

Who studies pedagogy? Trends in the profile of future teachers in Latin America & the Caribbean

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Education Division

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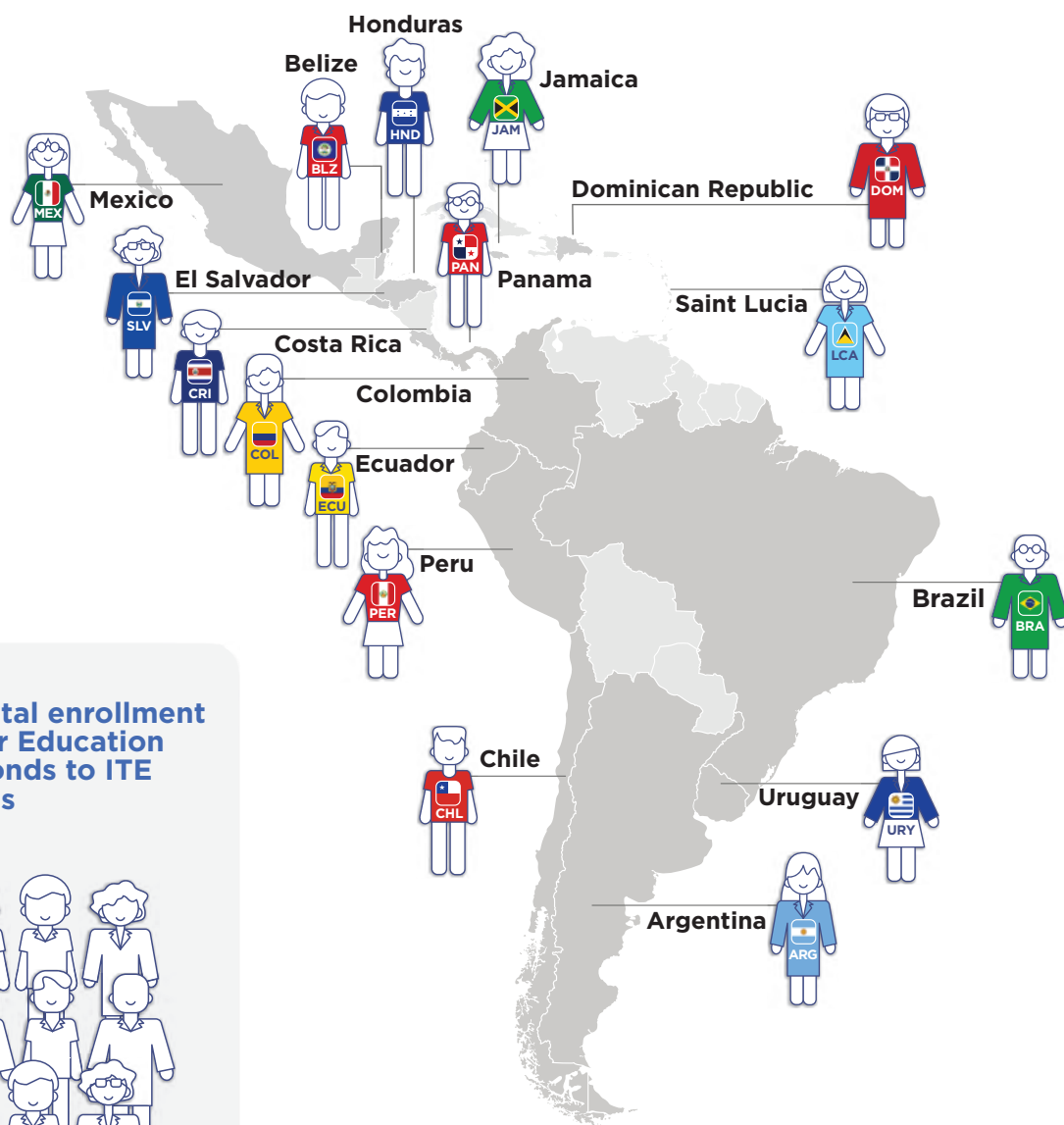
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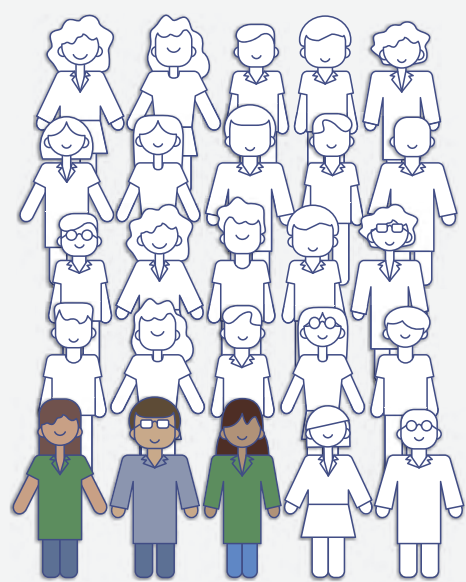
Who studies pedagogy?

Trends in the profile of future teachers in Latin America & the Caribbean

TECHNICAL NOTE



12% of the total enrollment in Higher Education corresponds to ITE programs



OECD: **8%**
USA: **Less than 1%**

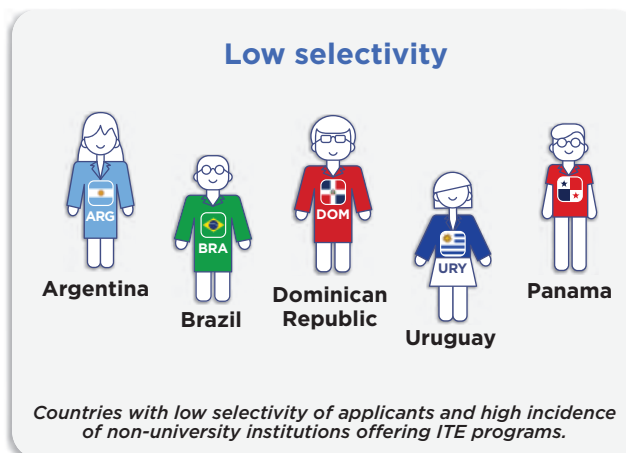
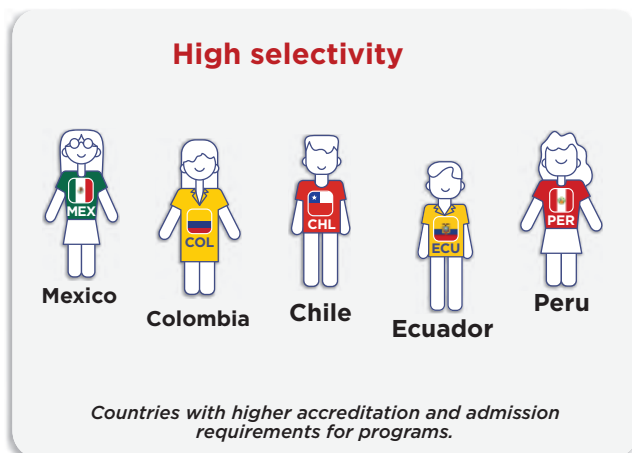
23 million enrolled in ITE programs

Countries are confronted with a short-term public policy trade-off between increasing the supply of future teachers and improving their quality.

To increase the number of teachers and reduce the deficit, it is essential to enhance the appeal of ITE programs to students.

To improve the quality of teachers, it is necessary to strengthen the entry requirements and regulations of FID programs.

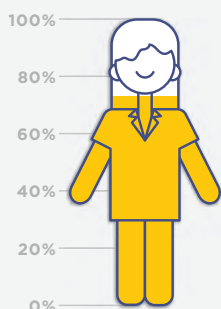
Selectivity of ITE programs in countries with high coverage in higher education



Feminization of enrollment in ITE (Initial Teacher Education) programs

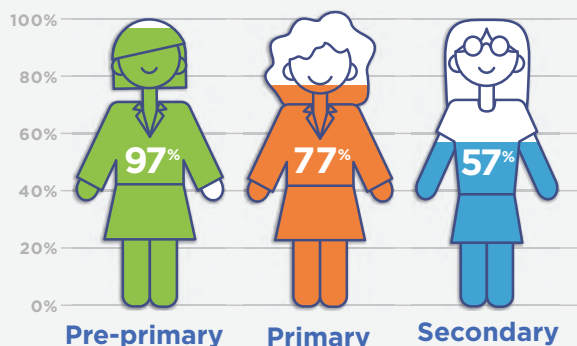
73%

of the enrollment is female

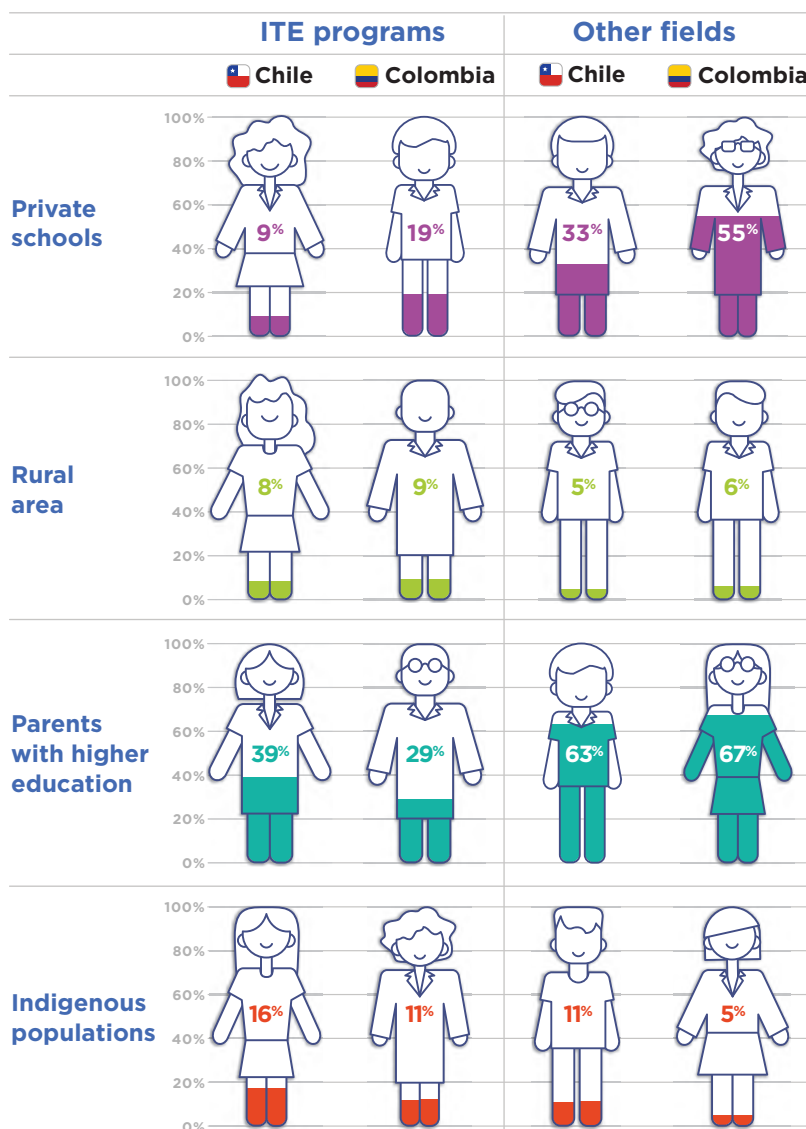


*57% of higher education enrollment is female.

Proportion of female enrollment by level of education pursued in ITE programs



Comparison of ITE students with students in other fields: A look at Chile and Colombia



*Academic programs in other fields include law, engineering, and medicine.

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Abstract

Latin America and the Caribbean (LAC) face significant challenges regarding the quantity and quality of the teaching workforce. In a context where there is a need for more and better teachers in schools, this study examines the first step in the teaching career: initial teacher education (ITE) programs. Specifically, the study investigates the characteristics and enrollment trends in ITE programs across 16 LAC countries from 2015 to 2020. In these countries, ITE programs represent 12.4% of enrollment in higher education (compared to 8% in OECD countries and less than 1% in the US). The participation of ITE programs in higher education enrollment is lower in countries with higher accreditation and entry requirements for the teaching profession and higher in countries with less regulation of ITE programs. In general, ITE enrollment is highly feminized (73% women), and female representation declines in specialties aimed at higher levels of teaching. Compared to the rest of higher education enrollment, ITE programs are more concentrated in public institutions. Additionally, the availability of bilingual intercultural ITE programs is insufficient relative to the proportion of the population identifying as indigenous, and policies to promote such programs are scarce. Finally, compared to other professional careers, students enrolled in ITE programs are disproportionately women, indigenous, from rural areas, from medium and medium-low socioeconomic backgrounds, and with lower academic performance upon entry. Governments in the region are confronted with a short-term public policy dilemma: how to increase the quantity, quality, and relevance of future teachers.

JEL Codes: A20, A21, A22, I23, I25, O54.

Keywords: Teacher policy, initial teacher education, Latin America, higher education, teachers, bilingual intercultural programs.

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Introduction

The challenge of teacher staff in Latin America and the Caribbean

Latin America and the Caribbean face significant challenges when it comes to meeting their needs in terms of teaching personnel. One study estimates that, by 2040, the region will need 70% more teachers than in 2017 (Cruz-Aguayo et al., 2019). Teacher shortages vary depending on the level of teaching, the subject taught, as well as the location of schools. In fact, the teacher deficit is especially high at the pre-primary and secondary levels, and in areas of the curriculum that require specific specialization such as mathematics, science, or bilingual intercultural programs. Moreover, this shortage of qualified teachers is concentrated in schools serving students from rural and disadvantaged backgrounds (Bertoni et al., 2020). In addition to the projected teacher shortage, other studies show that many of the available vacancies are filled by temporary teachers who do not have the necessary experience or skills to teach.

Policies aimed at increasing coverage, extending the school day, or the number of non-teaching hours given by teachers, among other measures, have increased the demand for teachers. Likewise, policies and regulations aimed at improving the standards of initial teacher education (ITE) programs, such as accreditation requirements or higher student selection standards, have limited the number of qualified candidates for entry, and have restricted the entry of new teachers into the labor market. On the other hand, precarious working conditions (low salaries, lack of support) result in high turnover, quitting, as well as early retirement (Bertoni et al., 2020). All these factors have contributed to the shortage of teachers in the region.

During the health emergency resulting from the COVID-19 pandemic to all of the conditions mentioned above, anxiety, fatigue, and stress were added (Islam et al., 2020; Peloso et al., 2020; Zhai & Du, 2020; Shanahan, 2020; Marelli et al., 2020). Nevertheless, while the valuation of the teaching profession was below other degree programs that enjoy higher social prestige, such as engineering or architecture (Elacqua, et al., 2018), the status of the profession appears to have improved slightly during the pandemic. For example, data from the Elige Educar 2021 index for Chile show that teaching is the fifth most valued profession, and that this valuation reached the highest level of the period recorded since 2009. It is worth noting that 84% of those surveyed consider that teachers make a greater contribution to society than any other profession, but only 25% believe that they are respected (Elige Educar, 2022).

In this context of the need for more and better teachers in schools, it is essential to analyze the first step in the teaching career: the ITE programs. By determining the magnitude and composition of enrollment in these programs, we can project and characterize the future teaching force, providing essential information for the development of relevant education policies. This study contributes to quantifying enrollment rates in ITE programs and their trajectories for several countries in the region, and to characterizing the profile of students who choose to enroll in these programs.

This study analyzes 16 countries in the region that had consistent and systematic information available on enrollment in ITE programs between 2015 and 2020.¹

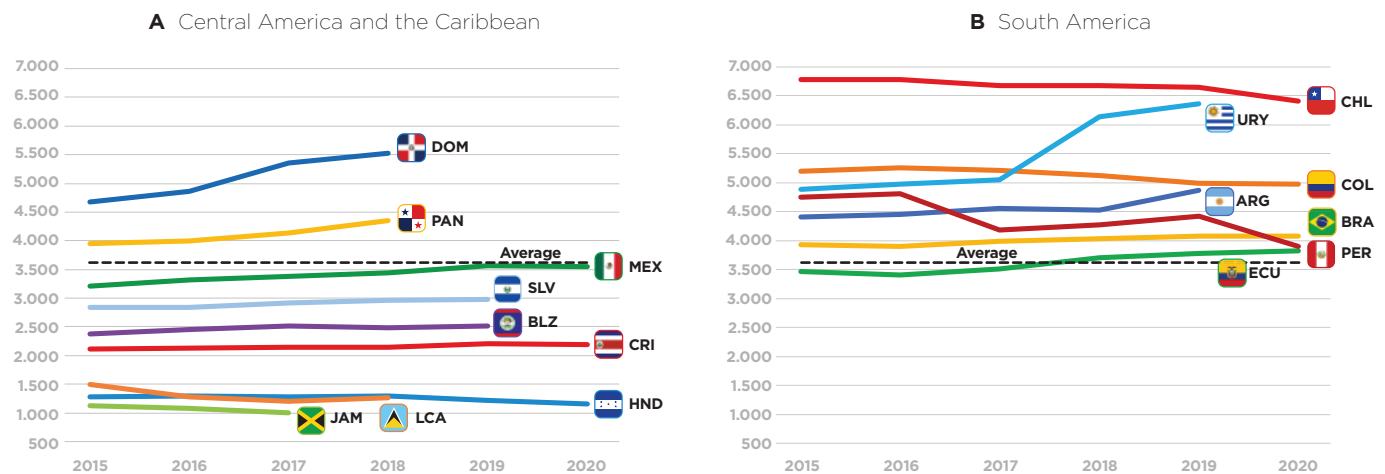
¹The information was retrieved from official websites, such as government agencies and statistical centers, along with data provided directly by universities and governments. The exclusion criteria for the sample considered the lack of accessible public information or the intermittent availability of data with changes in quality and depth from one year to the next. In Honduras and Belize, representative but non-census data provided by the respective governments were used. In all the countries included, for the analysis of enrollment in initial teacher education programs, annual data from 2015 to 2020 was utilized. Meanwhile, for the characterization of the profile of enrolled students, information between 2010 and 2021 was used for Chile and Colombia, which had microdata available.

II Are sufficient teachers being trained to meet future demand?

- On average, enrollment in higher education in the region was increased by 0.6% per year, while enrollment in initial teacher education programs grew by 0.9%.
- In the region, enrollment in initial teacher education programs represented 12.4% of enrollment in higher education during the 2015-2020 period (in OECD it is 8%, while in the US it is less than 1%). The proportion of higher education students enrolled in initial teacher education programs remained stable between 2015 and 2020, despite the projected deficit of teachers.

Between 2015 and 2020, the countries of the region showed a relatively stable evolution of total enrollment in higher education per hundred thousand inhabitants (graph 1 b.). Peru, Colombia, and Chile are exceptions, as these countries show a slight decrease in enrollment in the most recent years. Another exception is Uruguay, which shows a sharp increase in enrollment in 2018 (see graph 1 b.).

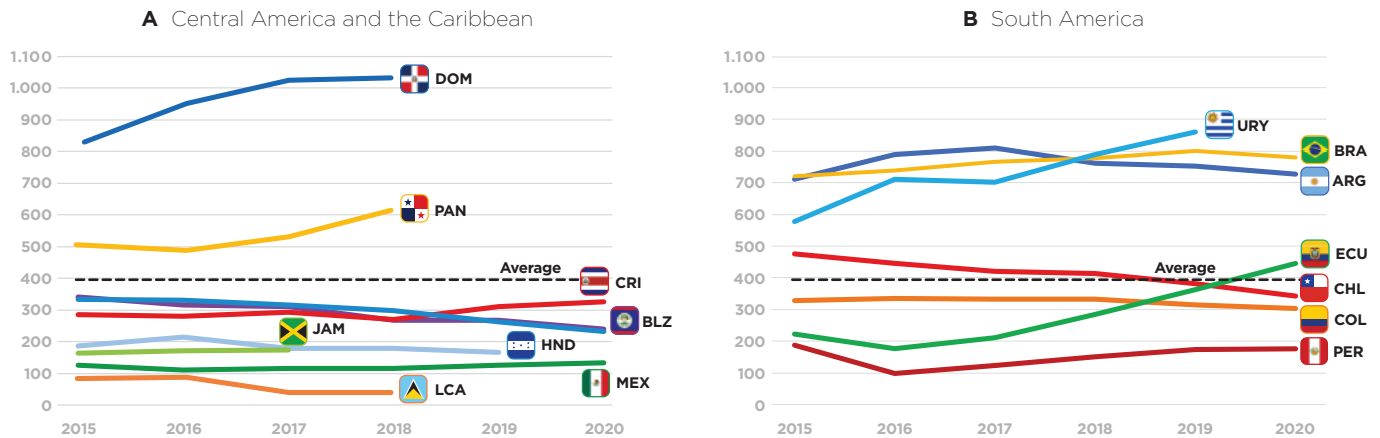
Graph 1 Evolution of higher education enrollment per hundred thousand inhabitants (2015-2020)



Source: Prepared by the authors based on data collected from the countries.

Graph 2 shows the trajectory of enrollment in ITE programs, per hundred thousand inhabitants, for the 2015-2020 period. For the countries in the sample, there are 22,705,208 enrolled students in ITE programs (as of circa 2020). In general, stable trends are observed, with a sustained increase for Ecuador and Uruguay, which is in line with the general increase in higher education enrollment in these countries (graph 2b).

Graph 2 Evolution of enrollment in initial teacher training programs per hundred thousand inhabitants (2015-2020)



















Source: Prepared by the authors based on data collected from the countries.

The enrollment rate per 100,000 inhabitants serves as a measure of a country's effort in expanding its higher education system and reflects structural conditions that may affect the number of applicants who qualify (such as the number of students graduating from secondary education). In a context where total enrollment remains stable, analyzing the change in the proportion of students opting for ITE programs provides clues as to how attractive these programs are compared to other higher education alternatives. In this sense, policies such as stricter standards for admission to initial teacher education programs, the duration of these programs, or specific funding and scholarships, may affect the attractiveness of the program to attract applicants. It can be observed that by 2018 and 2020 (the last years of the series with comparative data), the proportion of enrollment in ITE programs in relation to total enrollment in higher education is high; between 12.6% and 13.1%. However, despite the projected teaching deficit for the region, there has not been a displacement of enrollment from other disciplines to ITE programs. Between 2015 and 2020, the average proportion of students enrolled in initial teacher education with respect to the total population enrolled in higher education in the region, was maintained (table 1).²

²In fact, when considering the last year before the pandemic, on average, the proportion of students in initial teacher education programs had dropped slightly for the region compared to 2015.

Table 1 Enrollment in initial teacher education programs as a proportion of total enrollment in higher education (2015-2020)

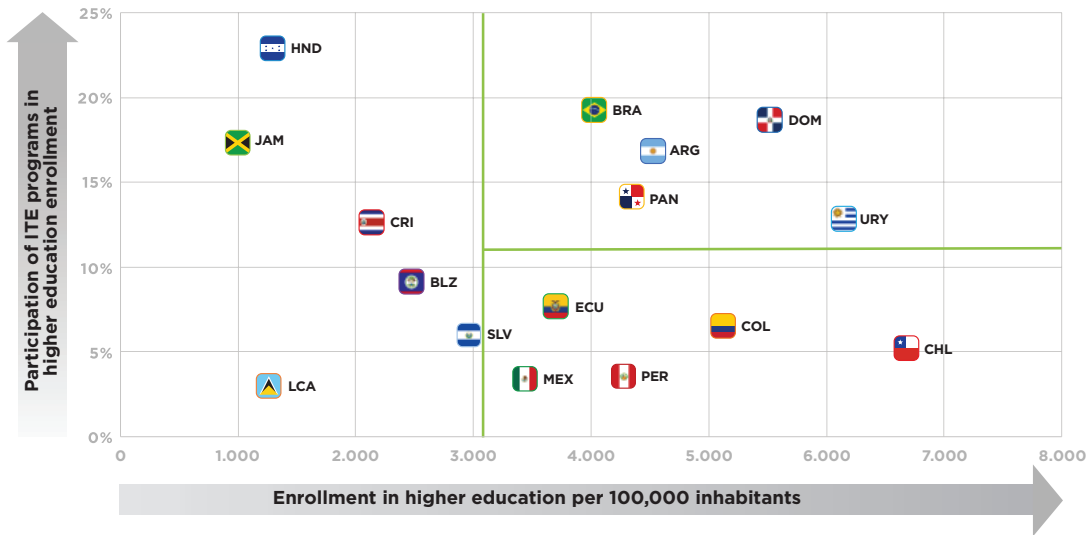
Country	2015	2016	2017	2018	2019	2020	Average
 Honduras	34,7	32,9	32,2	29,9	27,7	26,1	30,6
 Brazil	18,3	18,9	19,2	19,3	19,7	19,6	19,2
 Dominican Republic	17,8	19,5	19	18,7			18,8
 Argentina	16,1	17,8	17,8	16,8	15,4		16,8
 Jamaica		14,6	15,7	17,3			15,9
 Uruguay	14,2	16,8	16,8	13,2	13,9		15,0
 Costa Rica	14,1	13,8	14,3	13,1	14,6	15,4	14,2
 Panama	16,3	12,3	12,8	14,1			13,9
 Belize	16,0	14,5	13,6	12,2	11,7		13,6
 Ecuador	7,8	6,4	8,1	9,6	11,7	14	9,6
 Chile	8,9	8,7	8,8	9,1	8,9	8,5	8,8
 Mexico	8,6	7,7	7,8	7,9	8,4	9,1	8,3
 Colombia	8,6	8,5	8,4	8,1	7,7	7,9	8,2
 El Salvador	6,9	6,7	6,3	6,1	5,6		6,3
 Saint Lucia	5,7	6,8	3,3	3			4,7
 Peru	3,9	2,0	2,9	3,6	3,9	4,5	3,5
Average	13,2	13,0	12,9	12,6	12,4	13,1	12,4

Graph 3 shows the ratio between the participation of students in ITE programs compared to total enrollment in higher education (enrolled per 100,000 inhabitants). This graph particularly focusses on analyzing two groups of countries: (i) those with high coverage in higher education and a high proportion of students enrolled in initial teacher education programs; and (ii) those with high coverage in higher education and a low proportion of students enrolled in initial teacher education programs.³

The two groups of countries that make up the right charts in graph 3 are characterized by a high rate of total enrollment in higher education, but vary in the degree of selectivity of applicants to ITE programs. The countries in the upper right chart, i.e., Brazil, Argentina, Dominican Republic, Panama, and Uruguay, have a low selectivity of applicants and a high incidence of non-university institutions offering such programs. In addition, there is little regulation and a lack of common curricular frameworks established at the national level. Thus, their initial teacher education programs tend to be more easily accessible, which could explain why the proportion of students enrolled in these programs is higher.

³ The countries in the left charts, consisting of Honduras, Jamaica, Costa Rica, Belize, El Salvador, and St. Lucia, are those that exhibit low coverage in higher education. Improving teacher enrollment in these countries also implies intensive policies aimed at increasing overall enrollment in higher education.

Graph 3 Relationship between coverage in higher education and participation of the enrollment in ITE programs



Source: Prepared by the authors based on data collected from the countries (2018, 2020).

On the other hand, the countries in the lower right chart, i.e., Ecuador, Colombia, Chile, Peru, and Mexico, have greater selectivity in ITE programs. These countries have developed reforms that include accreditation requirements for initial teacher education programs and stricter requirements for entry.

In the case of Chile, for example, accreditation of pedagogy programs has been in force since 2006 and, as of 2015, they can only be taught in universities. In 2016, the Teacher Professional Development System determined that these study programs must have a minimum duration of 10 semesters, they must have raised the entry requirements for applicants and expanded the access routes to pedagogy programs, aiming to improve the quality of the academic profile of those enrolled. In Peru, up to 2005, most teachers were trained in Higher Pedagogical Institutes (ISP, by its Spanish initials) and not in universities, which were highly heterogeneous in quality. But since that year, Peru has suspended the creation of new ISPs and encouraged the creation of faculties of education at university level. It also established a single national entrance exam with a minimum entrance score. These measures of greater selectivity caused a drastic drop in applicants and in the number of those admitted to initial teacher education programs; in 2006 there were more than 33,000 applicants, while in 2008, only 7,000 people applied (Elacqua et al., 2018). Just like in Chile, since 2012, ITE programs in Peru cannot last less than 10 semesters and must be taught by accredited institutions. In Ecuador, on the other hand, initial teacher education programs last 9 semesters. In 2012, a minimum entry score was established (Chiriboga Montalvo, 2019), but this restriction was abolished in 2017 for degree programs taught in public institutions for higher education. In 2014, accreditation of teaching programs was also made mandatory, which led to the freezing of vacancies in higher pedagogical institutes until they had the necessary certification, which caused 14 institutions to close (Elacqua et al., 2018). In 2014, accreditation of teaching programs was also made mandatory, which implied the freezing of vacancies in higher pedagogical institutes until they had the necessary certification, leading 14 institutions to close (Elacqua et al., 2018). In Mexico, ITE programs are regulated under the General Law of the Professional Teaching Service, which stipulates that bachelor's degree programs in education must last 8 semesters, both in private and public institutions, and that access should

only be possible through a selection process consisting of a national competition including written exams (Elacqua et al., 2018). Finally, in Colombia, bachelor's degrees in education last between 8 and 10 semesters, and applicants can access after having taken the Saber 11 test (Elacqua et al., 2018).

On the other hand, in terms of selectivity of permanent teaching positions, it is worth noting that selection tests applied in Colombia, Ecuador, and Peru are very rigorous. Only 25% of candidates manage to meet the minimum requirements to access a teaching position, which could be a factor that indirectly influences the decision to enroll in an initial teacher education program.

Despite the above, it is difficult to attribute direct causality between policies aimed at stricter regulations of initial teacher education described above, and the lower proportion of students in these programs relative to the total number of students in higher education, compared to other countries where regulations are less strict. In the first place, regulation of programs and the mandatory accreditation in some cases may have considerably reduced the number of available vacancies, as well as leading to the closure of some institutions. Along the same lines, the accreditation requirement may imply an increase in the time required for enrollment to return to pre-reform levels. Additionally, the increase in access requirements and selectivity processes may reduce the number of applicants who meet the conditions to access initial teacher education programs. Although in countries such as Chile, Colombia, Ecuador, and Peru, efforts have been made to attract and select students with high academic performance to these programs, such efforts do not seem to be sufficient to substantially increase enrollment.

The above-described trends reflect the difficult decisions that policymakers must make when facing the future teacher shortage. On the one hand, there is a need to increase enrollment in ITE programs to expand the supply of teachers and meet the challenge of scarcity. On the other hand, stricter admission criteria must be established to improve the social value and quality of those aspiring to become teachers. Specific policies to address each of these objectives can have counterproductive effects in the absence of a comprehensive vision that considers the interaction of policies and the gradual nature of their implementation.

III What are the characteristics of students enrolled in initial teacher education programs?

- **Female participation in initial teacher education programs in the region averaged 73% for the 2015-2020 period, which is higher than the average for the rest of the higher education programs.**
- **The enrollment of female students is more pronounced in initial teacher education programs for pre-primary (97%) and primary (77%) education levels, while at the secondary level, gender representation is more balanced (57%) and similar to the average representation in higher education.**
- **Enrollment in initial teacher education programs is concentrated in public sector institutions (59% on average), and this concentration is higher than the average for other higher education degree programs (45% on average).**
- **The proportion of enrollees in intercultural bilingual education programs is significantly lower than the proportion of the population who self-identify as indigenous. The data indicates that the supply of bilingual intercultural programs is insufficient and, in general, there have been no specific policies to encourage it.**

Analyzing the characteristics of students enrolled in ITE programs and their evolution over time is important for two reasons. First, having clarity on who is finding these programs attractive is an essential input for the development of policies aimed at attracting more and better candidates. The development of policies that appeal to a wider variety of profiles may prove to be a turning point for increasing enrollment.

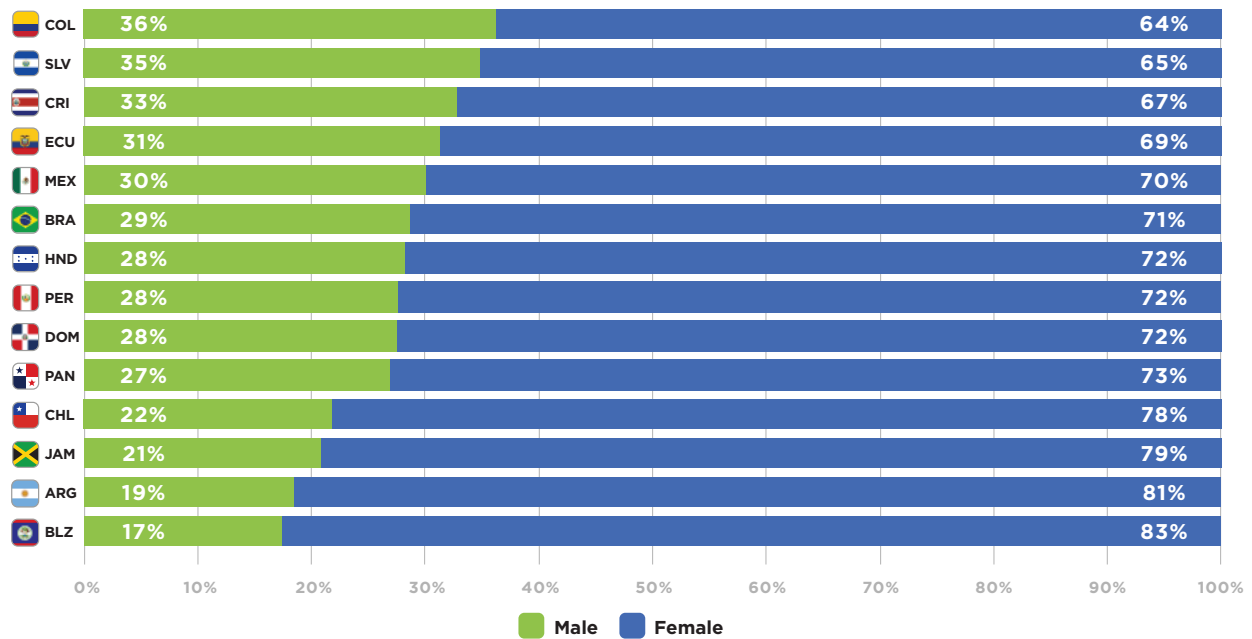
On the other hand, by analyzing the characteristics of enrollment we can evaluate its relevance from the point of view of its adequacy to the current and specific needs of the educational system. A key factor, for example, is to identify how diverse the enrollment is. A diverse teaching workforce has potential benefits and has been presented as a way to develop an inclusive school culture (Pettigree & Tropp, 2006), create positive role models for diverse populations (Hamann & Walker, 1993), as well as to foster more equitable teaching environments (Gay & Howard, 2000). In terms of representativeness between teachers and students, studies have established that, the higher the levels of congruence between teacher and student profiles, the greater the likelihood of improved academic performance (Dee, 2001; Paredes, 2014), reduced use of punitive discipline practices and school exclusion (Bates & Glick, 2013), and better teacher-student relationships (Le & Nguyen, 2019).

In the following sections, we first analyze regional enrollment in relation to the gender of the enrolled student, the level of education they will teach, the type of higher education institution they attend, and their intercultural-bilingual training. Then, we focus in greater detail on the case of two countries (Colombia and Chile) for which more detailed comparative information was obtained for a longer period of time.

A Gender of enrolled students















Whether a teacher is male or female can have an impact on student outcomes through the role model effect (Beaman et al., 2012; Card et al., 2022). In all of the countries analyzed, female participation in initial teacher education programs is higher than the average for the rest of the higher education degree programs (see appendix 1). Graph 4 shows enrollment in ITE programs by gender, in 2018, for 14 countries in the region with available information. On average, female enrollment in initial teacher education programs is 73%. At the highest end, Belize, Argentina, Jamaica, and Chile stand out with around 80% female enrollment. In contrast, St. Lucia and Colombia have female representation in enrollment below the regional average, with 65% and 64%, respectively.

Graph 4 Enrollment in initial teacher education programs by gender (2018)



The high female participation in ITE programs remains stable during the 2015-2020 period (see table 2). That is, regardless of the type of policies that countries have implemented in recent years, such policies do not seem to have generated a significant change in the gender composition of those aspiring to become teachers.

Table 2 Enrollment in initial teacher education programs by gender (2015 - 2021)

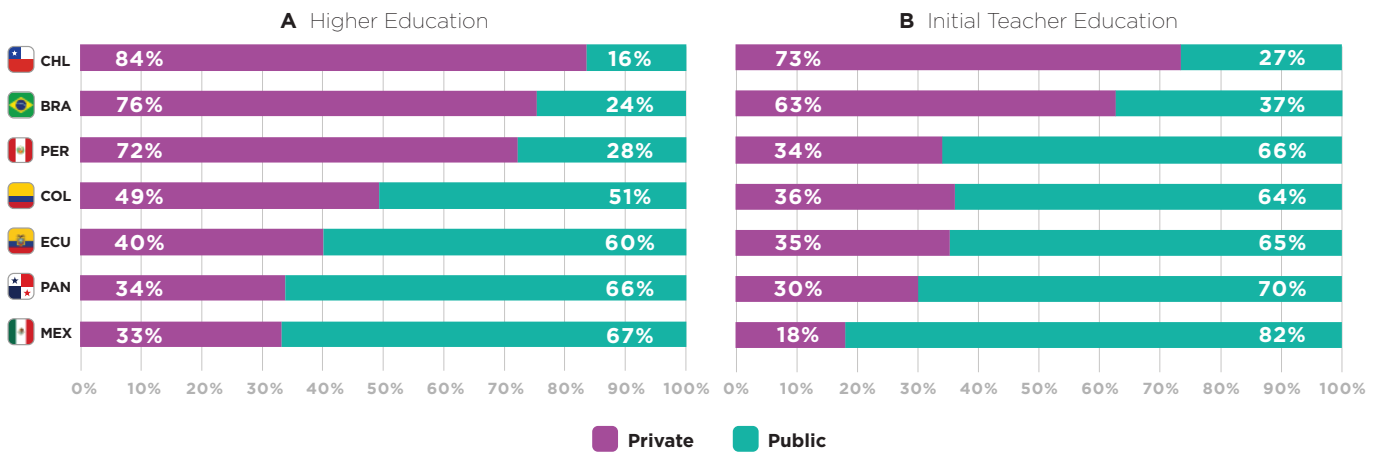
Country	Gender	2015	2016	2017	2018	2019	2020	2021	Female average
 Argentina	Male	18%	18%	18%	19%	18%	18%		82%
	Female	82%	82%	82%	81%	82%	82%		
 Brazil	Male	28%	29%	29%	29%	28%	27%		72%
	Female	72%	71%	71%	71%	72%	73%		
 Belize	Male	24%	24%	21%	19%	16%	16%	11%	80%
	Female	76%	76%	79%	81%	84%	84%	89%	
 Chile	Male	25%	23%	22%	22%	23%	24%	26%	77%
	Female	75%	77%	78%	78%	77%	76%	74%	
 Colombia	Male	37%	36%	37%	38%	40%	41%		62%
	Female	63%	64%	63%	62%	60%	59%		
 Costa Rica	Male	31%	27%	31%	33%	30%	30%		70%
	Female	69%	73%	69%	67%	70%	70%		
 Ecuador	Male	32%	35%	34%	33%	32%	31%		67%
	Female	68%	65%	66%	67%	69%	69%		
 El Salvador	Male	30%	41%	36%	34%	36%			65%
	Female	70%	59%	64%	66%	64%			
 Honduras	Male	29%	28%	29%	28%	28%	29%	23%	72%
	Female	71%	72%	71%	72%	72%	71%	77%	
 Mexico	Male	27%	26%	27%	27%	27%	26%		73%
	Female	73%	74%	73%	73%	73%	74%		
 Peru	Male	25%	25%	26%	28%	28%	28%	30%	73%
	Female	75%	75%	74%	72%	72%	72%	70%	
 Jamaica	Male		19%	21%	21%				80%
	Female		81%	79%	79%				
 Panama	Male	28%	25%	25%	27%				74%
	Female	72%	75%	75%	73%				
 Dominican Republic	Male	25%	26%	26%	28%				74%
	Female	75%	74%	74%	72%				
									73%

Source: Prepared by the authors based on data collected from the countries.

B Type of management of higher education institutions

Where do future teachers study? From a public policy standpoint, this question is relevant since, in most of the countries evaluated, the capacity of the government to regulate the supply of teacher training varies between public and private institutions. The supply of higher education institutions and programs in the region has increased and diversified, primarily due to the massive entry of private institutions into the system, resulting in greater coverage and massification of higher education at the expense of quality and relevance (Busso et al., 2017; Rodríguez, 2012)⁴. Graph 5 shows enrollment in higher education and teacher education programs according to the type of management (public or private) of the institution for the year 2018.

Graph 5 Enrollment in initial teacher education programs by type of management (2018)



With the exception of Brazil and Chile, enrollment in ITE programs is mainly concentrated in public sector higher education institutions. Moreover, this concentration of enrollment in public institutions is higher in initial teacher education programs than in the overall higher education average (59% versus 45%, respectively).

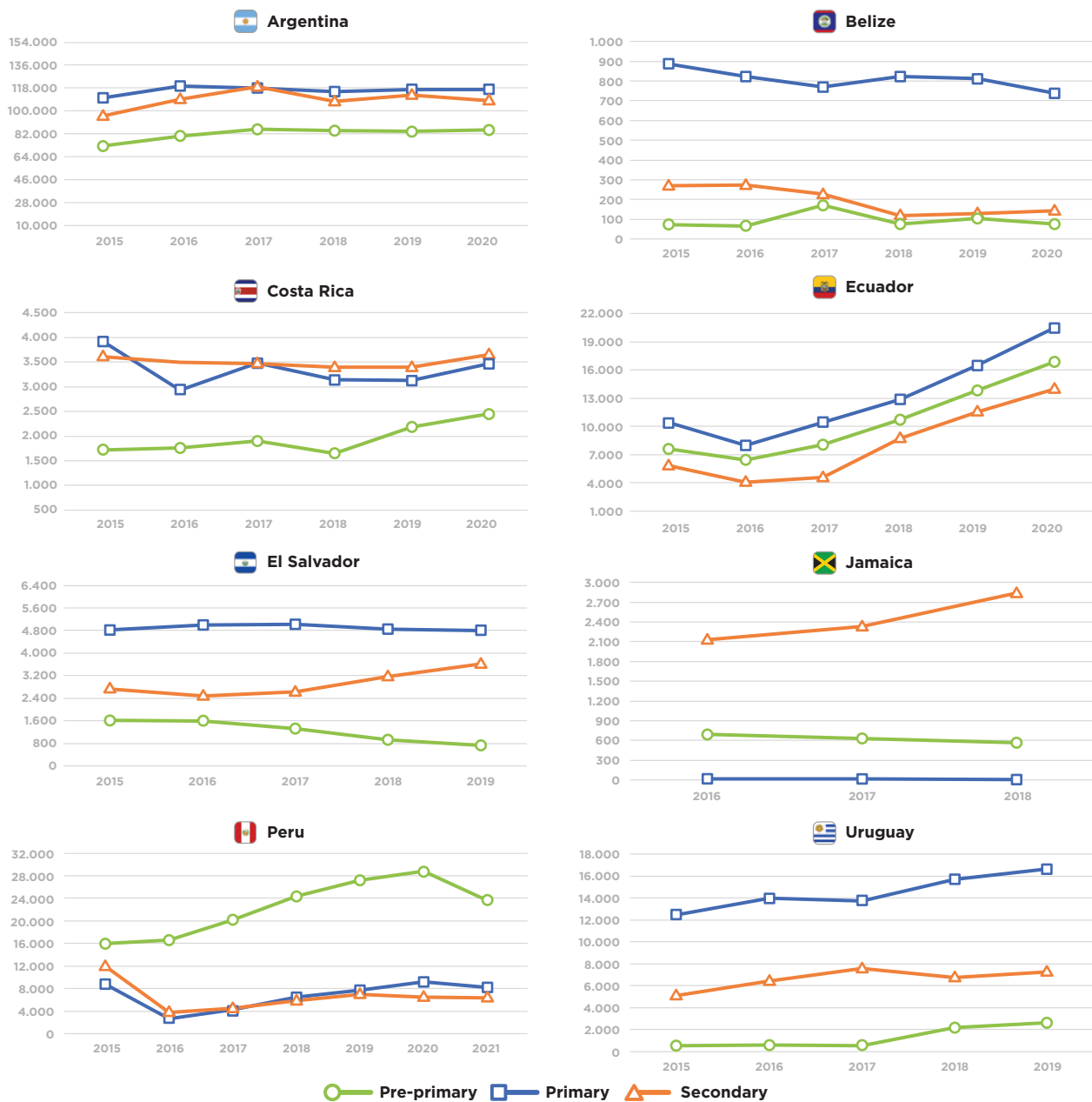
⁴ In Brazil, for example, the private for-profit sector grew considerably and absorbed a significant demand from low-income students who received subsidized loans to pay for their studies. Estimates suggest that around 30% of university students in Brazil are enrolled in a for-profit university (Horsch, 2014). In Peru, this proportion is estimated to reach 40% of total enrollment (Bellido, 2014). In the case of Chile, the diversification of enrollment attracted a significant percentage of students from low-income families. According to statistics from the Inter-American Development Bank, in Colombia, Costa Rica, and Peru, one out of every three students enrolled in higher education institutions and who are in the lowest income quintiles attend a private institution (Busso et al., 2017). This diversification of supply is also reflected in an increase in the number of study programs. For example, in Colombia, between 2001 and 2011, the number of programs almost doubled, from 3,600 to 6,279 (Camacho et al., 2016).

C Level of education to be taught

The shortage of qualified teachers in the region (who are trained in the subject they teach) varies depending on the level of education to be taught, worsening in early childhood and secondary levels, which require greater specialization. Therefore, analyzing enrollment with specialization in different levels of education contributes to the debate on the relevance of the future teacher supply. Are we training teachers with the necessary specializations according to the demands of the system?

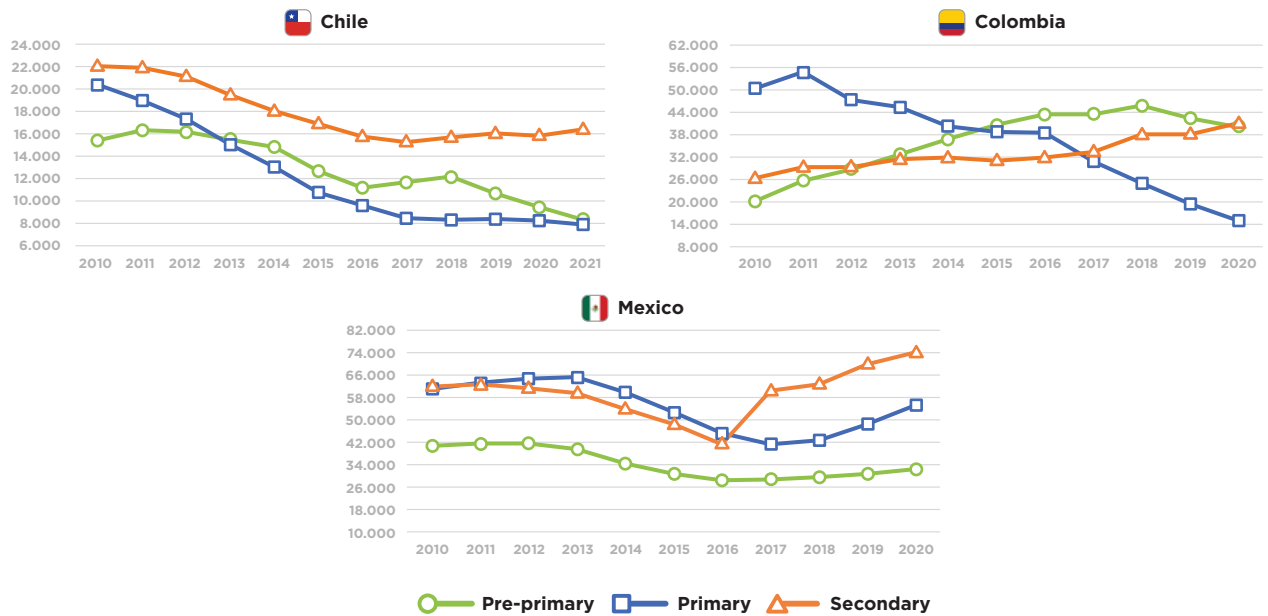
Graphs 6 and 7 show the enrollment trends in ITE programs according to the educational level of specialization of future teachers (pre-primary, primary, and secondary education). In general, there is a higher proportion of enrollment in initial teacher education programs for primary education in Ecuador, Uruguay, El Salvador, Belize, and Argentina. Peru stands out as the only country with a higher proportion of enrollment in early childhood education. In contrast, Jamaica, Costa Rica, Chile, and Mexico show a higher concentration of enrollment in secondary education.

Graph 6 Enrollment in initial teacher education programs by level of education (2015-2020)



Due to the greater availability of information, graph 7 shows enrollment by level of education in Chile, Colombia, and Mexico between 2010 and 2020. As previously established, these three countries have high enrollment in higher education, but a low proportion of this enrollment in initial teacher education programs.

Graph 7 Enrollment in initial teacher education programs by level of education (2010-2020)

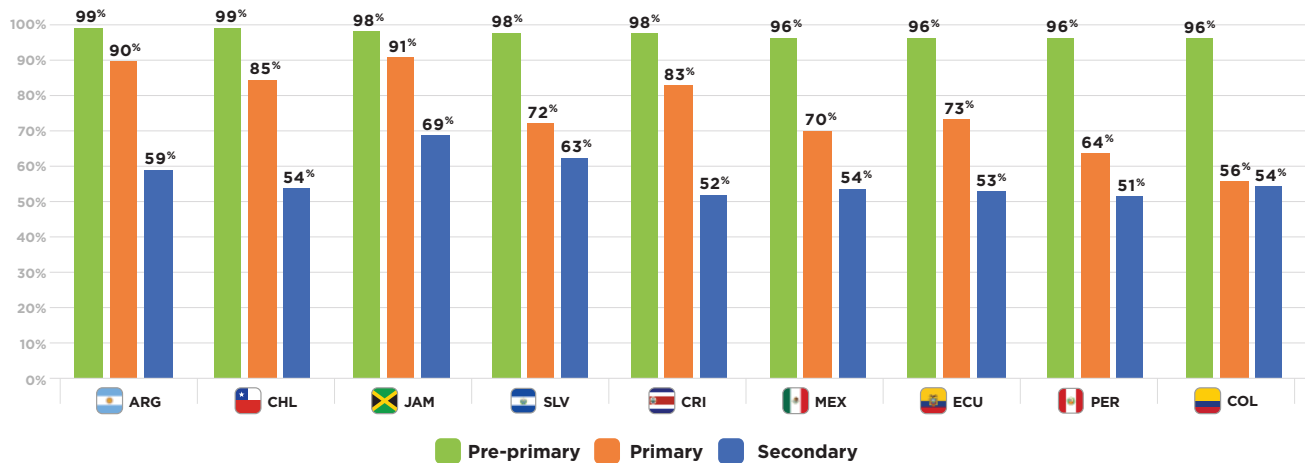


It can be observed that between 2010 and 2020, enrollment in teacher education programs in Mexico increased by an average of 1% annually, while in Colombia and Chile it decreased by 2% and 6%, respectively. In the case of Chile, the 6% drop corresponds to a reduction in enrollment at the three educational levels (pre-primary, primary, and secondary), which could be associated with greater regulation of these programs rather than a drop in demand. Mexico, in turn, shows two main trends: between 2010 and 2016, enrollment in ITE programs at all three levels of education declined, while subsequently, as of 2016, it rebounded to lower levels than the initial ones in the case of pre-primary and primary, being slightly better in the case of secondary. Finally, Colombia presents different changes for the three levels of education. As of 2011, enrollment fell in initial teacher education programs for primary education, while enrollment for pre-primary and secondary education increased discretely, with some periods of stability.

D Level of education and gender

Graph 8 shows the percentage of female enrollment in ITE programs by teaching level of specialization in 2018, for 10 countries regarding to which information was available. The trend towards feminization of enrollment is more intense at the pre-primary and primary education levels, and with a more balanced female/male representation at the secondary education level. Indicators for the region show that female representation in initial teacher education programs declines sharply at the secondary level, and in specialty subjects such as mathematics and science.

Graph 8 Female enrollment in initial teacher education programs by level of education to be taught (2018)



On average, 73% of enrollment in ITE programs is female, while for all higher education institutions this percentage reaches 57%. When comparing the three educational levels, the pre-primary level is the one with the highest proportion of women in the enrollment of initial teacher education programs in the region, reaching 97%. At the pre-primary level, Argentina stands out as the country with the lowest proportion of men enrolled. At the primary level, the average regional participation of women enrolled in teacher education programs is 77%. Colombia stands out as the country with the smallest representation gap between men and women in primary education, while Jamaica and Belize are the countries with the lowest proportion of men enrolled. In secondary, female participation in ITE programs drops to 57%, between 2015 and 2020, similar to the total participation in higher education. In secondary education, the proportion of male students enrolled in initial teacher education programs rises in all countries, with Peru, Costa Rica, Ecuador, Mexico, Chile, and Colombia standing out, where it reaches almost half of the total number of enrollments.

E Intercultural bilingual education







There is ample evidence of the achievement gaps that affect indigenous students in the region, compared to their non-indigenous counterparts (Santibáñez, 2016; Saavedra Vallejos, 2021; UNESCO, 2020). At the same time, the shift to remote modes of instruction during the pandemic revealed significant digital divides for the student population in general and, in particular, for indigenous students (Montero Gutenberg, 2021).

A key dimension of educational inequality in the region is the low percentage of indigenous population that has access to relevant and quality education, due to linguistic, socioeconomic, or connectivity barriers. Among the countries with available information in the region, Peru, Mexico, Chile, and Belize exhibit the highest proportion of people identifying as indigenous. In these countries, ethnic and cultural diversity is addressed quite heterogeneously. In Mexico, there are community and indigenous schools as a form of education. Meanwhile, in Peru, Ecuador, and Chile, there are bilingual intercultural education programs which, although they may be optional or compulsory, are subject to the presence of an indigenous majority in the territory.

Ethnic and cultural diversity is an important consideration in analyzing how ITE programs prepare to offer bilingual intercultural education. In Chile, the training of bilingual intercultural educators is done through agreements with universities located in areas with a high indigenous presence or through the regional education secretariats. In Peru, on the other hand, it has been mostly the indigenous communities themselves who have led and organized education programs, along with higher education institutes and universities. Other countries, although they do not have formal intercultural bilingual teacher education programs to date, are developing specific initiatives. In Belize, for example, in 2022 so far, 50% of primary and secondary school teachers participated in professional teacher workshops for teaching ethnic minorities.

Due to restrictions in the availability of information, trends in enrollment in bilingual intercultural programs are presented only for Brazil, Chile, Colombia, Ecuador, Mexico, and Peru. Bilingual intercultural programs are classified as those which: (i) focus on the teaching or preservation of native languages and their culture; (ii) aim to integrate indigenous students into the educational system either for secondary or higher education.

Table 3 Participation of intercultural bilingual programs in initial teacher education (2018)

Country	Enrolled in bilingual intercultural programs	Bilingual intercultural programs	Self-identified indigenous population at national level
 Peru	10,9%	8,8%	26,0%
 Colombia	5,2%	2,1%	4,4%
 Ecuador	2,9%	1,9%	7,0%
 Mexico	2,0%	2,9%	21,5%
 Brazil	0,2%	0,4%	0,5%
 Chile	0,1%	0,2%	12,4%

Source: Prepared by the authors based on data collected from the countries.

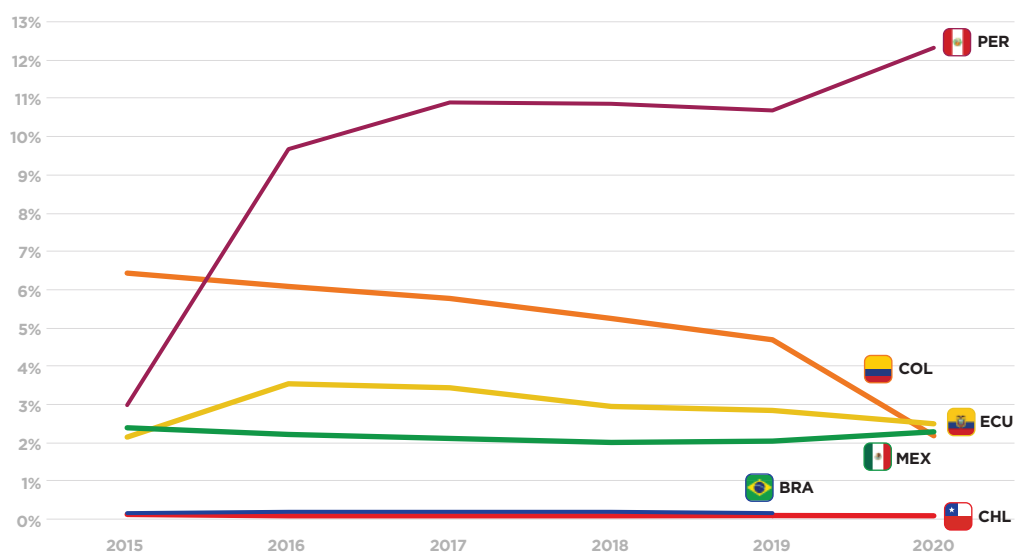
Note: The self-identified indigenous population is the percentage of indigenous people according to the latest available census. Variation in terms of the year the census was carried out and the instruments used for calculation, is high.

Table 3 presents the ratio of enrollment and number of intercultural bilingual education programs to enrollment and number of ITE programs, respectively, with 2018 data for five countries in the region. In Brazil and Chile, the percentage of people enrolled in bilingual intercultural programs with respect to the total enrollment in ITE programs does not exceed 1%, which makes it considerably lower than in other countries. In Mexico, Ecuador and Colombia, the percentage enrolled in intercultural bilingual education programs fluctuates between 2% and 5.2%. In Peru, both enrollment and the number of intercultural bilingual programs offered show a sustained increase over time, exceeding 10% as of 2020. In the case of Ecuador, since 2020, the “Quiero Ser Maestro Intercultural Bilingüe” (I Want to Be an Intercultural Bilingual Teacher) contest focuses exclusively on the selection of teachers to serve educational institutions that serve indigenous peoples (Bocarejo et al., 2022). The incorporation of certification of knowledge of the ancestral language by participants in the contest represents considerable progress in this area.

Although there are countries that have a greater need for intercultural bilingual education given the proportion of the population that self-identifies as indigenous (such as Mexico and Peru), the data shows that the supply of intercultural bilingual programs is insufficient, and that governments, in general, do not encourage it.

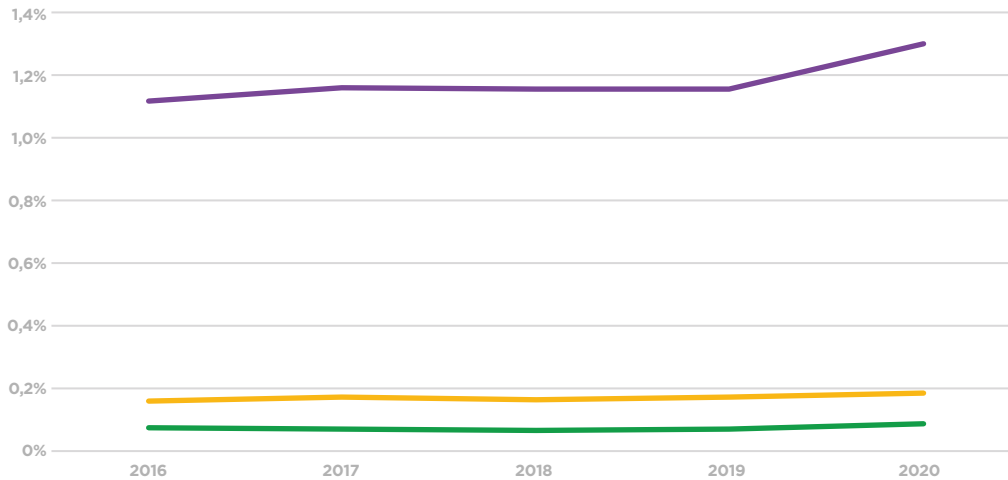
Graph 9 shows the fraction that bilingual intercultural programs represent in the enrollment of ITE programs for the period 2015-2020. A steady increase in the proportion of bilingual intercultural programs is observed in Peru, from 3% in 2015 to 12.3% in 2020. In contrast, Colombia presents a decrease in the share of bilingual intercultural programs that is accentuated in 2020, going from 6.4% in 2015 to 2.2% in 2020. The share of bilingual intercultural programs grows in 2016 in Ecuador, but then a smooth and consistent drop is observed. In Mexico, Chile, and Brazil, on the other hand, bilingual intercultural programs show stable trends around 2.2%, 0.1%, and 0.2%, respectively.

Graph 9 Participation of enrollment in bilingual intercultural programs in initial teacher education programs (2015-2020)



Another challenge to address related to the increased teacher shortage in bilingual intercultural schools is the attraction of bilingual students to ITE programs. In the case of Mexico, a country with at least 20% of the population self-identifying as indigenous according to 2018 data (see table 3), enrollment of indigenous students in higher education is very low, and of this, a small proportion corresponds to students in initial teacher education programs (graph 10). Given that the current availability of information does not allow for specific monitoring of bilingual intercultural programs, it remains a challenge to do so for future teacher training studies in the region.

Graph 10 Enrollment of native languages speakers in Mexico as a percentage of higher education enrollment



- Proportion of enrollment of native languages speakers in higher education
- Proportion of enrollement of native language speakers in ITE programs, compared to higher education
- Proportion of enrollement of native language speakers in bilingual intercultural programs, compared to higher education

IV What is the profile of students enrolled in initial teacher education programs and how has it evolved over time? Evidence for Chile and Colombia (2010-2021)

On average, students enrolled in initial teacher education programs:

- **Are female**
- **Have lower academic performance upon entering higher education**
- **Come from disadvantaged socioeconomic contexts (graduates of public schools, from rural areas, with parents with lower levels of education)**
- **Belong in greater proportion to native ethnic groups**

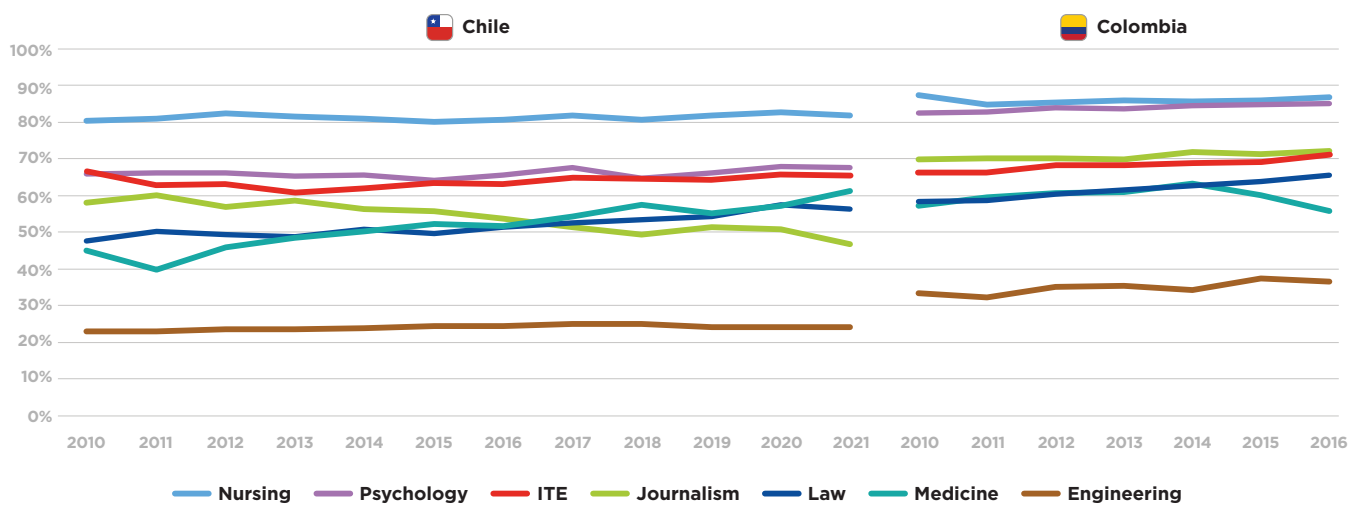
Colombia and Chile have available microdata that allow for the analysis of how the demographic, socioeconomic, and academic characteristics of students enrolled in ITE programs have varied over time. As a result, for these countries, a comparison is made of the profile of students enrolled in initial teacher education programs with those enrolled in other related programs or those with high social prestige, such as nursing or medicine. These analyses are extended for the 2010 – 2021 period.

An analysis of the demographic, socioeconomic, and academic characteristics of students enrolled in teacher education programs shows stable results over time and highly similar between both countries. Students enrolled in ITE programs are mostly women (over 65% of enrollment), they come from disadvantaged socioeconomic contexts (lower educational level of parents, with a higher proportion of graduates from vulnerable schools, or lower family income), have worse academic performance when entering higher education (higher education admission scores or high school graduation ranking), and a higher proportion of them belong to indigenous ethnic groups. The results for each of these characteristics of enrolled students are detailed below.

A Gender

As in the rest of the region, enrollment in ITE programs in Chile and Colombia is predominantly female. On average, female enrollment is 64% in Colombia and 76% in Chile, and these proportions remain stable during the period 2010-2021 (see appendix 2). When comparing female participation with their enrollment in other professional degree programs, graph 11 shows that the proportion of women per program does not vary significantly between Colombia and Chile for the period analyzed, and highlights the similarity of the hierarchy of degree programs according to the proportion of women enrolled. In fact, in both countries, enrollment in initial teacher education programs is among the one with the highest percentage of females, being only surpassed by psychology and nursing (and journalism in Colombia). The programs with the lowest female presence are engineering, medicine, and law.

Graph 11 Female enrollment in initial teacher education (ITE) compared to other degree programs

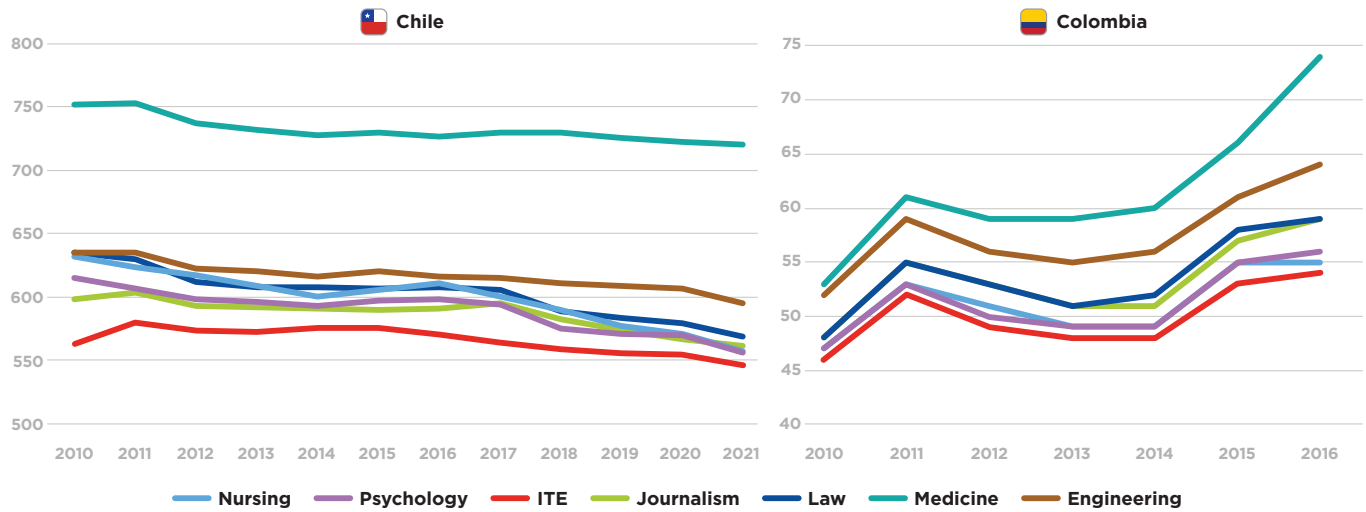


Although pedagogy continues to be a program with a high percentage of female students enrolled, and this trend has remained constant over time, women with high academic performance are opting for more socially prestigious programs. Elacqua et al. (2018) analyze data on the proportion of women selected in programs with high social valuation (such as law or engineering) and show that women do not exceed 25% of enrollment between 1950 and 1960, and manage to reach up to 50% from 2000-2010.

B Academic performance

Graph 12 shows the average score in mathematics and language arts of the higher education entrance exams obtained by students enrolled in different degree programs (Saber 11 in Colombia, and the University Selection Test in Chile). For both countries and all of the years analyzed, the hierarchy of programs is similar, with medicine being the program where students enrolled obtain the highest entrance scores, followed by engineering. In contrast, those enrolled in ITE programs present the lowest average score of all the degree programs analyzed, followed by psychology and journalism. This evidence shows that aspiring teachers enter higher education with a worse academic performance as measured by the admission tests.

Graph 12 Average score in higher education entrance tests (mathematics and language) of those enrolled in initial teacher education (ITE) compared to other degree programs

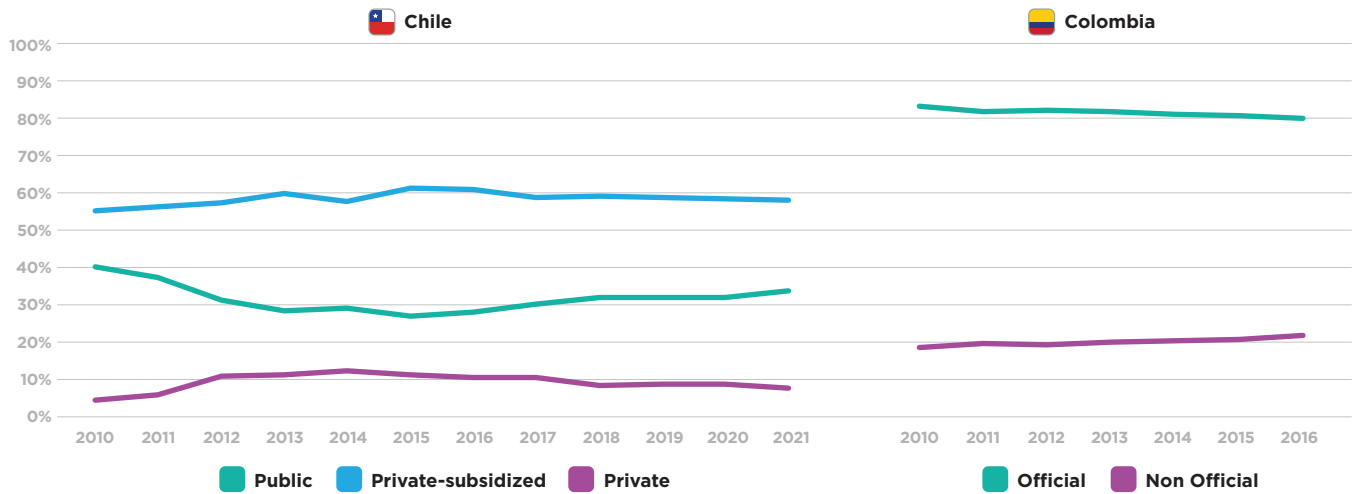


Source: Prepared by the authors based on data of the admission process (2010-2021 DEMRE, Chile; Saber 11 and Saber Pro 2009-2021, ICFES, Colombia).

C Type of high school at graduation (public/private)

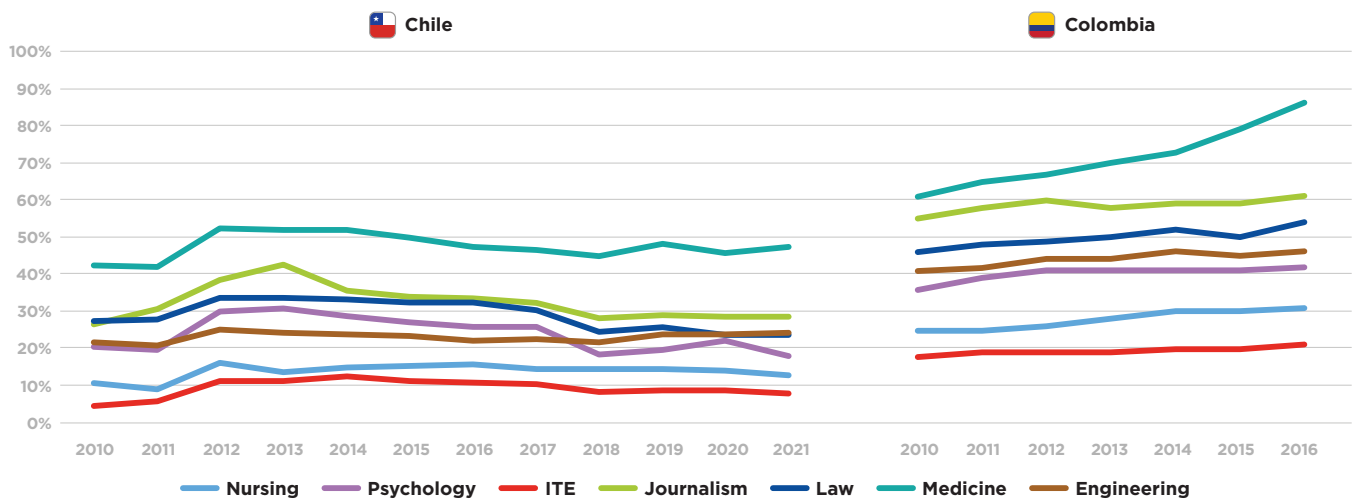
There are significant socioeconomic gaps between students attending public and private schools in the region. Because of this, it is interesting to analyze the composition of enrollment based on the public/private nature of the school of graduation of students entering initial teacher education programs. As shown in graph 13, during the period studied, both in Chile and Colombia, the majority of students enrolled in initial teacher education programs graduated from publicly funded high schools (official in Colombia, and public plus private-subsidized schools in Chile). In fact, over 90% of the enrollment in teacher education programs is made up of students who graduated from public schools, who, on average, belong to low or lower-middle socioeconomic levels.

Graph 13 Enrollment in initial teacher education programs by type of high school at graduation



When comparing the proportion of private school graduates who enrolled in initial teacher education programs in relation to other professional degree programs, graph 14 shows that the order of the different degree programs is similar in both countries. In both Chile and Colombia, initial teacher education programs receive the lowest percentage of students graduating from private schools, which are associated with a higher socioeconomic level. This is followed by nursing with the second lowest proportion of enrolled students graduating from private schools.

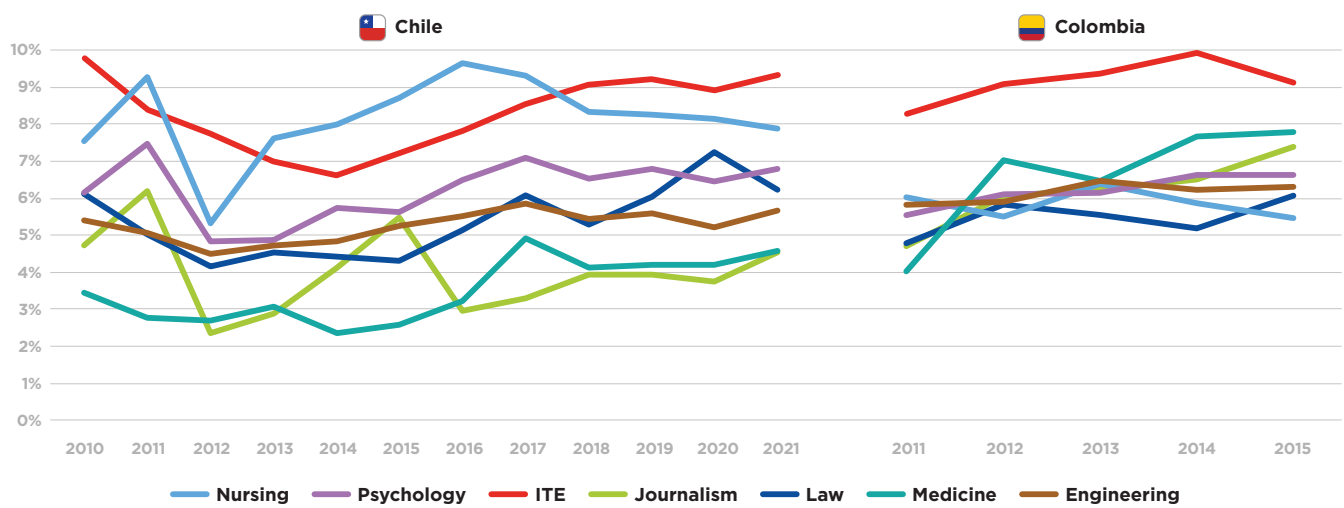
Graph 14 Enrollment of graduates from private schools in initial teacher education programs compared to other degree programs



D Rurality of high school at graduation

Rural sectors in the region are characterized by restricted access to basic services such as drinking water, electricity, or paved roads. Likewise, access to education at all levels tends to be intermittent and of low quality, due to the difficulty of finding teachers who are willing to settle in rural areas. Graph 15 shows the proportion of those enrolled in different degree programs who graduated from high schools located in rural areas, both in Chile and Colombia. Although the representation of students from rural areas is low in higher education, in both countries initial teacher education programs have a higher proportion of students graduating from rural schools compared to other degree programs. In Chile, initial teacher education and nursing programs have the highest proportion of graduates from rural schools (9.3% and 7.9%, respectively, in 2021). In Colombia, enrollment in initial teacher training programs is composed of between 8% and 10% of students graduating from rural high schools in the period analyzed.

Graph 15 Enrollment in initial teacher training programs that graduated from rural schools compared to other degree programs

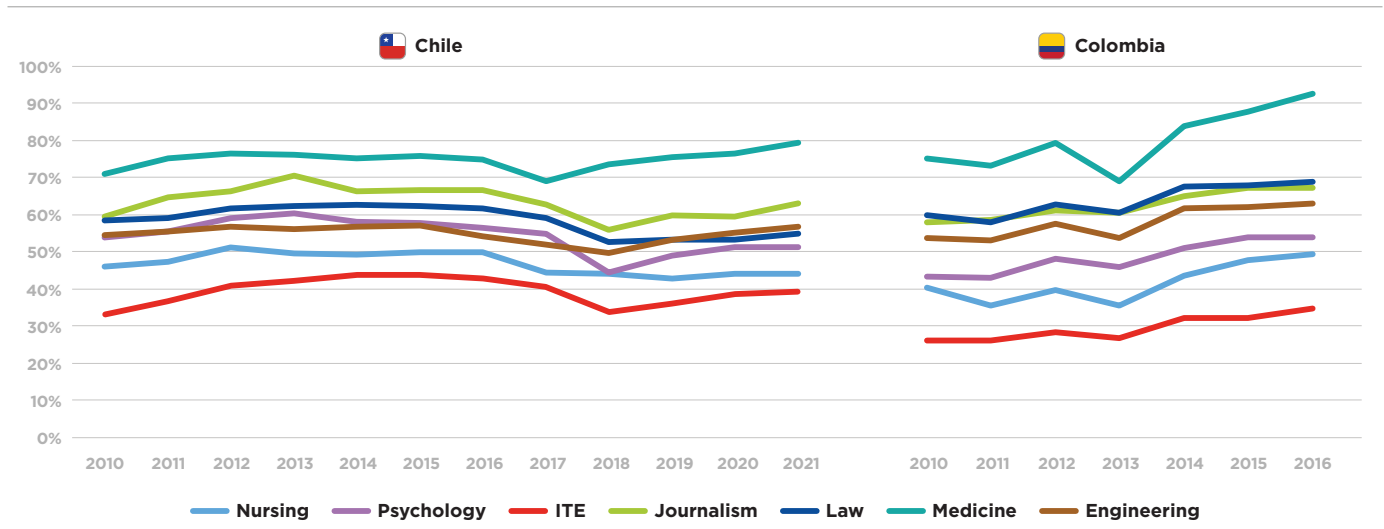


E Parents' education

When examining the reported educational level of parents of students enrolled in ITE programs, the percentage of students whose mother and/or father attended higher education (i.e., incomplete or complete technical or higher education) fluctuates between 33% and 44%, for 2010-2021. In the case of Colombia, the figures are slightly lower, with enrollments in initial teacher education programs fluctuating between 28% and 35% (averaging at 29%), from 2010 to 2016.

When comparing these data with the other analyzed degree programs, graph 16 shows that those enrolled in initial teacher education programs have the lowest proportion of parents who attended higher education. The medicine program concentrates the highest proportion of enrolled students whose parents attained higher education, and the ranking of the programs is similar and stable over time in both countries. This follows the same trends when considering the average salaries obtained by degree program (Inter-American Development Bank, 2012; Elacqua et al., 2018).

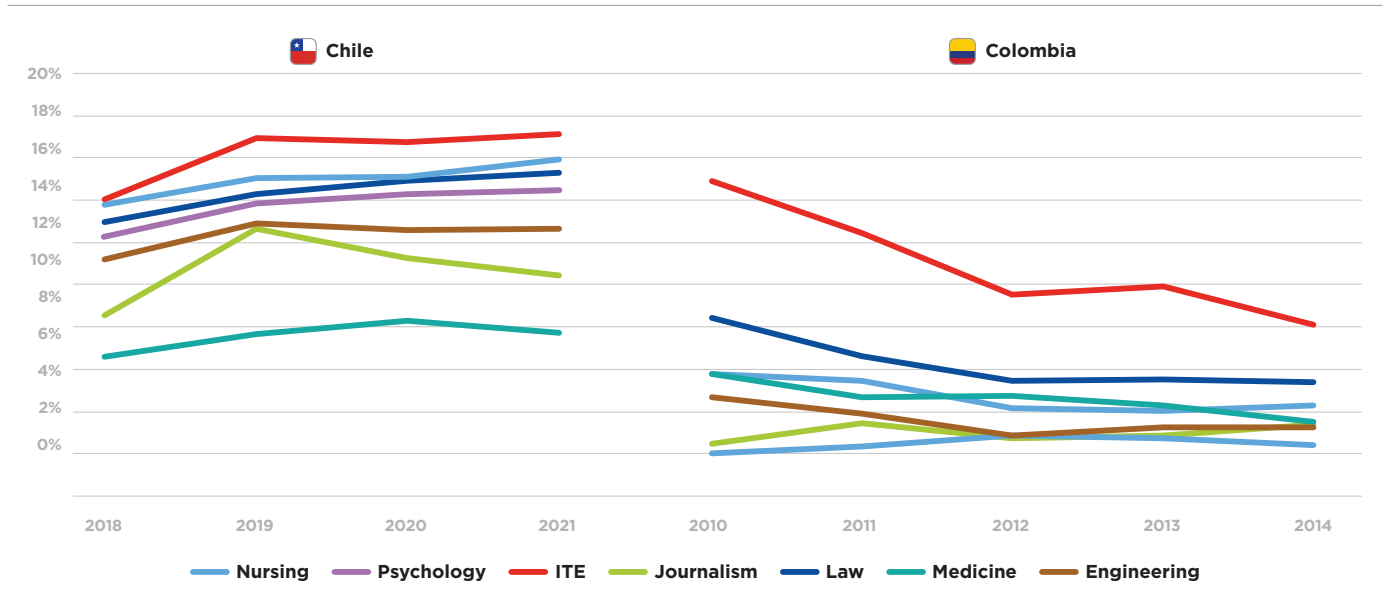
Graph 16 Students enrolled in initial teacher education programs whose parents attained higher education compared to other degree programs



F Belonging to ethnic groups or indigenous peoples

Members of indigenous ethnic groups have lower participation in higher education in the region, and this tends to be concentrated in less valued and prestigious degree programs. Graph 17 shows the enrollment in different degree programs for students who belong to ethnic groups or indigenous peoples. In Chile, the percentage of students enrolled in initial teacher education programs who belong to native ethnic groups ranges from 14% to 17% between 2018 and 2021. This percentage exceeds the proportion of members of native ethnic groups at the national level of 12.8%, according to the 2017 census. When comparing this proportion with other professional degree programs, this figure shows that the initial teacher training programs concentrate the highest proportion of enrolled students that belong to native ethnicities, followed by the nursing program. In contrast, medicine is the program with the lowest proportion of students belonging to indigenous ethnic groups (between 6% and 8% of the enrollment). In other words, students from indigenous ethnic groups are relatively less represented in the most prestigious and selective degree programs. In the case of Colombia, similar to Chile, initial teacher education programs concentrate a higher proportion of students belonging to native ethnic groups, compared to the other programs during the 2010-2014 period. This representation of students from ethnic groups in initial teacher education programs drops sharply between 2010 and 2012, approaching the average of the rest of the degree programs.

Graph 17 Enrolled in initial teacher training programs belonging to native ethnic groups in comparison with other degree programs



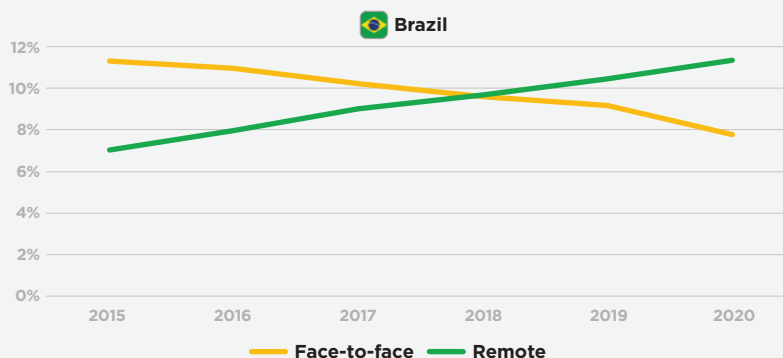
What happened during the COVID-19 pandemic?

The initial effect of the pandemic on enrollment rates in initial teacher education programs in the region was mild, with no significant changes during the year 2020. In Central America and the Caribbean, enrollment in higher education remained relatively constant during 2019 and 2020. In South America, there were no major changes either, except for Chile and Peru. Chile presented a slight decline in overall higher education enrollment between 2019 and 2020; between 2015 and 2019, overall higher education enrollment remained between 6,600 and 6,700 people enrolled per hundred thousand inhabitants, while it fell to 6,400 in 2020. In the case of Peru, the drop was more pronounced: between 2017 and 2019, average enrollment was 4,000 people enrolled per 100,000 inhabitants, reaching 4,500 people enrolled per 100,000 inhabitants in 2019. However, in 2020 this dropped to less than 4,000 people enrolled per 100 thousand inhabitants; the lowest figure in the entire period analyzed.

Although some drops are recorded, such as in Chile and Peru, the general data suggest that, so far, there is no clear effect of the pandemic on higher education enrollment levels in the region. This could be associated with the fact that, at more advanced levels of education, the transition from face-to-face classroom modalities to emergency remote education was less disruptive than at primary and secondary school levels (Hodges et al., 2020). The stress and excessive workload on teachers did not substantially affect overall enrollment in initial teacher education programs during the early days of the pandemic, in contrast to the negative impact on attrition observed in school enrollment. However, recent evidence suggests that the prestige of the teaching profession was damaged during the pandemic and that this has had a negative impact on the preferences of applicants to ITE programs in higher education. In fact, in Chile the proportion of students applying to pedagogy dropped drastically in 2021 compared to other higher education degree programs (Contreras et al., 2022 forthcoming).

Interestingly, in Brazil, enrollment in initial teacher education programs in remote modality shows a sustained upward trend since before the pandemic (see graph 18). During the 2015-2020 period, enrollment in face-to-face modality initial teacher education programs declined by almost half, while enrollment in remote programs increased by almost double. As for 2020, graph 18 shows an acceleration in the decline of the face-to-face format of initial teacher education programs. However, these trends do not suggest an effect caused by the pandemic. The steady increase in remote enrollment for Brazil is probably associated with the large percentage of its population that has access to the internet, which has been increasing consistently since 2000, reaching figures of around 80% by the end of 2020 (World Bank, n.d.). This is in addition to the fact that remote educational programs tend to have a lower associated cost than face-to-face programs.

Graph 18 Enrollment in initial teacher education programs as a percentage of enrollment in higher education, by mode of instruction in Brazil



In summary, due to the recent and brief extension of the post-COVID-19 pandemic analysis period, it is very premature to study the effects of it on enrollment rates in initial teacher education programs.

Final remarks

The countries of Latin America and the Caribbean face an important challenge: to increase the number of teachers to cope with the projected shortage and, at the same time, to improve the skills and composition of the teaching workforce. In this technical note we analyze the characteristics and trends of enrollment in initial teacher education programs as one of the first links in the chain of teacher composition in each country. The conclusions are clear: despite growing demands, in recent years, enrollment seems to have stagnated in both its size and its composition.

Firstly, between 2015 and 2020, on average, there has been a slight increase in the region in higher education enrollment per hundred thousand inhabitants (0.6%), and a slightly higher increase in the case of initial teacher education programs (0.9%). Taking as an indicator the proportion of enrollment concentrated in initial teacher education programs, we see that, in most countries, it remains stable. That is, in a context in which overall enrollment in higher education has not undergone major variations, the proportion of those enrolled in teacher education programs has not registered major modifications either. Although there has been a growth in enrollment, it is not clear whether this growth will be sufficient to cover the demand for qualified teachers, which is an analysis that should be carried out separately for each country.

On the other hand, the composition of enrollment in initial teacher education programs maintains some characteristics that have already been described in the past: the region is characterized by a largely female enrollment, with a greater presence of women in teacher education programs at the primary and pre-primary levels, and a higher proportion of enrollees in public institutions than in other programs. The trend in relation to the specialization chosen by students (pre-primary, primary or secondary) varies from country to country, with cases in which a traditional presence is maintained for primary education, and countries where there has been a significant growth in the pre-primary (e.g., Peru) or secondary levels (e.g., Mexico or Colombia). Additionally, in initial teacher education programs, the proportion of those enrolled in intercultural bilingual education is significantly lower than the self-identified indigenous population. The data show that the supply of intercultural bilingual programs is insufficient and that, in general, there have been no sustained policies to promote this supply.

The analysis of the demographic, ethnic, socioeconomic, and academic characteristics of students enrolled in teacher education programs in Colombia and Chile provides additional perspectives. In comparison with other higher education programs, in both cases, enrollment is predominantly female, with students who have lower academic performance in entrance exams, who come in greater proportion from rural schools and public schools, and whose parents have higher education to a lesser extent. In both countries, there have been no significant changes in these characteristics in the past 10 years.

Multiple factors influence the decision to enroll in initial teacher education programs: the social valuation of the program, entry requirements and admission systems, working conditions, as well as policies to attract new applicants, among many others. For the most part, teachers receive low and uncompetitive salaries (Bertoni et al., 2020), which are also worse than those received by other professionals and technicians in the region (Mizala and Ñopo, 2016). Both the number and characteristics of students enrolled in initial teacher education programs are, in part, a reflection of these policies. Several of the policies implemented during the period analyzed may have negatively affected the number of students enrolled in initial teacher education programs, either directly or indirectly. For example, in Chile and Peru, increased regulation of programs and mandatory accreditation may have had a negative impact on the number of vacancies offered, while also leading to the closure of some institutions. The increase in access requirements and selectivity processes are also factors that may reduce the number of students who qualify for admission to these programs.

This results in an apparent dichotomy: policies aimed at raising the standards of initial teacher education programs appear to conflict with the need to increase in enrollment in order to address the projected teacher shortage. The challenge for governments lies in overcoming this dilemma, for which it is necessary not only to motivate application and enrollment in initial teacher education programs (for example, Peru, Colombia, Chile, and Argentina offer specific benefits and financial aid for students who chose these programs (Elacqua et al., 2018)), but also to act on the conditions of the teaching profession and make it more attractive.

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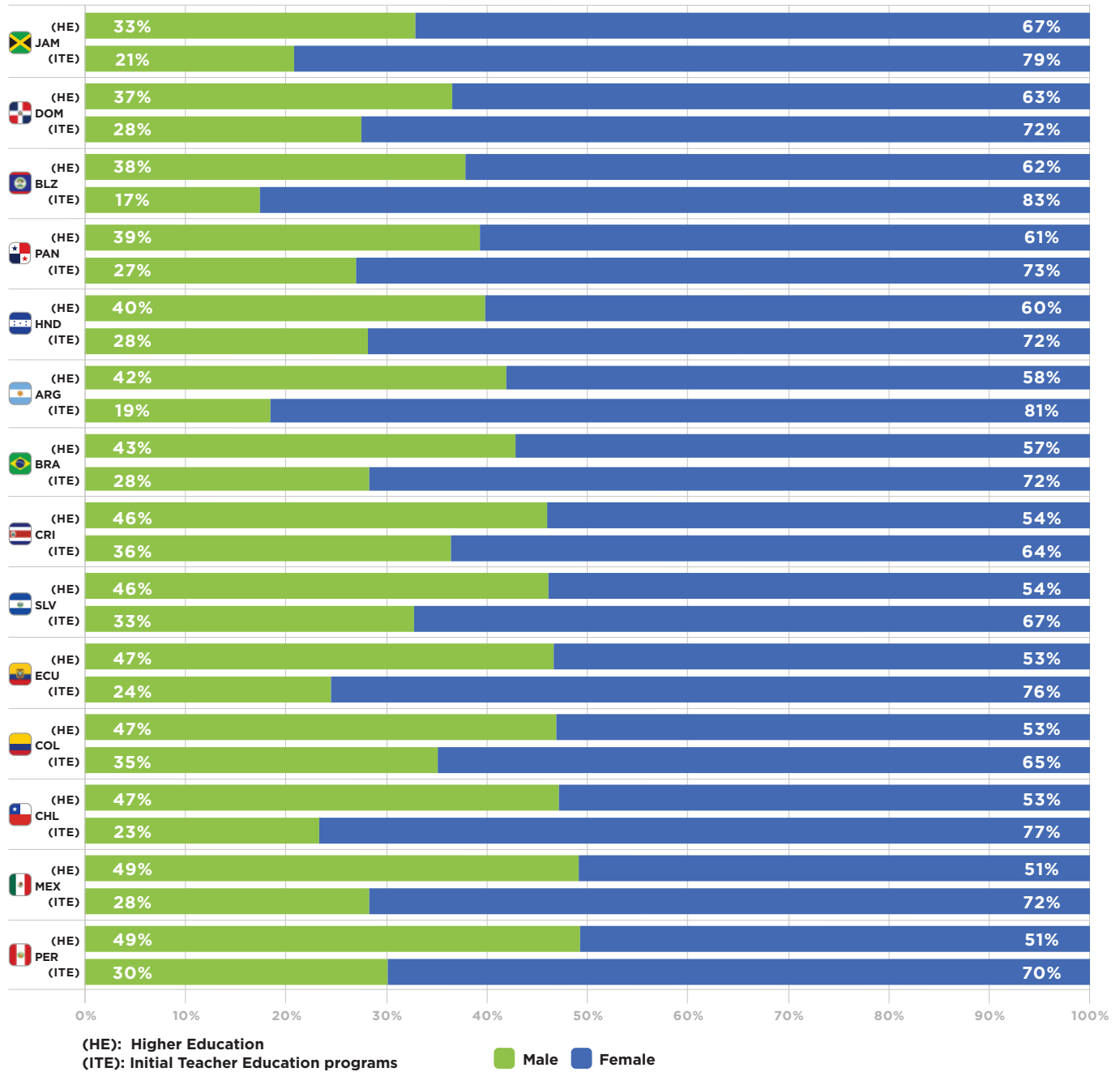
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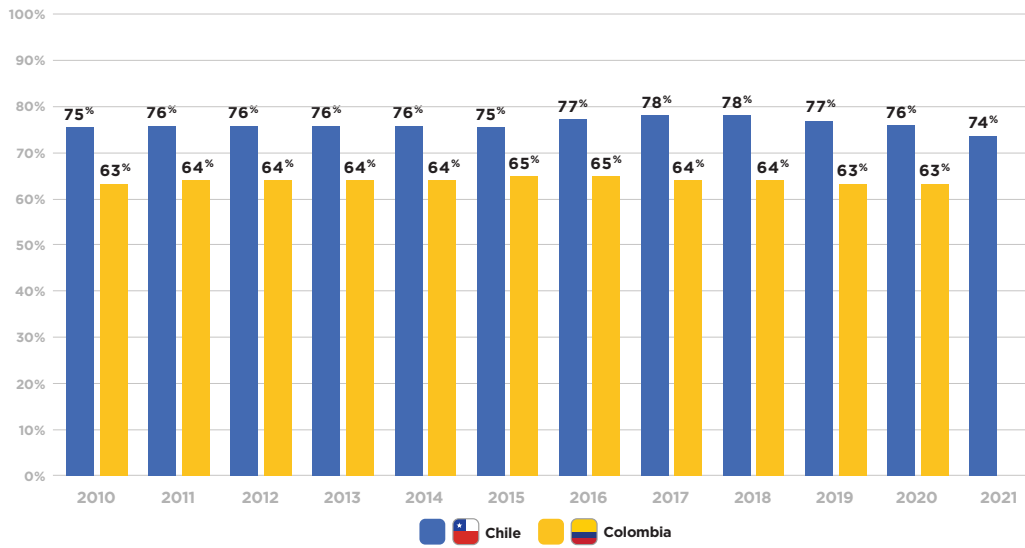
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Appendix

Appendix 1 Composition of enrollment in higher education and initial teacher education programs by gender (2018)



Appendix 2 Female enrollment in initial teacher education programs (2010-2021)

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