly in the socioemotional category.

Box 6.3

Responsibility and commitment are the most important skills

The financial industry employs many young people in Latin America. One of Brazil's largest banks has about 100,000 employees in branches across the country. A few years ago, the bank began requiring that all staff involved in its core business have a professional-level education. Job applicants had to be enrolled in or have completed postsecondary education, which means that most applicants are between 18 and 25 years old.

This requirement gave Fernanda, a 20-year-old from São Caetano do Sul (about 11 kilometers from the city of São Paulo), who saw in the bank a chance to join a solid company, the encouragement to continue her higher education.

Through an agency that provided temporary employees to the bank, Fernanda began working in the customer service department. "In the 14 months that I worked for the bank through the agency, I analyzed applications for car loans," says Fernanda. "The salary was very good, and many people who started with me made the same transition, working first for a temp agency, which is one of the best ways to get into big companies like my bank."

Fernanda now works directly for the bank as a cashier, but the steps and conditions to get there were many. She had to be a college student to have access to a position in a core function. She had to finish her degree to climb up the ladder. She has taken specialized courses relating to the position. She had to become free of debt. She had to demonstrate that she had technical skills, initiative, and the ability to learn, that she was responsible and had experience in greeting and managing customers, and that she was as competent in interpersonal relations as she was with numbers and systems.

Renata, one of four people responsible for selection at the bank, states that "the cashier profile is an entry into the network of agencies. The young people placed there know that they have to have a lot of drive and will. Because in addition to controlling all the payments they receive during the day they have to provide good customer service and try to sell the products the bank is promoting. That is why, in the search profile for these positions we need to find people with real growth prospects." She adds: "What we most see lacking in applicants are behavioral qualities."

Fernanda knows firsthand that a secondary school education is not enough to meet the profile described above: "In secondary school everything is basic; what counts there is learning subjects and passing them—teachers do not deal with anything else. It would be good for some secondary school teachers to update their teaching methods, since the ones they use are outdated. [. . .] The teacher is not open to dialogue or explanation; everything has to be done quickly. It is a system that's good for decorating, but not for understanding or really learning. And the truth is that you understand if you pay attention, if you ask questions. But these teachers move from one class to another, write on the board and leave, and it is the same thing all the time."

In order of importance, Fernanda lists the fundamental skills that are required for her position: responsibility and commitment, customer service and care, use of equipment, language and communication, a good work attitude, and critical thinking. "Responsibility and commitment," she explains, "are the most important skills for a cashier. Adhering to the schedule is a part of these qualities, as is realizing that you're in a company where people are on the same team. If you don't show commitment and

(*continued on next page*)

Box 6.3 (*continued*)

Responsibility and commitment are the most important skills

responsibility you drag others down and interfere with the company's overall business. That business is to sell financial products and to serve customers well, to keep them satisfied. Critical thinking is also important, though to a lesser extent. While there are not many opportunities to use it, you sometimes need to apply it to solve a problem that comes up. In such cases, if there is no critical thinking, you can't solve the problem."

Soon to turn 23, Fernanda is aware that she now has the opportunity that, until recently, she could only dream of. That is why she is ready to go back to school, if necessary, to keep advancing. "I would happily do it," she says, "because within five years I intend to be in my area, but in the treasury department or as a manager."

Finally, the evidence shows that the mismatch between the demand for skills and their supply is costly for employers and employees alike. While secondary-school graduates face a worsening employment picture, companies find that they must invest scarce resources in recruitment and training. Under the circumstances, it is reasonable to conclude that shrinking the gap between supply and demand could produce significant social welfare gains. What sorts of public policies would be most effective in bridging the skill gap? Chapter 7 presents some ideas on this subject.

7

Rethinking Schools for Today's Labor Market

The skills that count

It should be obvious that learning—in particular, learning the skills and competencies to be used during students' productive lives—should be the main concern of educational reform in Latin America and the Caribbean. And yet most of the educational interventions, policies, and programs carried out in the region have not had that particular focus. The proof is that an effective system to measure students' progress in these areas is still lacking. The measurement systems that do exist are limited to measuring the academic abilities on which schools have traditionally focused, leaving aside other abilities that are increasingly important in the current labor market, such as behavior-related skills. Skills, both cognitive and socioemotional, count. They are of the highest importance for the continuous development of children and young people—first in the education system and later in the labor market.

The region's educational development over the last 30 years has two sides, both widely discussed (see chapter 3). The more positive side is related to access; the negative, to quality (measured more in terms of knowledge than of skills). The number of people entering the education system has grown steadily, but many do not finish and do not learn. The results of national tests suggest that students are not acquiring the type or level of knowledge considered sufficient or relevant for future employment. International comparative evidence, meanwhile, suggests that students are failing to gain the skills they need to compete in the global market.

This book set out to determine, using original empirical data, whether there is a disconnect between the skills demanded by the labor market and those acquired in school. The results demonstrate that the disconnect indeed exists—and not just because of the poor academic training that students receive. Also to

blame is neglect of the group of socioemotional skills valued in the workplace but, according to employers, in scarce supply among the young labor force.

The data and analysis presented in the previous chapters point to three key issues underpinning the skills disconnect in Latin America,[1] as well as the key factors that policy makers will have to consider as they ponder measures to close the gap between the education system and the labor market:

- The disconnect between supply and demand with regard to skills suggests the existence of a profound break between schools and their environment, particularly with regard to the productive system.
- The main agents involved (students, parents, teachers, administrators, and staff responsible for formulating policies) lack information about the kind of skills and abilities required in the market. The education system also fails to generate needed information on the skills imparted in school, because its evaluation systems are focused exclusively on the measurement of academic knowledge.
- The deficient production of the cognitive and socioemotional skills for which demand exists appears to be due in part to poor teacher preparation and to the lack of incentives for successfully developing the needed skills

Education for employment in the region today

Within the region, secondary education as a concept as well as a system, was based on the European model, which traditionally had two tracks: (i) general education—primarily in arts, humanities, and science—designed to prepare students for higher education, and (ii) vocational education aimed at those students who, in principle, could not aspire to higher education and who would have to join the labor market after finishing secondary school (Cedefop, 2004). However, to counter the perception that the two-track model perpetuated social inequalities (the children of laborers became laborers, and the children of educated parents continued to university), an education system designed to promote social mobility began to unfold in the region at the beginning of the twentieth century. A central tenet of that system was that secondary education should prepare all students

[1] Obviously there are other problems that are beyond the scope of this work. For example, various authors have tried to measure the effect of increasing, or changing, schools' inputs (that is to say teachers, textbooks and other materials, infrastructure, and computers among other things) in order to improve students' learning. Glewwe and Kremer (2006) present a summary of the literature on the subject in relation to developing countries. While acknowledging that more research is needed in order to arrive at definitive conclusions, their preliminary findings suggest that the most effective way to improve educational quality is by significantly improving the quality of teachers.

for university (Cedefop, 2004). In the name of social mobility, therefore, Latin Americans—the general population as well as educational leaders—have come to view secondary education as a step toward the university.

Currently, the students in the region who choose a humanities-based secondary education—that is, the majority of students, because this is the dominant option offered by the system—seem to lack a clear understanding of the nature and requirements of the labor market in general, as well as the ability to perform a particular occupation or job. It is assumed that these young people are being educated for postsecondary education, and that they will join the labor market from there. Most schools, especially those providing humanities-based education, are disconnected from the spheres of work and production and therefore are unable to prepare their students to operate within them. In this sense, it is necessary to design mechanisms that prepare secondary-school graduates to make a successful transition into the labor market or into various types of postsecondary education along educational paths that allow them to move from one to the other to improve their human capital, among other measures.

Broadly speaking, there are two ways—not necessarily mutually exclusive—to bridge the skill gap. One involves changing the content and organization of the education system to create a more direct connection between schools and businesses. The other involves keeping the same content for the most part, but modifying the pedagogical methods used in order to promote the acquisition of skills relevant for the labor market.

Several countries in Europe use these strategies, either in isolation or as complements, to bridge the gap between schools and the productive sector. Ryan (2001) presents participation statistics for several member countries of the Organisation for Economic Co-operation and Development (OECD). In Germany in the mid-1990s, about 60 percent of each cohort of secondary-school students participated in some kind of work experience coordinated by schools and companies.[2] Meanwhile, the participation of secondary-school students in vocational education programs reached 76 percent in Germany, 70 percent in Holland, 57 percent in England, 54 percent in France, and 51 percent in Sweden.[3]

In Latin America, efforts to avoid the perpetuation of social inequalities by the education system have come up against the reality that only a minority

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[2] There are arguments for and against vocational education and placements. On the one hand, these kinds of programs teach the skills that the market demands. In addition, they may offer educational advantages by teaching academic content within a practical context. However, vocational schools tend to be more expensive than traditional schools, because they require more infrastructure, equipment, and materials.

[3] The specialized literature has not found large impacts of vocational education in terms of wages or employability. However, it must be considered that, owing to problems of self-selection of students (as a function of ability, motivation, and socio-economic status), there have been no credible evaluations of the impact of vocational education.

of students are able to enter postsecondary education, not only because of financial, institutional, or cultural restrictions, but also because the desires, capacities, aspirations, and needs of the region's young people are varied and diverse, and, for the large majority, the university is not the appropriate answer (Cedefop, 2004). Faced with that evidence, it was necessary to incorporate elements of vocational education into secondary education. As a result, beginning in the middle of the last century, *ad hoc* programs aiming to improve the links between secondary school and work proliferated. These experiments, generally isolated and disconnected, reflect a variety of strategies that include work being a subject of study, the creation of mechanisms through which students become familiar with the labor market based on intermittent contacts (visits to industrial locations and attending lectures), more specific commitments such as the incorporation of knowledge and skills for the labor market into the curriculum, alternating periods of work and study, practical training, and even dual programs that placed graduates directly into the labor market.

Examples include the Chile Califica dual-education program, Colombia's training-through-work program administered by SENA (Servicio Nacional de Aprendizaje, the national apprenticeship service), and the professional technical education offered by Mexico's Conalep (Colegio Nacional de Educación Técnica Profesional), all of which are national in scope and provide wide coverage. More limited efforts also exist, such as the Instituto Agroindustrial San Clemente in Colombia, which provides work-oriented education in a rural setting, and Jamaica's National Youth Service Corps, which is aimed at young people who have completed secondary school and who are neither working nor enrolled in a postsecondary program. Appendix D provides a detailed description of these programs.

Despite these valuable experiments, in the matter of the transition of secondary-school graduates to the world of work there remains the fundamental problem of the quality and relevance of the education that the region's schools are delivering. And there efforts should be directed to achieve the following: well-trained teachers, systems of measurement and evaluation that generate solid data that enable the system to detect and cure deficiencies, incentives for quality in education, and a robust education system in touch with the outside world that imparts relevant knowledge and skills.

Work on three fronts: Measurement and information, incentives, and quality and relevance

Data that do double duty

As seen in chapter 3, Argentina, Brazil, Chile, and other countries have made progress in the production and dissemination of information on the levels of the major academic skills (reading, writing, and mathematics) found among their

students. But that progress has been limited. If the goal is to understand fully the gap between skills demanded and skills supplied and to take action to close that gap, it is not enough that the system should disseminate more information—that information has to be pertinent. What is specifically required is that national assessments measure basic skills in an unequivocal way, that more countries in the region participate in comparative international assessments, and that a commitment be made to creating a process of evaluating skills, abilities, and competencies—in the full sense proposed here—that will provide a baseline and measures of progress over time for every school in the system. In other words, it is necessary to push further in the direction of evaluation systems to measure in a consistent way the formation of academic knowledge in students, while simultaneously widening the scope of measurement to include other skills relevant to the labor market, as noted throughout this volume.

The OECD, through the Programme for the International Assessment of Adult Competencies (PIAAC), offers a point of reference that may be useful in the measurement of skills in the labor force and in the use of those skills at work, even if PIAAC covers a much wider age range (from 16 to 65 years) and concentrates mainly on basic cognitive skills of people not necessarily in the education system. As suggested in chapter 5, it is also important to gather data on the employment trajectories of secondary-school graduates through longitudinal surveys that provide the education system with relevant feedback on the performance of young people in the school-to-work transition. On this last point, countries such as the United States have accumulated experience that could be useful to the region, notably the National Longitudinal Survey of Youth for 1979 and 1997 (NLSY 79 and NLSY 97), among others, especially at the state or subnational level.

A greater flow of information is useful for three reasons. First, because when parents are informed they are able to make better decisions about the school their children will attend.[4] Second, because in an uninformed environment, families may believe that their children are receiving appropriate education even if they are not, and they may lack incentives to demand improvements in the quality of education.[5] Third, a greater flow of relevant information would

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[4] It is important to consider, however, the factors that parents prioritize when choosing a school for their children. For example, available evidence indicates that in Chile, academic achievement is not among the most important factors. Based on data from the SIMCE 2004–06 panel, only 7 percent of parents viewed it as one of the most important factors when enrolling their children in an educational institution (Bassi and Urzúa, 2010). Still, it remains clear that well-informed decisions result in better choices.

[5] For example, surveys carried out by the IDB in five Latin American countries show that the percentage of parents who are pleased with the education given to their children ranges from 77 percent in Chile to 97 percent in Belize (IDB, 2008b). That finding stands in marked contrast with the objective indicators of educational quality in the same countries, which could be a sign of parents' lack of information.

allow principals and teachers to allocate resources in a more effective way, to identify and anticipate problems, and to take appropriate action. Finally, companies will also benefit from the information, using it to make recruitment and training decisions, as well as providing feedback about the needs of the system.

In a well-informed environment, education systems are better equipped to identify the most important skills, given the context in which students will have to operate. Better information would also enable education systems to devise mechanisms to identify, teach, and assess those skills and to develop tools that would make it possible for that information to guide parent's and students' decisions, as well as those of teachers and school directors, ministries of education, and those responsible for forming education policy.

Several cases show that more and better information improves educational outcomes. Since the early 1990s, state programs in the United States require students to take standard knowledge tests. The results of those tests serve as a basis for a system of rewards and punishments for schools and teachers. In 2001, the federal No Child Left Behind program consolidated those efforts. An extensive literature purports to measure its effect through comparisons of different school districts (Peterson and West, 2003; Cronin et al., 2005; Dee and Jacob, 2011). Carnoy and Loeb (2002) found that learning improved once information and reward systems were implemented on the basis of the test results. Furthermore, there is evidence that simply publishing the information about school quality can be beneficial. In Brazil, Camargo et al. (2011) found that disclosing information about how much students were learning at school, as measured by a standardized test, greatly improved results in the same schools over the following years.

Information on the labor market should also permeate the education system. In particular, it is crucial to inform students, parents, and teachers about available jobs and earnings and returns, and about the skills needed to be successful in different occupations. This recommendation responds to indications that when presented with information about jobs and earnings many secondary-school students change their minds about whether to continue studying and, consequently, their implicit decision about the job they will seek once they finish school.[6] Another important step would be to develop a permanent information system that would include test results, socioemotional skills, career paths, and inputs about secondary schools. Desirable inputs would include school-specific data on the average performance on standardized tests of each cohort at the beginning of secondary school, the number of teachers and resources per student (books, computers, etc.), and information on school facilities, among other topics. The same would apply with regard to postsecondary options and their potential returns.

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[6] See the findings of Jensen (2010) for the Dominican Republic.

Without needing to create new data, untapped information already exists at schools about critical issues such as absenteeism, behavioral problems, grades in different subjects (from nonstandardized tests), and class hours per year. Even though this information will not necessarily correlate positively or negatively with the probability of finding a job or earning more, its collection, systematization, digitization, and distribution could contribute to making both schools and the education system more transparent to employers. Moreover, it will facilitate a systematic monitoring of school performance and of the deficiencies that must be addressed in order to achieve a stronger link between school and work.

An evaluation system that expanded its performance measures to include the socioemotional skills that count most in the productive sphere—assuming that those skills were taught—would help close the disconnect between what the labor market demands and what the schools supply. This would not imply a reorientation of evaluation systems, nor any reduction in efforts to improve the measurement of academic knowledge (especially in its practical applications), which still has a long way to go in the countries of the region. What is being suggested is a *widening* of the concept of skill and performance beyond the purely academic—and a commitment to teaching socioemotional skills and measuring students' success in learning them.

Beginning at the beginning: Teachers and incentives

Apart from generating information, it is important that schools receive signals about whether the skills they teach are highly valued by the market. Therefore it is essential that this information be made available to those accountable for performance results (the education system, schools, teachers, students, and parents), and that those results should be linked to an appropriate system of incentives.

Disclosure of this information in itself is an additional incentive for the schools, the effect of which would be reinforced by other incentive mechanisms that took into account a wider range of skills when measuring results. Incentives, particularly those aimed at teachers, are one of several mechanisms used in the education systems of developed and developing countries alike in the effort to ensure that students achieve better results (Glewwe and Kremer, 2006). From an economic perspective, and in light of the results presented here, it is important that those incentives be linked not only to the achievement of academic targets, but also to skills that so far have been neglected despite their value in the labor market.

No incentive system can contribute to the achievement of targets of quality and relevance, unless teachers are properly trained. Given that the teaching of academic skills is already compromised by the enormous deficiencies described

in chapter 3, it would be unrealistic to hope that new objectives linked to the socioemotional skills sought by the market can be met without first addressing in a serious way the source of the problem with academic skills—teachers. That fact points to the platform on which an effective incentive system could be built. The quality of the teaching corps is a theme that demands the most serious debate, although it far exceeds the scope of this publication. Suffice it to say that it is of central importance and that unless and until it is addressed any effort to close the gap between what schools supply and what the productive sphere demands will be entirely without foundation.

The importance of economic incentives is that they intensify the message sent to teachers about the objectives that they are expected to meet in terms of student education, as well as the rewards that they stand to reap for meeting those objectives. In a system in which salaries are tightly restricted and there is a high degree of variability in teachers' ability to achieve results, a mechanism that acknowledges those differences would be a clear message about the skills required of teachers (Bruns, Filmer, and Patrinos, 2011).

Nevertheless, some object to incentives, arguing that they force teachers to focus only on the subjects and skills to be tested, a problem known as "teaching to the test," and to neglect other aspects of teaching, such as the development of curiosity and creative thinking (Holmstrom, 1999, and Hannaway, 1992, both quoted in Glewwe and Kremer, 2006). Moreover, there is a high risk that teachers may engage in coaching for the sole purpose of improving students' test scores, instead of focusing on ensuring that students truly master the required subjects (Koretz, 2002).

The main challenge that arises when trying to design a program of incentives is finding an "ideal contract" between the teacher and employer that is in the interest of both parties and in which activities, goals, and performance-based rewards are clearly established from the beginning. Based on the existing empirical evidence, Bruns, Filmer, and Patrinos (2011) propose three key elements that would help predict the effectiveness of an incentive program: (i) *controllability,* in other words, the degree to which the student's learning is under the control of the teacher (rather than depending on external factors that are beyond their control); (ii) *predictability,* meaning that the teacher can be confident of receiving the reward by investing continuous effort; and (iii) the *size of the incentive*, which may affect the amount of effort and commitment that the teacher is willing to invest to achieve the goal.

There are various types of incentives—among them individual awards for students' test performance, individual awards for achievement in specific areas of skill and knowledge, and payments to the entire school in recognition of students' results (group incentives). Each has advantages and disadvantages. For example, group incentives can be less effective in motivating individual teachers, though they can promote (or at least not undermine) cooperation

among the teaching staff, contributing to a better climate for learning. Lavy (2007) offers a long and complex list of practical challenges related to the implementation of results-based rewards systems. When the results of efforts to develop socioemotional skills are added to the mix additional challenges appear, including the need to train teachers to be able to stimulate the development of those skills, as well as the need for systems to assess and measure them. Such systems are well advanced in psychology but not well known or widely implemented in school settings.

The implementation and experimental evaluation of incentive programs are still in flux, but the available evidence shows some interesting findings. In the United States, results-based rewards programs have been implemented in school districts in Colorado, Florida, Michigan, Minnesota, South Carolina, Tennessee, Texas, and Washington, D.C. And although not all of these programs have been susceptible to rigorous evaluation (Podgursky and Springer, 2007), in those that have lent themselves to such evaluation the empirical evidence of the program's effectiveness has been ambivalent (Lavy, 2007; Fryer, 2011).

Outside the United States, a pioneering evaluation was conducted in secondary schools in Israel. Lavy (2002) presents the results of the program, in which monetary incentives were available to teachers on the condition that their students improved in three aspects: an increase in the number of credits students earned, an increase in the percentage of students receiving a pre-university certificate, and a reduction in dropout rates. The proffered incentives were awarded to the entire school. After two years the program appears to have had a positive effect.

In Latin America, Chile established a bonus program based on student achievement, introduced as part of a wider performance evaluation system in schools. The bonuses are given to teachers and principals who succeed in raising their school in rankings based on students' results on national standardized tests. Following the introduction of the incentives, an evaluation showed positive and significant effects, but there was no evidence that winning schools would be able to improve their results the following year (Contreras and Rau, 2009).

In Mexico, with support from the Inter-American Development Bank (IDB), a four-year incentive program in high schools is currently being evaluated (Behrman et al., 2011). In contrast to otherwise similar efforts, this case has simultaneously applied a various combinations of incentive systems to different groups of schools. In one group incentives were offered only to students, in another group only to teachers, and in a third group to teachers, students and principals. The results from the first year are promising and suggest that incentives for teachers, students, and their respective peers create greater positive effects when compared with the control group and other evaluated options.

Finally, several types of intervention are being applied in the states of Brazil in what it is considered to be one of the largest incentive programs in

the developing world (Bruns, Filmer, and Patrinos, 2011). In contrast with the cases described previously, in Brazil incentive systems have been implemented across whole states (Minas Gerais, São Paulo, and Pernambuco), so that there are no control groups, strictly speaking. Future evaluations are expected to determine the effectiveness of the systems by measuring change occurring after the program launch.[7]

In summary, these experiences show that, although there is still room for improvement, incentive systems can contribute to better student achievement by rewards to teachers that showed better performance. Some aspects remain to be evaluated, such the maintenance of improved results over time. In any case, incentive systems must be carefully designed so as not to discourage good teachers from working in schools for vulnerable students (that is, schools where academic achievement is lower and learning disabilities are more common). They also should not encourage teachers to focus their attention solely on the high-achieving students in their classes, and should avoid harming the school environment and undermining cooperation among teachers, among other things. Various mechanisms are available and can be adapted to suit the specific characteristics of the education system and the objectives to be met.

In order to bridge the skill gap in a broad sense, it will be necessary to devise the right incentives for schools and the education system (and notably for teachers); as well as for students, parents, and employers. With this in mind, it is recommended that the effort to design incentives be pursued in such a way as to enable schools to develop and strengthen—in parallel with academic programs—the cognitive and socioemotional skills that really count, while also making teachers aware of the competencies that are most in demand in the market. At the same time, evaluation systems (currently dominated by tests of knowledge and learning) should be broadened so that they measure skills such as creativity and innovation, as well as other emotional skills, such as perseverance, that are taught in the schools.

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[7] Among the incentive programs that have been tried outside the region are one in Kenya and one in India. In Kenya, Glewwe, Ilias, and Kremer (2010) evaluated an incentive system using a pilot program in 100 poorly performing schools. Half the schools (which were randomly chosen) benefited from a program in which all teachers obtained a bonus depending on students' results in national tests. In the first year the improvement in test scores was moderate, but after the second year the gain was substantial. However, by the third year, when the program had ended, test results showed that the improvements did not last—scores retreated to their level before the implementation of the program. In India, Muralidharan and Sundararaman (2009) designed an experiment to be used in 100 schools in the state of Andhra Pradesh. The objective was to reward individual teachers when their students improved their end-of year test scores during the experiment. The results were positive: scores in the participating schools were higher than those of the control group by more than a quarter (0.27) of one standard deviation—a large difference for an education project.

Schools in sync with their surroundings: Quality and relevance

The challenge of building a strong education system—and one that is better integrated with the wider social and economic context—hinges on at least two fundamental pieces: quality and relevance. It will not be possible to disregard any of the factors needed for the full development of the skills that students must have to succeed in life after graduating from school. Chief among those factors are well-trained teachers, evaluation and information systems that are aligned with the skills that are being developed, mechanisms that link schools with their surroundings (notably employers), and incentive systems designed to produce the gains required to meet larger goals.

The world offers many examples of systems of academic excellence—China, Finland, and the Republic of Korea, to name a few—to which one may turn for ideas and guidance. Yet no example of similar scale exists for the development of socioemotional skills within an education system. For the moment, planners must be satisfied with isolated experiments and events, limited projects, and a few surveys that do not yet suggest conclusive results or trends.

Future research in this area should strive to explore in greater depth those aspects that will make it possible to establish lines of causality between the variables analyzed in this volume. Likewise, it will be necessary to design and carry out rigorous impact evaluations that make it possible to identify policies, educational programs, and teaching practices that are effective in imparting skills—socioemotional skills as well as knowledge skills—to students. The change must begin in the classroom and eventually reach every actor in the education system.

One goal of this publication was to convey a sense of urgency for the adoption of measures that address not only the quality, but also—and especially—the *relevance* of education in the transition of the region's young people into the labor market.

APPENDICES

A. Skills and Trajectories Survey (STS)

Argentina

The survey comprised face-to-face at-home interviews of individuals aged 25 to 30 as of April 30, 2010. The interviews lasted approximately 60 minutes. The fieldwork was conducted between May and June of 2010.

The sample included three major urban areas (the Buenos Aires metropolitan area, Cordoba, and Mendoza), with quotas of at least 1,000 cases in Buenos Aires and a minimum of 300 in the other cities.

The sample was probabilistic and multistaged. First, the cities where the fieldwork was to be conducted were selected. Within those cities census divisions and radii were drawn. Blocks were then randomly selected as the sample points. Households were identified within each sample point by selecting one house and then skipping the next two. Within each selected household the respondent was picked according to age and gender quotas. The maps used to select sample points and the census data used to set quotas were from the 2001 census conducted by the National Institute of Statistics and Census (INDEC).

Table A.1

Argentina: Descriptive statistics on sampled individuals

Variable	Average	Standard deviation	Minimum	Maximum
Educational level (incomplete primary or secondary)	37%	48%	0	1
Educational level (secondary – complete traditional academic)	19%	40%	0	1
Educational level (secondary – complete technical/vocational)	13%	33%	0	1

(*continued*)

Table A.1 *(continued)*

Variable	Average	Standard deviation	Minimum	Maximum
Educational level (postsecondary technical)	16%	37%		
Educational level (university)	15%	36%	0	1
Age 26	14%	35%	0	1
Age 27	14%	35%	0	1
Age 28	14%	35%	0	1
Age 29	16%	36%	0	1
Age 30	23%	42%	0	1
Female	50%	50%	0	1
Lived with father part of the time while in primary school	12%	32%	0	1
Did not live with father while in primary school	11%	32%	0	1
Father's education (incomplete primary)	12%	32%	0	1
Father's education (complete primary)	37%	48%	0	1
Father's education (incomplete secondary)	13%	34%	0	1
Father's education (complete secondary)	21%	41%	0	1
Father's education (incomplete postsecondary technical)	2%	13%	0	1
Father's education (complete postsecondary technical)	3%	18%	0	1
Father's education (incomplete university)	3%	17%	0	1
Father's education (complete university)	6%	24%	0	1
Father's education (postgraduate)	1%	7%	0	1
Mother's education (incomplete primary)	11%	31%	0	1
Mother's education (complete primary)	35%	48%	0	1
Mother's education (incomplete secondary)	14%	34%	0	1
Mother's education (complete secondary)	23%	42%	0	1
Mother's education (incomplete postsecondary technical)	2%	12%	0	1

(continued)

Table A.1 *(continued)*

Variable	Average	Standard deviation	Minimum	Maximum
Mother's education (complete postsecondary technical)	6%	23%	0	1
Mother's education (incomplete university)	4%	19%	0	1
Mother's education (complete university)	5%	22%	0	1
Mother's education (postgraduate)	1%	8%	0	1
Socioeconomic status at age 5 (lower middle)	20%	40%	0	1
Socioeconomic status at age 5 (middle)	56%	50%	0	1
Socioeconomic status at age 5 (upper middle)	10%	30%	0	1
Socioeconomic status at age 5 (upper)	2%	15%	0	1
Intellectual ability (0–8)	2.8	1.8	0.0	8.0
Self-efficacy (1–4)	3.2	0.5	1.3	4.0
Social skills (1–4)	3.1	0.5	1.5	4.0
Metacognitive strategies (1–4)	3.2	0.5	1.1	4.0
Employment rate (2008)	84%	37%	0	1
Activity rate (2008)	82%	38%	0	1
Reported monthly income (2008) in Argentine pesos	2,002	1,012	100	8,000

Note: These descriptive statistics exclude individuals who were enrolled in school at the time of the survey. The number of observations is 1,259 individuals (from a sample of 1,600).

Chile

The survey comprised face-to-face at-home interviews of individuals aged 25 to 30 at the time of the interviews. The fieldwork was conducted between October and December of 2008. The interviews lasted approximately 60 minutes.

The coverage of the national study was urban. With the exception of Region XI, the country's major cities were included in the sample design. The cities were Arica, Iquique, Antofagasta, Copiapo, La Serena, Coquimbo, the Valparaiso metropolitan area (Valparaiso, Viña Del Mar, Concon, Villa Alemana), Rancagua, Talca, the Concepción metropolitan area (Concepción, Chiguayante, Penco, San Pedro, Talcahuano), Temuco, Padre Las Casas, Valdivia, Puerto

Table A.2

Chile: Descriptive statistics on sampled individuals

Variable	Average	Standard deviation	Minimum	Maximum
Educational level (incomplete primary or secondary)	24%	42%	0	1
Educational level (secondary – complete traditional academic)	20%	40%	0	1
Educational level (secondary –complete technical/vocational)	19%	39%	0	1
Educational level (postsecondary technical)	16%	36%	0	
Educational level (university)	21%	41%	0	1
Age 26	15%	36%	0	1
Age 27	14%	34%	0	1
Age 28	20%	40%	0	1
Age 29	17%	37%	0	1
Age 30	18%	38%	0	1
Female	52%	50%	0	1
Lived with father part of the time while in primary school	5%	22%	0	1
Did not live with father while in primary school	21%	41%	0	1
Father's education (incomplete primary)	21%	41%	0	1
Father's education (complete primary)	16%	37%	0	1
Father's education (incomplete secondary)	15%	36%	0	1
Father's education (complete secondary)	27%	44%	0	1
Father's education (incomplete postsecondary technical)	1%	10%	0	1
Father's education (complete postsecondary technical)	6%	23%	0	1
Father's education (incomplete university)	3%	17%	0	1
Father's education (complete university)	8%	28%	0	1
Father's education (postgraduate)	1%	7%	0	1
Mother's education (incomplete primary)	23%	42%	0	1

(continued)

Table A.2 *(continued)*

Variable	Average	Standard deviation	Minimum	Maximum
Mother's education (complete primary)	17%	38%	0	1
Mother's education (incomplete secondary)	19%	39%	0	1
Mother's education (complete secondary)	27%	44%	0	1
Mother's education (incomplete postsecondary technical)	1%	8%	0	1
Mother's education (complete postsecondary technical)	4%	19%	0	1
Mother's education (incomplete university)	2%	14%	0	1
Mother's education (complete university)	6%	23%	0	1
Mother's education (postgraduate)	0%	6%	0	1
Socioeconomic status at age 5 (lower middle)	22%	41%	0	1
Socioeconomic status at age 5 (middle)	36%	48%	0	1
Socioeconomic status at age 5 (upper middle)	8%	28%	0	1
Socioeconomic status at age 5 (upper)	2%	13%	0	1
Intellectual ability (0–8)	2.83	1.90	0.00	8.00
Self-efficacy (1–4)	3.37	0.42	1.33	4.00
Social skills (1–4)	3.23	0.47	1.20	4.00
Metacognitive strategies (1–4)	3.38	0.51	1.00	4.00
Employment rate (2008)	78%	41%	0%	100%
Activity rate (2008)	77%	42%	0%	100%
Reported monthly income (2008) in Chilean pesos	286,565	191,341	10,000	1,500,000

Note: These descriptive statistics exclude individuals who were enrolled in school at the time of the survey. The number of observations is 3,853 individuals (from a sample of 4,497).

Montt, Punta Arenas, and the Santiago metropolitan area (Santiago Province, Puente Alto, and San Bernardo).

The sample design was probabilistic and nonproportional, stratified by geographic area (north, south, and metropolitan region) and geographically distributed among the districts within each zone.

The sampling process was three-staged and based on housing clusters developed by the polling firm. In the first stage clusters were randomly selected in each city. In the second stage, houses were selected randomly within the

cluster, through systematic steps. Finally, if there was more than one possible respondent per house, a respondent was selected.

Measurement of skills

To develop the measurement skills within the context of the survey, the Centro MIDE UC at the Department of Psychology of the Pontificia Universidad Católica de Chile developed an eight-point scale of general intellectual ability. For the measurement of social skills, self-efficacy, and metacognitive strategies, abbreviated scales were created based on scales previously developed at the Centro MIDE UC.

The steps in the design of the final survey were (i) to select items to test for general intellectual ability, (ii) to pilot those items and submit them for expert review, (iii) to make a final selection of the tests of general intellectual ability, and (iv) to shorten existing MIDE UC scales for the measurement of social skills, self-efficacy, and metacognitive strategies. Finally, the completed survey, with its five scales, was given a pilot test.

For the measurement of general intellectual ability, the decision was made to develop analogies because, as revealed in the literature review (see Centro MIDE UC, 2008), in the assessment of fluid intelligence (the closest thing to a general measure of intelligence), tests of analogical reasoning are typically used. Furthermore, as noted in the conceptual analysis portion of the MIDE UC report, this type of exercise tends to correlate significantly with more comprehensive tests of intelligence.

The analogies consisted of two pairs of terms where the relationship between the terms of each pair was the same. When administered, the second term of the second pair was hidden, and the subject had to choose the most appropriate term from four alternatives. A proposal was made to develop both verbal and figural analogies for further study.

As a first step, two psychologists were asked to generate 24 analogies each (12 verbal and 12 figural), for a total of 48 items. Of these, 24 were selected for pilot testing. The selection was based primarily on the clarity of the analogical relationship and the difficulty of the proposed analogies. Analogies that were too easy or too difficult, or in which the relationship was not entirely clear, were eliminated. (The verbal analogies were not used in the survey.)

Once the items were selected they were tested in the form of a "cognitive interview." A standardized form was developed for each of the 48 items to be studied. The items were presented to subjects. After responding, subjects were interviewed to obtain additional personal data. The pilot interviews lasted approximately two hours each (including the application of other items used to measure creativity that ultimately were not used in the survey).

B. Demand for Skills Survey (DSS)

Respondents. Interviews were conducted in large urban centers in Argentina, Brazil, and Chile between October 5, 2009, and January 28, 2010. They were conducted among employers in the food, automotive, financial, hospitality, and retail sectors. Various people involved in the hiring process were surveyed, including representatives of human resources departments, personnel officers, and branch managers. In small firms those surveyed were owners, supervisors, and managers. It was established that all respondents not only knew the requirements and skills required by the company but also were responsible for identifying those requirements when selecting personnel. The respondents were given the chance to base their responses on the company as a whole or on the branch, if the company had more than one. The sample included 693 companies with a single facility and 485 with more than one. In this last group, 105 respondents answered on behalf of the company, while another 380 responded only on behalf of their branch. The sample contains data corresponding to 798 separate companies; the remainder of the data refers to branches.

The sectors. The sectors included the businesses described below.

- ***Automotive***. This sector included industrial establishments whose main activity was the manufacturing of motor vehicles, motor-vehicle bodies, trailers and semi-trailers, and parts and accessories for motor vehicles and their engines. Both domestically owned and foreign-owned companies were included. The sampling excluded businesses identified as distribution channels (dealerships).
- ***Food***. This sector included businesses involved in processing food or drinks. In the specific case of fruits, the sampling excluded businesses whose sole activity was production (harvesting), but included those dedicated to packing or packaging.

- ***Hotel***. This sector included businesses that provide accommodation for travelers, visitors, and tourists (local and foreign) across various regions of the country. The sector included both hotels proper at all levels of quality, plus apartment hotels and boutique hotels, and hotel-like businesses such as union hotels, lodges, cabins, bungalows, guest houses, bed-and-breakfasts, hostels, pensions, and so on.
- ***Financial***. This sector included financial institutions serving the public—retail banking, insurance companies, credit card companies, consumer credit firms, payment points, and so on. In the case of banks, the sample included public and private firms providing financial intermediation with domestic or foreign capital.
- ***Retail***. This sector included retail establishments that had at least two registers and self-service aisles. In the case of supermarkets, the sample included only retail businesses, excluding wholesale grocers. This sector included both large supermarket chains as well as small and medium businesses enterprises managed without reliance on a parent company.

Sampling framework. Because the national statistical services of Argentina and Chile do not maintain an official registry of businesses, the study worked on the basis of lists of businesses in the industries covered by the project. These lists were prepared using sources that survey firms in the region usually use, including business telephone directories, directories specific to each industry, and lists drawn from comprehensive Internet tracking. Some of the sources that were consulted were Dun & Bradstreet, the Yellow Pages, and the *Guía Senior*. Based on this sampling framework a simple randomization was performed.

Sampling minimums were assured for sectors with large universes. Because the automotive sector was a comparatively small in terms of the number of businesses, a minimum number of cases was not set, but nonetheless an effort was made get as many interviews as possible. This sector was excluded in Chile. There was a push to achieve a minimum sample size of 60 firms per sector per country. Once the minimum sample was achieved, the next step was to complete the remaining sample from among the various sectors of activity. The final sample is described in table 6.2 of the main text.

Interview method. Two methods were used for interviews: Web-based and in person.

- *Web-based interviews*: Using the lists compiled for the survey, companies were contacted by telephone to make contact with potential respondents and obtain an e-mail address. Subsequently, an e-mail was sent containing the project presentation letter and an electronic

link to access a Web-based computer survey program. Respondents who had trouble accessing or using the Web-based survey received telephone support from project staff. A total of 117 Web-based surveys were conducted in Argentina, 133 in Brazil, and 10 in Chile.

- *Personal interviews*: Depending on the industry, interviews were carried out in person (i) by telephone, following confirmation of the interview, or (ii) directly at the business location. The latter method was more effective in the retail sector, mainly in small businesses. Numerous locations were visited with the aim of covering as many places as possible. The quantity of personal interviews was 292 in Argentina, 318 in Brazil, and 308 in Chile.

Questionnaire. The questionnaire required 45 minutes on average. It included both closed and open questions. The questionnaires were customized for use online and in person. They were composed in Argentine Spanish, with changes in terminology as needed for use in Chile. The questionnaires were translated into Portuguese for use in Brazil. These tasks were performed by the respective local teams, were monitored by the MBC MORI team, and approved by the IDB. The questionnaires designed for personal interviews were accompanied by a list of response categories that was provided to participants to facilitate their response to several questions. The lists were provided in order to imitate the effect of the online surveys.

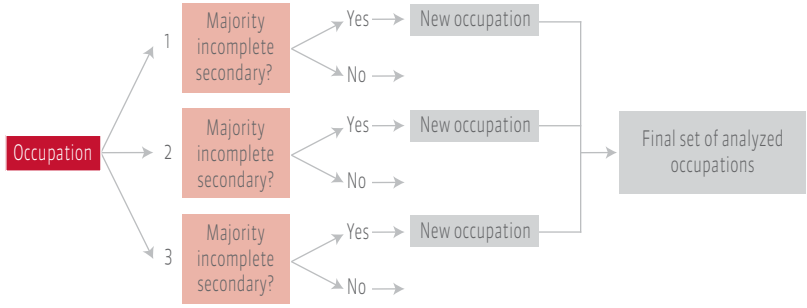
Observational unit. The unit of analysis was the occupation-firm. Each respondent was asked to respond for three main occupations. In the first instance they were asked about three occupations directly related to the firm's principal business. If most of the employees who performed those jobs had not completed secondary education, a different occupation was selected. Figure B.1 shows the process followed to arrive at the set of occupations selected. The 1,176 firms provided information on a total of 3,015 jobs.

Wages (comparison). To examine the representativeness of the DSS, monthly wage distribution data collected during the survey were compared with corresponding data obtained from household surveys covering secondary-school graduates who were employed in early 2010 in the three countries. Figure B.2 shows that the distributions are similar, suggesting that the DSS indeed constitutes a representative sample of this group of workers at work.

Descriptive statistics. Tables B.1, B.2, and B.3 display four basic descriptive statistics (average, standard deviation, minimum, and maximum) for the main variables used in this chapter for Argentina, Brazil, and Chile.

Figure B.1

Process used to select the occupations used in the survey

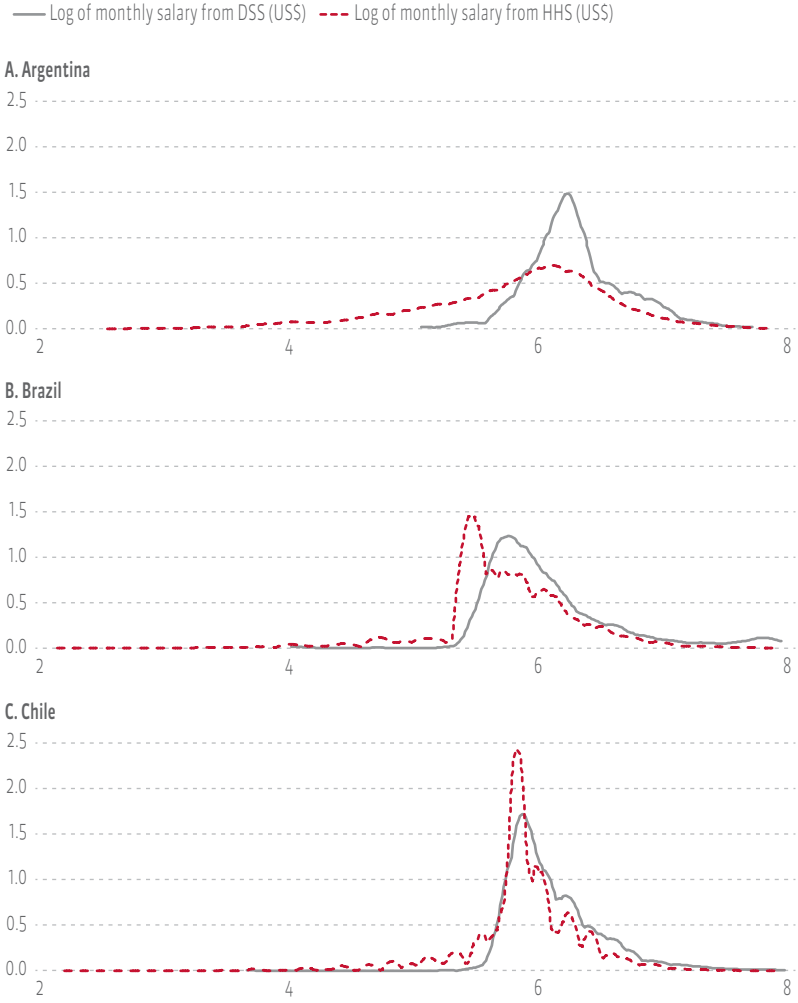


Source: Authors' calculations, based on DSS (IDB, 2010c).

Figure B.2

Wage distribution: DSS and household surveys

(*Log of monthly salaries in US$*)



Sources: DSS (IDB, 2010c) and Homogenized Household Surveys (IDB, 2009).

Table B.1

Argentina: Descriptive statistics on sampled firms

		Average	Standard deviation	Minimum	Maximum
Firms	**Degree of unionization**				
	None	33%	47%	0	1
	Less than half	45%	50%	0	1
	More than half	22%	41%	0	1
	Scope of firm's activity				
	Local	28%	45%	0	1
	Regional	11%	31%	0	1
	National	35%	48%	0	1
	International	27%	44%	0	1
	Size				
	0 to 9	3%	18%	0	1
	10 to 49	14%	34%	0	1
	50 to 499	40%	49%	0	1
	500 or more	43%	50%	0	1
	Industry				
	Automotive	18%	38%	0	1
	Retail	21%	41%	0	1
	Hotel	23%	42%	0	1
	Finance	23%	38%	0	1
	Food	21%	41%	0	1
Workers	**Occupation**				
	Professional	5%	22%	0	1
	Clerk	35%	48%	0	1
	Salesperson	13%	34%	0	1
	Service worker	19%	39%	0	1
	Processor	9%	29%	0	1
	Operator	19%	39%	0	1
Labor market	**Wages (US$, monthly)**				
	Entry wage	604	192	157	1,223
	Average wage	729	283	157	1,703
	Maximum wage	884	416	157	2,619
Skills	**Skill requirements**				
	Requires more skills	42%	49%	0	1
	Requires fewer skills	1%	11%	0	1
	Requires different skills	57%	50%	0	1
	Valuation of skills (points/100)				
	Specific skills	16.4	20.9	0	100
	Knowledge skills	28.1	16.8	0	100
	Socioemotional skills	55.5	22.7	0	100

(continued)

Table B.1 *(continued)*

		Average	Standard deviation	Minimum	Maximum
	Skill mismatch (points/100[a])				
	Specific	3.6	12.8	0	100
	Knowledge	8.6	12.4	0	71
	Socioemotional	22.7	22.6	0	100
Hiring practices	**Search methods used**				
	0–3	58%	49%	0	1
	4–8	42%	49%	0	1
	Hiring methods used				
	0–3	33%	47%	0	1
	4–7	64%	48%	0	1
	8 or more	3%	16%	0	1
	Trial periods used?				
	Yes	64%	48%	0	1
	No	34%	48%	0	1
	Don't know	2%	10%	0	1
	Hiring method				
	Hired the best candidate and did not train	7%	26%	0	1
	Hired the best candidate and trained extensively	70%	46%	0	1
	Did not hire until the required skills were found	21%	41%	0	1
Training	**Is training offered?**				
	Yes	89%	31%	0	1
	No	8%	28%	0	1
	Don't know	2%	15%	0	1
	Timing of training				
	Concentrated during trial period	36%	48%	0	1
	Offered with some regularity	64%	48%	0	1

Source: DSS (IDB, 2010c)
Note: Percentages may not total to 100 because of rounding.
[a] The skill gap expresses the difference between the point value the firm assigns to a given category of skill and the ease or difficulty of finding employees with that skill. If a firm reports difficulty finding a given skill, the point value that the firm attributed to that skill is counted toward that firm's skill gap.

Table B.2

Brazil: Descriptive statistics on sampled firms

		Average	Standard deviation	Minimum	Maximum
Firms	**Degree of unionization**				
	None	7%	25%	0	1
	Less than half	8%	38%	0	1
	More than half	11%	31%	0	1
	Scope of firm's activity				
	Local	17%	38%	0	1
	Regional	27%	44%	0	1
	National	30%	46%	0	1
	International	26%	44%	0	1
	Size				
	0 to 9	2%	13%	0	1
	10 to 49	10%	30%	0	1
	50 to 499	27%	45%	0	1
	500 or more	61%	49%	0	1
	Industry				
	Automotive	21%	40%	0	1
	Retail	21%	41%	0	1
	Hotel	24%	42%	0	1
	Finance	13%	33%	0	1
	Food	22%	41%	0	1
Workers	**Occupation**				
	Professional	2%	13%	0	1
	Clerk	30%	46%	0	1
	Salesperson	8%	28%	0	1
	Service worker	21%	41%	0	1
	Processor	13%	33%	0	1
	Operator	26%	44%	0	1
Labor market	**Wages (US$, monthly)**				
	Entry wage	536	385	167	3,717
	Average wage	698	626	56	4,646
	Maximum wage	747	667	44	6,505
Skills	**Skill requirements**				
	Requires more skills	60%	49%	0	1
	Requires fewer skills	2%	15%	0	1
	Requires different skills	38%	49%	0	1
	Valuation of skills (points/100)				
	Specific skills	14.2	19.7	0	100
	Knowledge skills	29.7	15.2	0	100
	Socioemotional skills	56.1	20.6	0	100

(*continued*)

Table B.2 *(continued)*

		Average	Standard deviation	Minimum	Maximum
	Skill mismatch (points/100[a])				
	Specific	5.9	16.1	0	100
	Knowledge	12.8	13.6	0	90
	Socioemotional	29.8	23.1	0	100
Hiring practices	**Search methods used**				
	0–3	57%	50%	0	1
	4–8	43%	50%	0	1
	Hiring methods used				
	0–3	40%	49%	0	1
	4–7	53%	50%	0	1
	8 or more	7%	26%	0	1
	Trial periods used?				
	Yes	67%	47%	0	1
	No	18%	38%	0	1
	Don't know	15%	36%	0	1
	Hiring method				
	Hired the best candidate and did not train	14%	34%	0	1
	Hired the best candidate and trained extensively	66%	47%	0	1
	Did not hire until the required skills were found	16%	36%	0	1
Training	**Is training offered?**				
	Yes	86%	35%	0	1
	No	12%	33%	0	1
	Don't know	2%	15%	0	1
	Timing of training				
	Concentrated during trial period	24%	42%	0	1
	Offered with some regularity	76%	42%	0	1

Source: DSS (IBD, 2010c).
Note: Percentages may not total to 100 because of rounding.
[a] The skill gap expresses the difference between the point value the firm assigns to a given category of skill and the ease or difficulty of finding employees with that skill. If a firm reports difficulty finding a given skill, the point value that the firm attributed to that skill is counted toward that firm's skill gap.

Table B.3

Chile: Descriptive statistics on sampled firms

		Average	Standard deviation	Minimum	Maximum
Firms	**Degree of unionization**				
	None	7%	25%	0	1
	Less than half	84%	37%	0	1
	More than half	9%	29%	0	1
	Scope of firm's activity				
	Local	40%	49%	0	1
	Regional	6%	24%	0	1
	National	25%	44%	0	1
	International	28%	45%	0	1
	Size				
	0 to 9	8%	27%	0	1
	10 to 49	31%	46%	0	1
	50 to 499	45%	50%	0	1
	500 or more	16%	37%	0	1
	Industry				
	Automotive	0%	0%	0	1
	Retail	29%	45%	0	1
	Hotel	28%	45%	0	1
	Finance	20%	40%	0	1
	Food	23%	42%	0	1
Workers	**Occupation**				
	Professional	1%	9%	0	1
	Clerk	32%	47%	0	1
	Salesperson	23%	42%	0	1
	Service worker	29%	45%	0	1
	Processor	11%	31%	0	1
	Operator	5%	21%	0	1
Labor market	**Wages (US$, monthly)**				
	Entry wage	516	592	27	3,426
	Average wage	598	595	39	4,307
	Maximum wage	689	392	35	3,916
Skills	**Skill requirements**				
	Requires more skills	44%	50%	0	1
	Requires fewer skills	11%	32%	0	1
	Requires different skills	44%	50%	0	1
	Valuation of skills (points/100)				
	Specific skills	18.1	18.0	0	100
	Knowledge skills	30.7	10.9	0	100
	Socioemotional skills	51.2	18.6	0	100

(continued)

Table B.3 *(continued)*

		Average	Standard Deviation	Minimum	Maximum
	Skill mismatch (points/100[a])				
	Specific	3.8	11.5	0	90
	Knowledge	4.8	8.0	0	55
	Socioemotional	16.2	19.0	0	80
Hiring practices	**Search methods used**				
	0–3	68%	47%	0	1
	4–8	32%	47%	0	1
	Hiring methods used				
	0–3	48%	50%	0	1
	4–7	52%	50%	0	1
	8 or more	0%	0%	0	0
	Trial periods used?				
	Yes	65%	48%	0	1
	No	33%	47%	0	1
	Don't know	1%	12%	0	1
	Hiring method				
	Hired the best candidate and did not train	33%	47%	0	1
	Hired the best candidate and trained extensively	47%	50%	0	1
	Did not hire until the required skills were found	19%	39%	0	1
Training	**Is training offered?**				
	Yes	84%	37%	0	1
	No	15%	36%	0	1
	Don't know	1%	12%	0	1
	Timing of training				
	Concentrated during trial period	38%	49%	0	1
	Offered with some regularity	62%	49%	0	1

Source: DSS (IBD, 2010c).
Note: Percentages may not total to 100 because of rounding.
[a] The skill gap expresses the difference between the point value the firm assigns to a given category of skill and the ease or difficulty of finding employees with that skill. If a firm reports difficulty finding a given skill, the point value that the firm attributed to that skill is counted toward that firm's skill gap.

Firms' valuation of various components of knowledge skills and socioemotional skills

The DSS asked company representatives to pinpoint the skills they believe to be most important when filling vacancies. As explained in chapter 6, the DSS respondents were asked to distribute, for each of up to three occupations on which they chose to focus, a total of 100 points among the three broad groups of skills—knowledge skills, specific skills, and socioemotional skills—based on the importance of each for the company.[1] They were then asked to distribute the points given to each broad group among the individual skills in that category. Finally, they were asked to rank some competencies pertaining to individual skills—for example, to be able to give precise answers to concrete questions as one of the language and communications skills in the knowledge category (tables B.4 and B.5).

The following two tables provide a breakdown of respondents' valuations of several competencies or subcategories of two of the knowledge skills (language and communication and critical thinking) and three socioemotional skills (attitude, responsibility and commitment, and customer service).[2] Of interest are the differences in weight assigned to various competencies and personal attributes depending on the occupation in question.

In terms of language and communication skills, firms essentially require that workers have a good ability to supply precise answers to specific questions and are able to follow instructions given by a supervisor. With regard to critical thinking, the ability to identify solutions to problems and explain those solutions to others is the skill most valued by employers.

In the subcategory of attitudinal skills (table B.7) respondents tended to value honesty, especially in salespeople and clerks. This is seen most clearly in the financial sector, where cashiers, who have daily contact with large amounts of money, were one of the main occupations studied. In contrast, in the case of operators of machinery and equipment a higher value is assigned to the ability to carry out instructions.

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[1] Firms demand more socioemotional skills than knowledge skills, and more knowledge skills than specific skills. From a total of 100 points, on average, firms allocated 55 points to socioemotional skills, approximately 30 points to knowledge skills, and only 15 points to specific skills (figure 6.7 and table 6.4). Firms' valuation of the three broad groups of skills is widely dispersed (figure 6.7).

[2] To avoid an excessively long questionnaire, the last task was done only for skills that the authors believed to be most important. For example, within the broad category of knowledge skills, respondents were not asked to distribute points to reading/writing and math skills.

Table B.4

Firms' valuations of two types of knowledge skills, by occupation

(%)

Skill category	Professional	Clerk	Salesperson	Service worker	Processor	Operator	Average
LANGUAGE AND COMMUNICATION							
The ability to give precise answers to concrete questions	10	51	51	32	33	35	35
The ability to clearly explain problems to other people within the company	9	10	8	19	16	13	13
The ability to understand and express themselves in other language(s)	1	9	9	22	16	13	10
The ability to understand and follow instructions given by another person in the company, whether in written or oral form	47	21	16	17	27	17	24
The ability to use with ease the terminology specific to the business or activity	33	10	16	11	8	28	18
TOTAL	100	100	100	100	100	100	100
CRITICAL THINKING							
The ability to identify problems, communicate them, and assess their importance	37	32	35	27	45	63	40
The ability to think and communicate solutions to concrete problems	39	30	24	31	21	8	26
The initiative to conceive new strategies to solve problems	15	21	24	25	16	10	19
The ability to utilize the same knowledge to accomplish different tasks within the company	9	16	17	17	17	19	16
TOTAL	100	100	100	100	100	100	100

Source: Authors' calculations based on DSS (IDB, 2010c).
Note: Reading/writing and math skills are not included in this table. To keep the survey to a workable length, respondents were not asked to disaggregate the point total they assigned to these two categories of knowledge skill.

Table B.5

Firms' valuations of socioemotional skills, by occupation

(%)

Skill category	Professional	Clerk	Salesperson	Service worker	Processor	Operator	Average
ATTITUDE							
The ability to respect and listen to superiors	1	9	16	18	17	31	15
The ability to work in a team	10	22	25	19	17	11	17
The ability to exercise self-control in stressful or high-pressure work situations	6	8	8	14	5	5	8
The ability to adhere to work schedules	10	15	4	9	21	8	11
The ability to meet basic company standards (dress, hygiene, safety)	32	6	5	12	6	9	12
Honesty	40	38	41	24	31	28	34
Willingness to listen and accept criticism from superiors	0	2	2	4	3	8	3
TOTAL	100	100	100	100	100	100	100
RESPONSIBILITY AND COMMITMENT							
Commitment and responsibility to one's task	70	46	37	51	54	68	54
Enthusiasm for one's work/tasks	24	27	30	26	23	13	24
Initiative	6	27	32	23	23	19	22
TOTAL	100	100	100	100	100	100	100
CUSTOMER SERVICE							
Willingness to listen to clients and respond to their concerns	12	33	32	33	23	37	28
Demonstration of kind, courteous, and educated manners	7	32	34	35	26	17	25
The ability to communicate clearly	2	9	14	14	28	18	14
The ability to make customers feel comfortable and at ease	78	26	20	18	22	28	32
TOTAL	100	100	100	100	100	100	100

Source: Authors' calculations based on DSS (IDB, 2010c).

C. The Voices behind the Surveys: Searching for Connection

Introduction

The DSS results discussed in chapter 6 document the demand for socioemotional skills from companies in Argentina, Brazil, and Chile. Employers in all three countries assign greater importance to such skills than to knowledge-based or company specific skills and note that the needed skills are not easily found among graduates of secondary education. Meanwhile, the surveys of young people in Argentina and Chile described in chapter 5 reflect the importance of the same skills in their employment and educational trajectories.

But the figures do not say it all. To add depth to the quantitative analysis of the previous chapters, three case studies were carried out in a large company in each of three of the sectors selected for the survey: hotel, finance, and automotive.[1] The case studies describe the experiences of high school graduates in the types of occupations available in the labor market in Latin America. Those experiences are conveyed through real stories of young employees in these firms that provide, through their appraisals and the appraisals of those who hired them, a better understanding of the nature of the gap between employers' demand for skills and the supply of the same skills in the labor market.[2]

The case studies involved visits to the firms, focus groups, and 40 hours of in-depth interviews with 30 individuals, including young recruits and senior staff from production departments and human resources (heads of training, team

[1] The criteria used to select the companies was that they be leading one of the sectors covered by the DSS and have presence in at least one of the three countries represented in it.
[2] The names of interviewees have been changed. The information corresponds to the date of the interviews (late 2009 and early 2010).

leaders, supervisors, etc.). The studies were designed to clarify the processes of hiring, training, and developing young people under 25 who have completed secondary education in the three countries included in the quantitative analysis. Emphasis was placed on identifying the skills that, according to employers, are required to succeed at the job.

The interviews and focus groups were conducted by specialized organizational psychologists supported by tools and guidelines developed especially for the purpose. They also had at their disposal administrative information that was kindly provided by the companies. However, none of the companies granted formal permission to be identified. All fieldwork was conducted between late 2009 and early 2010.

The hotel case reveals schools' deficiencies in training young people with the skills that the labor market demands. According to employers' reports and the experiences of their young employees, the tools that secondary graduates possess when they leave school are not sufficient to perform well at a relatively demanding job.

The automotive case exemplifies the value that companies assign to attitude when recruiting young people. Commitment, discipline, and responsibility are crucial to getting into and progressing in this leading global automaker. The role of technical education in preparing the region's young labor force is also highlighted.

Finally, the banking case shows the importance of higher education in making up for deficiencies in secondary education. Higher education, or the lack thereof, becomes either the door or the barrier to a good future in the firm.

Case 1. A luxury hotel: Attitude trumps knowledge

"My name is Javiera; I am a waitress and I am 28 years old. I completed my primary education at the Seventh-Day Adventist school and my secondary education at the Liceo Indira Gandhi here in Santiago, where I graduated in 1999."

Javiera works at a high-end hotel in Santiago, the capital of Chile. She works in one of the hotel's gourmet restaurants, which attract tourists and locals alike.

"After school I studied tourism and hospitality for two years at the Instituto Simon Bolivar. I started there in 2001 but could not finish," says Javiera, who only recently joined the team at the hotel.

Unforgettable experiences for sale

Alejandro, with a BA in psychology, is head of recruitment for the hotel and one of the more mature voices in the hotel, though he is barely 40. He warns: "Many people may make the mistake of believing that this is a relaxed hotel

where everything flows and there is no discipline. It is not. Luxury requires us to comply with high standards of service. And for us, things like the appearance of the young people who work here are very important."

The hotel has no restrictions on piercings, long hair, or tattoos, nor is there any discrimination. "What's more," says Alejandro, "we welcome diversity, because it makes us different from most Chilean firms. However, as I said, this openness is sometimes confused with thinking that everyone here does what they want, and that is not so. The hotel targets a high-income international audience for our accommodation services, and also high-income audiences, both locally and globally, for our food and beverage services. Our work is serious and well thought-out."

The hotel employed 251 people as of December 2009, of whom 58 were recent secondary-school graduates, some of whom were enrolled in higher education. According to representatives of the hotel's human resources department, the young people who greet guests throughout their stay embody "the promise of service that differentiates our brand from other hotels." In that sense, their jobs are directly related to the core business of the hotel. In 2009, 36 employees played these key roles, mainly people between the ages of 18 and 25. They served as assistants, receptionists, cleaners, maids, assistant waiters and bartenders, cashiers, receiving agents, minibar stockers, and concierges.

Most of the hotel staff have professional training—that is, at least four years of post-secondary studies. "But for us," says Alejandro, "the important thing is the attitude of customer service, over and above education."

In their quest to recruit young employees, the hotel emphasizes what they call soft skills—responsibility, commitment, communication, expressiveness, and self-control under pressure. Alejandro points out: "In a given recruitment drive, we'll receive about 800 applications, 25–30 percent of which meet the stated requirements. The first phase consists of an interview with me; the second is with human resources. Then we review documents and other routine matters. If we have more time, we ask for references and additional background information.

"As for the difficulties we faced, the first was that young people weren't coming in, which was what we wanted. We put an ad in one of the largest daily publications in Chile, in English, to filter, but we overdid it.… We had been hoping to get 1,000 applicants but only got 350, and half of them barely met the position's requirements. We received applications from a lot of people with substantial hotel experience, but we wanted young people, and we didn't get them. Finding young people is part of the hotel's profile. Once we found them, the key was a positive, committed, fresh service attitude. We were looking for warm, friendly people. The general manager and I were the last filter in the search process. During the interview, young people mainly tried to show their talents, and if they knew English, so much the better. In the end, the people we selected were from modest backgrounds, in need of work, critical thinkers, skilled in

reading, writing, and mathematics, but lacking in soft skills. They were people who didn't know what pressure or teamwork were until they started working."

Javiera, meanwhile, attempts to summarize the hotel environment in which she works: "It's a suite of services for young people." Ariel, a 28-year-old Argentine, and head of training at the hotel, extends the idea. In contrast to Javiera, despite their closeness in age, his words are filled with marketing language and symbolism and stronger notions of the tourism business:

"This hotel does not sell rooms, it sells experiences," he explains with a serious, teacher-like tone. "For this, it is necessary to have nice rooms and facilities. In this context, my job is to teach people how to create wonderful experiences for an audience that consists of young executives, whose income averages about $250,000 or $300,000 per year. We are talking about people who are very interested in novelty, in what can give them fresh access to what's happening and what makes them feel like they belong to a very select group. For these reasons, the young people who come to work here know that this place is different."

Javiera and Ariel are about the same age, but have very different attitudes. The differences between them are evident in Ariel's greater education and life experience: "My first internship at a hotel was at age 15," he recalls. "I come from a family that was in the hotel business. I was born in a hotel, I lived in a hotel because of my father's work, and I studied business administration and architecture." But this does not prevent Ariel from recognizing the major points in Javiera's favor: her freshness and tenacity to excel.

"Javiera is an example of good performance. Her position, as we call it internally, is that of food and beverage captain. She has had to sacrifice a lot, one reason being that she is not in a comfortable economic situation. She has been learning without fear of making mistakes, and I am generally surprised at her adaptability. She does not speak English, for example, but handles herself well with guests. You have to give her many tools, but she wants to grow. And this is a company where those who want to, can."

Common sense cannot be taught

Ariel does not doubt that Javiera wanted the job. "I heard about this job," she says, "at my previous job, which was at another major hotel in Santiago. One day I saw a notice on the employee bulletin board—in the staff cafeteria—announcing an opportunity to apply at a new hotel. And obviously all the people who, like me, did not have a contract at the hotel where we were working, tried coming here. In my case, as in the cases of my former coworkers, we applied here just like any outsider. We did not get any extra help. Nothing. Others with whom I now work learned of the position through the newspaper ad. Most were interviewed in a massive, three-day interview session. Everyone was divided

into groups: those who wanted to apply at the restaurant, for engineering, the administrative area, and so on—this day this group, that day another. My turn was on Sunday" [laughs].

But wanting the job did not make it easy to get: "It was very hard to get in, because this is a new concept in hotels. In fact, the truth is that whenever a new opening comes up it is hard to find people who fit in with this hotel, because it offers a new concept. I'm talking about my area, of course, but I think it is generally the same in other departments."

"For example, people who have come from other hotels with similar expertise and high service standards have found that they are working with completely different concepts. And those who bring their bad habits and don't want to change have had to leave or have been fired. The hotel targets a different audience than the traditional 5-star hotels, which focus primarily on adult, affluent, or top business audiences. Ours is aimed at a young, wealthy audience."

Alejandro adds detail to what Javiera has just said: "The requirements for key positions have changed because the client is more demanding. And in this respect high school does not help. It does not prepare young people for the workplace. It focuses more on the tools and hard skills, leaving out the softer ones. At this hotel, as in any service area, the softer skills are key. If school offered more preparation in types of skills, the hiring process would be much easier.

"Secondary school also lacks specialization, which doesn't mean more years of study, but rather focusing the student on one thing. Education here in Chile is generalist. So what happens is that many leave their jobs. Some use the excuse of compensation; they come in with a lot of misinformation. They do not know what the market pays and feel that any compensation is undervaluing them. Others do it because they have unrealistic expectations and think they can move up in a short time. They show up with such immediate expectations and then get frustrated. Others leave because they can't stand the normal pressures of the job. As a result, the rotation is, on average, 30 percent per quarter. That means that for every 100 young people hired, 30 leave within three months. We would like to see that rate drop to 15 percent."

According to the human resources department, part of that "pressure" is due to the requirement that young people offer guests personalized, not anonymous or ordinary, service. It is expected that guests should be treated with warmth and helped to make the most of their stay in the hotel. With this objective, staff must introduce themselves by name, but at the same time keep a safe distance to avoid invading guests' privacy. "These qualities," in Javiera's view, "are apparently not readily available in our generation." Performance in core positions occupied by young people without postsecondary credentials is measured in terms of these maxims. Therefore, the search for new young people begins, as Alejandro suggests, by prioritizing "talent," understood in the hotel as the ability to customize service and create brand experience through good

communication skills, commitment to work, and responsibility—skills that, as has been shown, are not easy to find.

The hotel expects its staff to be able to surprise guests with excellent service. "Hard" skills, such as knowledge of English, are secondary. The selection system is summarized in a powerful idea: that attitude is more important than knowledge. According to the human resources department, what the hotel seeks is "a foundation on which to build, given its determination to train and develop those skills."

"We are committed to empowering employees," Alejandro adds. "I mean, if they make mistakes, we want our young employees to correct the situation or improve it. Of course, there is a behavioral guide to follow. For example, this is a company that does not tolerate drugs and alcohol, so those who use drugs or alcohol cannot work here. That's another deficit, many young people find it hard to adjust to the rules."

Javiera spoke again: "I always remember what a boss used to say, 'I want people with experience but who are also with it.' And that's what my supervisors and managers look at to evaluate my performance: whether I'm with it, my empathy, my style, and my customer service. They also make sure we show up and do the job well. But more than just arriving on time, the job is about showing initiative and having a spirit of service. Because you can do your job well, responsibly, and leave after finishing your shift. But when you have a spirit of service, everything you do is noticed.

"For example, I have to clear this table because they pay me and it's my table, it was assigned to me, so OK. But if I have a spirit of service, and if I believe in teamwork I'll also clear the one next to it. Even so, for me and many of us here, talents that don't come naturally to us can be difficult. But everyone says they're common sense. You can learn anything, but you can't be taught common sense."

Hotel-school

"At this hotel, good performance is marked by attitude and willingness, and that's why I point Javiera out," says Ariel. "This is an industry that requires sacrifice. And the problem we have found in Chile is that there is not a strong attitude of service among young people. We see, as part of the explanation for this circumstance, that kids are not exposed to the reality of work while they are in school, to know and see what a mass check-in is like, for example. These are experiences, and it would be good if the schools could show them what they look like.

"On top of those deficiencies," Ariel continues, "are high school graduates' difficulties in expressing themselves and communicating. Slang is widely used in Chile, which is socially acceptable. But in a setting like ours, which is

multicultural and where you have to be understood, it doesn't work. In short, you have to really prepare young people. There are kids with great potential; the challenge is for them to develop it. Nobody here is going to lose their job by not knowing the date of Chile's independence. But they cannot lose self-control under pressure. Secondary schools, meanwhile, see everything upside down. They focus more on teaching history and geography. That's why we take the time to train in these soft skills, because beyond our philosophy we are aware of the real world around us. We are a new brand that has to make the effort to develop people."

According to the human resources department, the desire to learn is another necessary quality that is hard to find in young people—not only a desire to learn soft skills, but also technical, professional, or language skills. It is the combination of both elements that opens up opportunities in the hotel. The human resources department also points out that playing a sport or turning in homework assignments in secondary school does not mean that students learn about responsibility and perseverance in the work world, where stressful conditions often prevail. "Until a person goes through real situations of work pressure, teamwork, and responsibility," notes Ariel, "he or she cannot be competent in these skills. For example, the hotel can have an event today for 100 people, but tomorrow we may have one for 1,200." Previous experience at another hotel provides no guarantee that a young worker will be ready. As Alejandro, Ariel, and Javiera have said, the difference for employees at this hotel lies in their skills and talents, preferably unaltered by routines and habits learned from other jobs. In this sense, this place stands out clearly as a place that emphasizes the personal skills of young people and considers them to be fundamental working capital.

The problem raised above was experienced firsthand by Javiera when she reported for her hiring interviews. Her previous work experience was not a decisive factor. She had to sell herself, without even knowing English or computers. And although she got what she wanted, she's still not sure how.

Javiera believes she was hired because of her desire to be hired, by the interest and enthusiasm she showed at every interview. But even so, she does not know the underlying reason. She says it with a simple phrase: "I do not understand how I got in." Everyone praises her work, but she still does not know the reason for their praise. She knows she is responsible, agreeable, and empathetic with customers. She is at ease with diversity—of culture, race, and gender.

"I remember it well. I do not speak English, and Ariel—who was the one who interviewed me—told me, and I quote: 'I see little chance for you since you do not speak English.' And it is true, you see people here who are hired with fluent or moderately acceptable English, and I had neither. I do not know, I just kept talking to him. And I convinced him."

Javiera thinks out loud: "Maybe what matters is that you understand the hotel's profile. The young people who were not hired were left out for precisely that reason: For not complying with the profile, or for being closed-minded. Yes, it may have been that, but I don't know.... After the group meeting that Sunday, when I came to the interviews, I remember that the three people who evaluated me stressed that they needed young, fun people. Not clowns, but people who were cool. They did not want the typical formal hotel people, serious and stuffy. And yes, perhaps that's why I was chosen, because of my personality."

But still she is not convinced. "Because, on the other hand, school was, to be honest, no help at all to get this job. I did not study anything related to services. I had no English. I did not study computing either. Nothing. But anyway, yes, I talk to people, I'm not shy, although the lack of English stops me. Who knows why I got hired."

Perhaps the story of Pia, told by Javiera herself, will help explain Javiera's existential anxiety. Pia, like Javiera, began as a waitress. But at the time of the interview she was working in human resources. "I can't remember what she studied," says Javiera, "but beyond her CV, Pia discovered and proved she could make a major contribution where she is now, and that is what she has done. That is the beauty of working in a company that is just being formed and where your skills are assessed. In addition, they teach you everything here."

Perhaps the key is to discover and demonstrate talent, as Pia did. According to Ariel, Javiera, too, is well on her way.

Case 2. A global automaker: What is behind an assembly line?

"Throw them all out!" That was the message citizens were sending to politicians, as posters appeared on the fronts of many public and private buildings in Argentine cities in late 2001 and early 2002.

Martin was 15 back then. He was completing his secondary education at the School of Technical Education No. 5 in Tigre, in Buenos Aires province. Monday through Friday he made his way to 1099 Avenida Cazón. Even in summer, because he was of the many who still had to complete some classes. School was difficult enough for Martin in ordinary times, but in a country in crisis it was even harder: "There were strikes, there was a shortage in the education budget. Everything was pretty complicated."

Jorge was two years older than Martin and was living more than 40 miles from Tigre—but in similar circumstances. He was in his senior year at the Scuola Normale Superiore, also in the province of Buenos Aires, but in San Justo, the capital of La Matanza, the most densely populated district of Buenos Aires. "It was at that school," he says, "where I learned to appreciate my classmates, the people around me. Then I did two years of a degree to be a physical education

teacher at the Universidad Nacional de La Matanza but had to stop because I did not have the time."

In Argentina in late 2001 and early 2002, factories were closing and fields were being auctioned off. There had been, for at least four years, an increasingly deep economic recession, increased external debt, and unprecedented growth in unemployment. As Martin accurately observed, there was a lack of money in the budget for technical education. An injection of money for education in general was needed.

With time, the situation in Argentina has improved, as it has for Martin and Jorge as well. At the end of the first decade of the twenty-first century, they are in a favorable position: Since 2008 they have been operators in the assembly unit of one of the plants that their employer, an international automaker, has in the country. "What I do is mount suspensions and make adjustments in the pickup truck line," says Martin. "I'm in assembly also, but in the upholstery line for the same truck," says Jorge, adding that "there are about 1,000 operators in the unit between the ages of 18 and 35 who have a complete secondary education."

Martin is 23 years old and no longer lives with his parents. Jorge is nearly 25 but still lives in the same house where he was born. Since Argentina's economic and political crisis of 2001–02 to this date, both of them have completed secondary school. Martin has also become the father of Ivan, who is about to turn two years old.

A major investment in Argentina

The foreign auto company that Jorge and Martin work for understands the vicissitudes of the past 30 years in Argentina, where they have been operating for several decades. The last years of the 1980s were critical in Argentina, and the company was a witness to it all. Political instability and inflation marked the period, and in 1989 hyperinflation forced President Raul Alfonsin out of office. That did not stop the company's plans in the country, however.

Toward the end of the last century a new industrial complex was inaugurated, with a production capacity of 30 cars per hour and a total investment of $270 million. The production line is 3.5 km long and produces a car every two minutes. Along a single line, every part of every model produced in Argentina is assembled in an automated process in which operators are positioned to perform their functions. The basic work structure on the line is composed of workers reporting to inspectors, who in turn respond to supervisors or plant leaders.

The new plant has three units: body, paint and assembly, where Martin and Jorge work, and where the various subassemblies come together. Each worker specializes in a part of the assembly process so that their jobs require different functions, from bolting parts together to cleaning assembled parts.

The industrial center has about 4,000 employees. "Here, 70 percent of the operators are between 18 and 35 years old," observes Martin. In total, the company represents more than 5,500 direct jobs in Argentina.

The company's employees and plants in Argentina supply products to countries on three continents, a commercial reality that was difficult to imagine a decade ago. However, six years after the modern complex opened, the country on which the company placed its bets seemed to go back into free-fall. In the specific case of the automotive industry, 2002 left its mark as the worst year in its history in terms of sales, with just 86,000 units sold. In 1996, when the company first led the market in Argentina, it had manufactured more than 60,000 vehicles in the old plant.

The ability to learn

Although he is a graduate of a technical school, when Martin sees an iPod he does not show much interest in it or awareness of what it does. Nor does he seem very interested in or informed about technology in general. "I live near here," he says. "In late 2007 I was working somewhere else, but I needed something more secure, because I have a young son. I stopped by here and dropped off my resume. I think it was a month from that moment until the day I started working at the plant. I had all the interviews, took all the tests, and they hired me."

"Young people look for work in this company because it pays well and you get a lot of benefits. If you get here early in the morning you can have breakfast between 5:30 and 6:00. The line starts at 6:00, and you keep working until 11:20, which is the lunch hour. So you have food included, which is not very common. You go to the cafeteria from 11:20 to 12:05. And besides people treat each other well."

Marcelo is the coordinator of the assembly unit. He has almost 15 years of experience in the company. Possessing a broader and deeper picture of the selection processes and corporate objectives that underlie them, he describes the circumstances under which Martin and Jorge came to work together. "We had a qualitative change in requirements for secondary education. Until 2005 we had a lot of people with 10 years of seniority or more who didn't have these credentials. But with the launch of a new model that year we began requiring a secondary school diploma. In 2005 we hired 180 graduates, and in 2007 nearly 400. The new hires changed the profile of the plant operators. Today about 80 percent of our people are between the ages of 25 and 35. For the company it is important that these people have a technical background, which is as valuable as their manual skills and availability for rotating shifts."

But the reality is often different, according to Paola, a human resources supervisor responsible for selection and training of applicants. "Getting technical profiles costs us a lot because the quality of technical secondary education has

decreased. So when a selection process begins we have many meetings with those who will be responsible for the new hires. Together we determine what the company needs at that time. Sometimes we hire a mix of profiles—for example, some with a complete secondary education plus others who are enrolled in technical or engineering programs and who want to start as operators, because we also want to train people from the bottom up to move into higher positions."

The demands required for the operator profile have changed over time with the technological development of production processes. Today it is necessary that operators be able to read a sheet of operations, detect, report, and resolve some problems on the line, meet quality standards, and learn to use new machinery and technology.

As technological evolution has changed the profile required of operators, the automaker's human resources department believes that some adjustments to the secondary school curriculum and content are necessary to help young people better meet the demands of industry. In this regard, Paola says that the Argentine education system needs to ask the following question: "What are the fields of study that will help the country to develop economically, so that kids can be encouraged to pursue degrees in those fields?" Paola says that "as long as the situation continues as it is, we are more interested, in our hiring, in finding people with the right attitude. When we find people who meet those conditions, we give them technical training on site." It would appear, then, that the company's basic requirement in the current climate is the ability to learn.

Martin, however, is not aware of this last ability, which may have been his ticket into the company. "After secondary school I took a computer course at a training center, the name of which I can't remember. It was the only thing I did after high school with regard to training. Now, when vacancies to fill positions like mine come up it's easy, I think, to find work here because you usually get trained in the technical aspect. That's what happened to me. There is a whole introductory period of training, and the jobs are not that complicated. Anyone can do them if you comply with the rules." However, he does explain that "in my case, when I applied I don't know why I was chosen. I honestly do not know. What I do know is that I have classmates who are my age that work elsewhere and do not have the same income as me. That is why no one wants to leave this company. There is job stability here. You might go to another company and, if a crisis in the country arises, the company might get closed or shut down. It is not like that here."

"Once you start here you get used to it," says Jorge. "And the work is not difficult once you get used to it. If you have finished secondary school you can work here. I used to work in front of a computer as a credit analyst, and when I came here as an operator I went crazy for the first few weeks, but I adjusted."

What Martin and Jorge do seem to be aware of is that the company has a commitment to the task and to teamwork as fundamental conditions. Martin

offers an example: "In the pickup line we are told that we need to help each other because everything has to be done right, without any error. And that relates to the issue of responsibility. There are people who do not care much, but I consider myself a responsible person. Being responsible is, for example, that the people in the assembly line not forget to perform the operation they are responsible for. If it does happen you have to say, 'Hey, you forgot to do this,' and the other might answer, 'Do it yourself.' I have a friend who sometimes does not get to finish something or does not want to finish. He starts thinking about something else. We tell him what the operation should be like and he snaps back 'Do it yourself.' That's not teamwork and commitment, that's irresponsible."

"The most important skill for this work is responsibility," confirms Jorge. "Before installing a part, for example, I have to inspect it. You have to pay attention. The commitment to the task and to the team is also important. If the person on the line ahead of me does not do his job, I have to tell the inspector what's happening. Everything has a sequence, and if you drag out a problem it just gets bigger."

"When I spoke, I reflected my education"

Jorge had dropped out of physical education school and was not happy with his work processing credit applications when he decided to try his luck in the new plant. "I learned about this work because I have three brothers who also work in the company. I think they picked me because of how I carried myself in the interviews. When I spoke, I reflected my education," he says, alluding to his manners and vocabulary. He adds: "It is difficult for many to get past the interviews because of the situation the country is in and the education people bring with them."

Martin, however, went looking for a job thinking about the child that his wife was expecting. He did not have family connections in the company. The only thing he brought with him were his skills, both known and unknown, and luck, chance, and even a certain knack for opportunity. Indeed, the applications he submitted happened to coincide, even though he did not know it, with the opening of two new production shifts in the new industrial complex. There were about 5,000 applicants, and he was among the 780 selected to work at the plant.

"For guys who have completed their secondary education, working here is very important," says Paola. "They start with good wages, ranging between 3,800 and 4,000 pesos (about $900–$1,000). They are only 18, 19 or 20 years old, so those amounts are very good for their age. The base wage here is 2.5 times the minimum wage in Argentina, which is 1,500 pesos (about $395). They can earn even more if they do overtime. That is why we've had a good turnout whenever we've recruited—so far.

"The main challenge we have with respect to young employees at the plant is maintaining a high level of commitment, discipline, and responsibility. Sometimes it's hard to get them to adhere to the rules on attendance and punctuality. Some oversleep and arrive late. Others miss a whole day because they went out dancing the night before. That why we value attitudinal skills so much."

Eduardo, coordinator of the assembly unit where Jorge and Martin work, echoes Paola's sentiments: "One assumes that a person with secondary education has the capacity to assemble more than eight pieces, and that's what it's about, not leaving stones in the road for others to trip over. But one often observes poor performance caused by irresponsibility and the neglect of quality in favor of self-interest. It's happened many times, at moments when we have pushed for overtime (what we call the 'ninth hour') and the help of operators from a given station is needed, and they respond, 'No, not now, we're having lunch.' Those are the of situations where they put personal interests first. The same happens when they have to come to work on a Saturday and they prefer to go dancing on Friday night. The point is that in recent years the way work is done in these operator positions has changed a lot. For example, back in the 1980s the person mounting the bumper had to worry about three bolts. Today the company demands another level of responsibility because, using the same example, mounting a bumper is now much more complex. Moreover, management used to get total respect from young people. Now all that has changed. I don't mean to say that informality is wrong, but breaking certain rules is wrong. Young workers used to take this job and hang on to it for life. People used to work like that. The automotive industry has always been different because of its wages and job security. People did not join the company on their way somewhere else: They worked for 30 or 40 years and took good care of the job. Now it's more of a 'let's see what happens' kind of attitude."

"That is why we have to be careful," Paola chimes in. "Because of the physical demands of the operator positions, we try to fill them with young people, but if we took only young men aged 19 or 20, we might have higher rates of absenteeism. That's one reason why it's sometimes better to hire guys who are a bit older, who have children. They tend to be more responsible. Of course, there are 19 or 20 year old kids who are responsible. It's about having a good mix."

The well-connected and the unconnected

"My coworkers found out about openings for workers on the Web or in the newspaper," says Jorge, "but many of us have family members who work here, and they recommend us. That's the case for most of us. There are parents, children, siblings, cousins." That was not that the case for Martin, however.

When he arrived at the gates of the complex in 2008, in addition to having no connections at the company, Martin had had little work experience. What was abundant was the lack of information about employment, a lack that left him not knowing quite what to do. Faced with his impending fatherhood, he worried only about finding a stable job, preferably one that paid well. The news that the automaker paid good wages was the only real information he had, which explains his interest. The fact that he had graduated from a technical school, meanwhile, might work in his favor, as long as the holes created by the lean education budget were not noticed. What also needed to be papered over were the other general problems that had plagued the education system for years—namely, deficiencies in preparing students for the workplace.

Martin ponders: "It would have been important to have a larger budget and more interaction with the workplace. Maybe secondary students used to be much better than they are now, as older people say, I don't know; but it would have been good to pay more attention to teachers and learn, for example, about automation, which is an issue that we see on the floor a lot. How I can explain it? Automation is something that controls all the mechanisms, all of the movements. The car approaches and it is detected by a sensor, which activates a different machine. It also would have been nice to study something else that we learned here: production processes. They had us set up a production line, a sort of 'cart' that circled around various stations and stopped at certain ones for a given amount of time. It gave us a predetermined number of minutes to work on it. Anyway, that would have been good to learn since we did not get that in school. The problem is also that it is the first time I have worked for a real company. Before coming here I was doing a job with my dad. My dad works in the aerospace industry and, well, everything was very different. So for me, even though I went to a technical school, everything here was very new at first: knowing what positions are best for work on the line, knowing that you have to maintain order and cleanliness—all that."

"In my case," Jorge adds, "it might have been good for the school to teach us how to communicate with older people and how to handle responsibility, because when you're a kid you don't realize it, but those are two very important things."

In the selection process that Jorge and Martin went through in 2008, the main requirements were to be between 18 and 40 years of age and to have finished secondary school. The event was massive and consisted of several stages. The first was to screen applicants from the 5,000 resumes received. That was followed by a group exercise involving activities that made it possible to assess applicants' job skills and a battery of psychological and projective tests administered by an external consultant. "The consulting firm staged some fun activities and psychotechnical tests to verify the applicants' abilities and psychomotor coordination, as well as their levels of concentration, commitment, and responsibility."

The next stage was carried out by company staff. It was focused on individual interviews, to which they added practical tests on the plant floor that were applied by company leaders and commonly included a video on the operation of the line that the candidate would then have to replicate in a controlled environment.

Upon completing these steps, Martin, Jorge, and the others selected underwent a pre-employment medical examination. The selection process culminated in an orientation extending over three eight-hour days and covering institutional and technical aspects of the company. "There" Martin remembers, "we learned about the company's values, we talked about quality, and we were reminded over and over again about the need to maintain order and cleanliness in the workplace."

Paola noted that the induction process had been professionalized in recent years, and that massive hiring drives are carried out, as in 2008, when there was a need to fill a significant number of vacancies. She also says that the current recruitment program is the same as the one used to hire Jorge—that is, "an internal initiative to bring in young people have finished secondary school and who have personal connections with people who already work here and who recommend them. That program, which is still in force today, gives us a high degree of commitment, which is what we seek. Years ago the stages were less complex: Kids would come in who had been recommended; they would be interviewed and go straight in to work at the factory. They would then get trained on the job, from day to day. Today, as noted, that is no longer so: the selection process is more comprehensive, and we have other assessment techniques. At the same time, due to our need for employees with better technical training, we have ventured into other recruitment methods, apart from the mass calls."

A new way to train

In 2005, a dual plan was implemented. Paola describes the plan's logic: "As we tried to increase personnel skills, we found that in the labor market there was a very low incidence of technical graduates. This was coupled with the fact that candidates in our selection process did not have the expected job skills. We conceived the dual plan in order to narrow the gap between what we needed and the labor situation that existed in the country at the time. This program aims at training youth oriented toward manufacturing and receptive to new technologies, to make them more employable, and to create a breeding ground for future employees who have been trained in the culture and values of our company.

"Delivered in a training center belonging to the company, the three-year program is offered to 10 young people who have achieved the best grade averages at the local technical school. Students follow a dual-track program,

attending morning classes and workshops at the company's training center and pursuing their academic studies in the afternoon. Most trainees accept offers of employment from the company."

Martin and Jorge do not remember having received any training other than what they got in the hiring process, except for the specific training on the pickup production line, which started almost two years after they began working at the plant. Martin explains: "It was three or four days of training for the pickup line, where inspectors and supervisors told us the basics of the operation. Once that was done the deal was 'when in doubt, ask.'"

"There were two forms of training for the pickup truck," says Jorge. "One was more practical, where they taught you how to assemble the parts. The other was oral, where they listed the different types of truck they were going to produce." He adds that everything, including the initial induction, has helped him learn to assemble and install parts, read guidelines on the production line, and understand how different machines work. "Just imagine, I left high school and before our induction here I had never touched a car. So I learned a lot during that initial training."

Versatility

Jorge and Martin state that their current connection to the factory not only allows them, as operators, to earn an income that is above the average base salary for the country, but it also enables them to build a career. "What you've seen in elementary school, in high school, plus the experience you developed here, it serves you," said Martin, the graduate of Technical School No. 5 in Tigre and father of Ivan, who believes that responsibility and commitment are imperative if one is to grow within the company. "It is also essential to have contact with the supervisors in order to be able to suggest, for example, that you would like to move to another station." For his part, Jorge adds, "The desire to interact with different people helps to better communicate with them. That is valued here, as is the desire to learn new processes."

"When I started working here," says Martin, "I remembered what I was told by teachers—that I needed to pay attention and learn. And I realized that if you have a good knowledge of the plant, that helps you move up the ladder. It helps you professionally and gives you more income. But I only just realized that here," he reflects. "In fact, the performance appraisal here makes me focus on the quality of my work, and that means doing things right and knowing what you do. For example, we have to install hoses and they have to be installed the right way. The same goes for keeping your workplace clean, and for making sure the adjustments you make are right. In my case there are plenty of settings: I have to adjust the suspension, the ball joints, steering ends, and so on. It's true that we have machines that give us the right torque, but

they can fail. Then you have to be careful so that, if there is an error, you can report it so the line can be repaired. The repairman is the one who keeps track of the problems that can occur before the engine is mounted on the frame—he has to give the OK. If he can't, he records the problem and passes it on to the supervisor, who points out where the problem is, whether it is the operator, the materials, or the machine. If we, for example, report that the adjustments are not accurate, or that the bolts are faulty, then he realizes that we are paying attention to what we are doing."

The performance assessment to which Martin refers is administered by the line supervisor. In this sense, Eduardo says that "inspectors are the supervisors' right-hand men, and supervisors are responsible for the quality and assembly of a part of the process. I, as the plant assembly coordinator, am physically responsible for an area in the plant, but technically I am responsible for the whole factory. I am responsible for my team meeting its deadlines and quality standards. And as a chain, we all depend on each other. For example, if the body has a flaw and I don't identify it, I have a problem. It is therefore very important to identify the problem so that the item that presents the problem can be traced back, repaired, and returned to the process line. So it is very important that everyone in charge be trained. Young people, when they work, are evaluated all the time. Specifically in the assembly unit, the assessment is clear: there is no middle ground. The job is either done well or badly. This is where attitude, in addition to technical ability, once again comes into play."

"Supervisors" says Jorge, "assess whether I am thorough, whether I miss installing anything in the car. They also note the order with which I perform my routines."

Martin, meanwhile, focuses on the attributes that assembly workers should have, not with regard to quality, but with regard to the safety of the worker and the future user of the automobile.

He also notes that the thing an operator least needs to know is math. "We make no calculations or anything, it doesn't come into play. But everything else is important: communication, self-control under pressure situations ..." He illustrates what he is saying with an example: "Last week, on Friday, we had to take out a certain number of trucks because there were problems with the delivery of materials and the line had been stopped for a long time. We follow a schedule, we had to hurry, to work more. And, well, we were compensated because we spent so many hours on it. The commitment everyone had to the task was incredibly important, because that day we all had to pitch in to get things done without freaking out. There comes a time when you're working so many hours that you can get frazzled—I'm pretty relaxed, but not everyone is.... Finally, the team helped a lot, in fact some people that don't even work on our line came to help. Those are all very important things here."

Martin and Jorge agree that it is the lack of those skills that can bring about the unmentionable: being fired. They also say that in the time they have been at the complex, they have not seen such a situation in the assembly unit. Deficits in the all-important skills, they explain, results in repeated absenteeism, shoddy work, or the theft of a tool. But those things do not apply to them. Martin takes shelter in fatherhood and the responsibility it demands of him; Jorge in the sacrifice represented by a long daily commute. A plant supervisor echoes the sentiments of these two employees in the following way: "What we are trying to do is create production habits in young people." To that end, from the outset, candidates' capacity for learning, their willingness to ask questions, and their ability to follow instructions and understand a series of steps are assessed.

"I remember what my expectations were in coming here," says Jorge. "I had had an interview with a supervisor who told me what I would have to do if I was hired. Then I went into downtown Buenos Aires to take written and oral exams, as well as the psychological tests. I had a desire to work here, at a multinational company! Then I realized that that was important, because if the supervisor had not noticed the desire in me, goodbye, I wouldn't have been hired."

Case 3. A major bank: "Responsibility and commitment are the most important skills"

She had served as an administrative assistant in a car rental company and for a year and a half had been performing similar tasks in a graphics firm. But Fernanda would not give up her search. She was nearly 20 and wanted something more for her life. Dissatisfaction, a holdover from her recent adolescence and perhaps also a mark of her generation, made her uncomfortable but at the same time served as an impetus for the kind of change she wanted: more money, greater job security, and independence.

Fernanda was aware of her many strengths. In her spare time, both within the graphics company as well as at home in São Caetano do Sul, about 11 km from São Paulo, capital of the state of the same name, began browsing the Internet with the expectation of finding the opportunity she was looking for.

Secondary education: necessary but not sufficient

The facts of Fernanda's recent life were simple enough. She found an advertisement on the Internet, among many others, from an agency in São Paulo that provided services for a large bank. Through Google she learned that it was a very large financial conglomerate with extensive coverage throughout Latin America and even elsewhere in the world. In Brazil itself, the firm had more

than 100,000 employees and thousands of branches across the country. Fernanda thought that this large financial company looked like the opportunity she had long imagined, although there was a detail that alarmed her: Starting in 2008, all the staff involved in the bank's core business would have to have professional-level education. One of the criteria for application was that employees had to have completed or be enrolled in postsecondary education. The other selection criteria for entry positions was to be between 18 and 25 years of age.

In addition to her personal attributes and the work she had been doing up to that point, Fernanda had completed secondary school, which added to her chances of being hired. During the interview at the São Paulo agency she found that to be true, and once again noticed how her charisma served her well. She used to summarize this feature in three words: "I speak well." But it was more than good Portuguese: her oral expression reflected, in addition to her training, a degree of intelligence. That was good, but it was not enough. She had learned that to work at the bank, even as an employee contracted through an agency, her secondary education would not be enough. In fact, this policy was common to many Brazilian companies. Applicants who had not completed postsecondary education had to be at least enrolled.

Fernanda was not discouraged. The evidence of her own shortcomings impelled her to go out and get what she needed. She came out of the interview excited to continue her education in order to join the agency and show the bank both her ability and her desire to progress.

The road to the big leagues

It has been almost three years since then, and Fernanda now works as a cashier at the bank's headquarters in São Paulo, as a direct employee. As a cashier, she is not only responsible for taking care of the bank's customers and monetary transactions; she must also sell services, which represent a significant return for the firm and place Fernanda a little closer to its core business.

The steps to get there are many: enrolling in a university in order to qualify for a core positions such as cashiers; finishing a degree to rise in the company while becoming specialized in areas relating to her position; being free of debt; having the skills required for the position; demonstrating technical skills, initiative, and ability to learn; being responsible; and gaining experience in greeting and handling customers, as well as in interpersonal relations, numbers, and systems. The young native of São Caetano do Sul has already met some of the requirements and is working on the others.

Behind all the requirements the institution imposes on applicants and employees is an underlying belief—shared by other Brazilian companies—that what Brazilian secondary education imparts to students is not enough to allow them to make a smooth entry into the labor market. To which must be added

the particular demands on cashiers, a position that in recent years has become more selective.

Renata, one of four people responsible for hiring at the bank, states that "the cashier profile is an entry into the network of agencies. The young people placed there know that they have to have a lot of drive and will. Because in addition to controlling all the payments they receive during the day they have to provide good customer service and try to sell the products the bank is promoting. That is why we need to find people with real growth prospects." She adds: "What we most see lacking in applicants are behavioral qualities."

Paula, head of training at the bank, states that "education in Brazil is not good. You can count on your fingers the number of people with secondary education who are prepared and able to work. That's why the cashiers we hire are people who have started a university degree, because high school graduates do not qualify directly. They show deficiencies in oral and written communication, as well as problems related to critical thinking, among other things."

"Eighty percent of our positions are for people with postsecondary education," adds Renata, "whether they have completed or are still pursuing a degree." She justifies this position by observing that "young people today have to be prepared to think, not just do, and the truth is that secondary education in Brazil is precarious. Young people leave school with a lack of critical thinking skills. They're used to getting information from the Internet, downloading what they need, and turning it in without processing it. In addition, they lack resilience, the ability to overcome setbacks, and the capacity for teamwork. They come with a willingness to work and a desire for independence, but this is not enough, because secondary education just doesn't prepare them for working life. We see that higher education is required to redress these deficiencies, because in high school they are not encouraged nor led to develop skills to succeed in business. I'm talking about skills such as attitude, and even something as basic as how to dress. In addition, high school graduates are unable to analyze what they learn. They do projects in school, pass subjects, but do not develop knowledge. Everything is done for the grade, but not in order to do other things, such as finding solutions, for example. The secondary school in Brazil is a place that gives grades to get a diploma that is only good for going to college. It may seem pessimistic, but it is what you see in young people."

Fernanda, whose experience as a college student is still fresh, is no less compelling. "In secondary school everything is basic; what counts there is learning subjects and passing them—teachers do not deal with anything else. It would be good for some secondary school teachers to update their teaching methods, since the ones they use are outdated. That creates many problems.

These teachers have been teaching for many years and have not adapted to modern times. I remember that I tried to improve my level, but I couldn't because of these old methods, which have to do with the fact that the teacher is not open to dialogue or explanation; everything has to be done quickly. It is a system that's good for decorating, but not for understanding or really learning. And the truth is that you understand if you pay attention, if you ask questions. But these teachers move from one class to another, write on the board and leave, and it is the same thing all the time."

Bank representatives report that the low quality of secondary education leads young people to seek out early work experiences and that, as a result, people under 25 who are employed in the bank are very competitive, apparently because they are already familiar with the working world from their school days.

Nearly three years ago, when she was about to turn 20, Fernanda confirmed this reality with her own experience. After the interview at the agency that provided services to the bank, she knew he should not waste time, and that if she wanted a qualitative change in her life, she would have to acquire more skills and training. Back at home she recalled the positive things she had heard about the City University of São Caetano do Sul, known by its acronym USCS. Some of her secondary school classmates had obtained degrees there that had been very useful in their work. USCS offered two-year degrees, enabling Fernanda to take advantage of the opportunity at the agency and to begin working as an outsourced employee at the bank. She would later find a spot as a direct employee.

Historical roots

According to Marcelo, superintendent of diversity management and integration at the bank, the failure of the Brazilian secondary education dates back to the twentieth century. He says that the failure was proportional to the increase in demand for skills by domestic and international manufacturers and service industries operating in the country. "The problem is very old," he says. "It began in the 1960s, when there was a boom in the metal industries and manpower in this sector proved to be lacking." Marcelo goes even further back in time and says that as early as the 1940s there were signs of reactions by the state to poor educational preparation for Brazil's labor market.

The first steps to strike a better balance in secondary education came in the form of Decree-Law 8.621/46, which created the National Commercial Training Service (SENAC), followed by the creation of the Industrial Apprenticeship Service (SENAI) by President Getúlio Vargas (Decree 4.048/42), designed to train skilled manpower for Brazilian industry. According to official sources, SENAI currently has 58 professional education centers; 730 operating units; 419

centers for training, technology, and vocational education; 46 national technology centers; 311 mobile units; 419 fixed units; and 1,800 courses and programs.

"I was a maintenance apprentice at SENAI," says Marcelo. "My father worked in a metallurgical plant, and I went and did the program there. That's how I managed to get hired at the factory. My father, too, was hired after going through a SENAI program in the 1960s. All this is part of what is called 'the S Program' where, besides SENAC and SENAI, you had SESI.[3] These government initiatives focused on private industry, although they originated with the state. Until the 1990s, SESI and SENAC had been paid for by businesses and the government. Then the companies stopped contributing to the programs, so there were fewer available openings. What happened in 2000? Brazil began to experience a very serious secondary school dropout problem that came about because young people began to see that schools did not give them what they needed for work—they were leaving school inexperienced. The truth is that the dropouts further complicated the picture and we began to see huge numbers of people without access to work. That is why the government created a program where, for every 100 employees, companies must hire a certain number of apprentices. That number is calculated according to a table, the Brazilian Classification of Organizations, that records all jobs in the country. So the government places these young people in positions that do not require specific training or schooling, and companies have to employ between 5 percent and 15 percent of apprentices, as needed. Every young person can be an apprentice for two years, after which he or she is ready to be promoted."

The last state law that Marcelo references is Law 10.097/2000, regulated by Decree 5.598/2005, which created the National Apprenticeship Program, under which all midsize and large companies are required to hire young people between the ages of 14 and 24. The bank offers graduates from this program jobs performing tasks such as organizing the cashier lines or escorting customers in the branch.

Marcelo adds that to prevent school dropouts, the legislation requires that apprentices complete their secondary education. So to be an apprentice you must be in school or have graduated. "When apprentices start at the bank, they have a very low level of education—they're not even ready to do basic math. So secondary education is supplemented with disciplines related to professional development, such as computer training. This is how young people are induced to take professional training courses run by nongovernmental organizations, which grade students and assess their job performance. Today the bank has a large group of apprentices. They come here four days a week, and the rest of their time is used in training with the NGO."

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[3] SESI, the Industry Social Service, was created in 1946 to study, plan, and execute, directly or indirectly, measures that contribute to the welfare of industrial workers.

The historical explanation for apprenticeships, coupled with the inadequacies of secondary education for young people entering the workforce, is consistent with the views among bank representatives concerning the desire of young people to begin acquiring work experience at an early age. Marcelo insists that this is because young people are aware of the situation. Carol, an operational manager at the bank, agrees with the views already expressed: "While it is true that the story is different for private schools, secondary school graduates, especially from public schools, come out disoriented and lacking clear direction. The longer they take to enter the labor market, the more practical experience they lose and the lower their chances will be. Work is a very different world from school in Brazil: jobs require experience, which young people who have only finished secondary school do not have."

Opportunities beyond the school

Arriving home after her interview with the temporary agency, Fernanda knew that even after enrolling in USCS she would have to work in one of two areas in the bank—as a cashier or as a customer service representative. These two areas were a gateway for a young woman who had recently enrolled in a postsecondary program and already had experience under her belt. Once she got to her room, she reviewed the information that the agency had given her. First, the age for new direct or temporary hires at the bank ranged from 18 to 25; second, the starting positions available depended on certain factors. The original options were five, but in her case three were immediately discarded: apprentice, intern, or trainee. Interns were hired directly by the bank and needed a degree. Becoming a trainee would be even more complicated. Trainees were young people enrolled in the best universities in the country, majoring in subjects such as business administration, economics, accounting, law, engineering, mathematics or statistics; kids who had applied to a youth talent program, through which about 200 new employees were recruited annually out of several thousand applicants. So, no, she could not be a trainee either.

She only had two possibilities left. Those who, like her, went to an agency that provided contract employees to the financial institution could aspire to be cashiers or customer service representatives. Fernanda started her connection with the bank in the latter category. "In the 14 months that I worked for the bank through the agency, I analyzed applications for car loans," says Fernanda. "The salary was very good, and many people who started with me made the same transition, working first for a temp agency, which is one of the best ways to get into big companies like my bank."

Then, just like the first time, it was through the Internet, or rather the company intranet, that the opportunity to become a direct bank employee presented itself. By then, Fernanda was studying at the USCS Graduate School

of Technological Studies. Higher education, besides offering her a more specialized course of study, provided her with other benefits. Among them, at the end of her last year of study, "the same rights as those conferred by traditional graduation" plus "disciplines considered essential for the market."

"Many internal opportunities are generated at the bank when vacancies open up," says Renata, one of the recruiters. So the first thing we do is recruit internally among the young people who have been here more than a year, then we proceed to recruit externally." That was precisely the formula that led to Fernanda's second conquest: being hired directly by the bank as a cashier.

Expanding on the institution's recruitment policy, Renata describes the career-opportunities program—an initiative that rewards employees who have been at the bank for more than a year by advertising vacancies internally through newsletters accessible to all employees before any external announcement is made.

She also adds that internal recruitment is now more demanding: "We want people who are really prepared. They apply by submitting their CV. If there is a big response, we hold an interactive group session where we can observe them. Those who pass this hurdle move on to the last interview, where the final selections are made."

According to Renata, if the bank decides to hire externally, it does so by "reporting the openings on our website, as well as to consulting firms, government departments, and unions. All these channels are required when we go into the market to find human resources."

A wish fulfilled

"When I applied, this time for the cashier position, there were between 30 and 40 people there, all candidates for the same position. All of them, as I, had been temps. I was selected, and nobody else," says Fernanda, who has difficulty explaining why she was the one selected. "I think they chose me because I did well on the tests and in the interviews. I completed the assessments accurately, and in the course of the interview they were able to determine that I spoke well, that I was communicative, and that I wanted to learn. I also assume that confidence and poise were assets. It is difficult to talk to someone who is doubtful, or nervous, or is not transparent. That may be why those who applied with me did not get the job—either because they didn't meet the bank's expectations for the vacancy, or they didn't have the right skills for the job."

Fernanda places special emphasis on her commitment to work, a quality that is one of her main strengths. She says that other candidates for the job revealed shortcomings in this regard during the selection process. "First was the Portuguese test. Then a mathematics test. And then there was a dynamic assessment and an interview with the cashier manager. Everything was easy

and pleasant. Not one thing was difficult. Rather, it was relaxed and fun." However, according to her own testimony, that was not the case with the other applicants. "I watched how the other candidates behaved during the tests and interviews. There were people who had their hands on their hips, too casual an attitude that does not go over well at a bank like this. If you are going to work in this bank and meet customers face to face, you need to be a little more serious. So I am convinced that all those things are what we are evaluated on today. Because we, the cashiers, besides carrying out the tasks required by our position, must have a vocation to help and learn, and be concerned about doing a good job. This is not about a single skill, but about demonstrating a set of skills. If you're proactive, that is, if you do not settle for just sitting in your place and fulfilling your role, you will be appreciated. Furthermore, this way it is possible to help and learn new tasks."

In order of importance, Fernanda lists the fundamental skills that are required for her position: responsibility and commitment, customer service and care, use of equipment, language and communication, a good work attitude, and critical thinking. "Responsibility and commitment," she explains, "are the most important skills for a cashier. Adhering to the schedule is a part of these qualities, as is realizing that you're in a company where people are on the same team. If you don't show commitment and responsibility, you drag others down and interfere with the company's overall business. That business is to sell financial products and to serve customers well, to keep them satisfied. Critical thinking is also important, though to a lesser extent. While there are not many opportunities to use it, you sometimes need to apply it to solve a problem that comes up. In such cases, if there is no critical thinking, you can't solve the problem."

Soon to turn 23, Fernanda is aware that she now has the opportunity that, until recently, she could only dream of. She also believes that her advancement opportunities within the financial institution are solid. That is the same understanding that the other five people, all under 25, who are working in her section have. For them, training is key: everyone understands that from now on, applying for other positions requires a postsecondary degree, without exception. "In other positions," Fernanda elaborates, "where it isn't just about serving the public, the number of people under age 25 is very low. They are all professionals." She adds: "At the bank there are several options for young people like me. In my area you can be promoted to treasurer, and in the corporate services area you can be promoted to assistant account manager. In other words, there is considerable mobility."

Training plays a key role. Fernanda says she has taken several courses and is always being offered new ones. "We just took some courses on cash, and we had three or four on sales. During this first year and a half I've already taken about 20 online training courses. They all help you improve. In addition,

the section where I work always requires you to learn new things: things about money, for example, or about service for customers with disabilities. And the truth is that the more prepared you are the better you can serve the customers. The course that has interested me the most so far was one called 'selling through good service.' It was very dynamic and really conveyed the essence of negotiation."

Paula, the head of training at the financial group, adds: "All the positions that young people occupy are linked to the core of the company. And they all have one goal. Our objectives require skills and attitudes that get the job done right." Fernanda has confidence in her performance within the firm. If there is something she has never lacked it is self-esteem. That is why she is ready to go back to school, if necessary, to keep advancing. "I would happily do it," she says, "because within five years I intend to be in my area, but in the treasury department or as a manager."

Conclusion

The objective of these case studies has been to delve deep into the demand for skills reflected in the results of the Demand for Skills Survey (DSS) conducted in early 2010 in Argentina, Brazil, and Chile and analyzed in chapter 6. The case studies have been about hearing the voices behind the statistics. The three stories represent the main conclusions derived from the data gathered through numerous interviews with firms in those countries. Two overall messages stand out: first, good employers prioritize socioemotional skills when hiring young people who have just completed their secondary education; and second, schools are not developing these skills effectively.

The gap between the skills demanded by employers and those that young people carry with them when they graduate from secondary school is clearly present in the case of the hotel in Santiago. All respondents—from various points of view—explicitly referred to the mismatch between what young people learn in school and what they need to perform successfully in the labor market. In the case of the automaker in Argentina, the emphasis was on the importance of socioemotional skills when joining or moving up in the firm. This finding is particularly interesting for a leader in a sector like automobiles, where the demand for specific technical skills may be expected to play a role. But, as suggested by the results of the survey, companies can cultivate specific skills through training within the firm. The story of the two young men working in the industrial complex illustrates the value of technical education and the example of the dual program, a way of bringing the productive and educational sectors together. Finally, the case of the Brazilian financial institution reinforces the

previous messages about the role of higher education as a strategy to fill the skills gap for secondary school graduates.

The narrative of these three cases merely confirms the main findings of this book on the need to expand the range of skills that schools impart or shape, and to find ways to adequately integrate socioemotional skills into the basic curriculum.

D. Work Education Programs in Latin America: A Sample

Dual education in Chile

Chile's formal education system offers two study options in the last two years of secondary school: a science and humanities track (known by its acronym, EMHC) and technical/vocational education (EMTP). For the latter, within the framework of the Chile Califica (Chile Qualifies) Program, a so-called dual education system has been designed that enables students to gain practical work experience during the third and fourth years of secondary education. Currently, 222 technical schools coordinate their curriculum and schedules with 9,629 small, mid-size, and large firms and enroll more than 25,000 students, or about 7 percent of the total EMTP enrollment (Government of Chile, 2009a).[1]

Dual education is a form of technical and vocational training that takes place in both school and work settings, with students acquiring skills needed by the productive sector. Schools that wish to offer the technical and vocational program must apply and be selected. Businesses wishing to participate in the program are asked to specify the number of students they can accommodate.

In the practical training process, teacher-mentors (who work in the participating business) are responsible for imparting knowledge and training, while teacher-tutors are responsible for coordinating the relationship between

[1] The EMTP option includes 46 specialties in 14 sectors: forest products, pisciculture, food, construction, metalworking, electricity, merchant marine, mining, graphics, apparel, administration and business, social programs and projects, chemistry, and hospitality and tourism. Each area has a set of core objectives that define the skills that students are expected to possess upon graduation. The objectives are an outline of technical competencies that prepare a young person for a life of work and that must be mastered in order to graduate.

the school and the business.[2] Educators responsible for dual education receive special preparation, and the EMTP institutions that deliver dual education receive technical assistance in the form of faculty training workshops.

Professors and teachers involved in the dual education program receive a special 160-hour training course, while the TVSE establishments that impart the training receive technical assistance for the training of teachers through the implementation of four formation workshops. For those who are responsible for training students in the workplace, Chile Califica, in conjunction with businesses, has developed guidance, orientation, and training manuals. Technical educators have access to programs for initial and refresher training developed by a consortium of universities.

The dual education system has two possible schedules. In one, training is divided into three days in school and two days at work. In the other, students spend alternate weeks in school and at work. Teacher-mentors are responsible for developing a plan to integrate each student's learning within the production process. The participating business develops a schedule to ensure that every student is exposed to each of the prescribed tasks and functions. The plan specifies the jobs that students will perform, the skills they will learn and from whom, and the time to be spent at each job.

Teacher-mentors assess the apprentices' mastery of their tasks and their attitude toward their work using the following criteria: punctuality, creativity, cooperativeness, ability to deal with the unexpected, acceptance of criticism, honesty and responsibility, integration into the firm, observance of safety rules, quality of work, and skill in the use of machinery, equipment, and tools.

Bravo et al. (2001) studied the impact of dual education and found positive perceptions of the program and its effects among teachers, students, and participating businesses. Eighty-eight percent of those surveyed felt that dual-education graduates were better prepared for work than those who graduated from the general technical/vocational program, while 70 percent felt that they were able to find better jobs. With respect to entry into the labor market, lower unemployment was found among graduates of the dual-education program than among young people in general, and among graduates of general technical

[2] Faculty members who serve as teacher-tutors in dual-education programs must be knowledgeable in the specialized modules that their students are pursuing and must be licensed to teach. They must be available for at least 20 classroom hours to visit participating businesses and for up to 44 classroom hours to monitor and evaluate the learning process in both school and work settings. Teacher-tutors must have specific attitudinal, cognitive, procedural, and instrumental competencies. Teacher-mentors in participating businesses must possess personal and professional skills consistent with their function. They must be capable of training apprentices, be both technically and personally qualified, and be committed to training students. They are appointed by the employer for their background and ability. For small businesses, the teacher-mentor is usually the business owner (Ascui, Cornejo, and Guzmán, 2006).

education in particular. However, there is no clear evidence about the employment of graduates, either within the company where they trained or elsewhere.

The National Apprenticeship Service in Colombia (SENA)

The National Apprenticeship Service (SENA) offers various types of technical training for workers with technical credentials. Its programs are geared toward training the whole individual to promote the development of knowledge skills (mathematics, communication, and biophysical), socioemotional skills (teamwork, information handling, self-expression, and problem-solving), and specific skills (technical and technological characteristics of the occupation in which the individual is being trained).

To contribute to the improvement of secondary education (both academic and technical), SENA maintains an articulation program with secondary education, the aim of which is to improve the technical and technological training of secondary school students by developing skills that will facilitate their transition into the world of work as well as their educational mobility. The program, a joint effort between SENA and Colombia's Ministry of Education, enables tenth graders to enroll in a SENA technical program that SENA certifies when the student completes the eleventh grade, the last grade in Colombia's secondary schools. Graduates thereby obtain a double certification: technical high school training, delivered on the school campus, and the certification granted by SENA (a certificate of professional competence) in the specific technical area that the student has completed.[3]

The training aims to impart operational and instrumental mastery of a particular occupation, acquisition of related technical and technological knowledge, and the capacity to adapt to changes in production methods. The trainee is expected to be able to integrate technologies, function within the occupational structure, pose and solve problems creatively, and be able to operate effectively. Graduates of the program may elect to continue their training at SENA immediately after completing their secondary education. They may also choose to join the labor force in the field in which they obtained their certificate.

The program involves a mandatory internship that can be performed in several ways: (i) through an apprenticeship with one or more businesses, (ii) through an internship with a small or mid-size business (family firm,

[3] Depending on the programs at their school, students can study occupations such as cattle production, tree farming, farm management, financial data processing, auto mechanics, microbusiness management, typing, restaurant service, tourism, baking, accounting, woodworking, underground environmental management, woodworking, welding, and metalworking, among others.

state-owned enterprise, or nongovernmental organization), or (iii) through the creation of a small business owned by the apprentice or a relative. The responsibility for locating internship opportunities lies with the administrators of the school participating in the program.

In 2007 the program covered about 180,000 students from some 1,000 institutions. Célis, Gómez, and Diaz (2006) found that the program helped solve the structural problems of secondary education in providing job training in a setting that historically had prepared students only for higher education. However, the authors note that the program also reflects the weaknesses of a linking arrangement that depends chiefly on the human and physical resources of schools and on SENA's curricular and learning resources, without regard to the needs of secondary schools. The infrastructure and human resource constraints have led schools to opt for programs that do not require the use of complex infrastructure and can be implemented by their own teachers, such as financial and accounting training or general secretarial training. Two impact assessments have produced mixed results. A study by Sarmiento et al. (2007) found positive impacts on employment level and income for students who trained with SENA. A study by Medina and Núñez (2005) did not find a positive impact on income, except for women over the long term.

The National School of Technical Professional Education in Mexico (CONALEP)

The National College of Technical Professional Education (CONALEP) is a formal educational institution that offers, at the upper secondary school level, a three-year program aimed primarily at students aged 16 to 19. The objective is to help them acquire, in addition to general education, a mix of certified technical skills that respond to employers' needs and aid students' integration into the labor market.

CONALEP's 296 facilities throughout Mexico have a total of 16,202 teachers, 4,335 classrooms, 1,365 workshops, 927 laboratories, and 48 diplomas in 10 occupational areas. CONALEP accounts for 250,000 of the 357,000 Mexican students enrolled in secondary technical programs, out of a grand total of 3.3 million secondary school students. Training is provided in CONALEP facilities, although the school also uses blended learning and distance education methods (www.dgpp.sep.gob.mx).

At the postsecondary level, 48 degrees are offered in nine occupational areas, complemented by extracurricular activities geared toward personal development (educational advising, wellness counseling, cultural and sports activities). In terms of enrollments, the most popular degrees are computer science (37 percent), accounting (17 percent), electromechanics (13 percent),

automobile mechanics (12 percent), nursing (11 percent), and office management (10 percent) (Vázquez Mota and Székely Pardo, 2008).

CONALEP also offers vocational guidance and support during training, as well as activities that help students obtain recognition for their skills. Students can earn a certificate of accreditation and recognition of occupational skills starting as early as the first semester, as well as other credentials depending on the technical path they take.

Students must complete an internship (360 hours) in a private company or public institution, performing activities related to their field of study under conditions similar to those found in the workplace. Completion of the internship is one of the requirements for obtaining the title of "technical professional" or "graduate technical professional." In addition to the mandatory internships, CONALEP has a job service to facilitate the entry of its students and graduates into the labor force.

According to a national study of CONALEP's institutional program (2007–12), 91 percent of students and 87 percent of professional service providers identified CONALEP as a prestigious institution, believing the educational curriculum based on competency standards to be one of the institution's strengths. Of the students surveyed, 50 percent believe that studying at CONALEP represents preparation for a job, whereas 13 percent see it as an option to continue their studies and the remaining 36 percent assigned the same value to both options. As for employers, an electronic survey revealed that 71 percent believe that CONALEP is a prestigious institution, while 53 percent said that CONALEP graduates possess the skills necessary to join the productive sector (Vásquez Mota and Szélely Pardo, 2008).

The San Clemente Agroindustrial Institute in Colombia

The municipality of Guática in the Risaralda department of Colombia has a population of about 15,000, three-fourths of whom live in rural areas and are engaged in farming and agribusiness. The San Clemente Agroindustrial Institute is a rural school that decided in the 1990s to change their educational model from social advancement to technical education in agro-industrial processes. Behind the decision lay the need to respond to the problems of growing poverty, youth unemployment, and mass emigration of rural dwellers. There was also a need to overcome educational backwardness by upgrading teaching methods, curricula, and teachers' roles.[4]

[4] The recent history of the San Clemente Agroindustrial Institute is amply documented and analyzed in Messina, Pieck, and Castañeda (2008). The study describes the institute as a significant example of curricular innovation in rural secondary education.

The institute's goal is to help young people develop real-world knowledge in agribusiness. It strives to incorporate scientific and technological knowledge into the current practices of local farmers. The training in agro-industrial technologies encourages students to envision possible roles in improving production, as well as future educational or career paths. The institute has blurred the traditional division of labor between technical and academic faculty—the teachers responsible for agroindustrial education are the same ones who the scientific components of the core curriculum (biology, chemistry, and physics). Students participate in real production processes developed in the cooperatives set up by the institute (Messina, Pieck, and Castañeda, 2008).

The curriculum is organized along three dimensions: (i) science and technology, (ii) business, and (iii) agro-ecology. These dimensions link the mandatory education required by the Ministry of Education with experiential and experimental educational practices that enable students to participate in activities that demonstrate the relation of theory and practice in the form of real-world production processes that integrate scientific, mathematical, ethical, aesthetic, and educational content.

In the scientific and technological dimension, special emphasis is placed on the role of scientific research, not only from the perspective of general education, but as the foundation for business practices. Students participate in research into products (meat, dairy, and vegetables, including fruit and flowers) and analyze the feasibility of commercialization based on market intelligence, upon which the idea of agribusiness is based.

The object of the business dimension is to encourage students to learn new work practices that can expand profit margins. It is important that students take an active role in marketing their products and adopt efficient, optimizing practices. Within this dimension, the application of mathematics to business management and the use of information technology in project development, analysis, and evaluation have been strengthened.

The heart of the agro-ecological dimension lies in curricular changes designed to encourage students to adopt agro-ecological approaches in production, embracing sustainable development and the rational use of natural resources to avoid the risks of depletion of water reserves, minerals, and biodiversity and their effects on food security, flora, fauna, and human health.

The National Youth Service Corps in Jamaica

Targeted at secondary-school graduates who are neither working nor enrolled in higher education, Jamaica's National Youth Service Corps (NYS) strives to teach specific social skills, to provide employment experiences aimed at developing pro-work attitudes and values, and to offer opportunities and guidance to join the workforce. NYS aims to benefit not only students, but also employers, the

community, and the nation. The program helps students enter careers in child health education; environmental management; sales, customer service and administration; and microenterprise (http://www.nysjamaica.org).

The purpose of NYS is to complement the skills learned in secondary education to enhance the employability of graduates and enable them, if they so choose, to continue their education. The program consists, first, of a period of training at a residential camp where students receive theoretical and practical instruction through two modules: a core module (55 hours of instruction on behavior, leadership, writing and public speaking, information technology, and social sciences) and a specific module (45 hours either in public administration, customer service, health, education, environment, or social services). The two modules are taught in short classes that feature discussions, role-playing, and group presentations.

Subsequently students complete a workplace internship during which the program subsidizes the participant's transportation and meals. The NYS identifies the placement sites and coordinates the assignment of students, taking into account the needs of the organization and the skills of interns, as well as their preferences and the distances between their homes and the internship site.

The evidence gathered to date shows that young people who complete the program have higher job skills and greater problem-solving ability, the latter measured not only in terms of job performance, but also in students' self-perception (Hull et al., 2010). Concerning recommendations to improve the program, Hull et al. (2010) found that assistance for young people should be strengthened after the intervention, prolonging contact in order to provide continuous employment-counseling services and further training as needed, or to help students continue on to higher education.

Points of departure

Achieving a better articulation between the education system and the world of work will have to include policies that facilitate the successful transition of young people from secondary school to the labor market. As seen in the foregoing section, the region is not devoid of successful experiences in this arena. From those experiences emerge elements that should be taken into account when formulating strategies to improve the preparation of young people for successful workplace performance or for higher education, both of which will improve their economic prospects.

Structural action toward education for work

Some countries have aspired to incorporate vocational education components into the formal structure of secondary education. In Mexico, Chile, and Colombia,

for example, the share of secondary students enrolled in vocational education is high (40 percent, 38 percent, and 25 percent, respectively), which suggests the possibility of achieving significant impact (www.dgpp.sep.gob.mx, www.fonide.cl, and www.mineducacion.gov.co). In the case of Colombia, progress has been made in integrating elements of vocational education into the general curriculum of the last two years of secondary school (Messina, Pieck, and Castañeda, 2008).

New options after secondary school

Mechanisms exist to equip young people with skills to help them move directly into the labor market after graduating from secondary school. Similar vocational options exist at the postsecondary level, outside the universities. Chile's technical secondary schools are one example. Students are expected to complete a professional internship of two to three months within a firm. Students who do not do the internship are still deemed to have graduated, although they do not receive the same professional title, indicated on the diploma, as those who do (www.chilecalifica.cl). Colombia, through SENA, has embraced the concept of "double titles" in vocational technical education, whereby a student can simultaneously become a secondary school graduate and a *técnico*, or technician. The idea is that students leave secondary school with the general knowledge they need to pursue higher education, but also with the minimum skills and competencies needed to enter the labor market (www.sena.edu.co). In the technical track of upper secondary education in Mexico, CONALEP provides two curricular options: one leading to a technology diploma that qualifies students for university education, and another leading to a terminal technical/vocational diploma whose recipients move directly into the labor market. In all three countries secondary education has a certain degree of finality, although options do exist that offer the possibility of continuing on to higher education, as seen in the next paragraph (CONALEP, 2008).

Formative trajectories

To avoid limiting students' options, it is desirable to maintain flexibility of movement between formal technical/vocational secondary education, technical/vocational postsecondary education (nonuniversity), university education, and the world of work, as permitted by the Chile Califica program. Flexibility depends on the recognition of learning at each level, whether vocational learning in a technical school or academic learning in a university.[5] Even when secondary

[5] Without such recognition, typically in the form of credits, it is not possible to transfer from one track to another.

vocational education is intended to be terminal, it is possible to establish training trajectories that allow former students to return to school, as CONALEP has done in Mexico. An example worthy of mention is the tutorial program of Chile's Fundación Belén Educa, which operates eight secondary schools in economically depressed neighborhoods in Santiago. The foundation has set up partnerships with 20 firms under which factory personnel serve as tutor/mentors for students in their final year, providing advice and guidance about their personal, academic, and work-related concerns. The purpose of the mentoring is to exert a positive influence on their future decisions related to work, higher education, and other matters.

Dual training

This is the tool par excellence of education for work. Its purpose is to offer a concrete opportunity to young people who lack the desire, means, or inclination to pursue higher education directly after secondary school but who do want to enter the workforce on the best possible terms. In Latin America, the most extensive dual-training system is that of Chile Califica, whose 222 schools serve 30,000 students (chilecalifica.cl).

Leveraging existing institutions

The countries of the region have shown a tendency to build on the institutions, experiences, and lessons of what were previously known as vocational training institutes—such as SENA in Colombia, CONALEP in Mexico, and SENCE (the National Employment Training Service) in Chile—to incorporate vocational tools and concepts into general secondary education. Brazil has a similar scheme based on links between secondary education and the so-called S system, which is made up of national apprenticeship services specific to individual sectors. SENAI serves manufacturing; SENAC, commerce and trade; SENAT, surface transportation; SENAR, agriculture; SEBRAE, micro- and small business; and SESCOOP, urban cooperatives.

Incorporating components of work-related competencies into formal secondary education

Chile, Colombia, and Mexico have or are developing systems for the assessment and certification of work-related competencies as permanent features of the system of continuing education of the labor force. One of the components of that strategy is to bring the concepts and tools used in assessing work-related competencies into the realm of formal secondary education. For example, the Chile Califica program and Fundación Chile have developed methods for the

setting of standards and the evaluation of labor competencies (www.chilecalifica.cl; www.fundacionchile.com). In the same spirit, as part of its project on labor competencies, work training, and secondary-school relevance, Colombia's Ministry of Education has already incorporated work-related competencies into secondary technical/vocational education and intends to extend them to general secondary schools (Célis, Gómez, and Díaz, 2006).

Public–private links in education for work

On the theme of education for work, the private sector participates on two levels: as a provider of educational services and as a source of lessons and practices developed within the firm. Chile has moved forward with private and industry-sponsored schools (the latter administered by business associations) that now account for 56 percent of technical/vocational enrollments at the secondary level and where links between schools and businesses are part of the basic design of a dual education system that is regulated, funded, and overseen by the state and provided by the private sector (Government of Chile, 2009a). The previously mentioned example of the Fundación Belén Educa, also in Chile, illustrates the importance of public-private cooperation in raising the chances of secondary-school graduates finding suitable work. In Colombia, a quarter of secondary-school students are enrolled in the technical/vocational track, and 22 percent of those are in private institutions (www.mineducacion.gov.co). Even so, the region still lacks specific policies to develop and regulate public-private linkages. Such policies are key, particularly in view of the fact that it is the private sector that possesses the best information on the relevance of education for work, as well as constituting a major market for the graduates of the educational system.

The private sector as a provider of onsite workplace education

Here the participation of the private sector is even more limited. Even in Chile, where students must complete a three-month internship in a firm before they are deemed to have fully completed their formal technical/vocational secondary education, only 40 percent receive the full secondary credential (which conveys recognition as a technician as well as a graduate) because so many students cannot meet the internship requirement. The reason is the undeveloped relationship and low level of institutionalization between employers and the education system (Government of Chile, 2009b). For the same reason, dual-education systems end up being relatively isolated and driven more by the individual dedication and commitment of certain corporate leaders (as in the case of the Argentine automaker featured in chapter 6 and appendix C) than by solid institutional links between education and industry. Much remains to be

done to formulate policies that encourage the full participation of the private sector in improving the school-to-work transition.

Teacher training

Teacher training is of vital importance in the campaign to advance education for work at the secondary level. Worthy of attention are the efforts of SENA in Colombia to create a system of dual credentialing, to establish mechanisms through which students can earn credit for their acquired knowledge, and to make it easier for students to take work-related postsecondary courses at SENA or to enroll at a university. SENA has required its trainers to train secondary-level teachers to provide education focused on work. In addition, there are isolated experiments that allow teachers in technical schools partnering with businesses to take training courses provided for the business's personnel. The formative value of this type of intervention, where the level of technical sophistication of the facilities and processes to which teachers are exposed, as well as the level of preparation of the instructors, would be impossible to obtain otherwise—a powerful argument for close partnerships between schools and firms.

Promoting career-focused postsecondary education

Even in Colombia, Chile, and Mexico, where decisions have already been made to make some elements of vocational education permanent parts of the structure of secondary education, the development of postsecondary vocational education (nonuniversity) is striking. In Colombia, such courses are still not recognized as parts of the formal education system (mineducacion.gov.co). In Chile, on the other hand, there are an estimated one million secondary students, 38 percent of whom are enrolled in the technical/vocational track. With respect to higher education enrollments, by contrast, 78 percent of the country's 478,000 postsecondary students are engaged in university studies, whereas only 22 percent are enrolled in nonuniversity programs focused on the world of work—10 percent in postsecondary courses, and 12 percent in higher technical/vocational studies (www.fonide.com). The same pattern is apparent in Mexico, where two-year postsecondary technical institutions that require a technological secondary-school diploma account for just 3 percent of higher education enrollments—the rest choose university programs (www.dgpp.sep.gob.mx). These patterns suggest that even when vocational options are available in secondary schools, the young people who choose them do not go on to advance their technical qualifications through higher education, either because they move directly into the labor market without seeking to enhance their skills, or because they enroll in a university program. The situation calls for clear efforts to promote options for postsecondary vocational training for students who

choose that path in secondary school. A technical secondary diploma should enable graduates to join the workforce without further preparation, but it should not oblige them to do so. Arrayed alongside the option to cease one's studies and take a job should be the realistic possibility of pursuing higher levels of training and professional qualification outside the university system, either directly out of secondary school or after an initial period of work.

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