At a Crossroads

Higher Education in Latin America and the Caribbean

María Marta Ferreyra, Ciro Avitabile, Javier Botero Álvarez, Francisco Haimovich Paz, and Sergio Urzúa

Overview
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Contents of the Overview

Contents of the Full Book  v
Acknowledgments  vii
About the Authors  ix
Abbreviations  xi

Overview

Students, Institutions, and the Policy Maker  3
Some Stylized Facts  6
Lessons Learned  24
Some Policy Considerations  30
Structure of the Report  35
Notes  36
References  37
Contents of the Full Book

Overview

Introduction

Chapter 1  The Rapid Expansion of Higher Education in the New Century
Ciro Avitabile

Chapter 2  Equity, Quality, and Variety of Higher Education
Francisco Haimovich Paz

Chapter 3  The Economic Impact of Higher Education
Sergio Urzúa

Chapter 4  The Demand Side of the Higher Education Expansion
María Marta Ferreyra

Chapter 5  The Supply Side of the Higher Education Expansion
María Marta Ferreyra

Chapter 6  The Current Landscape of Policies and Institutions for Higher
Education
Javier Botero Álvarez

Chapter 7  Going Forward

Glossary
This book was prepared by María Marta Ferreyra (task team leader), Javier Botero Álvarez (co-task team leader), Ciro Avitabile, Francisco Haimovich Paz, and Sergio Urzúa. Important additional contributions were made by Paola Bordón, Juan Esteban Carranza, Jesse Cunha, Ricardo Espinoza, Chao Fu, Carlos Garriga, Ana Gazmuri, Jean-Francois Houde, Rodolfo Manuelli, Christopher Neilson, and Miguel Székely. The team was ably assisted by Angélica Sánchez Diaz, Uriel Kejsefman, Alonso Bucarey, Nathalie González Prieto, Silvia Guallar Artal, Amanda Loyola, Octavio Medina, and Emmanuel Vazquez. The work was conducted under the general guidance of Augusto de la Torre, chief economist for the Latin America and the Caribbean Region of the World Bank, with substantial inputs from Daniel Lederman, deputy regional chief economist, and Reema Nayar, practice manager, Education Global Practice.

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## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>B50</td>
<td>bottom 50 percent</td>
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<tr>
<td>ARWU</td>
<td>Academic Ranking of World Universities</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>HEI</td>
<td>higher education institution</td>
</tr>
<tr>
<td>HS</td>
<td>high school</td>
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<td>HSDO</td>
<td>high school drop out</td>
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<tr>
<td>MW</td>
<td>minimum wage</td>
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<tr>
<td>PPP</td>
<td>purchasing power parity</td>
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<td>PSU</td>
<td>Prueba de Selección Universitaria (University Selection Test, Chile)</td>
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<td>WAP</td>
<td>working-age population</td>
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Overview

In the pursuit of growth and equity, no country can afford to ignore higher education. Through higher education, a country forms skilled labor and builds the capacity to generate knowledge and innovation, which boosts productivity and economic growth. Since acquiring greater skills raises a person’s productivity and her expected earnings, a good education system is also the basis for achieving greater equity and shared prosperity on a societal level. Particularly in societies mired with persistent and profound inequality, high-quality education can act as “the great equalizer”: the ultimate channel of equal opportunities, and the ultimate hope for parents who long for a better future for their children.

In this study, we investigate three important aspects of higher education in Latin America and the Caribbean: quality, variety, and equity. A good higher education system offers quality, variety, and equity to maximize students’ potential given their innate ability, interests, motivation, and academic readiness at the end of high school. Since people differ in these aspects, and the economy needs various types of skills, a variety of offerings allows students to find their best match. A good higher education system trains engineers as well as technicians—economists as well as administrative assistants. In addition, a good higher education system offers quality programs that maximize students’ potential, given their best match. Because the mere availability of variety and quality does not guarantee students’ access to or success in them, a higher education system displays equity when students have access to equal opportunities.

Societies vary in how they determine equity in higher education, since they differ in what they consider “fair.” For instance, some societies consider it fair to give students of the same academic readiness access to the same opportunities, whereas others consider it fair to give all students access to the same opportunities, despite differences in their academic readiness or other characteristics. Regardless of their view of equity, higher education systems face the fact that quality, variety, and equity are interdependent. For instance, providing higher education access to disadvantaged students may improve equity, but possibly at the cost of quality if those students are limited to low-quality higher education options.
Hence, equity is best served by giving students access to high-quality programs at which they can succeed, an outcome that is more likely when a variety of programs are offered.

Higher education in the region has expanded dramatically in the last 15 years as the average gross enrollment rate (defined as the ratio between higher education enrollment and the population ages 18–24 years) has grown from 21 percent to 43 percent between 2000 and 2013. Currently, the system includes approximately 20 million students, 10,000 institutions, and 60,000 programs. The higher education system has a rich history that dates back to the early 1500s, with the founding of the University of Santo Domingo, followed by the (then) Pontifical University of San Marcos (Lima) and the Royal and Pontifical University of Mexico (Brunner 1990).

Today, higher education is at a crossroads. The large expansion experienced since the early 2000s has given rise to a new, complex landscape. Concerned with access and social mobility, policy makers expanded the system at a time of economic growth, fiscal abundance, and a rising middle class. As a result, access grew for all students, but particularly those from the low- and middle-income segments. These “new” students, who were previously underrepresented in higher education, constitute a critical piece of the new landscape, as are the higher education institutions (HEIs) and programs serving them.

Concerns about quality loom over the large equity gains experienced by higher education systems in the region. The rapid expansion of the systems, the characteristics of the “new” students, and perhaps the lax regulation of some HEIs have led many to question the quality of their programs and, thus, the equity of a system in which not every student gains access to a high-quality option.

At this crossroads, Latin America and the Caribbean faces an opportunity not to be missed. The policy decisions made 10 or 15 years ago have had profound consequences on today’s environment. Today’s decisions will have long-lasting, far-reaching consequences on the region’s future as well.

The remainder of this overview is organized as follows. We begin by characterizing the role and capabilities of each agent in the higher education system (students, institutions, and the policy maker) as well as the distinctive characteristics of the higher education sector from an economic perspective. Then we present the main facts documented in the report, and discuss the main lessons learned through the report’s analytical work. We conclude with policy considerations.

It is important to note that the study focuses on one role of the higher education system: the instruction of undergraduate students. While higher education systems have other roles (for example, the production and dissemination of research, the formation of graduate students and new researchers, and extension programs geared toward the community at large), not all HEIs take up these roles to the same extent, and there are scant data on these other roles. Furthermore, the instruction of undergraduate students is arguably the main role of HEIs in Latin America and the Caribbean. In addition, this study focuses mostly on the private returns to higher education. Although higher education
yields returns to society as a whole, for data-related and technical reasons we restrict the scope to private returns. Although higher education finance is an important aspect of higher education systems, a detailed study of this issue is beyond the scope of the current report.

**Students, Institutions, and the Policy Maker**

Because higher education is at a crossroads, it is important to recall what the agents in higher education (students and their families, HEIs, and the policy maker) can and cannot do, as well as their motives to engage in higher education.

The final outcome reached by a student in higher education (for example, employment, final GPA, or admission to graduate school) results from the contribution of multiple inputs. These include her effort, innate ability, and academic readiness. They also include inputs provided by the HEI, such as professors, peers, labs, and facilities. The important point is that individual academic readiness and effort are indeed inputs, and policies that merely give access to higher education without being mindful of students’ academic readiness—or without providing incentives for student effort—will fall short of their potential benefits.

The possibility that students might not graduate brings us to another important point, namely that higher education is a risky investment. This risk affects some students more than others, since some students are less academically ready for higher education and more likely to drop out than others.

When making decisions, students and their families view higher education programs as “bundles” consisting of such elements as the program, peer students, student effort requirements, expected returns in the labor market, expected social and labor market connections, and distance to desirable locations. As this report documents, not all students care about these elements equally. For instance, high-ability students tend to care more about their peers’ ability than their lower ability counterparts. In addition, a distinctive regional feature is students’ strong preference for attending an HEI close to home. These two elements have important consequences on market structure.

While some students pursue higher education to improve their economic prospects, others seek the opportunity to learn a subject of their interest and are less concerned about economic payoffs. Still others seek the “college experience,” roughly defined as immersion in a new environment, with new peers, exposed to new ideas and perspectives. The multiplicity of goals is a challenge for the policy maker seeking to regulate the sector (Deming and Figlio 2016). Yet regardless of their goals, many students conduct a cost-benefit analysis when deciding whether to pursue higher education and what option to choose. If they attend college, they will incur the cost of tuition and other expenses, such as books and transportation, and will receive a college graduate’s salary upon graduation. If they do not attend college, they will likely earn a high school graduate salary. The ability to design efficient, responsible, and equitable funding systems is perhaps the most obvious way for the policy maker to affect students’ decisions, although it is not the only one.
Regardless of how the policy maker intervenes, the fact remains that her intervention is necessary because left to its own devices, the market will not achieve the social optimum of maximizing each person’s potential and meeting the economy’s skill needs. Several reasons contribute to this outcome. First, higher education provides a benefit not only to the person who receives it but also to society at large. Even when the market rewards a higher education graduate for her output, society also enjoys the contributions from her innovations, knowledge production, and research findings. Moreover, society benefits from the presence of higher education graduates in ways not fully rewarded by the market. For instance, these graduates might be more involved citizens and raise healthier children. In the presence of such externalities, students contemplating higher education will not internalize the full social benefits and will invest less in it than the social optimum.

Second, students with the greatest potential to benefit from a particular program may not be able to afford it. These liquidity constraints for talented individuals detract not only from equity but also from efficiency, since the economy fails to realize its full productive potential. A cautionary note: while liquidity constraints may be an obstacle to access, another may be the lack of academic readiness for higher education work. As documented in this report, students from lower income families tend to be less academically ready than those from higher income families, which may be evidence of an inequitable primary and secondary education system.

While the credit market could, in principle, mitigate short-term liquidity constraints, this market is imperfect. Higher education loans typically lack the collateral or guarantee required by financial institutions, since students borrow to finance an investment embodied in themselves. Moreover, a higher education loan is risky for a bank, since the bank only has noisy information on the loan’s profitability. Similarly, the student may be uncertain over her graduation probability or the long-term returns of her higher education program. As a result, left to its own devices the credit market will play a smaller role, if any, in financing higher education than in the social optimum.

Third, higher education is a complex “product” characterized by strong information asymmetries, and it is difficult for students and parents to assess the quality and variety of offerings. Consider, for instance, a student interested in biology who is trying to choose a program suited for work in industry. She might not know what specific programs would train her better for industry than for research. She might see similar programs and not know how to differentiate among them, perhaps because the HEIs themselves choose not to reveal the relevant information. Or she might know that graduates from a particular program obtain high-paying jobs after graduation, yet not know whether this is due to the program’s ability to select high-performing students, or to the rigor of its training and instruction. The ensuing lack of information leads some students to make suboptimal choices, such as enrolling in low-quality programs while also taking on heavy college loans.
To further complicate matters, some students and parents are better than others at “information processing,” namely at assessing the quality and variety of higher education programs, and at comparing long-term costs and benefits of alternative career paths and financing options. Such disparities, associated with parental background and education (Castleman 2013; Horn et al. 2003; Tornatzky et al. 2002), only exacerbate the inequities. Cognitive biases, too, prevent students from making sound decisions, by making them overestimate the returns from some programs or be overconfident about their chances of success. In Latin America and the Caribbean, where transferring across programs is rather difficult, the cost of making the wrong decision can be quite high. This raises the stakes on a decision in which there is no opportunity at “learning by doing,” since most individuals make this decision only once (or just a few times) over their lifetime.

Information asymmetries, information-processing difficulties, cognitive biases, and decision-making costs can interfere with the higher education system’s ability to form the skills required in the labor market. For instance, an economy may suffer a shortage of computer programmers yet have a surplus of journalists. Even though market wages should act as indicators of relative scarcity to future graduates (that is, computer programmers should earn more, on average, than journalists), students may not use this information when making choices, or may not realize they lack the academic readiness necessary to pursue the higher paying program.

Fourth, higher education markets feature imperfect competition. Setting up and running an HEI is costly, a force that would naturally concentrate the system around relatively few providers and give them market power. The actual degree of concentration largely depends on legal and regulatory barriers to the entry of HEIs; if barriers are low, the system might experience considerable entry of new providers and relatively low concentration. Yet even if entry is plentiful, the fact that each HEI offers a differentiated product (for example, geographic location, program type, student peer ability, curriculum focus, academic rigor, and expectations) allows HEIs to compete along multiple dimensions, and gives each HEI a certain degree of market power over the students that choose it.

For instance, most students in the region attend an HEI close to home. This gives HEIs a considerable market power in their geographic areas. Similarly, higher education markets in the United States were quite localized a few decades ago and, as they became geographically more integrated, they became more competitive (Hoxby 2009). Hence, while bringing higher education to additional locales can raise access for students in those places, special care is needed to prevent those HEIs from exploiting their natural market power by offering low-quality services.

Another instance of imperfect competition arises through tuition subsidies for students enrolled in public HEIs, a practice common to all countries in the region, some of which go as far as offering tuition-free public HEIs. When policy makers subsidize public HEIs but do not provide financial aid for private HEIs, they contribute to creating a captive demand for public HEIs, composed of
students who have no other choice. While making education available to such students might be desirable, the ensuing market power for public HEIs deserves the policy maker’s close attention.

Of much concern, too, is the market segment formed by students who are poorly informed about higher education programs and returns, are financially illiterate, and are academically unprepared for higher education. These students may be drawing from their families’ meager savings or from student loans to finance their higher education. This segment naturally invites the entry of low-quality, high-price HEIs, and deserves the policy maker’s close attention.

Furthermore, in typical competitive markets, firm exit disciplines the market by forcing low-demand products (which, presumably, have the lowest quality) out of the market. Yet a crucial difference between such markets and the higher education market is that the exit of an HEI can be quite costly for students, particularly those enrolled in the HEI. Societies, then, cannot afford frequent HEI exits.

Because students vary in income, ability, place of residence, gender, parental education, preferences, and goals pursued in higher education, there is room for the system to offer a wide range of higher education options. As a result, students sort across HEIs and programs. Sorting has three important consequences. The first is that not every student has access to the same options. Low-ability students, for instance, cannot gain access to selective programs, although this does not necessarily mean that their programs will be of low quality. Because high-ability students prefer attending higher education with other high-ability students, forcing some selective programs to admit lower ability students will lead some high-ability students to switch to other programs.

The second consequence of sorting is that the market becomes segmented by HEI type, and not every segment expands during an expansion. Since the selective segment expands mostly to admit high-ability students, it falls on the nonselective segment to admit lower ability students. Because there are many lower ability students, nonselective programs and HEIs will compete for them, sometimes fiercely.

The third consequence of sorting is that analytical or policy-related efforts on higher education must be mindful of the sector’s vast heterogeneity and avoid one-size-fits all approaches. Heterogeneity among students, institutions, and programs is a theme of our study.

Some Stylized Facts

At the current crossroads, it is useful to describe some stylized facts from the recent expansion. These facts show a complex landscape with bright spots yet also cautionary notes.

The Region Has Experienced a Large, Rapid Expansion in Higher Education Since the Early 2000s

On average, the higher education gross enrollment rate in Latin America and the Caribbean rose from 17 percent in 1991 to 21 percent in 2000 and to 40 percent in 2010. Since the 2000s, the expansion has been large and rapid
by international standards (figure O.1). For example, although Central Asia had a similar gross enrollment rate as Latin America and the Caribbean in 2000, it had reached only 27 percent in 2010. The enrollment growth in Latin America and the Caribbean has been accompanied by a large supply-side expansion. Since the early 2000s, approximately 2,300 new HEIs have opened and 30,000 new programs have been created. Hence, approximately one-quarter of the current HEIs and half of the current programs have been created since the early 2000s.

While enrollment rates measure the number of students currently enrolled, in much of the study we focus on another indicator: the access rate. This captures the fraction of individuals ages 18–24 years who have ever had higher education access. While some of those individuals might be currently enrolled, others might have already finished their course of study or might have dropped out. Access grew dramatically as well, from 18 percent to 28 percent between 2000 and 2013. We can decompose the access rate growth into a portion resulting from greater high school graduation rates and a portion resulting from greater college entry rates on the part of high school graduates. The decomposition indicates that, on average, 78 percent of the increased access rates can be attributed to greater high school graduation, although with large variation across countries (figure O.2).

Indeed, the increase in college entry rates explains most of the growth in the very countries where access grew the most, such as Chile, Colombia, Ecuador, and Peru. In these countries, policy makers implemented aggressive policies aimed at expanding access. In addition, the private sector played an important role, and policies such as student loans and scholarships facilitated access to private HEIs.

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**Figure O.1 International Benchmarking of Gross Enrollment Rates, 2000, 2005, and 2010**

![Graph showing gross enrollment rates](image)


*Note:* Total enrollment in tertiary education (ISCED 5–8), regardless of age, expressed as a percentage of the total population of the five-year age group following the theoretical age of secondary school graduation. For each region, the figure shows the weighted average over the corresponding countries.
Higher Education Access Became More Equal, Although Access Is Still More Prevalent at Higher Income Levels

Although higher education is the educational level with the most unequal access in the region (figure O.3, panel a), there has been substantial progress over the last 15 years, with increasing higher education participation among low- and particularly middle-income groups (figure O.3, panel b). While the poorest 50 percent of the population (B50) represented only 16 percent of higher education students in 2000, this group constituted approximately 24 percent of higher education students in 2012. Based on our estimates, an additional 3 million students from B50 are now enrolled in higher education relative to that in 2000. Overall, B50 students account for about 45 percent of the enrollment growth. Thus, the average student whose representation has grown in higher education (the “new” student) comes from low-income families, and is less academically ready than her more advantaged peers.

Despite the more equal access, youth from the top income quintile are still 45 percentage points more likely to gain higher education access than youths in the bottom quintile. Nonetheless, 56 percent of this gap can be explained by the poorer youths’ lower high school graduation rates (figure O.4). In other words, those youths are less likely to gain access to higher education mostly because they do not graduate from high school. Furthermore, a similar picture emerges for the access gap between the top income quintile and the second, third, and fourth quintiles.

Closing the high school graduation gap, however, will not eliminate the higher education access gap because of the remaining gap in college entry (or enrollment)
Figure O.3  Inequality in Access in Latin America and the Caribbean, by Education Level, circa 2000 and 2012

a. Access probability across percentiles of household per capita income, circa 2012

b. Access probability by percentiles of household per capita income, circa 2000 and 2012

Source: World Bank calculations using SEDLAC.
Note: The probability of access to higher education is the share of individuals ages 18–24 years who have ever had access to higher education. The probability of enrollment in secondary education is the share of individuals ages 12–18 years who have ever had access to secondary education. The probability of enrollment in primary education is the share of individuals ages 6–12 years who have ever had access to primary education. The figure reports simple averages over the countries’ indicators.

Figure O.4 Decomposition of Access Gaps in Higher Education among Youths Ages 18–24
Years, Latin America and the Caribbean, circa 2013

Source: World Bank calculations using SEDLAC.
Note: Each vertical bar depicts the access gap between youths of two different groups. For instance, the first bar indicates that youths from the top quintile are 45 percentage points more likely to gain access to higher education than youths from the bottom quintile. In each bar, the blue portion indicates the gap due to secondary completion rates; the orange portion indicates the gap resulting from higher education entry rates. Each bar depicts the simple average across countries.

HS = high school (completed); HSDO = high school dropout; Q = quintile (Q5 is the richest; Q1 is the poorest). Leading (lagging) region refers to regions where higher education access is above (below) the national access median.

rates among high school graduates. Data from Colombia show that differences in academic readiness explain 41 percent of the entry gap between the top and bottom income bracket among high school graduates, and differences in academic readiness and maternal education explain 71 percent of the gap (figure O.5, panel a). In other words, not all high school graduates are equally ready for college.
As a result, college entry rates are lower for lower ability students, regardless of their income (figure O.5, panel b).

Contrary to popular perception that higher education spending is regressive because higher income students benefit disproportionately from it, we find that current higher education spending is (at least slightly) progressive because of the increased presence of low- and middle-income students. Furthermore, a back-of-the-envelope calculation indicates that the expenditures associated with expanding higher education coverage are four times more progressive than the average higher education spending.

The Private Sector Played a Critical Role in the Higher Education Expansion

On average, the market share of private HEIs rose from 43 percent to 50 percent between the early 2000s and 2013. Most of the new HEIs and programs have been opened by the private sector (figures O.6 and O.7). To serve more students, HEIs can either expand their existing programs or open new ones. In countries with available data, we observe that while public HEIs have been more likely to expand existing programs than open new ones, the opposite has been true for private HEIs.

Private HEIs open new programs for multiple reasons. Sometimes they open a nonselective version of a selective program offered by another institution (as is the case of nonselective law programs for students who would not be admitted to selective law programs). Other times they offer a more appealing, but also
narrower, version of a program already offered by another institution (for example, when opening sports journalism even though a social communication program offered by a competing HEI provides some of the same skills). Yet in other cases they offer a structured, predictable environment that suits some students better than that of public HEIs, or that make both the student and the HEI more accountable for their actions.6

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**Figure O.6** Change in the Number of Public and Private HEIs, Latin America and the Caribbean, circa 2000–13

*Source:* Countries’ administrative information; see annex 5A in the main book for detailed information.

*Note:* The figure depicts the change between circa 2000 and circa 2013 of the number of public and private HEIs. The large decrease in the number of private HEIs in Chile is mostly explained by the closing of technological institutes. In Peru, it is explained by the closing of teacher education institutions. Country-specific notes on the counting of HEIs: Chile: new branches of existing HEIs are not counted as new HEIs for consistency with other countries. Colombia: Servicio Nacional de Aprendizaje (SENA) and institutions specialized in graduate education are not included; HEIs are identified by Sistema Nacional de Información de la Educación Superior (SNIES) code rather than by name. Mexico: institutions specialized in graduate programs are included; exclusively online institutions are not. Bolivia and Ecuador: only universities are included. Costa Rica: five international HEIs are not included because of a lack of enrollment data. HEI = higher education institution.

**Figure O.7** Change in the Number of Programs in Public and Private HEIs, Latin America and the Caribbean, circa 2000–13

*Source:* Countries’ administrative information; see annex 5A in the main book for detailed information.

Whereas private HEIs draw higher income students than public HEIs, on average both public and private HEIs now serve a higher share of low-income students than in the early 2000s. Furthermore, both public and private HEIs now serve a higher share of students residing outside urban areas.

Despite their relatively low income, these “new” students have been able to afford private higher education because of the student loans and scholarships implemented in some countries and because of the recent growth in family incomes. Indeed, the greater ability to afford higher education has been another manifestation of the rise of the middle class documented by Ferreira et al. (2013).

When Measured by Outcomes, Higher Education Quality Is Found Lacking

Measuring education quality is challenging for a number of reasons. One reason is a lack of agreement over the expected outcomes of education. While standard datasets often measure outcomes such as higher education completion and earnings after graduation, they rarely measure other outcomes. Hence, choices of quality measures are largely dictated by data availability.

Another critical challenge when measuring education’s quality is disentangling the contribution of the different inputs, which is necessary to quantify the distinct contribution of HEIs. For instance, if we measure higher education’s output for a particular student as her score in an end-of-college competence exam, then inputs consist of (a) the student’s ability, effort, and academic readiness for higher education work; (b) the ability and effort of her peers; and (c) the HEI’s value added through teaching, training, and provision of materials such as lab equipment. It would be informative to measure the value added of HEIs to outcomes such as end-of-college competence exams and graduates’ wages. The necessary data are generally not available; even when available, the resulting value added measures are highly sensitive to estimation techniques and sample selection (Melguizo et al. 2017; Shavelson et al. 2016). Thus, in this report we focus on the system’s outcomes and inputs.

Judging from its outcomes, the system’s performance is disappointing. On average, about half of the population ages 25–29 years who have ever started higher education have not completed their degree—either because they are still studying or because they have dropped out (figure O.8). Only Mexico and Peru have a completion rate near that of the United States (equal to 65 percent). Furthermore, the completion rate has declined over time, as individuals ages 60–65 years had an average completion rate equal to 73 percent (Szekely 2016).

Using administrative data from Colombia, we have estimated that about 37 percent of the students starting a bachelor’s program drop out of the higher education system. The fraction rises to about 53 percent among students who start short-cycle programs, a finding that has strong implications for variety. Perhaps not surprisingly, lower income and lower ability students are more likely to drop out than their more advantaged peers.

Moreover, about 36 percent of all dropouts in Colombia leave the system at the end of their first year (figure O.9), in contrast to approximately 15 percent
Figure O.8  Completion Rates for Youths Ages 25–29 Years, Latin America and the Caribbean, circa 2013

Source: World Bank calculations based on SEDLAC.
Note: For each country, individuals ages 25–29 years who have ever started higher education are classified into three groups: those who completed their program, those who dropped out, and those who are still enrolled. Completion rates are estimated as the ratio between youths ages 25–29 years who completed a higher education program and the number of people ages 25–29 years who ever started a higher education program.

Figure O.9  Percent of Students Who Drop Out of the Higher Education System in Each Year, Relative to All Dropouts, Colombia, 2006

Source: World Bank calculations based on SPADIES.
Note: The figure shows the percentage of students who drop out of the system in each year of college, relative to all students who drop out. For example, 35.5 percent of all students who drop out do so during their first year. Data corresponds to the cohort of students who started their first program in the first semester of 2006.

in the United States. Despite the concentration of dropouts at the beginning of their college career, almost 30 percent of all dropouts leave the system after spending four years in it.

For the countries with available data, time-to-degree (TTD) is high (on average, 36 percent longer than the stipulated time); in some countries, students take twice as long to graduate as they are supposed to. Although average TTD is comparable to that in the United States, the fact that the statutory duration of Latin American and Caribbean programs is typically longer than that of U.S.
programs means that students spend more years in higher education in the former region, thus facing a higher opportunity cost in terms of foregone salaries. When they take too long to graduate, students delay the earning of a college graduate salary and imperil their graduation chances (although some students may have an incentive not to finish their course of study given the prevailing returns to incomplete higher education). In addition, students who do not graduate on time (or do not graduate at all) while receiving public funding consume valuable fiscal resources.

Rankings are often used as indicators of higher education quality. Although suffering from a number of shortcomings (Deming and Figlio 2016), they still convey useful information. In the case of Latin America and the Caribbean, the news is not encouraging. Of the top 500 HEIs in the world, Latin America and the Caribbean has about 10; Africa is the only region with fewer HEIs in the top 500 (figure O.10).

**When Measured by Inputs, the Higher Education Quality Picture Is Mixed**

A critical input in higher education (and, indeed, in education in general) is student ability. In this report we define a student’s ability broadly to include not only her innate talent but also her academic readiness for higher education, as measured by her performance in high school exit or higher education entry exams. Based on this definition, a “low-ability” student might be one who is innately talented but received low-quality elementary and secondary education and is thus poorly prepared for college. Since family income and student ability are positively correlated, low-income students are, on average, low-ability students. Thus, higher education systems in Latin America and the Caribbean have absorbed a large number of students with poor academic preparation for higher education work. Any conclusions about possible output deterioration must take this “input deterioration” into account as well.

Professors are another critical input. As figure O.11 shows, on average the student-faculty ratio in the region is in line with that of developed countries and comparator countries in Eastern and Central Europe and in East Asia and

![Figure O.10 Universities in the ARWU Top 500 Ranking, by Region, 2014](http://www.shanghairanking.com/)


a. Minus Japan and China.*
the Pacific. But unlike countries in the developed world, the Latin America and the Caribbean region spends a larger share of its higher education spending in faculty and staff salaries (as opposed to facilities, materials, and equipment). Relative to other professionals who graduated from HEIs in Latin America and the Caribbean, graduates who become professors fare better, on average, in salaries, and work fewer hours. They are more likely to be unionized and enjoy pension and health-care benefits through their job (figures O.12 and O.13). This, coupled with the large share of higher education spending devoted to salaries, suggests that unionized faculty and staff may have high bargaining power in several countries.

Average per-student spending is lower, in absolute terms, than in the developed world or comparator East Asia and Pacific countries, although it is in line with comparator Central and Eastern European countries (figure O.14, panel a). To the extent that high-quality faculty, labs, and equipment are costly, they are largely out of reach for the Latin American and Caribbean region. At the same time, when measured against gross domestic product (GDP) per capita, per-student spending in higher education is in line with that in the developed world. This indicates that the region is making a similar effort (relative to income) as the developed world even though it is poorer (figure O.14, panel b). Furthermore, in many countries in the region, per-student spending relative to income is only slightly below the East Asia and Pacific’s average, but is well above that in North America, Western Europe, and Central and Eastern Europe.

In recent years, most countries in the region have implemented quality assurance processes and established accreditation agencies. Although the evidence on their impact is mixed, perhaps indicating the importance of design issues, these agencies have been able to establish and enforce minimum input requirements on faculty, curricula, and infrastructure. Based on such requirements, the agencies

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**Figure O.11 Student-Faculty Ratio, circa 2013**

[Bar chart showing student-faculty ratio for various countries.]

have closed some existing low-quality programs and prevented the opening of additional low-quality programs.

Thus, judging quality based on inputs depicts a region that (a) spends (relative to income) and staffs its classrooms in line with the developed world and even better than some of its comparators, although perhaps less efficiently; (b) has incorporated a large amount of students with poor academic preparation for higher education work; and (c) has implemented quality assurance and accreditation processes.

There Is More Variety of Institutions and Programs, But Still Little Variety of Fields of Study

During the expansion, the system has acquired greater variety in multiple dimensions. The market share of private and nonuniversity HEIs has risen in most
countries (figures O.15 and O.16), as has the market share of short-cycle programs. The greater number of programs has expanded the set of options for all students, but more so for the “new” students. Furthermore, higher education has expanded to new locales. This increase in variety has stimulated the entry of many students into the system.

At the same time, variety is lacking in one important dimension: across fields (table O.1). On average, Latin America and the Caribbean graduates a lower share of scientists, and a higher share of teachers, than the United States, the United Kingdom, and comparator countries. It graduates a lower share of engineers than comparator countries, and a higher share of individuals with a business, law, or social science degree than the United States or the United Kingdom. Some of these trends may have become stronger over time, since most new programs have opened in business, law, and social sciences.

As Lederman et al. (2014) point out, historically, students in the region have had a greater tendency to focus on social sciences than students in places such as the United States or the United Kingdom. But they also point out that Latin America and the Caribbean’s deficit of scientists and engineers may be related to the region’s low innovation relative to the developed world. Given the low flow of graduates from these fields into the region’s workforce, this deficit may persist for a while.
Although the region already has a large share of graduates in the business, law, and social science fields, in some countries these fields have higher returns, on average, than other fields. On these grounds, then, students appear to be making rational decisions. Yet returns in these fields show wide variation.
Figure O.15  Enrollment Share of Public and Private HEIs, Latin America and the Caribbean, circa 2000 and 2013

Source: Countries’ administrative information and SEDLAC; see annex 5A in the main book for detailed information.

Figure O.16  Enrollment Share of University and Nonuniversity HEIs, Latin America and the Caribbean, circa 2000 and 2013

Source: Countries’ administrative information; see annex 5A in the main book for detailed information.
### Table O.1 Share of Higher Education Graduates by Field, circa 2013

<table>
<thead>
<tr>
<th>Country</th>
<th>Education</th>
<th>Humanities and Social sciences, business, and law</th>
<th>Science</th>
<th>Engineering, manufacturing, and construction</th>
<th>Agriculture</th>
<th>Health and welfare</th>
<th>Services</th>
<th>Unspecified</th>
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<td>6.0</td>
<td>2.5</td>
<td>17.9</td>
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<td>5.6</td>
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<td>1.7</td>
<td>14.5</td>
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<td>21.2</td>
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<td>7.8</td>
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<td>9.0</td>
<td>0.9</td>
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</table>


**Note:** Average indicators are simple averages over the countries’ indicators.


**Returns Are High, But Declining and Heterogeneous**

On average, the wage premium for higher education in Latin America and the Caribbean is high relative to that in the developed world. Higher education graduates can expect to earn, on average, 104 percent more than high school graduates, holding other worker characteristics constant. While many factors might contribute to these high premia (or Mincerian returns), a clear one is the still relatively low fraction of college-educated workers. Furthermore, even higher education dropouts enjoy a relatively large average earning premium of 35 percent relative to high school graduates (figure O.17). This high premium for incomplete higher education might in turn discourage students from completing higher education, an outcome to which long degrees and graduation requirements might contribute as well.\(^{12}\)

Although they are high, average Mincerian returns to higher education relative to high school have actually declined since the 2000s, when they were equal to 115 percent. Most of this decline took place between 2000 and 2010. Messina and

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**Figure O.17  Mincerian Returns to Incomplete Higher Education versus Higher Education Degrees in Latin America and the Caribbean, Mid-2010s**

![Graph showing Mincerian returns to education in Latin America and the Caribbean.](image-url)

*Source:* World Bank calculations based on SEDLAC.

*Note:* The figure decomposes the return to a higher education degree (relative to complete high school) into two components: the return to some higher education (or incomplete higher education), and the additional return to completion. For example, in Uruguay, the return to complete higher education is equal to 70 percent; the return to incomplete higher education is equal to 20 percent; and the additional return to completing higher education (relative to not completing it) is 50 percentage points. The returns are computed as the exponential function of the coefficient estimated from the Mincer regression (minus 1). The estimation of the Mincer model corrects for self-selection into employment. The set of controls include gender, age and its square, urban area indicators, and regional indicators by country. When multiplied by 100, these returns are expressed in percent.
Silva (2017) study the related decline of higher education Mincerian returns relative to primary education, a phenomenon which could in principle be due to demand or supply factors. For instance, the greater supply of higher education graduates would, by itself, lead to lower Mincerian returns, as would the entry of lower ability students (receiving low-paying jobs afterward) into the system. While these supply-side factors have indeed played a role, there was also an increase in labor demand coupled with asymmetric responses of skilled and unskilled labor supplies. In particular, while the demand for both unskilled and skilled labor rose during the 2000s, the fact that the unskilled labor supply is less elastic than the skilled labor supply led to greater wage increases for unskilled than skilled workers. Institutional factors such as minimum wages contributed as well to the greater relative growth of wages for unskilled workers.

While Mincerian returns are informative of the higher education wage premium, they do not factor in the cost of higher education (including not only direct costs such as tuition but also the opportunity cost of salaries foregone by being in school). If, for instance, the net present value of higher education (that is, the expected salaries over a lifetime minus the higher education costs) exceeds the net present value of not pursuing higher education (and hence earning a high school graduate’s salary) by 30 percent on average, then the average return to higher education is 30 percent.

When calculated in this fashion for the countries with available data, returns show a striking heterogeneity across fields and HEIs. In Chile, for instance, engineering and technology have the highest returns among universities’ programs, followed by law, business, and science (table O.2). Education, in turn, has the lowest average returns, perhaps reflecting other job amenities (such as summers

| Table O.2 Returns to Higher Education Degrees, by Field of Study and HEI Type, Chile |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                  | Technical training centers (two-year degrees) | Professional institutes (four-year degrees) | Universities (five-year degrees) | Overall         |
| Agriculture                      | 35.3            | 42.5            | 62.7            | 52.5            |
| Arts                             | 66.1            | 31.0            | 49.0            | 41.2            |
| Business management              | 57.1            | 54.6            | 126.8           | 78.2            |
| Education                        | −2.4            | 9.5             | 12.7            | 9.6             |
| Engineering and technology       | 109.6           | 99.8            | 163.5           | 125.8           |
| Health                           | 40.5            | 40.9            | 101.5           | 73.3            |
| Humanities                       | −5.2            | 12.1            | 2.3             | 4.1             |
| Law                              | 61.3            | 38.6            | 128.5           | 115.1           |
| Science                          | 97.2            | 115.5           | 115.3           | 113.6           |
| Social sciences                  | 34.5            | 18.7            | 47.0            | 36.2            |
| Total                            | 66.2            | 58.9            | 97.5            | 78.4            |


Note: Returns are expressed in percent; they are calculated as the net present value of higher education (net of tuition costs and foregone salaries while pursuing higher education). “Total” denotes the enrollment-weighted average over the fields. HEI = higher education institution.
off and stable employment), or simply reflecting low public spending in elementary and secondary levels along with low public value for teaching. Furthermore, about 10 percent of all students in Chile are enrolled in programs with negative expected returns, although this fraction also differs by field and HEI type (figure O.18).

Even within fields there is much return heterogeneity. Continuing with Chile, consider graduates from business programs. Although the average graduate from a bachelor’s program has higher returns than the average short-cycle program graduate, being in the 25th percentile of the bachelor’s program distribution of returns is quite similar to being in the 75th percentile of the short-cycle program distribution. In other words, the large heterogeneity in returns might render a bachelor’s program no more valuable than a short-cycle program to some students.

Several Institutional Features Point to Potential Inefficiencies

These unsatisfactory outcomes, attained in spite of some reasonable inputs, calls into question the efficiency of the system, which is related to the incentives faced by the different agents. Some incentives might indeed foster inefficiencies. For instance, the region has a strong tradition of university autonomy

Figure O.18 Proportion of Students Facing Negative Expected Returns to Higher Education in Chile, by Field and HEI Type

![Proportion of Students Facing Negative Expected Returns](source)


Note: The figure shows, for each field and HEI type, the proportion of students facing negative expected returns. HEI = higher education institution.
from policy makers and government, a feature that makes it remarkably difficult to hold universities accountable for the public funding they receive. In addition, very little funding is competitively awarded to HEIs (whether public or private) for their research, a factor that might explain why universities in the region do not produce more graduates in science. Also, students in highly subsidized public HEIs are not held accountable for their outcomes; in some countries, students in public HEIs face no admission requirements, nor do they face a TTD limit. Furthermore, the fact that higher education programs are longer in many Latin American and Caribbean countries than in the developed world, and switching among them is harder, may constitute an obstacle to completion.13

Lessons Learned

In light of these stylized facts, it is important to take stock of lessons learned from our analytical research. Although this research focuses on only a few countries because of data availability, its lessons are likely applicable to other countries in the region.

Higher Education Access Grew as a Result of Supply and Demand

The access expansion was indeed an equilibrium outcome: fruit of the interaction of supply and demand. Demand for higher education rose with the increase in the number of high school graduates, the growth of personal income, and the removal of liquidity constraints through scholarships and loans. Supply of higher education grew as existing programs expanded and new programs and HEIs opened. Greater demand created the opportunity for new programs and HEIs to open, particularly to serve the “new” students; by creating new options, greater supply enticed new students to enter the market, and led others to alter their choices.

More Students Gained Access—Yet Not All Students Gained Access to the Same Options

Research on Colombia and Chile reveals that while many “new” students gained access to higher education, they did not all gain access to the same HEIs and programs. For bachelor’s programs, both countries feature a high-end segment with selective admission and a low-end segment. High-ability students gained access to selective programs (most of which already existed before the expansion), while low-ability students gained access to less- (or non-) selective programs (many of which were created during the expansion). In addition, many low-ability students gained access to short-cycle programs.

Figures O.19 and O.20 illustrate these developments for Colombia, where public HEIs are heavily subsidized. Figure O.19 groups students into “student types” depending on their income and ability, and depicts the probability of choosing a bachelor’s program (as opposed to a short-cycle program) conditional on attending college for each student type. As the figure shows, high-income, high-ability students are the most likely to choose a bachelor’s program, and low-income, low-ability students are the least likely.
Figure O.19  Probability of Choosing a Bachelor’s Program, Conditional on Going to College, Colombia, 2009

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<thead>
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<th>Income bracket</th>
<th>Ability quintile</th>
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<td>3–5 MW</td>
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<tr>
<td>1–2 MW</td>
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<tr>
<td>&lt;1 MW</td>
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</tbody>
</table>

Overall probability = 79.9%

Source: Carranza and Ferreyra 2017.

Note: The figure shows the probability of choosing a bachelor’s program among students who graduated from high school in 2009, and who enrolled within the five-year window following high school graduation. MW = minimum wage. Probabilities are expressed in percent.

Figure O.20  Probability of Attending Each HEI Type, Conditional on Choosing a Bachelor’s Program, Colombia, 2009

<table>
<thead>
<tr>
<th>Income bracket</th>
<th>Ability quintile</th>
<th>a. Low-end private HEIs</th>
<th>b. High-end private HEIs</th>
<th>c. Low-end public HEIs</th>
<th>d. High-end public HEIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>5+ MW</td>
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<tr>
<td>3–5 MW</td>
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<td>2–3 MW</td>
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<td>1–2 MW</td>
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<tr>
<td>&lt;1 MW</td>
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</tbody>
</table>

Overall probability = 25%
Overall probability = 30.89%
Overall probability = 13.2%
Overall probability = 30.91%

Source: Carranza and Ferreyra 2017.

Note: Probability pertains to first-year college students from the 2009 cohort (that is, high school graduates from 2009). Students are classified into “types”, a student type is a combination of income and ability. For each student type, probabilities, expressed in percent, add up to 100. MW = minimum wage.

Figure O.20, in turn, focuses on students enrolled in bachelor’s programs. There is a clear sorting of students among HEI types depending on student income and ability. Broadly, high-end private HEIs attract high-income, high-ability students, whereas high-end public HEIs attract low-income, high-ability students. Low-end public and private HEIs attract low-income, low-ability students, although students in private low-end HEIs come from higher income families than students in public low-end HEIs.
Selective programs have remained selective throughout the expansion by continuing to serve high-ability students. Nonetheless, high-end HEIs in Colombia have also opened less-selective programs to serve lower ability students. In Chile, these students have been served by nonselective HEIs.

The fact that not all students gained access to the same options (largely because of differences in academic readiness and socioeconomic background) partly explains the heterogeneity in returns even for the same field. For instance, a law degree from a prestigious, selective HEI must have, on average, a higher return than a law degree from a low-end institution. Hence, attempts to raise social inclusion through higher education access can have only limited success in light of the heterogeneity in students, HEIs, and programs in the system, not to mention the heterogeneity of jobs in the labor market.

**Not Only Did the Expansion Attract New Students But It Also Affected Their Choices**

Besides affecting the extensive margin (that is, whether students enroll in higher education or not), the expansion affected the intensive margin (that is, the choices students make within the system, or their sorting across options), largely because of policy and supply-side changes.

For instance, throughout the expansion, overall, students in Colombia became more likely to choose short-cycle rather than bachelor’s programs. Nonetheless, the highest ability students became more likely to choose bachelor’s programs. Students with the highest income or ability became more likely than before to attend their usual choice of private HEIs, although high-ability, low-income students became less likely to attend their usual choice of selective public HEIs.

In Chile, the implementation of student loans with state guarantee removed liquidity constraints for a large number of low-income students. As a result, they became more likely to attend higher education; some of them also became more likely to pursue long programs, or programs with a lower return, than they would have chosen otherwise.

**In Opening New Programs, HEIs Sought to Exploit New Opportunities**

Detailed data from Colombia have enabled us to study the drivers of new program entry. HEIs are more likely to open a program in a particular field if they already have a presence in that field because they can exploit the same infrastructure. The new program might involve a repackaging of existing elements or a brand-new curriculum.

In Colombia, the behavior of low-end private HEIs has been a driving factor in other HEIs’ program openings. Two things have happened in response to new programs opened by low-end private HEIs: (a) high-end private HEIs have opened similar programs yet at a higher tuition, thus attracting wealthier students; and (b) low-end public HEIs have opened similar programs yet at lower tuition, thus attracting lower income students. The preferred fields for new
programs at HEI of all types are business, economics, and social science. In high-end public HEIs, the other most preferred fields for new programs are engineering and education.

Given their high fixed cost, opening new programs in science and technology was not profitable for private HEIs unless they were already offering them. From a strict cost-benefit analysis, these programs lead to economic losses because of their high cost and low enrollment. The same is true in the developed world, although competitive allocation of public funding to universities (both public and private) for research helps HEIs of all types offer more programs in science and technology.

**Competitive Pressures Are Strongest in Midtier Programs**

In countries with a relatively large private sector, the top-tier, highly selective HEIs are naturally isolated from competition of less-selective HEIs by virtue of admitting high-ability students. Highly selective HEIs compete among themselves, but not much with others outside their league. Similarly, the bottom tier, least-selective HEIs are somewhat isolated by virtue of attracting many students from outside the market. Again, these HEIs compete with each other but do not face much competition from higher tier HEIs.

In contrast, midtier HEIs are subject to the strongest competitive pressures. They face competition from more selective HEIs, which can lure their top students away. They also face competition from less selective HEIs, which can lure students away with the offer of nonacademic amenities (including, perhaps, a more convenient location). In addition, they compete among themselves. Perhaps for this reason, the number of programs has grown the most for students attending midtier HEIs, as illustrated in figure O.21 for Chile, mostly through the entry of new programs.

Such intense competition among midtier HEIs can lead both to positive and negative outcomes. On the one hand, as programs lose students to others’ competition they lower admission standards to make up for enrollment losses: as a result, their peer ability suffers. On the other hand, programs might respond to competition by improving their offering: as a result, program quality might rise. Further research is needed to learn more about these outcomes.

**Funding Mechanisms May Have Unintended Consequences**

Two main tools are available to help remove students’ liquidity constraints. The first is tuition subsidies or scholarships. When students receive a tuition subsidy, the HEI is reimbursed for the cost of its services. For instance, in a higher education system with subsidized tuition for public HEIs, the institutions receive public funding so that they can charge low (or zero) tuition. Alternatively, the subsidy might be given directly to the student, for her to use in the HEI of her choice. The second tool to remove liquidity constraints is student loans. While each tool admits many variations, it is useful to focus on the extreme cases of
universal free tuition and nondefaultable student loans (or, more generally, loans with costly default). Many countries in the region provide at least one of these.

Simulations from a general equilibrium model indicate that both loans and universal free tuition have the potential to relax liquidity constraints, raise enrollment rates, and ultimately raise the percentage of skilled workers in the economy. However, according to our simulations, they are likely to do so to a different degree because they tend to create different incentives.

Nondefaultable loans create powerful incentives for student effort. They make the student internalize not only the cost of her education but also the risk of failing to graduate. A loan, then, induces financial responsibility on the part of the student. Yet precisely for this reason, only students who are likely to graduate take up loans, which explains why loans tend to expand enrollment to a lower extent than free tuition.

By itself, universal free tuition tends not to create such desirable incentives. With universal free tuition, the student no longer bears the cost of her education or the risk of failing to graduate. Hence, universal free tuition tends to attract many students who are likely to drop out. Furthermore, even some students who might succeed otherwise might take longer to graduate, or even fail.

While loans provided by a private institution have a relatively low fiscal cost, universal free tuition is fiscally more costly because it requires fiscal resources to cover the cost of education—and the education, on average,
takes longer, since TTD is higher under universal free tuition. Furthermore, universal free tuition requires fiscal resources to pay not only for the students that graduate but also for those that drop out.

Free tuition to students is not free to society, since society must pay taxes to finance free tuition. Since universal free tuition for all subsidizes some individuals who would be willing and able to pay for higher education, it may be an inefficient use of fiscal resources.

While policy makers might feel tempted to raise enrollment through free tuition without a concomitant increase in resources, the evidence for the United States shows that the resulting decline in per-student resources is associated with lower academic outcomes. This, in turn, could exacerbate the challenges generated by the entry of lower ability students. Remedial and developmental programs for less-prepared students, which might be viewed as a solution to the problem of low academic readiness, are fiscally costly as well.\(^\text{15}\)

Given the role of students’ responses to funding mechanisms, policy makers must try to design mechanisms that incentivize effort and graduation. Performance-based tuition subsidies for students who make satisfactory progress throughout college is one example. Indeed, the evidence suggests that such mechanisms deliver better academic outcomes than those without “strings attached.”\(^\text{16}\) The recent adoption of merit- and need-based financial aid programs, such as Ser Pilo Paga in Colombia and Beca 18 in Peru, is a step in this direction.

**We Can Expect Only So Much from Higher Education**

The region has great hopes for education as “the great equalizer,” yet some sobering research findings tell a more complicated story. This section describes college-educated workers as “skilled,” and we measure the “skill premium” as the ratio of the average wage of college graduates and high school graduates.

The working-age population (WAP) comprises individuals ages 25–65 years, or approximately 40 cohorts. Broadly speaking, each year one cohort retires and another enters, which means that about 1/40th of the WAP changes each year. Thus, raising the fraction of skilled population through higher education changes one cohort per year, or 1/40th of the whole WAP. Therefore, it takes either many years, or a radical increase in the fraction of skilled population among incoming cohorts, for higher education to effect substantive changes in the WAP. For the same reason, the reduction in the skill premium and wage inequality brought about by the greater share of skilled population is also slow.

Through simulations, we have investigated the long-term effect of increasing the number of college graduates by 50 percent in every cohort coming into the WAP from now on, and focused on individuals with at least a high school education, given our interest in the margin between high school and higher education. Given these countries’ dropout rate, such increase in the number of college graduates would entail doubling higher education enrollment—a substantive feat that took about 10 years for these countries to accomplish.
In this scenario, over more than three decades, the fraction of skilled WAP (relative to all workers with at least a high school diploma) would rise from approximately 25 percent to 35 percent or 37 percent, and the skill premium would fall from 2.8 to 2.4. These effects are sizable, since they amount to a 50 percent increase in the fraction of the skilled population and a 14 percent decline in the skill premium. Even then, the fraction of the skilled population would remain well below that of the United States (47 percent), and the skill premium would remain well above the United States (1.7).

Although specific outcomes of these simulations are a consequence of model assumptions, the message remains that expanding the number of graduates (not merely enrollees) alone would have limited effects on skills and wage inequality and would take decades to materialize in full. This finding has two policy implications. First, in a region with an urgency to create and improve skilled human capital, the policy menu must include complementary reforms aimed at injecting speed and efficiency into the higher education process. Such reforms might include streamlining and shortening some programs, reviewing graduation requirements, and strengthening the connections between the university and the marketplace. A critical policy, of course, consists of raising academic readiness among high school graduates. While the region has made strides in the quantity of high school graduates—and this has been the main driver of higher education expansion—the region will not form skilled human capital at a fast rate unless it makes similar strides in the quality of high school graduates.

The second policy implication is that in its search for lower inequality, the policy maker cannot put all the eggs in the higher education basket. As Messina and Silva (2017) point out, although education explains 30 percent of the cross-sectional variation in wages in the region, and worker characteristics overall explain about 50 percent, the remaining 50 percent is explained by other factors, particularly firm heterogeneity. In other words, some individuals have “good” jobs in “good” firms, whereas others do not. The challenge for the policy maker, then, is to create an environment in which “good” firms can create “good” jobs and make “good,” productive use of the skilled human capital formed through higher education.

**Some Policy Considerations**

The stylized facts depict the current crossroads of higher education in the region, and the analytical findings uncover some of the driving forces. Given the region’s urgency to raise productivity in a low-growth, fiscally constrained environment, going past this crossroads requires the formation of skilled human capital rapidly and efficiently. Policy makers, however, must remain aware of both the challenges and limitations of higher education policy. They must also remain aware of the trade-offs between higher education access and completion, since one has the potential of undermining the other. In addressing these challenges and trade-offs, a role emerges for incentives, competition, monitoring, and information. While zooming in to the higher education sector is critical to sound higher education...
policy design, so is “zooming out” to (a) the secondary education system that prepares students for higher education, (b) the labor market in which higher education graduates will participate, and, of course, (c) the entire economy.

**Inherent Challenges and Limitations of Higher Education Policy**

Left to its own devices, the market will not achieve the social optimum of maximizing each person’s potential and meeting the economy’s skill needs because of the presence of externalities, liquidity constraints, information-related problems, and imperfect competition. Each of these distortions calls for a different set of policies. Broadly:

- Externalities call for government subsidies for higher education
- Liquidity constraints call either for government subsidies or for enabling student credit markets
- Information-related problems call for information provision and consumer protection
- Imperfect competition calls for enabling competition through student choice while also monitoring and regulating the sector

The presence of multiple distortions calls for multiple policy instruments. For instance, it is not enough for the policy maker to subsidize access to higher education; through her subsidies she must enable student choice among HEIs and programs, and these must be overseen at some level. The problem, of course, is that removing one distortion can aggravate another. For example, removing liquidity constraints through credit can indeed expand access, yet also invite the entry of low-quality HEIs and programs with considerable market power over a segment of uninformed consumers.

Sound policy, then, requires a delicate balance of multiple instruments. Not all instruments are created equal, though. The ultimate success of higher education policies depends on the behavior of higher education’s key agents, namely students and HEIs. Thus, a useful criteria to choose among instruments is the extent to which they incentivize the desired behaviors and discourage others. The larger the scale of the policy, the more critical this consideration becomes to avoid negative, unintended effects.

Awareness of the unintended consequences of large-scale higher education policy is important. Equally important is awareness of the limitations of higher education as a social mobility tool. As the recent experience in the region demonstrates, broad access gives less-prepared students access to some lower quality higher education options, which, in turn, might lead to lower quality employment and perhaps some discontent. Furthermore, even if two students have the same subject matter competence despite having attended different HEIs, they might still face different job prospects because of other elements (for example, social and professional connections) or nonacademic skills (many of which were developed before higher education) that fall outside the scope of higher education.
Trade-Off between Higher Education Access and Completion

Providing access to higher education is a critical step toward forming skilled human capital. There are two main access paradigms: restricted access and open access. Restricted access rations access based on ability or financial means, whereas open access applies little or no rationing. Thus, restricted access systems may not grant access to students who are academically ready (for example, because of HEIs’ capacity constraints or students’ lack of financial means), whereas open access systems may grant access to students who are not academically ready.

When designing higher education systems, societies typically lean toward one of these paradigms (particularly through their public HEIs). Most higher education systems have some HEIs with restricted access, and others with open access. What is critical, though, is that each paradigm gives rise to consequential trade-offs. While restricted access regimes may be viewed by some as less fair than open access regimes, they may have higher completion rates by admitting academically ready students who are more likely to complete their studies—and by devoting more resources to each student. Furthermore, financial aid to low-income, academically ready students can substantially enhance the equity of these regimes.

Open access regimes, in turn, are viewed by many as providing a “second chance.” For instance, students who received a low-quality secondary education, or who enrolled in higher education relatively late in life because of family responsibilities, benefit from open access regimes. Yet, precisely by enrolling a greater proportion of less-prepared students, open access regimes may have lower completion rates. Furthermore, because the HEIs attended by these students do not ration entry, enrollment may be too high relative to resources, thus leading to low per-student resources. The ensuing combination of students’ low academic readiness and HEIs’ inadequate per-student resources can lead to poor academic outcomes. Also, these HEIs might need additional resources not only to prevent a decline in per-student resources, but also to compensate for the students’ lack of academic readiness (for example, through the provision of remedial education).

Thus, when choosing an access paradigm as part of its strategy to form human capital, societies must be aware of the trade-offs between access and completion. It is instructive to examine the experience of the United States, where the fraction of high school graduates enrolled in college rose from 48 percent for the class of 1972 to 70 percent for the class of 1992, yet the fraction of college students who completed their studies declined from 50.5 percent to 45.9 percent, respectively (Bound et al. 2010).

This outcome deterioration in the United States might have been due to students’ declining academic readiness, or to factors related to collegiate characteristics (for example, HEIs’ declining resources per student or the type of HEI first attended). The evidence indicates that most of the outcome deterioration can be attributed to a change in collegiate characteristics (Bound et al. 2010, 2012). In other words, expanding enrollment without a concomitant
increase in resources—and mostly in open access HEIs (nonselective public HEIs and two-year HEIs)—has been the leading cause of the recent decline in completion rates in the United States. Given Latin America and the Caribbean’s need to form skilled human capital rapidly, there might be a role for the provision of additional support to students who are not academically ready, either through the provision of remedial education, or through other programs such as tutoring, mentoring, and advising. The important point is that—depending on the access paradigm embraced by a country—further access expansion may require additional resources (either from the public or the private sector) at least partly to compensate for the lower academic readiness of the “new” students. While societies may choose to devote such additional resources in higher education, they should remain aware of their opportunity cost, including the improvement of the primary and secondary education system that prepares the future higher education students.

**Incentives, Competition and Choice, Monitoring, and Information**

The evidence we have presented—and the incentives in some of these higher education systems—suggest that the systems might not be operating efficiently, and that there might be room for efficiency gains. In moving past the current crossroads, an important role arises for incentives, competition and choice, monitoring, and information.

Students who receive public funding must be given incentives to graduate—and to do it on time. Universal free tuition (especially when coupled with unrestricted admission) may not accomplish this goal, but performance-based tuition subsidies may. Loans with a default penalty may provide even stronger incentives. Given the current fiscal climate of limited public funds, carefully designed student loans may need to be part of the policy discussion. More broadly, the design of an efficient, responsible, and equitable funding system remains an important item in the higher education agenda for the region.

In addition, institutions must be given incentives to contribute to students’ success: they must be given “skin in the game.” Such incentives are not present, for instance, when public HEIs receive funding without accountability. They are not present either when private HEIs receive public funding (in the form of financial aid given to students) regardless of student outcomes.

Incentives are critical to addressing the worrisome fact that only one-half of enrolled students in the region have completed their degree by the age of 25–29 years, and that about one-half of all dropouts leave their programs in their first year. It is possible, for instance, that institutional or curricular features may contribute to this situation. For example, students in the region typically must choose a program in their first year in college as opposed to taking general education classes, as in the United States. If, after starting her program, a student realizes that the program is a poor match to her skills or preferences, she may have to start another program from scratch, or may be able to transfer only a few credits. While poor adaptation to higher education might lead some students to drop out of any system, curricular rigidities may lead even more students to drop out.
In addition, academic advising and student support systems might not be as strong in Latin America and the Caribbean as in countries such as the United States, thus contributing to students’ disorientation during their first year in college.

Furthermore, the fact that approximately 30 percent of all students who leave the system do so four years into it should call into question the length and appropriateness of the programs. While four years of coursework are not enough in many countries in the region for a student to receive an accountant’s degree, perhaps they should suffice for a shorter program degree that prevents the student from leaving college with no degree at all.

Promoting variety and enabling competition among HEIs and programs can provide students with further choices and enable them to find their best-fitting option. Students, however, need the financial means to exercise choice. When public funding is restricted to public HEIs so that they can provide free or subsidized tuition, private HEIs are placed at a competitive disadvantage. Since some private HEIs and programs may be a better fit for some students than their public counterparts, this type of funding system restricts students’ choices and limits competition. While public participation in higher education funding is motivated by the existence of externalities and liquidity constraints, it is not obvious that public funding should be mostly (or only) channeled towards public HEIs.

As in other areas of economic life characterized by pervasive information asymmetries, monitoring and regulation can improve outcomes. Both students and the policy maker can monitor institutions. Yet monitoring is more costly for some students than others. Thus, it is particularly necessary for the policy maker to monitor the HEIs attended by the “new” students, who might have less access to information or might have lower information-processing capacity (Ferreyra and Liang 2012). Thoughtful regulation and accreditation procedures, for instance, can accomplish this goal.

Monitoring and regulation are not sufficient, however, to improve outcomes. Only when a student has the ability to switch to another HEI are monitoring and regulation useful—an ability created by channeling at least some funding to students rather than institutions. Yet, monitoring can take place only in the presence of adequate information. Generating and disseminating information on programs’ outcomes regarding completion, employment, and graduates’ salaries are key in the new landscape, as is creating a culture in which students and families can expect to receive and act upon high-quality information. Chile, Colombia, and Peru have already taken steps in this direction.

**Before and after Higher Education**

As technological progress alters the structure of jobs and careers, individuals can expect to switch jobs more often throughout their lives—and even switch careers. Therefore, some higher education programs in the region may need to become shorter and more streamlined, and professional requirements may need to change to facilitate individuals’ transitions among fields later in life.
While enhancing higher education is of great importance, the policy maker cannot overlook the pre- and postcollege stages. Higher education is more likely to produce good outcomes when it receives academically ready high school graduates. Moreover, higher education graduates can realize their productive potential only when enabled by their environment. For instance, one of the authors of this report has a friend who received a doctorate in molecular biology at a top research institution in the United States and worked as a postdoc at another top U.S. institution. She then went back to a top research institution in her home country in Latin America and the Caribbean. When she tried to run similar experiments to those she was conducting in the United States, she could not gain access to the necessary materials because of import restrictions in the economy. When she tried to download journal articles online, she found that the Internet connection was too slow, and that her institution did not have a subscription to several important journals. Getting to work in the morning was also a challenge because of recurrent transportation strikes. She found the lower expectations on the part of other researchers and assistants quite detrimental to the institution’s morale. Thus, in only a few weeks since the return to her home country, she saw her productivity plummet, even though her human capital had not changed.

The message for the policy maker in the region, then, is that forming skilled human capital is not enough to raise productivity, growth, and equity unless an enabling environment is put in place as well. Once again, we can expect only so much from higher education.

Structure of the Report

Chapter 1 describes the recent higher education expansion. It documents the magnitude of the expansion, describes the “new” students, and examines patterns of higher education spending in the region relative to other regions. It examines a variety of private returns to higher education and provides evidence regarding public returns. Chapter 2 presents equity, quality, and variety indicators in higher education. It describes the recent equity gains, presents evidence regarding to quality, and documents the variety of programs and HEIs in the region. Chapter 3 focuses on wage-based returns to higher education, both complete and incomplete. It documents returns’ recent average decline and their heterogeneity among fields and HEIs.

Chapter 4 examines the demand-side drivers of the recent expansion. It studies the admission and funding mechanisms in the region, and explores student sorting across programs and HEIs and HEIs’ changes throughout the expansion. It also studies the unintended consequences of funding mechanisms. Chapter 5 examines the supply-side drivers of the expansion. It documents the supply-side growth in the region and studies the opening of new programs and the competitive strategies used by various HEI types. Chapter 6 provides a summary of institutional arrangements related to current higher education policy in the region. Chapter 7 concludes with policy implications from the analysis conducted in the report.
Notes

1. See the glossary for enrollment rate definitions.

2. Here, ability is proxied by academic readiness for college. In some countries, this is measured by high school graduation exams or college entrance exams.

3. Based on household survey data, in 2013 almost 80 percent of higher education students ages 18–24 years lived at home (namely, the student is either the child or grandchild of the household head). Student-level data for Colombia indicate that about three-quarters of students attend an HEI located in the same state where they attended high school.

4. For example, Hastings et al. (2016) describe that students tend to have noisy beliefs about programs’ costs, although their average beliefs are correct. However, they overestimate the returns to their preferred programs.

5. See the glossary for the definition of access rate.

6. In some countries, class and exam schedules in public HEIs are often subject to disruptions caused by faculty or student strikes. Private HEIs thus offer a more tranquil, predictable environment. Parents who want to hold their children accountable find that the structured environment of a private university is helpful in this regard. Since private HEIs have an incentive to retain students for financial reasons, they are often more responsive to students’ and parents’ concerns.

7. See the glossary for the definition of bachelor’s and short-cycle programs.

8. A student may drop out of a program and start a new one. If she also drops out from her second program and does not enroll in other programs afterward, then she drops out of the system. Hence, the fraction of students who drop out of the system is lower than the fraction that drops out of individual programs. We compute dropout rates from the system to facilitate comparisons with the United States.

9. Similarly, U.S. dropout rates are equal to 24 percent and 46 percent for students starting in four- and two-year HEIs, respectively.

10. This conjecture is supported by recent research from Maloney and Caicedo (2014) and Toivanen and Väänänen (2016).

11. Regarding engineers, Lederman et al. (2014) document that Latin American and Caribbean countries have fewer engineers than the median country and fewer than would be expected given their current level of development. Their measure (the number of engineering graduates per 1,000 inhabitants ages 15–24 years) is informative of the stock of engineers, whereas the share of higher education graduates from engineering, construction, and manufacturing is informative of the flow of engineers.

12. For instance, in some countries students must write a rather lengthy undergraduate thesis, with little assistance from the faculty, as a graduation requirement. Anecdotal evidence indicates that after completing their coursework, many students begin to work and never finish their thesis, which means that they never complete their degree.

13. For instance, the statutory length of business programs in many Latin American and Caribbean countries is five years (without including the undergraduate thesis that is sometimes required), relative to only four years in the United States. Students who wish to switch from one program to another (perhaps because their first program was not a good match to their preferences or ability) face more difficulties in many Latin American and Caribbean countries than elsewhere, given the lower overlap in the curriculum of alternative programs.
14. Loans made by private institutions may have a fiscal cost if they entail a publicly funded subsidy, or if they have a state guarantee.

15. See Bianchi (2016) and Bound et al. (2010, 2012) for evidence on the negative effect of lower resources on higher education outcomes. Bettinger et al. (2013) review the literature on remedial and developmental programs in higher education, which have yielded mixed results in the United States.

16. Dynarski and Scott-Clayton (2013) review the literature on higher education financial aid and conclude that performance-based financial aid is more effective in terms of college outcomes.

17. Bordon and Fu (2015) consider the potential effects in Chile of switching from the current system, in which students choose both an HEI and a program upon enrollment, to a system in which students choose an HEI first and a major later, after having spent time in college. They estimate that the new system would yield better program matches for students, particularly for female, low-income, or low-ability students (or a combination thereof).

References


