2016 RED Report on Economic Development

More Skills for Work and Life:

The Contribution of Families, Schools, Jobs, and the Social Environment

EXECUTIVE SUMMARY

CAF DEVELOPMENT BANK OF LATIN AMERICA

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Chapter 1

SKILLS: MEASUREMENT AND LATIN AMERICA'S CURRENT SITUATION AND OUTLOOK

Latin America made great progress in the last few decades: it widened its coverage of social services to vulnerable sectors of the population, improved its economic performance, and strengthened its democratic standing. However, economic development remains elusive. To achieve it, the region needs to improve the quantity and quality of its human capital, a process for which skills—both for work and life—are fundamental.

When, how, and where are these skills developed? The RED 2016 highlights the importance of specific moments in life for skill accumulation as well as a set of investments that complement each other to cumulatively build skills. These investments take place within four formative contexts, going beyond traditional educational institutions to also include the family environment, physical and social environments (e.g., the neighborhood of residence), and the labor market. This approach underlines the fact that skills are not etched in stone at birth, but evolve according to what happens from very early in life through adulthood. However, two periods are especially effective for generating new skills: early childhood—including the prenatal period—and youth.

Moreover, skills that are important today will not necessarily be relevant in the future. That is why the RED 2016 also takes into account the technological, demographic, and social changes that can help us understand which skills will be the most needed in the years to come.

Skills for Work and Life: Definitions and Measurements

What Do We Mean When We Talk about Skills?

Skills are a set of abilities employed to learn and effectively solve diverse problems. Thus, they affect individuals on a myriad of dimensions, including performance at school and in the workplace, relationship success within the family and with friends, civic engagement, and health habits. Skills encompass knowledge, values, motor dexterity, cognitive, and character abilities that are accumulated throughout life, starting before birth. Therefore, the concept of skills covers many different domains and includes mental, physical, and emotional components.

How Many Skills Are There?

There is an infinite number of skills that help individuals succeed in work, and, more generally, in life. Many of them share similar characteristics, which makes it possible to form taxonomies or distinct categories of skills. This book starts by considering three main groups: cognitive, socioemotional, and physical skills.

Cognitive skills are closely related to the concept of intelligence and can be described as the mental processes required for learning, processing information, and making decisions. Socioemotional skills

are linked to personality traits and the ability to manage one's own and others' emotions. They include perseverance, self-control, trust, self-confidence, self-esteem, resilience (the ability to recover from adverse situations), empathy, and tolerance toward divergent opinions, among others. Finally, physical development is deeply related to health, as better-developed physical skills allow for an efficient use of an individual's motor abilities, just as they enable a longer and healthier life.

How Can We Measure Them?

Measuring skills is a complex task. Obtaining a clean measure of a given skill from the observation of individual behavior is often impossible. Human behavior is determined by a bundle of skills and environmental factors that are not easy to separate, so the main challenge is finding the right metric that, besides being informative, allows us to pinpoint the specific skill we are trying to measure.

A common practice when measuring cognitive and socioemotional skills is to use performance results from tests or experiments (e.g., intelligence or educational performance tests, or tests that measure reactions to various stimuli). Other strategies include using questionnaires with direct questions, which provide self-reported information about personality traits or health status. Skills measures are also constructed from observations of real-life individual behavior (educational progress, substance abuse, and mental or physical health disorders, among others). While none of these approaches is perfect, recent methodological advances have significantly improved the capacity of available measures to capture actual underlying skills.

The 2015 CAF Survey makes an important contribution to the measurement of skills of the young and adult populations (15–55 years old) in Latin America. This survey was carried out in 10 major cities of different Latin American countries,[1] covering a total of 10,000 households. It included specific sections to measure the three groups of skills. Cognitive measurements include an intelligence test (short version of a Raven Progressive Matrices Test), a verbal skills test (Brief Test of Verbal Conceptualization, BTVC), and a numerical skills index (measured by a test and three simple math problems). Measurements of socioemotional skills include the Big Five personality traits model, a grit scale (which measures the motivation to achieve long-term goals), a self-efficacy scale, and a risk tolerance test (based on an exercise using fictitious lotteries). Finally, measurements on physical skills include mental and health conditions and habits.

How Are Skills Developed?

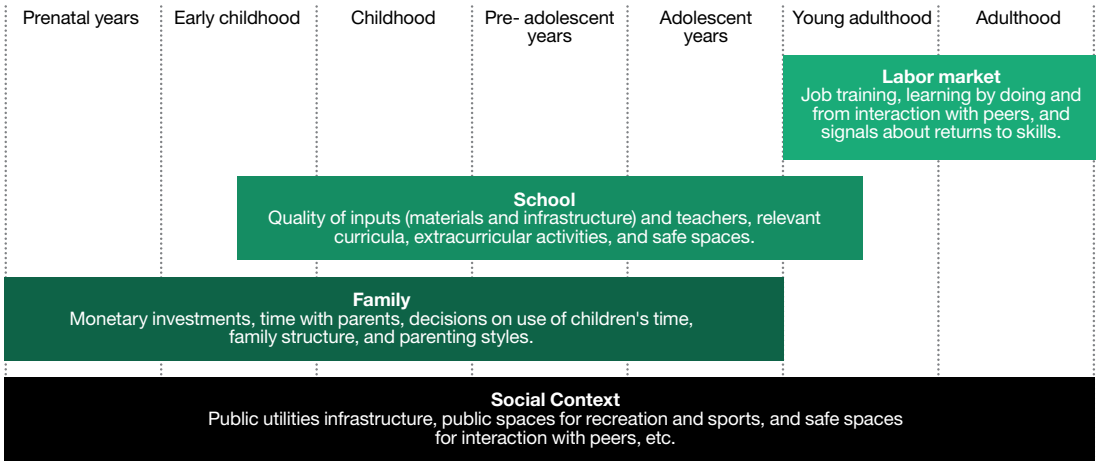
Individuals are not born with a predetermined and immutable set of skills. Although genetics may play an important initial role, there is increasing evidence that skills are accumulated throughout life. This same evidence also shows that some stages in life are more important than others in this regard. The most critical stage is the first stage of life, which begins during pregnancy and ends after adolescence. Many social and biological changes happen during this period, and it is the foundation for all subsequent development.

1. The surveyed cities are Buenos Aires, La Paz, Sao Paulo, Bogota, Quito, Mexico City, Panama City, Lima, Montevideo, and Caracas.

One of the most significant biological changes during this time is accelerated brain development. As for social changes, this period is marked by the development of ties within the nuclear family—especially with parents or other caregivers—and the gradual development of relationships with teachers, classmates, and other children. Upon entering the labor market, social circles grow to include new key figures such as peers or bosses. Because of the relevance of social and biological changes to skill development, the RED 2016 organizes the discussion on skill development around the main social institutions that shape the lives of individuals: family, school, the labor market, and the and the social environments (Figure 1).

The RED 2016 shows that family influence is essential from the prenatal stage until adolescence, while the contribution of school starts during childhood and continues until the beginning of adult life, when the labor market becomes more relevant. However, the labor market is not only critical for adults. It also signals to young people which skills are associated with professional success, so that they can make the most appropriate formative investments with the aid of family and the schooling system. Moreover, the physical and social environment has a persistent and fundamental effect on the human capital investment decisions made by individuals throughout their entire lives.

Figure 1. Stages of Life and the Four Contexts of Skill Formation



Source: Authors' elaboration.

Beyond the investments made through the aforementioned formative contexts, the RED 2016 highlights two additional catalyzers of the skill formation process: the starting conditions (genetic and health factors) and the stock of skills accumulated at a given stage of life, which serve as the foundation for the development of new abilities.

Finally, there are two important features of the skill development process that must be stressed. First is the complementarity between the cognitive, socioemotional, and physical dimensions:

they all need and enhance one another. Second is the building-blocks nature of the process, which depends crucially on the set of one's previously obtained skills and which permits simpler skills to serve as the foundation for more complex ones. These two features can be illustrated by the following example. When the sense of hearing is developed (in the first months of life), children are able to first distinguish sounds, then words, and finally phrases, but only as long as someone communicates with them through simple and caring messages, songs, readings, or rhymes. Having the protection and care of an adult gives children a sense of confidence and safety that allows them to experiment with, for example, sounds and body movements. Under that same supervised experimentation, children can also start developing their fine and gross motor skills, giving them the ability to do something as basic as holding a pencil, which will later be used to write. By understanding and using language, the child will later be able to communicate with caregivers when unsatisfied with a particular situation. Such requests, if met with an appropriate response that transmits the importance of respecting certain standards of behavior, will in turn help to build the child's self-confidence and trust in others. These aspects of socioemotional development can contribute to a child's ability to learn by stimulating the use of self-control and attention, two attributes that are useful for studying, but also support better interactions with people inside and outside the family circle (such as classmates or teachers). This whole process would be impossible without proper physical development, which allows the areas of the brain and the body that are involved in the acquisition of language to work together with the cognitive and socioemotional dimensions of the child. Gradually, the child will become empathic and independent, later turning into a responsible, creative, and respectful adult able to make planned decisions and act in a goal-oriented fashion. These abilities will become useful for work and life in general, determining much of the success that can be achieved in the different domains of wellbeing.

Why Are Skills So Important?

Recent evidence suggests a strong causal relationship between the skills accumulated by a country's population and its economic growth. For example, it has been shown that a 1 standard deviation increase in the grades obtained by students in international standardized achievement tests (e.g., Program for International Student Assessment, PISA, that is administered in high schools)—which are a proxy for the stock of cognitive skills in a country's young population—predicts a 2 percentage point increase in the long-term growth of GDP.

The link between skills and economic development goes beyond the effects on GDP. Countries with a higher stock of cognitive skills generate more innovations and make a significant contribution to technological progress. Also, countries with greater inequality in the distribution of skills are likely to display greater income inequality.

At the individual level, the data show that skill levels are positively associated with labor market performance and more general life outcomes. Moreover, the 2015 CAF Survey shows that certain skills are more important than others for specific labor and life outcomes. For example, grit—a socioemotional skill—displays the strongest correlation with labor force participation and the probability of being employed. In contrast, numerical skills—a cognitive ability—have the strongest correlation with labor income and job quality (labor formality). In turn, physical skills are positively

correlated with all labor outcomes. Regarding nonlabor outcomes, socioemotional skills (grit and some of the Big Five) are strongly associated with physical health, while numerical skills present the strongest correlation with educational results and civic engagement. Lastly, physical skills have the strongest correlation with self-reported life satisfaction.

An additional message offered by the 2015 CAF Survey is that the three dimensions of skills are strongly correlated with each other: individuals with high levels of cognitive skills are likely to also show good socioemotional and physical skills. This evidence supports the idea that in the process of skill accumulation, the three dimensions of individual development are all crucial, and they complement each other.

What Skills Does the Latin American Population Have?

The region is still lagging in the formation of its human capital. For example, compared with more developed countries, Latin America has fewer years of education on average among adults (just 8.7 years against 11.3 in rich countries) and a worse performance in standardized tests. Results from PISA show that only 1 in 3 Latin American high school students reached minimal levels—functional literacy—in mathematics, while 4 out of 5 students did in OECD countries. Regarding physical development, the region has made significant progress in general health indicators over the past 50 years, including life expectancy and infant mortality, both of which are now almost comparable to those of higher income countries. However, much remains to be improved in this field. There is a high incidence of health problems within the most vulnerable populations. For example, stunting affects 1 in 10 Latin American children under the age of 5 (although the figure is disproportionately higher for those who live in poor households), which translates into a terrible starting point in the process of skill formation.

The most difficult skill dimension to assess is the socioemotional one. Unlike what happens with cognitive or physical development measures, there are no international initiatives to generate socioemotional skills measures for a large number of countries in and out of Latin America simultaneously. However, the RED 2016 shows novel evidence in this regard through a decomposition exercise of student performance in PISA 2012, which allows the comparison of Latin America to more developed regions. This exercise suggests that the observed decline in performance throughout the duration of the test captures lack of motivation, perseverance, or attention, all factors associated with socioemotional development. In all Latin American countries, this decline of performance during the test is much higher than in higher income countries. While Latin American students are 25% more likely to answer the first question incorrectly than their peers in countries that are high performers (such as Finland, Singapore, or Japan), they are 50% more likely to be wrong by the end of the test.

But the lag in skills development is probably more evident when making within-country, as opposed to cross-country, comparisons. As with income, skills are very unequally distributed in Latin America. A number of measurements, including those gathered by the 2015 CAF Survey, show large gaps between the levels of cognitive, socioemotional, and physical skills among people of different socioeconomic backgrounds.

Skills Required in the Labor Market

Most jobs require a large set of skills. However, the relative importance of each group of skills varies significantly depending on the occupation. What skills do jobs in Latin America require? According to the 2015 CAF Survey results, in this region the requirements for both complex cognitive skills and interpersonal socioemotional skills vary greatly between occupations but complement each other. That is, these two groups of skills are required together in the labor market. Moreover, the 2015 CAF Survey shows that in the major cities of Latin America 3 in 4 jobs (74%) require low levels of complex cognitive skills. Only 18% of jobs require high levels of both skills, and these are the jobs that pay higher wages. Skill requirements vary greatly if one compares the formal and informal labor markets: while 1 in 3 jobs (32%) in the formal sector requires high levels of complex cognitive skills, only 1 in 6 (17%) requires them in the informal sector.

Which Skills Will Be Required in the Future?

The occupational structure of a country—and therefore, the associated skill requirements—can change over time. One of the critical questions regarding the future of employment is whether rapid technological progress and the subsequent possibility of task automation will enable machines and robots to replace workers. Recent studies argue that this technological progress will not necessarily reduce the quantity of jobs, but it will affect the type of occupations that emerge and, along with that, the skills required. For example, the so-called automation hypothesis argues that occupations with a high content of repetitive activities will disappear, while those demanding skills for nonroutine tasks will become increasingly important. The evidence from the last two decades in developed countries is consistent with this phenomenon.

A process closely associated with automation, and also documented in the last two decades in developed regions, is the polarization of occupations. The hypothesis is that the change in the occupational structure driven by technological progress generates a simultaneous increase in the fraction of jobs corresponding to high-skill/high-income and low-skill/low-income occupations, while the fraction of jobs in intermediate-skill/intermediate-income occupations, which are more associated with routine tasks, declines. An empirical study performed with information from household surveys in Latin America countries suggests that there is no such polarization taking place in the region, or in any case it is less intensive than what is observed in developed countries. This does not mean that the region will not advance toward greater automation (and its subsequent polarization) in the near future, as it may follow the same path of technological adoption of the more developed regions during the past two decades. Whatever the case may be, it is worth noting that jobs with lower levels of routine work tend to involve higher requirements of socioemotional skills, such as the ability to establish effective interpersonal relationships, and also certain cognitive skills that, like creativity, are not offered by machines. Therefore, if the region wants to be prepared for a challenging technological future, it must invest in the formation of both good cognitive and socioemotional skills, without of course neglecting aspects associated with physical health.

Skills of a Young Continent: Opportunities and Challenges

Latin America has a relatively young population. The proportion of individuals younger than 16 years and older than 64 years (both groups that are qualified as 'dependent') in relation to the working population is still declining in most countries. This demographic phenomenon, called the demographic dividend, will last a few years more. Having a young population with low dependency rates creates substantial opportunities for development. To make the most of this favorable period, it is of utmost importance to educate young people with a range of skills that can give them the versatility necessary to adapt to changing environments, such as shifts in the labor market resulting from technological progress.

However, there are still some obstacles to overcome in order to better train our youth. For example, phenomena such as school dropouts, teenage pregnancies, and young people who are not in education, employment, or training (NEETs) have a high impact in Latin America and may become primary challenges to developing the human capital needed to capitalize on this demographic opportunity.

Schools and jobs are the primary channels through which adolescents acquire new skills as they transition into adulthood, thus the disengagement of the NEETs from these learning environments raises important challenges. In Latin America, 19% of those between 16 and 25 years old do not study or work, a figure that is slowly decreasing in most countries (it was 23% at the beginning of the 1990s). A notable element of the dynamics of the NEET phenomenon in Latin America is the change related to gender. Although currently most of the young people in this group are women (67%), there used to be an even greater gender bias (women were about 75% of the NEETs in the 1990s). Another aspect of the NEET phenomenon requires further analysis: only half of the NEETs remain in that group from one year to the next. Within 12 months, around 33% will begin working and about 10% will return to studying; the remainder (about 7%) combine both activities. It is worth noting that those who continue to be NEETs are mainly those who do not work because they are inactive (rather than because they are unemployed). This is a subgroup of young people who usually have children and must take responsibility for household chores; while this is relevant for the family's budget (especially when there is a lack of alternatives for child care), it can be a setback for their accumulation of skills because these young people are isolated from the training opportunities provided by education or the labor market.

School dropout is one of the first symptoms of the NEET phenomenon. On average across Latin American countries, school dropout starts when children are around 12 years old. By the age of 16, 25% of children are already outside the formal education system. These averages hide a strong inequality between those with different socioeconomic statuses and from different countries. Furthermore, school dropouts and teenage pregnancies are closely related. According to the 2015 CAF Survey, 36% of women who left school and are currently between the age of 15 and 25 did so because of pregnancy or childbirth.

Fighting against the obstacles facing the NEETs requires an understanding of individual development from the earliest stages, including before birth. It is also important to take into consideration the role of the family, the school, the environment, and the labor market in shaping young people's skills. These obstacles endanger the opportunities of an entire generation to change Latin America's destiny, so the rest of this report deals with this analysis.

Chapter 2

EVERYTHING BEGINS AT HOME: THE ROLE OF FAMILY

The family is one of the most important institutions when it comes to the development of personal skills. Families make decisions that are crucial to human capital from very early in life until the moment of transition into adulthood—and even beyond. But these development stages during the first decades of life are of critical importance because of the accelerated neurobiological developments taking place, which form the base for later development. Those decisions made by families are investments that affect not only the cognitive capabilities of their children, but also, and very importantly, their socioemotional and physical development.

The investments that parents make can be classified into three groups. First, there are the monetary investments, such as buying toys, books, supplies for curricular and extracurricular educational activities, and food to secure balanced diets, among others. Second, there is an investment of time, which can be dedicated to breastfeeding, reading to and with children, talking to them, playing sports, helping them do their homework, or simply sharing moments in enriching spaces. Additionally, parents make decisions about how their children spend their time when they are not present, for example, by choosing who will take care of them or which productive activities the children will perform in their parents' absence. Lastly, parents invest in the creation of a home environment that includes establishing rules to clearly and explicitly define what is expected of their children, creating supportive and encouraging relationships inside the household, and setting up a structure of routines, habits, and responsibilities for each of its members.

Some families face greater restrictions than others when it comes to making these investments at an optimal level. In particular, families in the most vulnerable social conditions have a bigger shortage of monetary resources, information, and knowledge about the best educational strategies for their children. Moreover, these families tend to live in environments that are less conducive to the development of their children. These issues deserve the attention and intervention of the government in order to assist families in making more effective investments to help their children accumulate skills.

Five big groups of public policies strive for that goal: 1) those providing infrastructure, public services, health services, and social protection; 2) those helping to balance family and work responsibilities; 3) those providing the information and know-how for the improvement of parenting styles; 4) those providing cash transfers, subsidies, and goods and services that are complementary to investments in education; 5) those promoting the demand for educational, health, and high-quality child care services.

How Is Children's Skill Development Measured?

There are many strategies to measure the cognitive, socioemotional, and physical development of children. Table 1 provides a simple description of these three development areas and lists a series of early indicators associated with each one.

Table 1. Dimensions of Early Development

Dimension of development	Definition	Early indicators
Physical development	The physical formation of the body, including the brain, nervous system, muscles, and sensory system.	• Nutritional status • Health status • Psychomotor development
Cognitive development	1) Performance: Formation of intellectual capacities, particularly for learning, language, and problem resolution.	• Language • Reading and writing skills • Mathematical and problem-resolution skills
	2) Executive functions: Capacity to control behavior voluntarily and deliberately regulate cognitive processes to achieve objectives.	• Self-regulation • Attention • Planning • Working memory
Socioemotional development	Processes related to the management of emotions and feelings, management of social relations, and mental health.	• Internalized behavior Examples: anxiety, isolation • Externalized behavior Examples: aggressiveness, conduct problems

Source: Author's elaboration.

A crucial problem regarding the measurement of child development in Latin America is that the countries in this region are still far from having high-quality indicators that can also be compared with other countries. The problem affects the three dimensions of development. For example, in very few cases (e.g., Chile and Colombia) there is good information from representative samples that measures both cognitive and socioemotional development in early childhood and also allow for following children over time (longitudinal studies).

The few available measures of cognitive development show great gaps between the different socioeconomic levels. In particular, the estimated gaps in measures of receptive language (e.g., the Peabody Picture Vocabulary Test, PPVT) start very early since they are already observed before age 3. By age 5, the gaps reflect delays of 9 to 20 months, depending on the country. The available information on socioemotional development shows a similar picture: the threat of socioemotional underdevelopment is twice as large for children with mothers with low levels of education[2] compared with those whose mothers completed secondary education. In addition, chronic malnutrition, which strongly and negatively affects the development of children, produces an even more remarkable difference between socioeconomic groups. The good news in the evidence collected in the RED 2016 is that some countries in Latin America (such as Colombia, Peru, and the Dominican Republic) have succeeded in reducing the incidence of this problem over the last decade. Other measures of health problems, such as the incidence of acute diarrheal disease show an important socioeconomic gradient as well, although less strongly than in the case of chronic malnutrition. Unfortunately, measures of psychomotor development and executive skills are even rarer and generally not representative of the overall population of children in a given country.

2. Data for Colombia (Colombian Longitudinal Survey of Universidad de los Andes, ELCA for its acronym in Spanish).

How Do Family Investments Affect the Development of Skills?

In general, the gaps concerning physical, cognitive, and socioemotional development among children of different socioeconomic levels are associated with unequal investments by their families. Not only do families with lower socioeconomic status invest fewer monetary resources than wealthier families, but they may also do it less effectively because of additional limitations in the time, information, and knowledge necessary to make the most of those investments. Furthermore, while children are growing, the relative importance of the three types of investments (money, time, and rules governing the home environment) changes, as it is described next.

Before Childbirth

The prenatal period is important for biological reasons—mainly associated with brain development—and also because during this time, the parents' preparation for assuming parental duties may condition the quantity and effectiveness of the investments they will make for their children. It is worth noting that in Latin America, only 1 in 2 births is the consequence of a planned pregnancy. Although an unplanned pregnancy does not mean that parents are incapable of making the right investments, it does suggest a higher chance for those investments to be suboptimal.

Another indicator associated with prenatal preparation is the teenage pregnancy rate, which is also linked with higher infant mortality and premature birth rates. According to data available for Colombia, among children between 3 and 5 years old, those who were born when their mothers were younger than 20 show a 14-month delay in a measure of language development. Given the very high teenage pregnancy rates in Latin America (about 20%, compared with less than 2% in more developed countries) and its strong socioeconomic gradient (in the poorest quintile, the pregnancy rate is 1 in 3), this is a problem of remarkable importance that does not show signs of substantial improvement over the last decades.

Another factor that may significantly affect this first stage of life is whether a child is being born into a household with only one adult capable of generating income. In Latin America, the proportion of children from the poorest quintile who grow up in a single-parent household has increased over time. These rates, ranging from 20% (in Bolivia) to 40% (in Dominican Republic), of children between the ages of birth and 5 years in such households are significantly greater than rates for developed countries.

During pregnancy, maternal health and nutritional deficiencies have short term consequences on both pregnancy outcome and neonatal nutrition. But maternal malnutrition also has important long-term effects on the development of children's human capital. Prenatal controls are essential to prevent these negative consequences. Even though Latin America is, on average, quite close to fulfilling the minimal requirement of four prenatal checkups during pregnancy (recommended by the World Health Organization, WHO), it is still far from satisfying this requirement among mothers in the poorest households. Furthermore, mothers in the poorest quintile attend their first medical checkup later in pregnancy (on average, at the end of the third month), while those in the wealthiest quintile do so much earlier (before ending the second month). The existing evidence also shows that there are many additional interventions or policies that can effectively complement the prenatal controls provided by the healthcare system. For example, home-visit programs in which a nurse or a social worker regularly visits or contacts the pregnant woman and her family in order to educate them about parenting styles and practices. These programs have shown strong positive impacts on the cognitive development of children as they grow older.

After Childbirth

Families also invest a lot in their children following childbirth: breastfeeding, building children's eating habits, taking care of children's health, designing and applying rules to construct a healthy home environment, dedicating time for caring, and stimulating learning, among others.

Breastfeeding. This investment is among the most crucial and earliest contributions of parents to building the foundations for the child's future development. Evidence shows that breastfeeding is associated with reductions in infant mortality, acute diarrheal disease, and acute respiratory infection and with improvements in cognitive development. However, most Latin American countries are far from reaching the minimum of 6 months of exclusive breastfeeding that the WHO recommends. This is one of the rare cases in which belonging to a family with a lower socioeconomic status is associated with higher investments in skills development. This is related to the low labor force participation observed among mothers in the most vulnerable households.[3] To stimulate breastfeeding promotion, evidence suggests that having more nursing advisers in hospitals can significantly increase the likelihood of exclusive breastfeeding. However, to achieve the WHO recommendations on the minimum duration of this practice, new policies that better reconcile work life and breastfeeding are needed.

Eating habits. A healthy, varied, and nutritious diet is crucial for comprehensive child development. On average, only 1 in 4 children in Latin America receives a balanced diet, a figure that falls to 1 in 10 for the poorest quintile. This problem is aggravated by the fact that health conditions influence the proper assimilation of nutritional inputs. Since people in poorer families tend to have worse general health, the effective contribution of the food they consume is further reduced. On the other hand, evidence suggests that inadequate eating habits are not exclusively linked to poverty. In fact, a high fraction of children in high-income households do not receive a balanced diet. Widespread ignorance about the importance of adequate nutrition for childhood development seems to be playing an important role.

Healthcare and prevention. Preventive and healthy habits are crucial for good physical development, which, in turn, improves quality of life both directly and indirectly by facilitating the development of cognitive and socioemotional skills in children and youth. Vaccination is a preventive measure that has become highly prevalent in Latin America. However, there is still large room for improvement when it comes to other health services. In Colombia, for example, 1 in 4 children from urban areas does not receive an annual medical checkup, while in rural areas the figure is 1 in 2 children. Many other preventive health habits, such as basic hygiene practices (hand washing and good oral hygiene), maintaining tobacco-free environments, physical exercise, and sufficient sleep, are far from being observed universally. However, it is important to note that the practice of some of these healthy habits by families is limited by a lack of adequate social infrastructure, such as access to proper sanitation or safe public spaces.

Home environment free of violence. Situations of physical, sexual, or emotional abuse; neglect or abandonment; abuse between parents; violent acts; or threats at home or in the community as well as mental illness can all generate high levels of anxiety and stress in children (as in parents or caregivers). This can negatively affect children's brain development, learning

3. In Latin America, female labor participation (among women from 25 to 54 years old) with complete higher education is close to 90%. Female labor participation of women who did not complete high school is only 55%.

abilities, mental and physical health, and, more generally, emotional and social development with consequences that persist through adulthood. Evidence for Latin America shows that physical and verbal punishments are still prevalent in the region in all socioeconomic groups. The rates of domestic violence, mainly against women, are also especially high. These figures highlight the necessity of designing interventions that promote warmer and more assertive parenting styles, for which the evidence shows promising results, as well as policies to prevent violence inside the household.

Time spent with children. Multiple studies demonstrate the importance of the time parents spend with their children. Particularly fruitful for child development is so-called quality time, which is devoted to productive routines and activities associated with learning (including talking, reading, singing, spending time together in enriching environments, playing with blocks or puzzles, etc.). In fact, some studies suggest that for the cognitive and socioemotional development of kids quality time might be more important than financial investments. According to recent evidence, the amount of quality time spent with children under 5 years of age can make a difference in their socioemotional, psychomotor, and cognitive development (e.g., in receptive language). Indeed, children whose caregivers spent more time doing structured/productive activities show better results in the three skill domains. In Latin America, the data described in this report show that mothers spend considerably more time than fathers promoting their children's learning, and that highly educated parents are more likely to engage in these kinds of activities.

When children grow older, parental support continues to be important. Parents serve as mentors, guides, and role models to help children build their independence in an environment that can be perceived as safe. Evidence from some Latin America countries suggests that the fraction of children in elementary school (third and sixth grades) whose parents never helped them with homework is quite high (around 5% for third graders and 10% for sixth graders), and this fraction increases significantly (up to 2 of 3 students) for high school students. This report also presents comparable data for teenagers: in Mexico, about half of all students' parents do not talk to them about their behavior in school or their academic performance, while in Chile the figure is somewhat lower (1 in 3 students).

The possibility of investing time in children can be affected by parents' work responsibilities. There is evidence that working mothers reduce their leisure to increase the amount of quality time devoted to their children to the same levels of nonworking mothers. However, this strategy seems to be more efficient for highly educated working mothers. Less educated ones face additional constraints that prevent them from compensating successfully (for a variety of reasons from lack of knowledge about the most effective parenting methods to high prevalence of anxiety or stress disorders). Therefore, public policies aimed at promoting a more effective use of the time parents spend with their children should seriously assess how different types of households reconcile work and family life, especially taking into account the high incidence of single-parent households in the region.

Households as learning environments. The more complementary resources a parent has, the more effective their time invested in a child will be. These resources are: 1) materials to read, learn, or play, and instruments that help psychomotor development; 2) knowledge about which activities promote development and time to perform them frequently at home; 3) appropriate spaces for learning (a safe, tidy, and quiet physical environment, the possibility to access diverse experiences such as cultural activities, and the overall quality of the family environment). Available data for some Latin American countries show that barely half of the households with children under 5 years old have at least three children's books,

and that this figure decreases considerably in households where the mother has a low educational level. The case is different with toys: more than 90% of children under 5 years old have toys, regardless of their family's socioeconomic status. Evidence summarized in RED 2016 also shows some worrying facts about parental knowledge. For example, data for Colombia show widespread ignorance (40% of mothers in vulnerable conditions) about the milestones of child development, best parenting practices, and child health-care practices. Moreover, 40% of parents in vulnerable conditions with children under the age of 6 do not appropriately value the investments they can make in their children's development. They think, for example, that children develop regardless of the family's effort, and they often say that talking to babies who do not speak is not worth it because "they are too little to understand."

How Can Public Policies Help Family Investments?

Households can invest effectively in children if governments guarantee the availability of five major groups of public goods and services that complement family investments. These public goods and services gain relevance in families facing greater restrictions to investing time and money or lacking knowledge that could foster parental quality. As in many other domains, public intervention can be more effective if it targets the families with the most need.

Infrastructure, public services, health, and social protection. Quality public goods and services are essential to families. For example, to achieve a good nutritional and health status, households must have access to proper sanitation, the health-care system, and open spaces for sports and recreation. The improvements in mortality rates over the last 5 decades, and the fall in chronic malnutrition rates over the last 3 decades, are largely due to the investments governments made in providing public infrastructure—especially safe drinking water—mass vaccination, and deworming programs.

Reconciling work and family life. Policies on work-life balance allow mothers and fathers to invest time in their children without affecting household income or foregoing professional opportunities. Family policies, if well designed, also promote the inclusion and wellbeing of parents in the labor market, especially mothers. Maternity and paternity leaves are an important part of these policies. They are essential to deal with the demands of child rearing in the crucial first months/years of life. Maternity leaves in Latin America are quite uniform: in 60% of the countries they last about 12 weeks, and in an additional 20%[4] they last between 14 and 16 weeks. Chile, Cuba and Venezuela have a more generous 18-week leave policy. Paraguay offers the shortest leave (9 weeks) and the lowest remuneration rate during that period (50% of salary). The countries that do have paternity leaves offer an extremely short time: 2 to 8 days, in general. These leave policies for mothers and fathers are considerably less generous than their counterparts in developed countries, where they usually last a minimum of 18 weeks (and even longer in countries such as Finland, France, or Hungary, where up to 144 weeks of paid leave are granted). One desirable feature in family leave policies is gender neutrality (extending the same rights to fathers and mothers), because it reduces the penalty that the labor market imposes on women who cannot transfer their leave to the father. However, the possibility of sharing leaves between father and mother is uncommon in Latin America.

4. Information on family policies reported in the RED 2016 refers to what was observed until 2015. In the year 2016, a few countries analyzed and/or regulated reforms that generally aim for better compatibility between work and family.

Information, knowledge, and changes in parents' perception. Evidence shows that many parents do not know how important childhood and youth are for the accumulation of skills, or lack information on which family inputs can support this development. Programs aimed at solving this knowledge limitation include the direct involvement of parents in their children's educational programs, and/or the provision of information on the benefits of a quality education and how to get it. This training can be performed through household visits or special institutions, such as the so-called parent schools that can be established in health centers or public schools. Recent evidence shows that the most effective programs are those that combine new knowledge with their direct application and with strategies that permanently change parental abilities, as opposed to programs that simply deliver information on best child-rearing practices.

Transfers, subsidies, and the supply of goods and services for learning. This set of policies tries to partially alleviate the financial constraints of families. The most common programs in Latin America are those of conditional cash transfers. Evidence regarding the impact of these programs shows positive effects on school attendance, graduation, and enrollment. They also reduce future dropouts (but do not repeal existing ones). Some studies find positive effects on the health and cognitive development of the children of recipients. Voucher programs for private schooling may also help increasing the schooling options of households with financial constraints. However, the voucher system has obtained mixed results. In Colombia, these transfers seem to have had positive effects on standardized tests results, high school graduation rates, and the probabilities of obtaining formal employment and higher wages. However, Chile does not show any strong positive results, while school segregation seems to have increased. Government intervention can also reduce financial constraints by directly delivering families goods and services that promote child development. Studies show that providing micronutrient supplements and delivering educational materials for the primary caregivers in the household can yield positive effects.

Encouraging the demand for services that promote the development of children and youth. The state can also encourage the demand of services (public or private) that increase the human capital of children and youth by supplying families with inputs that complement those services. For example, to promote school attendance, the government can provide school meals, transport, uniforms, books, and health services in situ, etc. These additional assets reduce the opportunity cost of schooling, therefore making it more attractive for families. In this kind of program, the interactions between family, school, and government are extremely important and ideally should be designed to achieve complementarities rather than substitutions.

Chapter 3

LET'S GO TO SCHOOL: THE CONTRIBUTION OF EDUCATIONAL INSTITUTIONS

In the last two decades, basic education in Latin America has changed, particularly by expanding its coverage to vulnerable sectors that had been historically excluded. But this increased coverage is generally accompanied by low-quality education, which is evidenced in the poor performance of students in standardized achievement tests. But quality of education is more than grades in tests, and it should ideally also include socioemotional and physical development. However, in Latin America it is quite difficult to assess the contribution of schools to this broader definition of quality of education, since there are not many measurements available of noncognitive dimensions that can be tied to the formal education system. Two additional challenges faced by schools in Latin America are the high rates of school dropouts and the need for a better match between what is taught in schools and the skills required in the labor market.

These challenges are hard to overcome, mainly because of serious obstacles to the educational system. First of all, many students start school with a limited set of skills because of insufficient family investments and adverse environments. Secondly, the quantity and quality of school resources (financial and material, but also related to teachers' abilities) hinder the potential of the educational system. Even though almost every country in Latin America has increased public expenditure in education, they all have organizational problems and inadequate incentive schemes that prevent them from making the most of the investments made.

This report reviews the overall situation of basic education, introducing metrics that are comparable across countries while simultaneously analyzing a wide spectrum of policy tools that can help schools build more cognitive, socioemotional, and physical skills in children and youth. These tools can be classified into three groups: input policies, incentive policies, and systemic policies.

Latin American Schools Today, and What Has Changed

Coverage in Basic Education

Today, almost all children attend elementary school, and an increasing number of children attend preschool, middle school, and high school. It is worth mentioning that this wider coverage was achieved by reducing socioeconomic gaps in the access to schools, both between income groups and in rural areas (as compared to urban areas).

In countries with available data, the gross coverage in preschool and high school (between the ages of 4 and 5, and 12 and 18 years old, respectively) is around 80%. In both schooling levels, there are strong differences between socioeconomic groups. The absence of complete coverage for preschool is mainly related to the fact that in some countries, formal education is not compulsory for 4-year-olds. But incomplete coverage in high school is due to school dropout, since going to school at this stage of life is compulsory in basically all Latin American countries. For individuals aged 14 or 15 years old, gross enrollment rates fall in most of the countries, and from then on only 70% of youth are registered in an educational institution. This process culminates in a graduation rate that, on average, is rarely above 50%.

These averages mask differences between countries as well as differences within each country that are documented in detail in this report. The countries with the worst coverage of elementary and secondary education are Honduras, Guatemala, El Salvador, and Nicaragua. Within countries, the coverage for elementary education and high school is around 20 percentage points higher in urban areas, a difference that widens considerably in some countries. Regarding socioeconomic groups, within-country differences in coverage between income quintiles continue to be very large, especially in preschool and high school.

The Problem of Quality

In PISA 2012, the eight participating Latin American countries ended up in the lowest positions among the 65—mostly developed—participant nations. Latin Americans' results on these tests are, on average, 100 points lower than those in the OECD countries, a difference that amounts to the knowledge that can be accumulated in 2 years of high school. Not only do Latin American countries have poor performances, but they also display a lack of substantial improvements throughout the last four PISA rounds. PISA also allows an estimate of the number of students who cannot reach the minimum level of functional literacy (level 2), a level of cognitive abilities that is necessary to function in a modern society. In the case of math, more than half of students in every Latin American country fall short of that standard (68% of the students on average), while in the OECD countries this figure is only 20%. At the same time, there are almost no students with very high performances (level 5 or more) in Latin America, while in the OECD, 13% of students reach those levels. These comparisons are aggravated by the fact that in Latin America, many 15-year-old students are outside the educational system and their cognitive skills are considerably lower than the students still in school.

In the case of elementary school, the Third Regional Comparative and Explanatory Study, (TERCE for its Spanish acronym) tests are administered and show similar results. In fact, the Latin American countries with better PISA results (Chile, Mexico, Uruguay, and Costa Rica) also display a better performance in these regional tests.

There is less comparable information concerning the quality of preschool education. However, a series of recent studies made in Bolivia, Ecuador, and Peru offer valuable insight. In them, quality measures of educational centers were built by observing the conditions of the infrastructure, processes, and professionals, and found that the educational centers for early childhood in those countries are well below minimum standards. These shortfalls seem to be worse in the dimensions of educational services that foster cognitive and language development and more nuanced in those that are more important for socioemotional development.

The Challenge of School Dropout

School dropout is a serious problem in Latin America. It starts as early as at age 11 in Guatemala but starts at ages 13 to 15 in most other countries. Toward the age of 17, the gross rate of school enrollment is barely 50% in countries like Honduras, El Salvador, and Nicaragua, with large gaps in the rate between socioeconomic groups. In South American countries, the enrollment rate for the wealthiest quintile is 30% higher than for the poorest quintile (with the exception of Chile, where there is only a 10% gap). In Central American countries this difference is even larger. For example, in Honduras, 70% of young people in the richest quintile go to school, while only 20% in the poorest quintile do so.

According to the 2015 CAF Survey, the main causes of school dropout have changed over the years, for boys as well as for girls. Ten years ago, women generally left school because of economic reasons, while today the main reason is teenage pregnancy. For men, the most important cause is still economic, but the number of boys who leave school because they feel mistreated (e.g., are victims of bullying) is increasing. The 2015 CAF Survey also shows that more than 70% of those who wish to return to school want to do so because they realized how important it is to have a degree in the labor market. This is evidence that a lack of information plays an important role in the decision to quit school.

Public Spending on Education

With the exception of Panama, all the countries in Latin America increased public spending on education during the past decade, raising it to 4.7% of GDP on average. This figure is higher in OECD countries, where it reaches 5.6%. However, this difference in spending grows when adjusted for the fact that the Latin American population is much younger. For a given fraction of GDP devoted to education, a younger population implies distributing those resources among more individuals, which reduces the expenditure per student. Considering this, Latin America spends an average of 15% of GDP per capita on every student, both in elementary school and high school, while OECD countries spend 22% and 25% respectively. Moreover, the evidence suggests that to achieve higher levels of quality, Latin America needs to spend more in education, provided that this additional spending is efficiently allocated.

Teachers

Recent research demonstrates that in the new context of wider coverage and increased access to education for children and youth from disadvantaged households, the role of teachers is extremely important. This is in line with the opinion of most parents (51%) who, according to the 2015 CAF Survey, say that teaching quality is a key factor in their children's education.

In Latin America, teaching is generally a poorly paid occupation, with very few promotions and incentives and little room for growth. This can affect who becomes a teacher. Indeed, most teachers have low professional expectations, as well as fewer skills (on average), and a lower socioeconomic background than people that complete other types of higher education levels. Even if many Latin American countries have started reforms that aim to promote teachers' career possibilities and relate wages to their performance, there is still a lot to do in terms of making teaching a valued occupation, which would lead to better job performance and a greater contribution to children's education.

How Can the School Contribute to the Development of Skills?

The school has the potential to transform not only the cognitive, but also the socioemotional and physical skills of students. However, most of the existing evidence on the contributions of schools are focused on the cognitive dimension of development.

The RED 2016 conducted a study to quantify the role of the different inputs that contribute to academic performance, as measured by standardized test scores. The study includes four groups of inputs: those that come from the school environment, those that are associated with the student's family, individual attributes (such as demographic characteristics), and skill levels prior to the tests. The analysis was carried out for all the countries that participated in TERCE and PISA tests. Although the results are not a perfect breakdown of the contributions from each input, some insights help deepen the discussion on how schooling can form cognitive skills. The results demonstrate the importance of earlier cognitive development: 24% of the results in elementary school (TERCE) are explained by the prior accumulation of skills (grade retention and preschool attendance), while in high school (PISA) that fraction increases to 38%. The contribution of family seems to play the most important role: 42% of grades are explained by this factor in elementary school and 38% in high school. Demographic characteristics (age and gender) as well as measures of individual effort can also have some influence: 8% in elementary school and 15% in high school. The rest of the variability in grades can be explained by the contribution of school inputs, which are more important in elementary school (explaining 26% of the results) than in high school (10%). It should be noted that the most important school inputs are teaching quality and the number of hours spent studying.

This decomposition analysis once again points to the importance of previously accumulated skills and the influence of formative contexts other than the school. Given this, it is often unfair to give educational institutions all the responsibility for poor academic results.

Regarding physical development, schools can contribute in at least three ways: physical education, school meals, and the design of a syllabus exclusively dedicated to health education. Physical activities and sports usually are intended to have two effects: physical strengthening and socioemotional development. As an example of the latter goal, many sports programs try to promote discipline as well as productive and harmonious interaction between peers.

Although empirical evidence is still limited, there is a large consensus about the potential of schools to develop socioemotional skills. The most solid evidence comes from small-scale, high-quality early childhood centers (such as the Perry Preschool Program in the United States). Such programs have achieved great long-term positive changes in the socioemotional skills of participating children. But educational institutions can also continue to contribute to socioemotional development when children are older. For example, when children are in elementary school, their features related to emotional control, the locus of internal control, and so called theory of mind go through a process of consolidation. In adolescence, there is a new window of opportunity to modify self-control, impulses, and decision-making. During this period, educational institutions can strengthen the socioemotional skills aimed at promoting self-confidence and conflict resolution abilities, which will endow an individual with many tools to negotiate, define a stable identity, make decisions under pressure, and, more generally, build resilience.

Additionally, it is crucial to note that the influence of school depends on how it complements the family. This is important because households can respond to the efforts of schools in a complementary or a substitutive way. Rigorous evidence shows that school programs that focus on inputs that are easily acquired at home (e.g., textbooks) do not improve scores on academic tests, partly because households react by reducing their own investments in these kinds of inputs. On the other hand, efforts made by schools to form healthy habits could be amplified if the family makes additional contributions in the same direction.

What Does the Evidence Tell Us about Policies Aimed at Improving the Contribution of Schools?

In past decades, the amount of rigorous evidence on policies and educational programs that influence skill formation has increased significantly. Most of these studies evaluate the causal impact of diverse interventions on standardized tests as a proxy for cognitive skills. The evidence about physical and socioemotional development is much scarcer. The RED 2016 analyzes three kinds of interventions: 1) inputs, 2) incentives, and 3) systemic policies or interventions.

Inputs

School construction. Much of the available evidence deals with the construction of preschool educational centers, which is the type of infrastructure that has grown the most in Latin America. For example, Argentina and Uruguay have expanded educational access at that stage through a massive construction of new centers (for 4- and 5-year-old children) during the 1990s. Positive impacts in the medium and long term have been observed in both countries in terms of higher test scores, lower dropout rates, and other measures of cognitive and emotional development. However, building new school infrastructure is extremely costly. Moreover, positive effects only materialize if the new infrastructure is accompanied with additional high-quality inputs, particularly human resources (teachers and principals). If those conditions are met, it is likely that this policy will generate benefits that outweigh the costs. But more evidence is needed to be able to extrapolate these conclusions, drawn from only a few studies, to different contexts and educational levels of Latin America.

Increasing the length of school days. Currently, many countries are turning half school days into full school days or simply adding more hours of instruction (extended school day). In theory, spending more time in school can lead to increased learning and skills acquisition because of the longer time spent with learning materials and teachers. In a similar way, spending a longer period of time in a safe and stimulating environment, as schools should ideally be, should improve the formation of socioemotional skills (particularly for those whose alternative environments would be of lower quality). Latin American evidence on the impact of these initiatives in the academic achievements of students is positive, but the magnitudes are small. The cost-effectiveness of these kinds of policies is thwarted not only by weak results, but also by the high costs of implementation. However, it is important to add that there are other possible benefits to spending more time at school, such as a reduction in crime rates and teenage pregnancies or other effects that theoretically may exist but for which there is no systematic evidence as of yet. Unfortunately, these kinds of comprehensive measures of costs and benefits are not available in the region. An alternative way of making instruction hours more effective is to improve the class management abilities of teachers. According to a recent study, these abilities are deficient in Latin America, resulting in the loss, on average, of about 1 in 5 school days.

Additional hours, programs, and other extracurricular activities (sports and music). Some extracurricular programs offer extended school days to specific students, with the intention of adapting pedagogy and contents to groups with different performance levels. For example, some programs give extra time to students who are lagging behind or have a specific problem with some part of the syllabus. There are also extracurricular activities aimed at promoting musical and athletic abilities that can have an impact on a wider spectrum of skills. Evidence from around the world suggests that these kinds of activities have positive results in cognitive and socioemotional development. In Latin America, the number of extracurricular music and sports programs is expanding (though they are not always provided

within the school system), and a positive impact has been measured for some of them. One example is from a recent Peruvian study that finds very good results for the music program "*Sinfonía por el Perú*." CAF is also thoroughly measuring the impact of several soccer programs for social inclusion on skills in different countries in the region.

School meals. School meals programs can have positive short-term effects by reducing hunger and acute malnutrition in some students, both of which are associated with low attention span, poor school performance, and high absenteeism. This shows, once again, the impact of health on cognitive development. Furthermore, school food programs can encourage poor households to send their children to school. Almost every country in Latin America has school food programs, but there are not many rigorous evaluations to measure their effects. When these policies are implemented in socioeconomically disadvantaged areas, they generally have positive impacts on school attendance, especially where enrollment or attendance rates are very low. That said, they have almost no impact on standardized test results. School food programs are not as expensive as the previously described programs, but their costs are recurrent. Furthermore, because targeting mechanisms are difficult, they tend to be universalized. However, it is worth mentioning that when combined with other inputs, these programs can be crucial to achieving good educational outcomes, especially for low-income students.

More non-technological inputs. According to evidence from specific programs in poor Asian and African countries, having more non-technological inputs in schools does not help the development of cognitive skills. This is probably because there are not enough incentives to effectively introduce new inputs into the learning process, and because households respond in a substitutive way when these resources are supplied in the school.

More technological inputs. Many Latin American countries are investing in computers, internet access, and specific software development—innovations that generally aim to reinforce students' cognitive skills. They can substitute or complement other resources (specifically teachers) in the learning process.

Empirical evidence shows mixed results from such interventions, with impacts that tend to be modest, nonexistent, or even negative. This is partly because teachers have not adopted effectively the new technologies and partly because the available impact evaluations have short time horizons, making it possible that the transitional costs of moving to a new pedagogical system are masking the potential benefits of innovation. Therefore, longer-term evaluations would clear up doubts on how effective these policies are. The most promising results so far come from interventions that target specific kinds of students, for example, those who require more attention in a particular subject, and from those where the new technological inputs take into account differences in the preexisting skills of students (or when the tool can automatically detect and adjust to a student's level). Results could be improved if teachers are trained to understand, value, and use the new technologies. In any case, one advantage of these policies is that the costs are relatively low and the scaling potential is huge.

Incentives

Teachers. Increasingly conclusive evidence shows that good teachers make a difference. Having good or bad teachers influences the educational, career, and life paths of individuals. This has been demonstrated by long-term studies in developed countries (e.g., the United States), as well as a shorter-term one in Ecuador. Research also suggests that each additional year with a good teacher yields an increase close to 0.1 standard deviations in standardized test scores. Compiled throughout the years, this impact can become crucial. It has also been found that good teaching can lead to students earning

higher wages and committing fewer criminal offences. Finally, these studies found that good teachers can encourage learning in all students, advanced or not.

There are several key factors to produce good teachers, which include recruiting good candidates, stimulating their effort, retaining them in the profession, and retraining them, if necessary. In order to attract the best candidates to work in education, it is necessary to prioritize the profession, improving wages and promotions (linking them to the teacher's performance, if possible), as well as the quality of the academic training they receive during their own studies. To stimulate their effort, it may be useful not only to link monetary and nonmonetary compensations to quality indicators, but also to strengthen institutional support and oversight to guide teachers toward a desirable performance (reducing absenteeism and improving pedagogical practices). With respect to retraining, recent evidence (from Brazil) shows the important benefits of building capacity in class management techniques. These courses focus on strategies for the effective use of the instruction time and the procurement of good learning environments (which, for example, minimize the sources of distracting behaviors).

An additional problem regarding teacher policies in Latin America is the allocation of teachers across schools or classrooms, because in most systems in the region teacher placement is determined by seniority rather than trying to maximize the quality of matches between teachers and classes. To mitigate the effects of this problem, evidence confirms the effectiveness of certain incentives (e.g., monetary incentives) to persuade teachers to select schools that would benefit the most from their particular abilities (specific skills in some part of their curriculum or a specialization in dealing with students in high risk of social exclusion).

It is worth noting that even though policies that involve changes in teacher incentives show promising results and are not especially expensive, they are usually resisted by some groups within the educational community. Moreover, the design and effective implementation of incentive programs for teachers needs to focus on issues like the size of the incentive, who measures performance (and how), and how to disentangle effort from other factors that influence the outcome measures, etc. Furthermore, it is possible that a change toward incentives based on test results will lead to other distortions in the system, such as biasing the teachers to teach to the test or reducing the importance of curriculum topics not included in such tests. Prior to thinking about incentivization systems, it is necessary to discuss the information required to implement them (e.g., information provided by standardized tests), in order to make this information useful for monitoring students over time, and to associate students with specific teachers (paired student-teacher data). If those challenges are overcome, most of the incentivization intervention designs (e.g., bonuses to institutions/teachers) would probably be cost-effective.

Systemic Policies

Early childhood programs. The most conclusive evidence regarding the positive effects of early education comes mostly from small-scale high-quality programs focused on vulnerable populations, mainly in the United States. This evidence shows positive effects on cognitive skill development in the short term (estimated by IQ tests and exam results), but not in the long term. However, the programs seem to have long-lasting positive impacts on socioemotional skill development. Moreover, that improvement of socioemotional skills seems to be a key driver of many good results observed in adulthood for those that took part in these programs as children. In particular, the evidence shows a greater rate of high school graduation, better performance in the labor market, and a reduction in teenage pregnancy and criminal practices.

Compared with small, high-quality interventions, large-scale programs are characterized by a lower quality of professionals in charge and even worse institutional monitoring capacity. This is very important for Latin America, where professionalization of caregivers is still an unsolved problem. Moreover, since the positive impact of these programs is generally observed among more vulnerable children, the same evidence suggests that what really matters is the relative quality of early childhood services as compared with the care that the child would get without the program. This underscores the importance of a contextual focus when planning expansion in the coverage of early childhood educational services and addresses questions on whether it is necessary to have a mandatory early education system.

Flexible models. These systems try to comprehensively change the functioning of schools. They modify everything from the school's atmosphere (e.g., aspects regarding discipline rules, schedules, etc.) to its administrative management. This is the case of charter schools in the United States, or of flexible models like *Nueva Escuela* in Colombia. This model emphasizes teamwork between students and active learning strategies, with a professor serving as a facilitator of the process. The idea is to adapt the learning process to the necessities of the students or the context. Thorough evidence on flexible models is still very rare in Latin America (except for a recent project in Uruguay). However, there are hints of their success, in particular regarding improvements in students' socioemotional skills, which in turn bolster their academic performance. However, it will be necessary to investigate further in order to reach more substantial conclusions about the viability and effectiveness of these models in different contexts.

Chapter 4
IT'S NEVER TOO LATE: LEARNING AT WORK

The labor market plays at least three essential roles regarding skills: it distributes the stock of talents across occupations, it guides young people's aspirations for human capital accumulation, and it is, in itself, a potential source of skill accumulation. This last role is the main focus of Chapter 4.

To succeed in the labor market, it is necessary to have a set of skills that go beyond the educational level, the technical knowledge, and the manual capabilities required to perform a task. To do so requires not only cognitive but also socioemotional and physical skills. Though some of these skills may be relatively fixed at the moment of entering the labor market, the transition toward adulthood marks an important new phase for the acquisition, improvement, and strengthening of abilities and technical knowledge, grounded on the stock of preexisting cognitive and socioemotional skills. Moreover, it is still possible in this life stage to reinforce some socioemotional skills such as self-control, initiative, trust, and teamwork, among others. But which features of the labor market promote or constrain the process of skill accumulation in adulthood?

Channels and Determinants of Skill Accumulation at Work

How Are Skills Accumulated in the Labor Market?

The labor market allows individuals to accumulate skills through three channels. The most obvious one, although not necessarily the most important, is taking part in training programs, which can be funded by the company, the worker, or even the state. Additionally, workers can acquire knowledge through certain activities or tasks, that is to say, they can learn by doing. A third channel, closely related to the second one, is interaction with coworkers or supervisors in the workplace.

How do skills change at the workplace, and what is the relative importance of the different channels of accumulation? Data provided by the 2015 CAF Survey show that most of the workers in the region have a positive view of the evolution of their skills since they started in their current job. As for interpersonal skills (associated with the socioemotional dimension), 81% of the workers believe they have improved, 17% consider themselves unchanged, and only 2% believe they have declined. Regarding technical skills, those percentages are 79%, 19%, and 2%, respectively.

This favorable view about the accumulation of skills at work is positively associated with the three channels of skill accumulation considered in the report. The proportion of workers who consider their skills to have improved is greater among those who participated in formative activities during the previous year, among those who have learned more through practice, and among those who report a greater frequency of learning from their colleagues and supervisors.

To examine the relative contribution of each channel, a decomposition exercise suggests that most of the variability in skill development explained through the three accumulation channels is associated with learning through practice (47% of the variation in interpersonal skills and 57% of the variation in

technical skills), next in importance is learning from peers (40% and 31%, respectively), and, lastly, the participation in training activities (13% and 12%, respectively). In other words, almost 90% of the skill enhancement reported by workers is associated with informal learning at work.

The Determinants: Which Characteristics of Individuals, Jobs, and Individual-Job Matches Promote Skill Accumulation

Three groups of factors affect the channels of skill accumulation and their functioning. The first group of factors is the worker's profile. People differ in the capabilities they have previously accumulated and in their disposition toward learning. Education and other human capital components, preferences, wealth, age, gender, and working background (especially the first job) might have an impact on the channels that make skill accumulation possible. The second group of factors is job characteristics, understood as a specific position in a specific firm. Every job involves tasks that may require more or less training and promote more or less accumulation of abilities, knowledge, and experience. In terms of firms, some are more inclined to train their workers or provide them with a more favorable environment toward learning from colleagues or through practice. The third group of factors is the quality of the matching between workers and their jobs, specifically the quality of the match between the worker's skills and the job requirements. A good pairing can make skill accumulation easier because, for example, a person qualified for the job would be more willing to improve, either in an informal way (through practice or interaction with fellow workers) or through formal training.

In looking at the first of the three factors, a worker's profile, what are the specific characteristics of the worker, the job, and the match that favor the process of skill accumulation? An empirical exercise performed with data from the 2015 CAF Survey shows that the education level of workers has an impact not only on their participation in retraining programs, but also on their learning through the other two channels. This shows a clear complementarity between the formal mechanisms of previous skill acquisition (the educational system) and the work environment as a space for the development of new capabilities. With respect to age, the youngest people benefit the most from peer learning. Attitudes, preferences, and socioemotional and personality traits have an impact on skill accumulation dynamics. It seems worth noting that these traits are progressively developed throughout life, which again highlights the necessity of having a solid base to make the most of the growth opportunities that the labor market offers.

Information on the second grouping, job characteristics, clearly shows that workers in large companies receive more training and report more frequent learning from peers and through practice. The formality of a worker's employment is also associated with a greater participation in training courses, so favoring the creation of formal employment becomes, indirectly, an important instrument for the development of skills during the work years. Other important job characteristics are also associated with this goal. The kind of activities required by the job (e.g., they may require certain intellectual or interpersonal skills or involve interacting with different forms of technology) and the way in which the work is organized (e.g., the prevalence of teamwork) are important for creating and strengthening skills.

In terms of match quality, the third grouping, underqualified workers are, unsurprisingly, more inclined to take courses than those who think themselves to have adequate qualifications for their job. On the other hand, overqualified workers seem to learn less from practice. And finally, those whose job requires skills very different from their own profit least from informal learning channels. From this perspective, the market with the best pairing possibilities would be the most favorable for skill development at work. Unfortunately, the quality of matches does not seem to be very high for the countries in the region.

According to the 2015 CAF Survey, more than 40% of the workers in 10 of the largest Latin American cities claim to be in an occupation in which the skill requirement is too low, too high, or too different from the skills they have. That is to say, only about 60% of workers seem to be well paired and, therefore, find themselves in a better situation to make the most of their learning potential at work.

The Importance of the First Job in Improving Skills, and the Costs of Not Having Formal Employment

The characteristics of the first experience in the labor market can have consequences on future work-related outcomes, including skill accumulation. Likewise, spells of unemployment, job informality, and self-employment can affect both the stock of acquired skills and the future dynamics of accumulation.

First Jobs and Skill Accumulation

Data from the Peruvian School-to-Work Transition Survey (SWTS) reveals the difficulties many young people face when they enter the labor market. The transition from school to work takes time and may include unemployment or inactivity spells. The first job is likely to be salaried with no formal contract or self-employment. For example, in Peru only 62% of youth get a job immediately after finishing or dropping out of school, and of those, only 17% find a job with a written contract. This transition is even harder among young people with less education.

How are the characteristics of the first job linked to the quality of current employment (measured in terms of the potential to accumulate skills)? An empirical exercise shows that having a written contract in the first job increases the likelihood of having a written contract and receiving training in subsequent jobs. Favoring access to quality employment for youth is key to improving skill accumulation later on. Furthermore, empirical evidence from an impact evaluation by CAF of a paid internship program[5] shows that internships in a formally registered firm significantly increase (by almost 40%) the probability of finding a formal job when the internship is finished.

Accumulating Skills outside Formal Employment

Work trajectories tend to be marked by periods of unemployment or informality that may have consequences in the accumulation of skills. Informality is especially widespread in the region, affecting about 45% of salaried workers. Furthermore, a large fraction of workers are self-employed (close to 30% of the working population).[6] These two types of informal sector occupations, account for more than half of Latin America's working population.[7]

5. First Step Program (Programa Primer Paso), administrated by Córdoba's provincial government (Argentina).

6. Fifty-five percent of the working population in Latin America is salaried. The rest is composed of employers (4%), self-employed workers (6%), and unremunerated workers (6%).

7. These figures are much higher in countries such as Honduras, Guatemala, Nicaragua, México, Paraguay, Perú, Bolivia, and Colombia.

Going through unemployment or informality can have direct or indirect effects. The direct effect relates to the possibility of engaging in formal training, learning-by-doing, and learning from peers. For the unemployed, the latter two channels are closed, and they can only offset their deterioration of skills[8] by taking courses. And although the three channels of accumulation are available for informal workers, their influence is considerably smaller than among formal workers. For example, the 2015 CAF Survey shows that only 15% of self-employed workers are involved in job training activities, while the figure is 40% for formal salaried employees. The self-employed also have fewer opportunities to learn through practice. The indirect effect comes through the increased risk of a poor match with future jobs (with its negative consequences on skill accumulation) resulting from informality or unemployment spells.

This analysis shows the need to promote the creation of quality jobs (especially for youth entering the labor market), programs that diminish job search difficulties and reduce the length of unemployment spells, as well as training programs that favor skill accumulation (or stop skill deterioration), both for the unemployed and workers with precarious or unchallenging jobs.

When the State Helps: Interventions That Boost Work-Related Skills

Labor markets are subject to failures and distortions that affect the efficiency of the learning channels. Examples of these are asymmetries in the information handled by job applicants and employers, financial market imperfections, or coordination failures. Different public policies can mitigate the effects of these problems, therein favoring the accumulation of skills.

Four Overarching Groups of Policies that Favor the Accumulation of Work-Related Skills

A first category of policies that favors skill accumulation includes job training programs that explicitly seek to reinforce or update the skills of workers. Among these programs are formal training courses (sometimes provided by public, local, or national institutions) and internships, generally focused on facilitating access to first jobs for youth. In addition to training courses provided by the state, there are subsidies or tax incentives that encourage companies to provide these types of services to their employees.

There are an additional three groups of policies that, without always having skills training as an explicit objective, indirectly favor learning channels at work by trying to promote better worker-job pairings or better job quality. The first group seeks to favor employment in the private sector through youth employability programs (internships or temporary jobs in firms), subsidies to private employment, and incentives for quality entrepreneurship.[9]

8. According to the 2015 CAF Survey, 20% of the unemployed workers in the region have attended some training in the past year.

9. Certain incentives for entrepreneurship will not always result in the creation of formal companies, but are aimed at providing economic subsistence conditions for very disadvantaged populations. In such cases, it is likely that pro-enterprise policies do not lead to better conditions for learning at work, but they meet the other goal.

The second group of policies includes temporary public employment and some other income-support initiatives. These can favor the quality of future pairings, as they allow workers to take more time to look for the job that best suits their skill profile and, at the same time, stop the skill deterioration that happens during unemployment.

The final group of policies deals with job searching and other employment services, such as certification of skills, vocational counseling, and information provision, and more general job placement services. These initiatives recognize that there are challenges in information and coordination and aim to strengthen the connection that should exist between labor, production, and skill development policies.

Do Public Interventions Work?

Evidence regarding the effectiveness of public interventions for the development and strengthening of workforce skills shows mixed results, so more evidence is needed to better guide public policy. The available evaluations focus on variables that, despite being related to skills, do not measure them directly, such as the probabilities of getting a job, wages, formality status, and other occupational characteristics. Accordingly, it is difficult to draw conclusions about their effects on the accumulation of skills and useful knowledge for the labor market.

Overall, evaluations of job training programs show modest but positive results that seem to increase over time. Job placement assistance programs and other labor services tend to have positive effects only in the short term, while temporary public employment programs generally show no effect or even negative impact. Policies that promote job experience in the private sector show larger impacts that grow over time, although they present a risk of distorting the decisions of employers and employees.[10]

In the particular case of Latin America, the evidence is even more limited. Results generally suggest that programs implemented in the region have less impact in the short term than in the long term, show better outcomes for women than men, and work better in contexts of low unemployment rates.

10. For example, when companies use the subsidy to hire staff who would have been hired anyway, or when they substitute workers that are not promoted (subsidized) by public policy for workers that have a tax incentive or subsidy.

Chapter 5

THE SOCIAL ENVIRONMENT: ENABLING OR LIMITING?

There are three dimensions of the environment that frame the behavior and interaction of individuals and influence the process of skill accumulation by enhancing it or limiting it. The first dimension consists of the physical space and public infrastructure: access to appropriate spaces and quality public services promotes healthy habits and wellbeing. The second dimension is the exposure to shocks or unforeseen changes in the constraints and incentives that households face in the midst of their skill formation investments. The third dimension is the social environment, which affects skill development through the influence of peer groups.

Chapter 5 of the RED 2016 focuses on the mechanisms through which the three dimensions of the environment influence the process of forming cognitive, socioemotional, and physical skills throughout life and provides empirical evidence regarding the importance of each dimension for different Latin American countries. The evidence aims to set a basis for a thorough discussion about which policies the governments of the region should adopt in order to promote the positive externalities of the environment and reduce the importance of negative externalities. Although the ability of individuals to change their environment is limited and depends on household characteristics (such as socioeconomic status), the state can have a more active influence on certain aspects of the environment and thus help the process of developing skills, especially in children and young people.

How does the environment affect the development of skills for work and life? In general, the environment interacts constantly with the rest of the formative contexts (the family, the school, and the workplace), and it does so by reinforcing or mitigating the effects of investments made through each of these settings. Specifically, the environment affects the costs of performing activities or engaging in behaviors that promote or inhibit skill development. Thus, the environment has an effect on the returns to such activities or investments, and therefore on the incentives to make them. For example, as discussed in Chapter 2, investing in quality time with children is very important for their skill development during early childhood. Proximity to parks, libraries, and places for recreational and intellectual activities can improve the quality of time parents spend with their children, in which case the environment functions as a complement to family investments.

Furthermore, social environments can foster feelings of identity and thus change the preferences of individuals toward activities that are important for skill development. This is at the core of the peer effects analyzed in the report: for some individuals, the behavior of their peer group is very consequential. For example, people can be more inclined to play sports when their friends also play sports, regardless of the costs associated with accessing an appropriate physical space for such activity.

How Does the Environment Affect Skill Accumulation?

Physical environment. Access to an adequate physical environment promotes specific activities (by reducing their cost) that favor the development of different skills. For example, frequent visits to parks and sports centers facilitates gross motor development and general physical skills; going to libraries and cultural centers encourages the development of cognitive capabilities associated with learning and

attention; and interacting with other individuals who share similar interests in parks, libraries, and other spaces can generate social integration dynamics, facilitating exposure to stimuli that contribute to the development of socioemotional skills.

Shocks. Unexpected variations in income, natural disasters, crime episodes, or health issues have an impact on the household economy, which conditions the investments made in skills. For example, the time parents have to spend with children may be reduced, or parents may be forced to withdraw children from school to make them work. Poor households are most vulnerable to shocks because of their low access to credit and other insurance mechanisms. Moreover, poor families are also the most vulnerable to non-economi shocks. For example, poor urban houses tend to be located in informal settlements that are more exposed to flooding or landslides.

Peer effects. People construct their identity through socializing in different contexts, and their behavior depends for the most part on the comparisons they make with those to whom they are physically and socially close. The influence of peers is especially strong during adolescence, as the greater plasticity of the adolescent brain increases the influence of social interactions and feelings of identity, trust, and acceptance on the formation of behaviors (positive or negative). These interactions during adolescence may have long-term consequences on skill development.

What Does the Empirical Evidence Say About the Effects of the Environment on Skills Development?

Physical environment. Some basic services are very widely covered in Latin America, while others present notable deficiencies. For example, rates of access to electricity are high in most urban and rural communities in the region. However, coverage of other services is highly variable, especially water and sanitation. In fact, these services require the most urgent intervention by governments in the region because many urban areas and most rural ones have extremely deficient coverage. In most cases, the countries with the lowest rural coverage rates are also the ones with the greatest proportion of rural population. This is alarming because inadequate sanitation can increase the risk of infantile gastrointestinal diseases, such as acute diarrheal disease or infant respiratory diseases, such as acute respiratory infection. These are two of the main causes of infant mortality in the underdeveloped world, especially in households with lower incomes. It is estimated that by providing general access to proper aqueducts and sewage systems, infant mortality could be reduced by more than 60%. Moreover, the presence of these diseases has an impact on the general health of children and threatens their chances of obtaining proper nutrition (compromising their physical and cognitive development) and also results in lower school attendance.

Beyond those basic services, access to proper public spaces is important for the development of skills. Evidence from the 2015 CAF Survey shows a correlation between the proximity of households to different types of public spaces (including sports centers, vacant lots, and dumps) and different measures of skills (grit, numerical skills, Raven's Progressive Matrices Test, and the BTVC for verbal skills. People who live within 3 blocks of sports centers show better scores in 2 out of the 4 skill measures, compared with those who live farther away. On the other hand, people who live near vacant lots or dumps show lower scores in almost every case. This evidence is consistent with the fact that quality physical spaces promote the development of both cognitive and socioemotional skills (besides improving physical health).

Shocks. Current evidence suggests that shocks are exceedingly frequent in Latin American households. For example, in Colombia, almost half the households suffer at least one shock in a given year. This is alarming because regardless of their origin, shocks can affect the process of skill development as early as during pregnancy. Being exposed to shocks generates stress, and excessive stress can trigger biological responses with negative long-term consequences, including shortened gestation and lower birth weight. Lower birth weight, in turn, is a powerful predictor of physical, cognitive, and socioemotional skills in adult life. Beyond pregnancy, the influence of shocks on skill development extends to all life stages. For example, an analysis based on the Ecuador Living Conditions Survey suggests that adults who have been exposed to shocks tend to report heightened sensations of fear, loneliness, sadness, and depression. Mental health is fundamental, as it conditions skill development.

As mentioned above, one of the most important mechanisms through which shocks interfere with skill development is their effects on household budgets. Evidence from Latin America shows that households that have been exposed to shocks such as natural disasters or crime episodes tend to also suffer income losses as a consequence of these shocks. Household strategies to mitigate the negative effects of these shocks on income include going into debt, losing savings, and selling assets, among others. All of these strategies can have different impacts on skill development, but they may also cause school dropout, which is especially harmful for the accumulation of skills, not least because it is often followed by different forms of child labor. School dropout is not only a consequence of budgetary problems. Frequently, children are forced to interrupt their studies because, for example, violence or internal conflict (as in the case of Colombia) forces them to migrate or they are violently recruited by armed groups.

Peer effects. Peer effects are a double-edged sword: they can produce positive effects, for example by improving academic performance among classmates, but they can also negatively affect skill development by promoting risky behaviors such as substance abuse, criminality, or early sexual relations. To illustrate the point, the 2015 CAF Survey data suggest that there is a high correlation in smoking, high alcohol consumption, and equivalent behaviors within circles of close friends. This is of course only a correlation, and the numerous methodological challenges to identify the true peer effects are discussed in detail in Chapter 5.

There is also evidence showing beneficial peer effects for skill formation (school performance) based on the PISA test. Schoolmates are the most commonly studied reference group in the peer effects literature because of their significant influence during adolescence, which is precisely the age group (around 15 years old) taking the PISA test. The driving forces behind such peer effects are related to cooperation, competition, social acceptance, or popularity. All of these channels can directly affect the learning process (because of the investments that young people make in order to learn more), but they may also affect self-esteem and thus have an indirect impact on academic performance.

The estimations presented in Chapter 5 show that the peer effects affecting school achievements (in language, mathematics, and science) are not homogeneous across Latin American countries, but they are always larger than in a country like Finland, which is a leader in the management of peer effects within the classroom. This is important because it suggests that, unlike in Latin America, academic achievement in Finland is less dependent on the social environment within the educational institution and more dependent on each student's individual effort. These differences in the vulnerability to the environment have to be considered when designing policies that aim to exploit peer effects positively. However, governments must ask themselves whether it would be useful to design tools exploiting peer effects to improve educational achievement in the first place. The answer is not obvious: while arranging heterogeneous classrooms (mixing both high- and low-achieving students) might help the lowest performing students, it might also decrease the performance of the best students relative to how they

would do in a more homogeneous classroom. This dilemma illustrates the fundamental point that public policy would benefit from more studies explaining the mechanisms behind peer effects and thorough assessments revealing the most effective policy tools to take advantage of positive peer influence while mitigating the negative.

Finally, it is worth noting that there are other environmental factors that can strengthen or hinder human capital accumulation, many of which will be analyzed in the next edition of the Report on Economic Development (the RED 2017), which will discuss the theme of habitat and economic development in Latin America.

Download the full report at: www.caf.com/RED2016

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