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The (Un)expected Economic Consequences of the Recent Expansion of Higher Education in Latin America¹

by Ricardo Espinoza² and Sergio Urzúa³

Abstract

Policymakers in Latin America need to internalize the economic challenges associated with the recent expansion of higher education in the region, which has been carried out at a rapid pace and with weak quality assurance mechanisms. To achieve a more promising future than past generations, current college graduates need more than just any degree. We argue that only high-quality programs designed to effectively equip students with the skills to succeed in the modern labor market will alleviate the intergenerational transmission of inequality in the region. This paper seeks to shed light on this critical issue.

Disclaimer: The views expressed in this paper are those of the authors and do not necessarily reflect those of the Organisation for Economic Co-operation and Development (OECD) or of the governments of its member countries.

Introduction

During the last two decades, several countries in Latin America and the Caribbean (LAC) have expanded their higher education systems. In 1991, the enrollment rate in tertiary education in the region was only 17 percent but had reached 43.8 percent by 2014,⁴ observed in Chile and Colombia during the past decade. During that period, their enrollment rates in higher education increased by 301 percent and 241 percent, respectively.⁵ Nowadays, both countries report rates that are comparable to the levels observed in many developed nations.

As expected, these achievements have been received with optimism in the region. To a large extent, the phenomenon is the result of public policies aimed at facilitating access to higher education institutions (HEIs) and promoting human capital accumulation in economies characterized by large deficits of productive labor. Greater financial support for students and the geographical expansion of tertiary education

during the first decade of the new millennium illustrate these efforts.

And, of course, greater access to higher education was expected to bring economic progress and equity gains. Public policies were designed and implemented under the assumption that first-generation college graduates, particularly those coming from vulnerable households, would benefit from high returns to education. However, this initial optimism has waned. There are growing societal concerns that the expansion has been accompanied by the deterioration in education quality. This phenomenon might explain, at least partially, the massive student protests observed in Chile and Colombia during the past five years.

The objective of this paper is twofold. First, we document the expansion of higher education systems, compare it to what has been observed in developed economies, and discuss the difficulties of

quality assurance. Second, we estimate the economic returns to higher education in two selected countries: Chile and Peru. By using publicly available data on tuition costs and earnings for college graduates from these two countries, we estimate the financial return to particular higher education programs. Specifically, we calculate the financial advantage of pursuing different degrees to alternative career paths, such as not enrolling in postsecondary studies at all. The evidence lends support to the concerns that indeed, the quality of higher education programs has deteriorated.

The Expansionary Process

Two distinctive aspects characterize the expansion of tertiary education in Latin America. First, its speed - enrollment rates have increased significantly in short periods of time in a number of countries. Although they are still lower than those in developed countries, enrollment growth has been significantly higher. Figure 1 shows the evolution of the gross enrollment rate in tertiary education and the GDP per capita in selected countries of Latin America vis-à-vis these trends in developed economies such as France, Norway, and Sweden from 1960 to 2014.

Second, expansion at the tertiary level was not accompanied by efforts to ensure education quality at lower levels (i.e. primary and secondary). Even though most governments have increased education budgets overall, extra funding was directed to improving access (quantity) instead of boosting outcomes (proxies for quality). For instance, according to the OECD (2016), some countries have experienced modest improvements in average PISA scores over the past years (Chile, Colombia, Peru), while in others scores have stalled or even decreased (Uruguay).⁷ Figure 2 shows that the share

of students performing at or above level 5 (highest levels) is significantly lower than in most OECD countries, despite similar enrollment rates in tertiary education. Educational performance at the primary and secondary levels is still far from what is observed in developed economies.

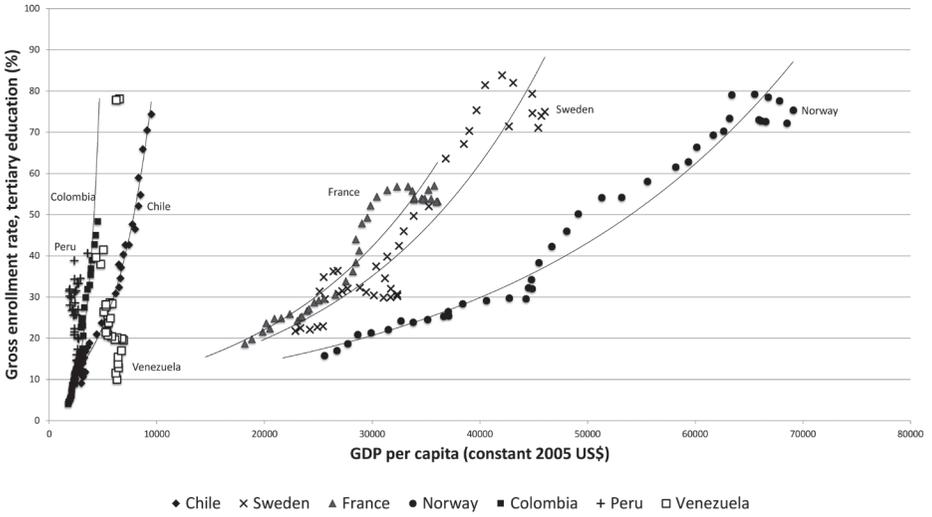
These two features of the development of higher education in Latin America suggest that its expansion was achieved with little-to-no strategic vision. The increase in expenditure and the implementation of mechanisms facilitating access may have come at a high cost. The evidence suggests that the expansion led to a decrease in the average quality and that the supply of degrees and programs remained fairly disconnected from the productive sector. All these factors may have contributed to a decline in the average returns to higher education.⁹

Returns to Higher Education

To illustrate the challenges associated with the expansion of higher education in LAC, we estimate the economic returns to a college degree in Chile and Peru, countries for which degree-specific data on post-graduation earnings, tuition costs, and degree duration is publicly available.¹⁰

We first study the impact of labor market experience on earnings using a Mincer-type regression framework. We then estimate the net economic returns to postsecondary degrees. To this end, we combine the conventional Mincerian returns with administrative information on tuition costs and labor market outcomes for recent cohorts of college graduates and predict lifetime earnings profiles. Our estimates identify the percentage increase in lifetime earnings of pursuing a particular degree versus the alternative of not pursuing any postsecondary degree (for details,

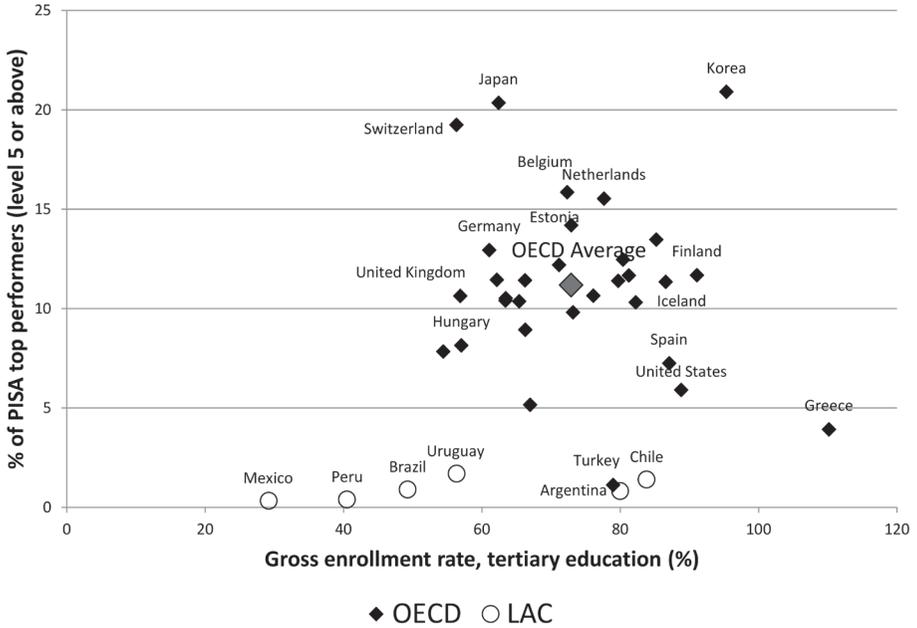
Figure 1: Enrollment rate in tertiary education and GDP growth



Source: Espinoza & Urzúa, 2015⁶

Note: Data from UNESCO Institute for Statistics, 1966–2013

Figure 2



Source: World Bank Data & PISA⁸

see Espinoza and Urzúa, 2016).¹¹ Specifically, the returns to pursuing the degree k , r_k is defined as:

$$r_k = \frac{NPV(k) - NPV_{HS}}{NPV_{HS}}$$

where $NPV(k)$ denotes the expected net present value of earnings of pursuing degree k and NPV_{HS} is the present value of not pursuing higher education after graduating from high school.

The analysis is carried out using data from household surveys (CASEN for Chile and ENAHO for Peru) and publicly available records by the government-run web portals *Mi Futuro* (Chile) and *Ponte en Carrera* (Peru).¹² These portals provide information on tuition costs, program duration, and salaries for most tertiary education degrees in each country.¹³

Results

Table 1 shows Chile's average returns by field of study and type of institution. The results indicate that the largest returns are associated with five-year college degrees in the fields of Business and Administration, Law, Science, and Engineering and Technology. The latter concentrates the highest results across types of institutions.

The table also shows substantial heterogeneity in returns across fields of study and HEI type. For example, while the average student attaining a university degree in Engineering and Technology faces a return of more than 160 percent, for the average student enrolled in the same type of institution but pursuing a degree in Humanities this figure reaches only 2.3 percent. Large differences also emerge across types of institutions for a given field.

Table 2 presents the results for Peru. Returns are, on average, substantially lower and more homogenous than those reported for Chile. The average return is 36.8 percent. The field that exhibits the highest returns is Sciences/Engineering/Manufacturing with returns of 58 percent, while, due to a combination of high tuition costs and low earnings, degrees in the field of education have negative average returns. This evidence is consistent with the patterns found in Chile.

Finally, our estimates suggest that roughly 10 percent of the students in Chile and 12 percent in Peru could face negative average returns to tertiary education. This means that these students would have been, on average, better off (in financial terms) by not pursuing that college degree (versus the alternative of entering the labor force after graduating from high school). Did the students know about the low returns to many of these degrees when applying to them? To what extent were they backed into a corner? How are the negative net returns related to the lack of quality assurance in the region? Did the expansion of the system boost competition among institutions? Did the expansion reduce the quality of the students and/or of the programs? These are some of the critical questions countries in the region need to assess before continuing expanding their higher education systems.¹⁶

Discussion

Many Latin American countries have implemented policies aimed at promoting access to higher education, and many more will continue doing so in the years to come. However, despite its political returns, the empirical evidence on the economic benefits of higher education suggests caution in continuing this strategy, particularly if quality assurance in education at all levels is not addressed. The intuition is simple.

Table 1: Average Returns by field of study and type of institution: Chile

	Type of HEI			Total
	Technical Training Center (2yr degrees)	Professional Institutes (4yr degrees)	Universities (5yr degrees)	
Agriculture	35.3%	42.5%	62.7%	52.5%
Arts	66.1%	31.0%	49.0%	41.2%
Business Administration	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%

Source: Espinoza & Urzúa, 2016

Table 2: Average Returns by field of study and type of institution: Peru

	HEI Type		
	Vocational/Technical	University	Total
Arts & Architecture	16.3%	47.9%	34.6%
Business & Administration	31.9%	24.3%	28.6%
Education	-18.5%	-18.5%	-18.5%
Health	31.3%	7.1%	18.8%
Sciences/Engineering/Manufacturing	70.7%	49.4%	58.5%
Social Sciences/Communications	11.6%	27.8%	27.6%
Others	50.5%	33.0%	43.2%
Total	44.7%	30.5%	36.8%

Source: Espinoza & Urzúa, 2016¹⁵

To a large extent, the new generations of higher education students attended low-quality primary and secondary institutions for many years. Therefore, for this group, not just any higher education system would guarantee a more promising future. Only one of high quality, designed

to effectively alleviate their lack of skills and provide them with the capacity to succeed in the labor market, would allow them to climb the socioeconomic ladder.

Our findings have major policy implications. A first point that emerges from the

evidence presented here is the importance of further efforts to construct and disseminate information on the performance of higher education graduates in the labor market.¹⁷ In this context, this study highlights the role of precise, reliable, and publicly available data on labor market outcomes when designing and implementing higher education policies. Objective empirical analysis using such data can (and should) call into question the benefits of well-intended initiatives. Our assessment of the dramatic expansion in access to a system that often failed in its promise to improve the economic conditions of those who decided to invest in higher education illustrates this point.

Second, our findings suggest a notorious mismatch between education policies at different levels and economic needs. This calls for developing a holistic approach for developing skills policies in the region. A number of countries (e.g. Estonia, Ireland, New Zealand, Norway) have embraced ambitious long-term plans for developing effective and efficient skills strategies.¹⁸ By actively incorporating several layers of government bodies and stakeholders, including education and labor institutions, unions, firms, regional and local governments, these nations are working towards implementing synergy-enhancing and complementary policies. When it comes to policies aimed at boosting skills, Latin American countries should move towards adopting such approaches.

NOTES

¹This article is based on Ricardo Espinoza and Sergio Urzúa, “The Economic Returns to Higher Education: Funding, Coverage, and Quality in Latin America,” a working paper prepared for the World Bank, 2016. The views expressed in this paper are those of the authors and do not necessarily reflect those of the OECD or of its member countries.

² OECD Centre for Skills, Directorate for Education and Skills. Email: ricardo.espinoza@oecd.org.

³ University of Maryland. Email: urzua@econ.umd.edu.

⁴ “Data Bank,” World Bank Group, <http://databank.worldbank.org/data/home.aspx>.

⁵ “Data Bank,” World Bank Group.

⁶ Ricardo Espinoza and Sergio Urzúa, “The Economic Consequences of Implementing Tuition Free Tertiary Education in Chile,” *Revista de Educación* 370 (October–December 2015): 10–37.

⁷ For example, between 2009 and 2015 the average math PISA scores increased by 2, 10, and 20 points in Chile, Peru, and Colombia, respectively. In Uruguay, it decreased from 425 to 418 over the same period of time.

⁸ “PISA 2015 Results (Volume I): Excellence and Equity in Education,” OECD Publishing, 6 December 2016, <https://www.oecd.org/publications/pisa-2015-results-volume-i-9789264266490-en.htm>.

⁹ Maria Marta Ferreyra et al., “At a Crossroads: Higher Education in Latin America and the Caribbean,” World Bank Group, 2017, <https://openknowledge.worldbank.org/bitstream/handle/10986/26489/2110140v.pdf?sequence=4>.

¹⁰ Ricardo Espinoza and Sergio Urzúa, “The Economic Returns to Higher Education: Funding, Coverage, and Quality in Latin America”; Carolina Gonzalez-Veloso et al., “Returns to Higher Education in Chile and Colombia,” Inter-American Development Bank manuscript, March 2015, https://publications.iadb.org/bitstream/handle/11319/6858/Returns_to_Higher_Education_in_Chile_and_Colombia.pdf?sequence=2; Sergio Urzúa, La Rentabilidad de la Educación Superior en Chile. Revisión de la base de 30 años de Políticas Públicas,” *Estudios Públicos* 125 (2012).

¹¹ Espinoza and Urzúa, “The Economic Returns to Higher Education: Funding, Coverage, and Quality in Latin America.”

¹² See www.mifuturo.cl (Mi Futuro) and www.ponteencarrera.pe (Ponte en Carrera).

¹³ We analyze individual-level data including the degree and institution at which students are enrolled as well as family background characteristics. To estimate individual returns, we match a student’s enrollment decision with her corresponding expected salaries.

¹⁴ Espinoza and Urzúa, “The Economic Returns to Higher Education: Funding, Coverage, and Quality in Latin America.”

¹⁵ Espinoza and Urzúa, “The Economic Returns to Higher Education: Funding, Coverage, and Quality in Latin America.”

¹⁶ Our results must be interpreted with caution. They are intended to identify the average economic gain of those individuals graduating from a specific degree in a particular type of institution versus their alternative of becoming a worker with a high school degree. Thus, they neither represent the average effect of the marginal individual who is indifferent between attending college or not (Pedro Carneiro et al., “Estimating Marginal Returns to Education,” *American Economic Review* 101, no. 6 (2011): 2754–81), nor the internal rate of return (James Heckman et al., “Earning Functions, Rates of Return and Treatment Effects: The Mincer Equation and Beyond,” NBER Working Paper no. 11544 (2005)).

¹⁷ Raj Chetty et al., “Mobility Report Cards: The Role of Colleges in Intergenerational Mobility,” NBER

Ricardo Espinoza is an economist at the OECD. He works in the National Skills Strategies Team in the Directorate for Education and Skills performing comparative policy analysis, with the objective of contributing to enhance and extend OECD’s capacity to support countries as they develop effective education and labor market reforms. He has also worked as a consultant for the World Bank and IDB. Ricardo is an applied microeconomist, and his main research interests lie at the intersection between education and labour economics. His research focuses on estimating the returns to education and the economic impact of financial aid policies on higher education markets. He is also interested in the study of centralized college admission mechanisms and the extent to which they can improve the welfare of economically disadvantaged students. Ricardo earned a Ph.D. in Economics from the University of Maryland, and a Bachelor and Master’s degrees in Engineering from the Pontificia Universidad Católica de Chile.

Sergio Urzúa is an Associate Professor in the Department of Economics at the University of Maryland. He is a Research Associate at the NBER, Research Fellow at IZA, and International Research Fellow at Clapes-UC. His research has focused on the role of cognitive and noncognitive abilities, and uncertainty as determinants of schooling decisions, labor market outcomes, and social behavior. His research in econometrics is mainly concerned with the estimation of selection models with unobserved heterogeneity. Recently, he has analyzed the effects of early endowments on academic and labor market outcomes. His research agenda includes the evaluation of social programs in developing economies. He received his PhD from the University of Chicago in 2007. He teaches in the areas of Labor Economics and Econometrics.