Inequality, Education, and Skills in Latin America: Evidence from the Regional Learning Assessment

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CONTENT

I. Introduction

Inequality remains a critical challenge for the educational system across Latin America. Major learning gaps persist for the region, particularly among students from impoverished and marginalized communities. Of course, stark inequities affect access to quality education and its beneficial academic outcomes, and disadvantaged students bear the brunt of exclusion and segregation. Entrenched inequality threatens not only quality schooling but also a further widening of the divide. Students from lower socioeconomic backgrounds and Indigenous groups are therefore left on the other side of a social and economic chasm as they advance through grade school.

The performance gaps are alarming. Disparities are especially pronounced between Indigenous students and their non-Indigenous classmates. These disparities reveal systemic inequities that have hardened into obstacles that affect the lives and prospects of millions of students. Students from households with a high socioeconomic status have access to better schools in the first place. In addition, their household resources—including private tutoring, technology, and ambitious parents able to provide a conducive learning environment—strengthen their academic journey. These advantages become evident in their testing scores in mathematics, language, and science, as the international and regional assessments show.

Conversely, poor students lack educational materials at home and, at school, face overcrowded classrooms. They have work obligations after school. Because these conditions hinder full engagement with their studies, their learning suffers. Indigenous students deal with socioeconomic disadvantages and other systemic hurdles, including curricula that fail to acknowledge the strengths of their heritage and language. Disengagement and diminished performance on standardized tests are often the result.

This study examines the 2019 Regional Comparative and Explanatory Study (ERCE 2019) databases to analyze educational outcomes across the region, highlighting challenges typically faced by disadvantaged and Indigenous students. The mathematics achievement gap between students of low and high socioeconomic status widens between third and sixth grades, with Brazil and Uruguay seeing the greatest gaps. Disparities are also evident in language and science, especially in Brazil, Colombia, Guatemala, Panama, Peru, and Uruguay. Indigenous students continually face barriers, and Costa Rica and Panama have the largest achievement gaps.

Analysis using the Oaxaca-Blinder Decomposition method reveals that the mathematics and language achievement gaps that exist between Indigenous students and their non-Indigenous classmates are only partly explained by non-observable factors—discrimination and bias. For many countries, sixth-grade mathematics and language gaps are attributed to differentials in observable factors such as home library size, parental beliefs about a child's capabilities, and the student's own interest in post-secondary education. In science achievement, however, the gap favoring non-Indigenous students is linked mostly to non-observable factors (discrimination or bias) affecting Indigenous people throughout the region. These factors suggest that Indigenous identity detracts from student achievement in science.

II . Inequalities in Access

With some of the highest levels of income inequality globally, Latin America remains the most unequal region in the world. The richest ten percent control a larger share of the region's income (37 percent) than anywhere else, while the poorest forty percent receive just 13 percent (United Nations Development Programme, 2024). The stark divide means unequal access to quality schools and educational resources. Students from wealthier families will therefore attend well-funded schools, be taught by experienced teachers, use the best learning materials, and enjoy good extracurricular activities. Conversely, poorer students often attend under-resourced schools and have limited opportunities, inadequate resources, and poorly trained teachers. Even within the same school, differences in the socioeconomic status (SES) are associated with disparate academic performance across all subjects and grades (UNESCO/OREALC, 2021).

In primary education, most countries have narrowed the attendance-rate gaps between the lowest and highest socioeconomic quintiles. Peru continues to struggle with a 13-percentage point gap that favors high SES students. In secondary education, the attendance gaps become wider. Chile has the smallest gap at 2.3 percentage points, while Honduras has the largest at 32.2 percentage points (Figure 1). Argentina, Bolivia, Brazil, Chile, and Ecuador are close to eliminating the attendance rate gap between economically disadvantaged and affluent students. Conversely, Honduras and Guatemala exhibit the largest attendance gap and rank lowest in secondary school attendance across the region, indicating significant socioeconomic barriers to education in these countries.

Figure 1: 2022 Secondary-level attendance rates for the lowest (first quintile) and highest (fifth quintile) socioeconomic groups (percent)
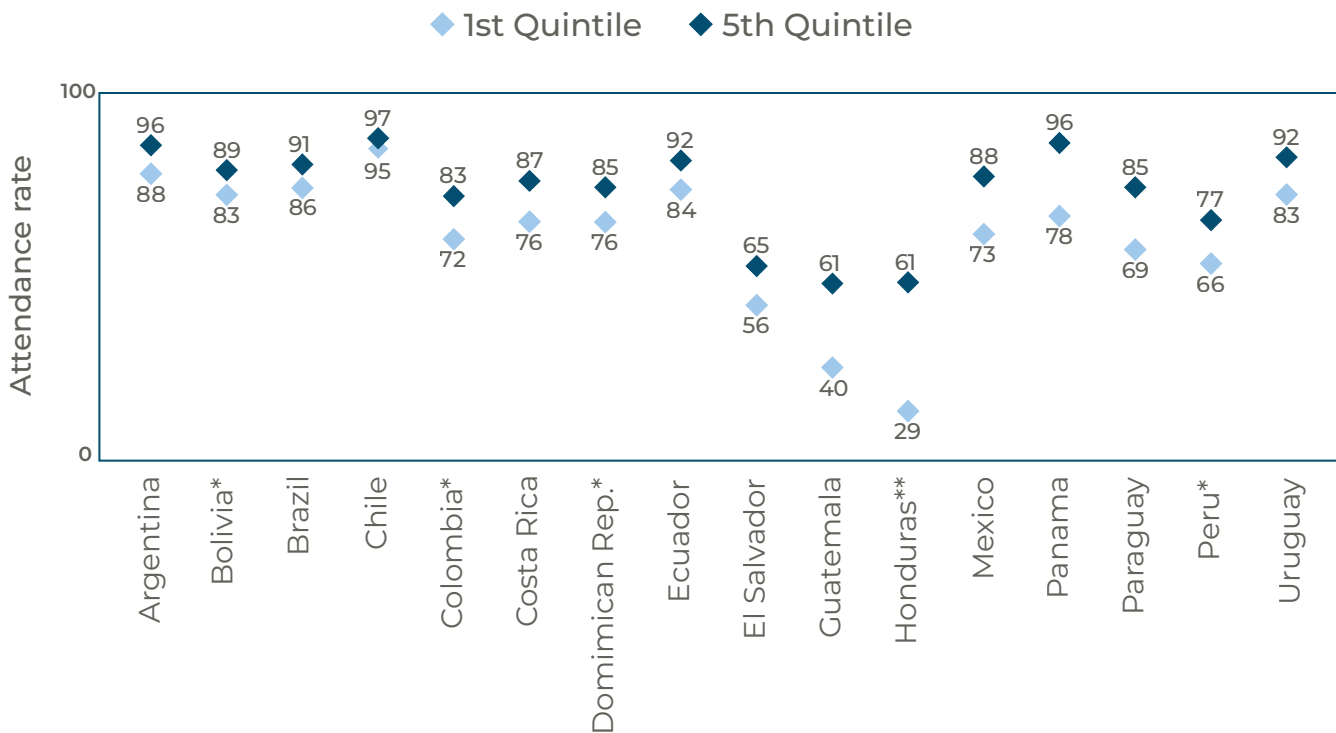
* Data corresponds to 2021; ** data corresponds to 2019.

Source: IADB CIMA calculations based on Harmonized Household Survey data.

Overall attendance is markedly low at the tertiary level: Chile at 30 percent and Honduras and Guatemala dropping below 10 percent. The socioeconomic attendance gap at this level widens even further compared to secondary education, with the most pronounced disparities found in Brazil (30 percentage points), Costa Rica (32 percentage points), Panama (31 percentage points), and Uruguay (39 percentage points). Meanwhile, despite having the narrowest gaps, El Salvador, Guatemala, and Honduras also have the lowest tertiary attendance rates, highlighting how socioeconomic status shapes access to higher education across the region (Figure 2).

Figure 2: 2022 Tertiary-level attendance rates for the lowest and highest SES groups (percent)

◆ 1st Quintile ◆ 5th Quintile

Attendance rate

Country	1st Quintile	5th Quintile
Argentina	14	36
Bolivia*	16	37
Brazil	5	35
Chile	27	41
Colombia*	6	29
Costa Rica	9	41
Dominican Rep.*	8	30
Ecuador	4	32
El Salvador	7	19
Guatemala	3	16
Honduras**	1	11
Mexico	11	32
Panama	9	40
Paraguay	9	31
Peru*	11	32
Uruguay	6	45

* Data corresponds to 2021; ** data corresponds to 2019.

Source: IADB CIMA calculations based on Harmonized Household Survey data.

At the primary school level, many countries have nearly bridged the completion-rate gaps between poor and rich students. Colombia, the Dominican Republic, El Salvador, Panama, and Paraguay still report completion rate gaps of 4 to 8 percentage points. Guatemala and Honduras have the starkest differences at 25 and 14 percentage points, respectively.

Secondary-school completion rates, however, present a larger challenge (Figure 3). Chile exhibits the smallest gap at 8 percentage points, contrasting sharply with Uruguay's 59 percentage points. In Uruguay, only one in five lower SES students completes secondary education, compared to four in five of students claiming higher SES backgrounds. Guatemala, Honduras, Panama, and Paraguay also face hurdles. Their secondary-school completion-rate gaps range from 36 to 42 percentage points.

Figure 3: 2022 Secondary-school completion rates for the lowest and highest socioeconomic groups (percent)
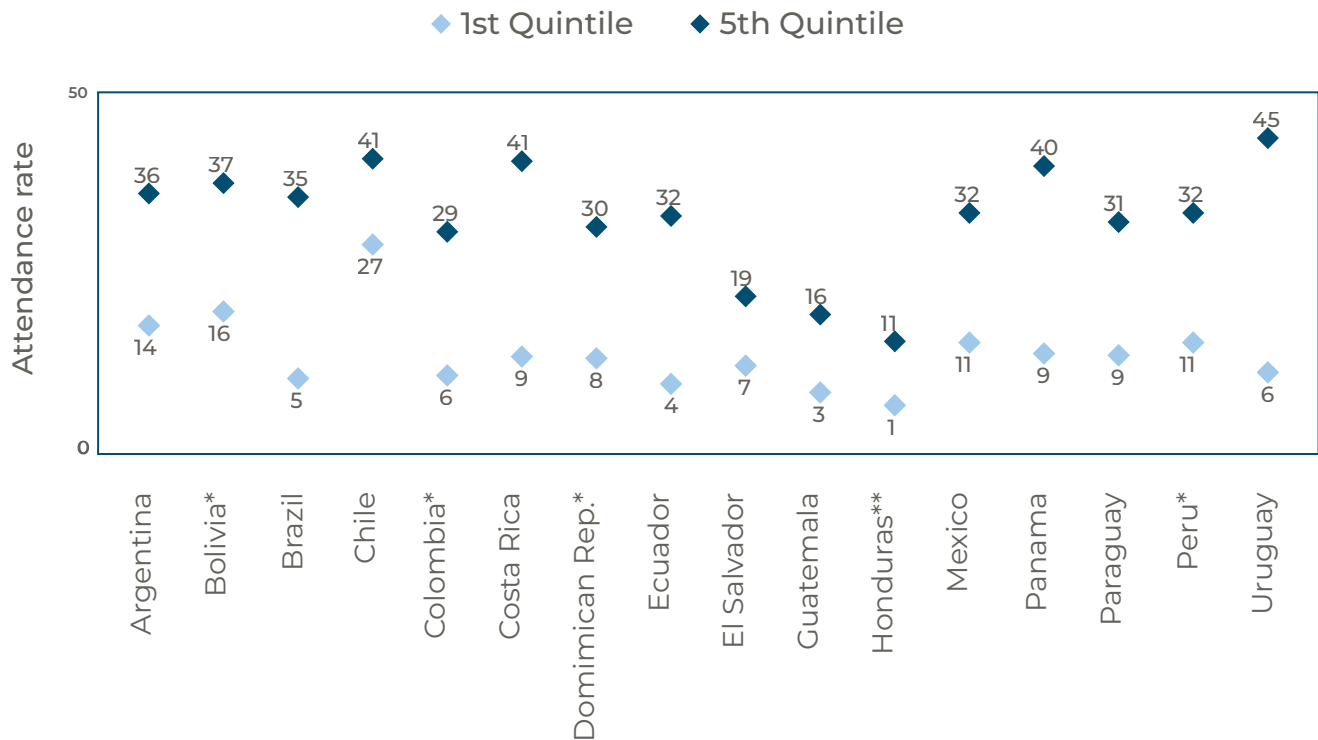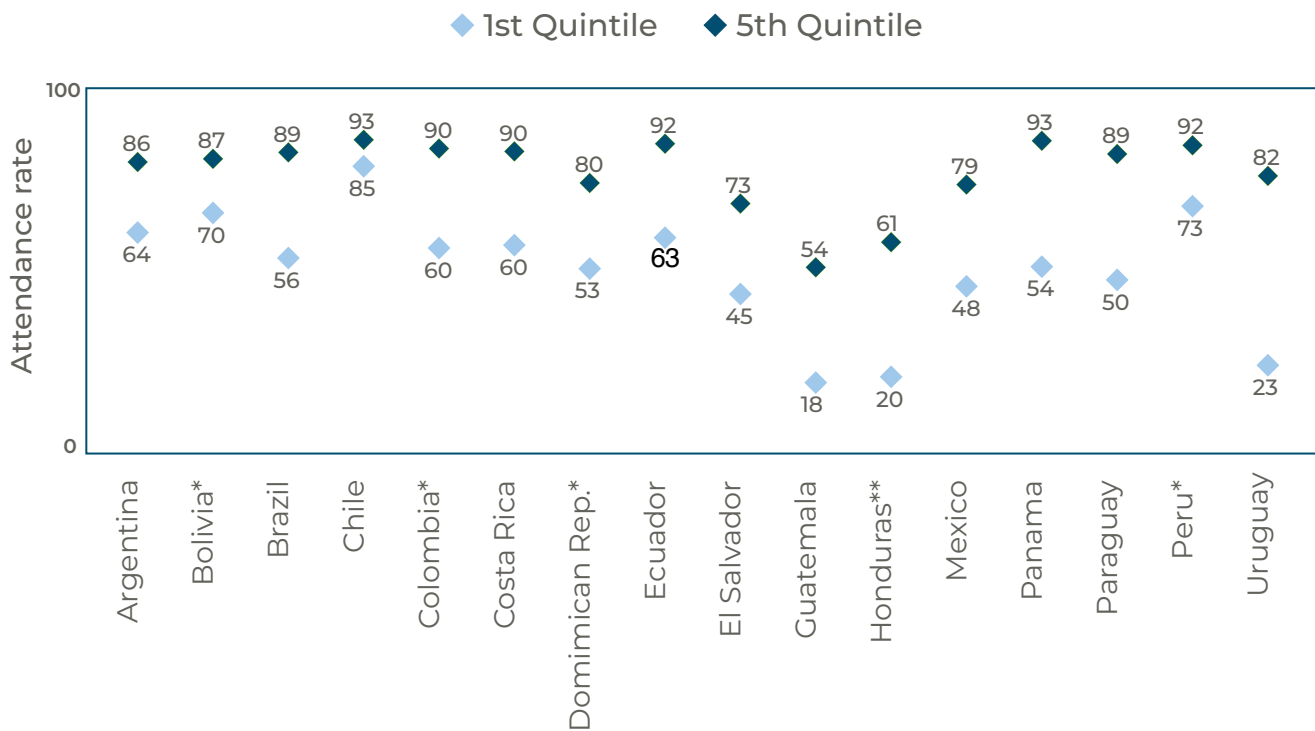
◆ 1st Quintile　◆ 5th Quintile

* Data corresponds to 2021; ** data corresponds to 2019.

Source: IADB CIMA calculations based on Harmonized Household Survey data.

As the region's most disadvantaged group, Indigenous people experience high poverty levels and marginalization and have fewer education opportunities (UNESCO/ECLAC/UNICEF, 2022). Household survey data shows that 46 percent of the Indigenous population in the region live in poverty, while 19 percent live in extreme poverty, compared to 25 and 7 percent of their non-Indigenous neighbors, respectively (ECLAC, 2022).

Estimates derived from country censuses conducted between 2010 and 2018 show that approximately one in every ten individuals in Latin America self-identifies as Indigenous—that is, 58 million people representing over 800 distinct cultures across the region, with major differences among countries (ECLAC/FILAC, 2020). Bolivia, Guatemala, Mexico, and Peru have the largest proportion of Indigenous populations, together accounting for more than 80 percent of the regional total. Mexico, in fact, has the largest Indigenous population: an estimated 27 million people in 2018. Argentina, Brazil, Costa Rica, El Salvador, Paraguay, Uruguay, and Venezuela have the smallest proportions of Indigenous populations, each having less than 3 percent. El Salvador and Uruguay report the lowest Indigenous populations in the region, with 14,878 and 81,092 Indigenous individuals, respectively (Figure 4).

Figure 4: 2018 Indigenous populations, by country (percent)
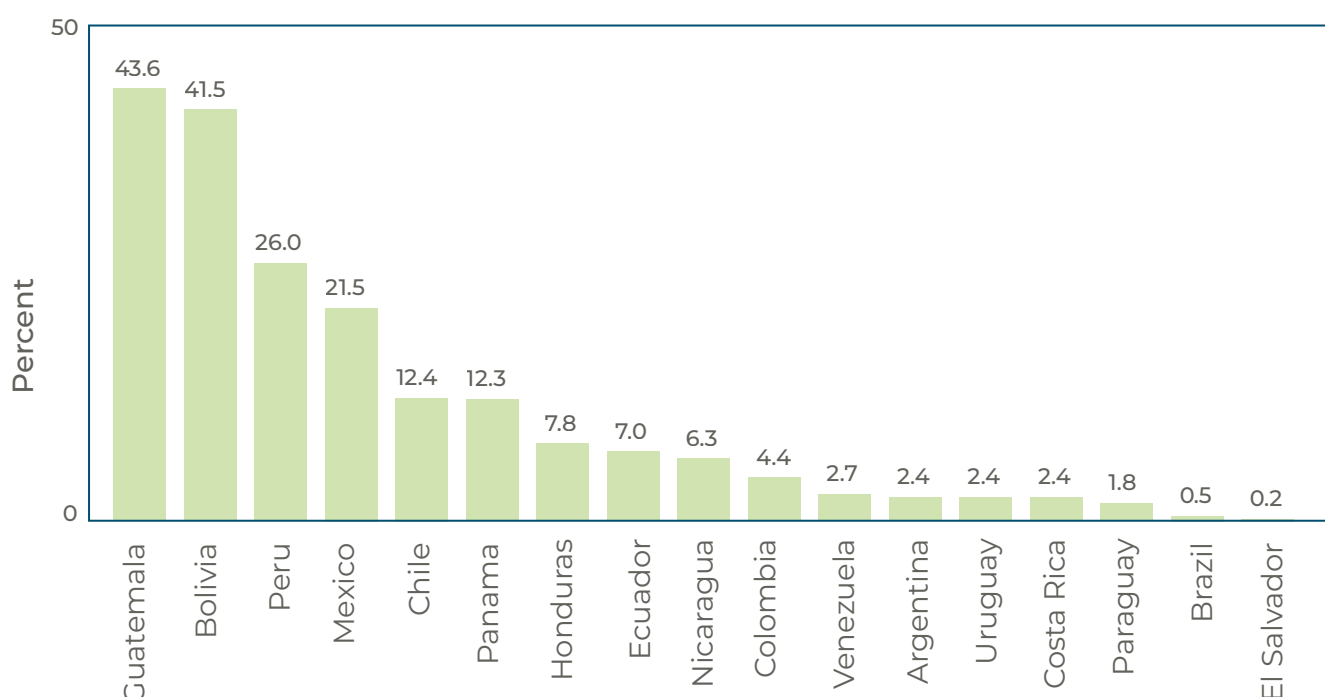
Source: ECLAC/FILAC (Economic Commission for Latin America and the Caribbean/Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean) (2020).

Only Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay report school attendance for Indigenous students. In 2020, the average secondary education attendance rates for Indigenous students in these countries were 3.1 percentage points lower than for non-Indigenous populations. Specifically, 79 percent of Indigenous students were attending secondary education, compared to 82 percent of students identified as non-Indigenous. Among the seven countries, Colombia displayed the most pronounced gap. Its Indigenous students attended at a much lower rate of 64 percent, compared to 80 percent for students who identified as Indigenous or Afro-descendants (ECLAC/FILAC, 2020; Corbetta, Bonetti, Bustamante, & Vergara Parra, 2018; Del Popolo, 2018).

In 2020, tertiary education attendance among Indigenous and Afro-descendent youth aged 18–24 in the region averaged around 30 percent, lower than the 38 percent attendance rate of their counterparts who are neither Indigenous nor Afro-descendent (Figure 5). This gap underscores the ethnic gaps in retention and completion rates, particularly at the secondary and tertiary levels. Inequalities affecting educational systems in Colombia, Ecuador, and Panama are adversely affecting achievement for Indigenous youth.

Conversely, Chile and Peru are closing the gap in secondary school completion rates between Indigenous students and their non-Indigenous peers.

Figure 5: 2020 Upper secondary completion rates for non-Indigenous and Indigenous students aged 20–24 (percent)
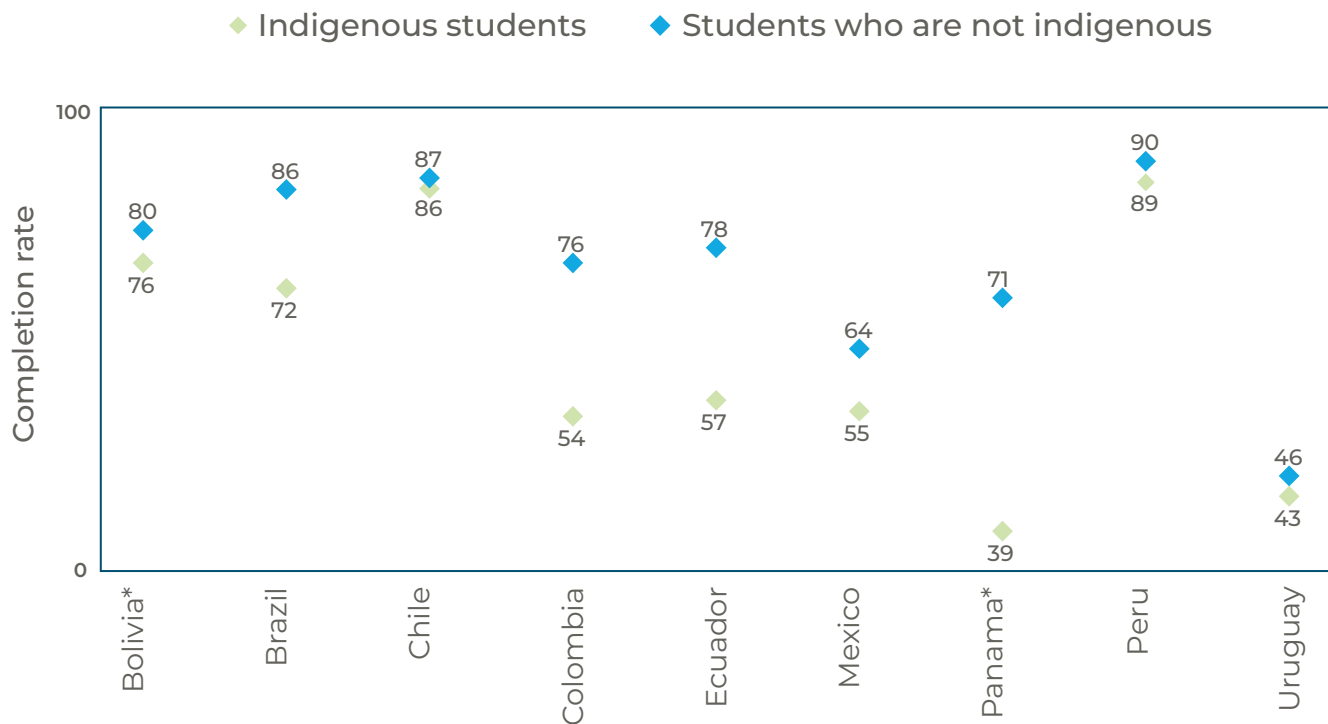
* Data corresponds to 2019.

Source : Economic Commission for Latin America and the Caribbean (ECLAC), Social Panorama of Latin America 2022 (LC/PUB.2022/15-P), Santiago, 2022 and on the basis of Household Survey Data Bank (BADEHOG).

III . Data and Descriptive Statistics

Data

The analysis utilizes data from the 2019 Regional Comparative and Explanatory Study (ERCE 2019),[1] a comprehensive assessment conducted across 16 countries: Argentina, Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay. This extensive study involved around 160,000 students from approximately 4,000 schools, and measured learning achievements and skills expected in mathematics and language for third and sixth graders, and in science for sixth graders (LLECE, 2021).

The ERCE 2019 used both multiple-choice and open-ended questions to assess the abilities of third and sixth graders. It also included comprehensive questionnaires for students, their families, teachers, and principals to explore factors associated with academic performance. Additionally, a specialized questionnaire assessed sixth graders' socioemotional skills, including empathy, school self-regulation, and openness to diversity.

The current analysis covers data from 15 of the 16 participating countries, excluding only Cuba from the study.

Associated Factors

The literature on education achievement highlights a number of factors affecting learning at primary and secondary levels. Demographics, including gender and socioeconomic status (SES), has a strong impact on academic outcomes (Cole, 1997; Liu, Peng, & Luo, 2020). The language spoken at home can also affect a student's experience at school, especially when it differs from the language used in tests. If students primarily speak a language at home that differs from the test language, it can affect school performance (Borgonovi & Ferrara, 2020). The importance of textbooks and learning materials in improving education quality is well-established (Smart & Jagannathan, 2018; UNESCO, 2016), as are the benefits of home libraries (Siko-

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[1] The regional study is coordinated by the Latin American Laboratory for Assessment of the Quality of Education (LLECE, by its Spanish acronym), of the Regional Bureau for Education in Latin America and the Caribbean (OREALC/UNESCO Santiago), with the participation of the national coordinators of the participating countries.

Evans, & Kelley, 2018). Furthermore, homework plays a key role in achievement, validating the role of diligent study in academic success (Bas, Sentürk, & Ciğerci, 2017).

Studies show in addition a strong correlation between students' sense of belonging at school and their academic and mental health outcomes (Gopalan & Brady, 2019; Gopalan, Linden-Carmichael, & Lanza, 2022). Conversely, repeating grades has been shown to detract from students' academic progress (Okoth Owino, Odongo Ajowi, & Onderi, 2022; Ikeda & García, 2013). Furthermore, students' confidence in their math abilities, or self-efficacy, benefits their math performance, while math anxiety can lead to poorer outcomes (Richland, Naslund-Hadley, Alonzo, Lyons, & Vollman, 2020). Parental education and involvement also play crucial roles in students' academic success (Desforges & Abouchaar, 2003; Fan & Chen, 2001). Higher levels of parent education often correlate with better school performance, serving as an indicator of socioeconomic status. Parental engagement in learning at home complements school efforts and leads to better academic results (Kantova, 2024).

Research highlights the benefits of teacher involvement and support (Ansong, et al., 2024). When teachers demonstrate genuine interest and engagement in their students' well-being and academic progress, it strengthens students' motivation, engagement, and overall academic achievements. The teacher's native language can also have a strong influence on the experiences of Indigenous students (Ntuli & Mudau, 2024). If the teacher speaks the language as the Indigenous student, their ability to understand, engage, and excel in their academic environment is greatly enhanced. Additionally, academic performance is affected by the students' living environments, with differences noted between rural versus urban settings and those attending schools in more versus less favorable neighborhoods (Panizzon, 2015). The characteristics of schools themselves also play a crucial role in achievement gaps, underscoring the importance of a supportive environment for students (Evans & Cook, 2000).

This study examined the impact of certain factors—student, teacher, and school—on the boy-girl achievement gaps.

Student-level factors

- **Gender.** This variable takes a value of 1 if the student is female and 0 if the student is male.

- **Family socioeconomic status.** This standardized composite variable is crea-

ted using a set of variables that include the parents' educational, economic, and employment backgrounds, as well as assets and books owned by the household and housing quality. The higher the index value, the higher the socioeconomic status of the student's household.

- **Language spoken at home.** This dichotomous variable takes the value of 1 if the student spoke a different language than the test language at home and 0 if the student spoke the same test language at home.

- **Days studying or doing homework.** This variable takes the value of 1 if the student studied or did homework almost every day in the past week (four days or more) and 0 if the student studied or did homework less than four days in the past week.

- **Books at home.** This variable takes the value of 1 if the student has more than ten books at home and 0 if the student has ten books or fewer at home.

- **Sense of school belonging.** This standardized composite variable measures students' sense of feeling accepted and respected in school, using a set of four statements: (i) I like being part of this school; (ii) I feel proud to be part of this school; (iii) I like coming to this school; and (iv) My teachers make me feel happy to come to this school. The higher the index value, the higher the student's sense of belonging.

- **Repeated a grade level.** This variable takes the value of 1 if the student repeated a grade level at least once and 0 if the student never repeated a grade level.

- **Mathematics self-efficacy.** This standardized composite variable measures students' confidence in solving basic mathematics problems, using a set of three questions: (i) In general, I do well in mathematics; (ii) I'm good at solving mathematics problems; (iii) I am confident that I will do well in mathematics at the end of the school year. The responses to these questions were on a 4-point scale ranging from 1 = "Strongly disagree" to 4 = "Strongly agree." The higher the index value, the higher the student's self-efficacy level in mathematics.

- **Mathematics anxiety.** This variable takes the value of 1 if the student reported feeling very nervous when solving a math problem and 0 if the student did not feel very nervous when solving a math problem.

- **Expectation of their education attainment.** This variable takes the value of 1 if the student expects to complete postgraduate studies and 0 if the student does not expect to complete postgraduate studies.

- **Mother's education level.** This variable takes the value of 1 if the mother completed tertiary education level and 0 if the mother has secondary education or less.

- **Parent involvement in student learning.** This standardized composite variable measures the degree of parent involvement in their child's learning, according to the child, using a set of four questions: (i) They checked or helped me do my homework; (ii) They asked me if I did my homework; (iii) They asked me what I did at school; (iv) They asked me what grades I got. For third graders, the responses to these questions were categorical as follows: 1 = A lot; 2 = A little; 3 = Never. For sixth graders, the responses were categorical as follows: 1 = Never; 2 = 1 or 2 times in the past week; 3 = 3 or 4 times in the past week; 4 = every day or almost every day in the past week. The higher the index value, the higher the parent's involvement in student learning.

- **Parent expectation of students' education attainment.** This variable takes the value of 1 if the parent expects the child to complete postgraduate studies and 0 if the parent does not expect the child to complete postgraduate studies.

- **Parents' perception of the ease of student learning.** This variable takes the value of 1 if the parent believes that the child learns mathematics /language/ science easily and 0 if the parent does not believe that the child learns mathematics/language/science easily.

Teacher-level factors

- **Teacher's native language.** This variable takes the value of 1 if the teacher's native language is an Indigenous language and 0 if it is not.

- **Teacher interest in student welfare.** This standardized composite variable measures the degree of teacher interest in student welfare, using a set of five statements: (i) Teachers take an interest in each one of us; (ii) Teachers can tell when I'm worried about something; (iii) Teachers encourage me when I find the subject difficult; (iv) Teachers are nice to me even if I make a mistake; (v) Teachers help me feel better if I'm sad or angry. The responses to these questions were categorical as follows: 1 = Never or almost never; 2 = sometimes; 3 = many times; 4 = always or almost always. The higher the index value, the higher the teacher's interest in student welfare.

- **Teacher support in student learning.** This standardized composite variable measures the degree of teacher support of student learning, using a set of 10 questions: (i) The teacher asks if we understand what they are explaining; (ii)

The teacher encourages us to finish the tasks we started; (iii) The teacher asks us to do fun activities; (iv) The teacher tells me what I've done well; (v) When I make a mistake, the teacher helps me correct my mistakes; (vi) The teacher asks us to explain how we solved a problem or exercise; (vii) The teacher asks us to discuss among classmates how to solve a problem; (viii) The teacher encourages us all to participate; (ix) The teacher asks us to correct the answers or work of other classmates; (x) The teacher makes us work on group projects. The responses to these questions were categorical as follows: 1 = Never or almost never; 2 = sometimes; 3 = many times; 4 = always or almost always. The higher the index value, the higher the teacher's support in student learning.

School-level factors

- **Geographical location.** This variable takes the value of 1 if the school is in an urban area and 0 if the school is in a rural area.

- **Enrollment size.** This continuous variable measures the number of students enrolled at the school.

- **Proportion of students in poverty.** This continuous variable measures the proportion of students who are in poverty.

- **Proportion of students who speak a language other than the majority.** This continuous variable measures the proportion of students who speak a language other than the majority.

- **Proportion of Indigenous students.** This continuous variable measures the proportion of Indigenous students enrolled in the school.

- **Services.** This standardized composite variable assesses the range of services offered at the school by determining the availability of specific services: (i) electricity, (ii) drinking water, (iii) sewerage connections, (iv) telephone, (v) mobile computer lab, (vi) bathrooms in good condition, (vii) internet connection, and (viii) garbage collection. The higher the index value, the better the school's services.

Descriptive Statistics of Associated Factors

The pooled analysis of data from countries participating in the study highlights notable differences in the classroom experiences and expectations of sixth-grade Indigenous students compared to their non-Indigenous peers (Table 1). Indigenous students are more likely to repeat grades and work jobs after school, pointing to challenges in their academic progression and extracurricular activities. Additionally, these students are less likely to have learning resources at home, such as owning more than ten books, which is crucial for learning and development. Parental involvement and expectations also differ markedly, as non-Indigenous students benefit from greater parental engagement in their education. Parents of these students also have higher aspirations for their children, including the pursuit of postgraduate studies. Moreover, these parents are more confident in their children's abilities to learn mathematics, language, and science. This contrast in parental expectations and beliefs underscores the broader sociocultural and economic factors influencing the educational opportunities and outcomes of Indigenous students.[2]

Table 1: Differences between Indigenous students and their non-Indigenous peers in sample characteristics, sixth grade

Factors	Indigenous	Not Indigenous	Difference
Student Mathematics Self-Efficacy Index	-0.2	-0.2	0.1***
Student mathematics anxiety	50.9	45.7	5.2***
Student is a girl	45.7	50.3	-4.6***
Student speaks Indigenous language	13.3	0.9	12.5***
Student repeated a grade level	22.0	16.2	5.9***
Student has more than 10 books at home	45.8	58.9	-13.0***
Student expects to complete postgraduate studies	22.4	22.1	0.3
Student Family Socio-economic Status Index	-0.4	0.2	-0.6***
Mother completed tertiary education	9.0	18.0	-9.0***
Parent Involvement Index	-0.2	-0.2	0.0

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[2] See tables A.1 to A.3 in the annex for country-specific results.

Parent expects child to complete postgraduate studies	31.1	43.6	-12.4***
Parent believes child learns mathematics easily	48.6	53.4	-4.8***
Parent believes child learns language easily	52.1	59.5	-7.4***
Parent believes child learns science easily	60.7	65.0	-4.3***
Teacher Interest in Student Welfare Index	-0.2	-0.2	0.0
Teacher Support of Student Learning in mathematics Index	-0.2	-0.2	-0.1*
Teacher Support of Student Learning in language Index	-0.2	-0.2	0.0
Teacher Support of Student Learning in science Index	-0.2	-0.2	0.0
Teacher speaks an Indigenous language	20.1	14.7	5.5**
School is in an urban area	60.6	83.9	-23.3***
Size of school enrollment	356.5	486.6	-130.1***
Proportion of poor students	52.6	36.0	16.5***
School Services Index	14.1	65.9	-51.8***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Differences in classroom experiences and expectations between students from low and high socioeconomic backgrounds are evident at both third- and sixth-grade levels (Table 2). Students from lower socioeconomic backgrounds repeat grades more often and also hold afterschool jobs, highlighting the demands made on their educational paths. Furthermore, these students are less likely to have essential learning resources at home (such as owning more than ten books), which greatly benefits their learning. In addition, parental involvement and expectations vary by socioeconomic status. Parents at higher socioeconomic levels generally are more engaged in their children's education and have greater aspirations for them, including for postgraduate studies. These parents are more confident in their children's abilities to learn mathematics and language. This contrast in parental attitudes and expectations suggests that socioeconomic status helps shape student outcomes. Moreover, teachers may show greater interest in and support for students from wealthier backgrounds, created biases in attention and resources.[3]

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[3] See tables A.4 to A.9 in the annex for country-specific results.

Table 2: Differences between students from low and high socioeconomic backgrounds in sample characteristics, third and sixth grades

Factors	Third Grade			Sixth Grade		
	Low SES	High SES	Difference	Low SES	High SES	Difference
Student Mathematics Self-Efficacy Index	0.1	0.1	-0.1***	-0.2	-0.1	-0.1***
Student mathematics anxiety	65.8	60.7	5.1***	50.3	41.5	8.8***
Student is a girl	47.3	48.8	-1.6	49.8	50.7	-0.8
Student belongs to an Indigenous group				23.0	5.2	17.8***
Student repeated a grade level	27.3	8.9	18.3***	24.6	8.4	16.2***
Student has more than 10 books at home	20.8	81.9	-61.0***	33.0	82.6	-49.6***
Student expects to complete postgraduate studies				20.1	29.1	-8.9***
Mother completed tertiary education	1.4	48.7	-47.2***	2.3	43.7	-41.4***
Parent Involvement Index	-0.2	0.1	-0.3***	-0.3	0.0	-0.2***
Parent expects child to complete postgraduate studies	19.6	64.0	-44.3***	21.8	61.5	-39.7***
Parent believes child learns mathematics easily	47.9	73.1	-25.1***	47.1	62.3	-15.2***
Parent believes child learns language easily	45.6	70.8	-25.2***	51.3	68.4	-17.1***
Parent believes child learns science easily				57.1	74.7	-17.5***
Teacher Interest in Student Welfare Index	-0.2	0.1	-0.3***	-0.2	-0.2	-0.1***
Teacher Support of Student Learning Index	-0.2	0.1	-0.3***			
Teacher Support of Student Learning Mathematics Index				-0.3	-0.1	-0.2***
Teacher Support of Student Learning Language Index				-0.3	-0.1	-0.2***
Teacher Support of Student Learning Science Index				-0.3	-0.1	-0.1
Teacher speaks an Indigenous language				14.5	13.1	1.4***
School is in an urban area	53.6	93.8	-40.1***	55.5	95.1	-39.6***
Size of school enrollment	319	466	-147***	341	514	-173***
Proportion of poor students	57.1	22.2	34.9***	57.9	19.3	38.6***
School Services Index	0.0	1.0	-1.0***	0.8	96.8	-96.0***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

The ERCE 2019 data show a link between students' academic performance in mathematics, language, and science and their socioeconomic background, alongside their mother's education level, in both the third and sixth grades (Tables 3 and 4). A student's success is further influenced by active parental involvement in their education. Notably, academic achievements correlate positively with parents' aspirations for their children and their belief in their children's aptitude for mathematics, language, and science. While boys generally outperform girls in mathematics, girls excel in language and science, indicating gender gaps in subject proficiencies. Indigenous students, on the other hand, lag their non-Indigenous peers across all three subjects, underscoring systemic barriers faced by these communities (Tables 4 and 5).

Interestingly, the study identifies negative correlations where students' higher achievements in mathematics are linked to lower anxiety levels towards the subject (Tables 3 and 4). Additionally, achievements across the mentioned subjects inversely relate to the incidence of grade repetition. In the sixth grade, a positive relationship is evident between students' confidence in their mathematics abilities and their overall academic performance. Furthermore, the aspiration to complete postgraduate studies is also positively associated with better academic outcomes, highlighting the importance of students' confidence and their goals for learning (Tables 3 and 5).

Table 3: Zero-order correlations of student and family characteristics, third grade

Factors	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Mathematics score	1												
2 Language score	0.65***	1											
3 Student is a girl	-0.03***	0.06***	1										
4 Mathematics self-efficacy	-0.11***	0.00	0.09***	1									
5 Mathematics anxiety	-0.18***	-0.15***	0.02**	0.09***	1								
6 Student repeated a grade	-0.30***	-0.30***	-0.05***	0.01	0.08***	1							
7 Student has more than 10 books at home	0.26***	0.27***	0.01*	0.02**	-0.06***	-0.13***	1						
8 Family Socioeconomic Status Index	0.35***	0.38***	0.01	0.04***	0.04***	-0.18***	0.42***	1					
9 Mother completed tertiary education	0.28***	0.29***	0.01	0.00	-0.05***	-0.11***	0.28***	0.44***	1				
10 Parent Involvement Index	0.17***	0.20***	0.05***	-0.12***	-0.01*	-0.09***	0.06***	0.12***	0.08***	1			
11 Parent expects child to complete postgraduate studies	0.28***	0.31***	0.04***	0.01	0.02*	-0.14***	0.19***	0.33***	0.26***	0.11***	1		
13 Parent believes child learns Mathematics easily	0.29***	0.24***	-0.05***	-0.22***	-0.12***	-0.14***	0.13***	0.18***	0.13***	0.07***	0.13***	1	
12 Parent believes child learns Language easily	0.27***	0.29***	0.07***	-0.06***	-0.09***	-0.16***	0.12***	0.18***	0.14***	0.10***	0.16***	0.38***	1

*** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table 4: Zero-order correlations of student and family characteristics, sixth grade

Factors	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Mathematics score	1												
2 Language score	0.64***	1											
3 Science score	0.67***	0.65***	1										
4 Student is Indigenous	-0.15***	-0.19***	-0.17***	1									
5 Student is a girl	-0.03***	0.07***	0.03***	-0.03***	1								
6 Student speaks an Indigenous language	-0.11***	-0.13***	-0.12***	0.26***	0.00	1							
7 Mathematics self-efficacy	0.30***	0.18***	0.23***	0.02***	-0.05***	0.02*	1						
8 Mathematics anxiety	-0.20***	-0.15***	-0.16***	0.03***	0.05***	0.01**	-0.10***	1					
9 Student repeated a grade	-0.28***	-0.24***	-0.23***	0.05***	-0.09***	0.03***	-0.13***	0.05***	1				
10 Student has more than 10 books at home	0.29***	0.28***	0.28***	-0.08***	0.03***	-0.07***	0.09***	-0.06***	-0.13***	1			
11 Student expects to complete postgraduate studies	0.18***	0.16***	0.17***	0.00	0.09***	0.00	0.18***	-0.08***	-0.13***	0.08***	1		
12 Family Socioeconomic Status Index	0.36***	0.40***	0.38***	-0.20***	0.00	-0.16***	0.05***	-0.06***	-0.15***	0.35***	0.07***	1	
13 Mother completed tertiary education	0.26***	0.27***	0.28***	-0.07**	-0.01	-0.06***	0.08***	-0.06***	-0.09***	0.21***	0.09***	0.40***	1

*** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table 5: Zero-order correlations of student characteristics and parent expectations and perceptions, sixth grade

Factors	1	2	3	4	5	6	7	8	9	10	11
1 Mathematics score	1										
2 Language score	0.64***	1									
3 Science score	0.67***	0.65***	1								
4 Student is Indigenous	-0.15***	-0.19***	-0.17***	1							
5 Student is a girl	-0.03***	0.07***	0.03***	-0.03***	1						
6 Student speaks an Indigenous language	-0.11***	-0.13***	-0.12***	0.26***	0.00	1					
7 Parent Involvement Index	0.07***	0.08***	0.10***	-0.01	0.04***	-0.02*	1				
8 Parent expects child to complete postgraduate studies	0.30***	0.32***	0.31***	-0.08***	0.07***	-0.08***	0.03***	1			
9 Parent believes child learns Mathematics easily	0.32***	0.23***	0.25***	-0.03***	-0.03***	-0.02*	0.10***	0.13***	1		
10 Parent believes child learns Language easily	0.23***	0.27***	0.27***	-0.05***	0.11***	-0.03***	0.11***	0.15***	0.32***	1	
11 Parent believes child learns Science easily	0.18***	0.21***	0.24***	-0.03***	0.06***	-0.03***	0.12***	0.14***	0.28***	0.47***	1

*** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

IV. Socioeconomic Inequality in Academic Achievement

Socioeconomic levels among students vary widely across the region (Figure 6).[4] Argentina, Costa Rica, and Uruguay stand out for their sizable student populations from higher socioeconomic backgrounds, availing a hefty segment of their student populations to better resources and opportunities. Conversely, Guatemala, Honduras, and Nicaragua have more poor students—those who come from low socioeconomic backgrounds. More students in these countries face restricted access to resources and opportunities, potentially affecting their academic progress and overall outcomes.

Figure 6: Distribution of the family socioeconomic status index, third and sixth grades

10%   25%   50%   75%   90%

Third Grade

Sixth Grade

Family Socioeconomic Status Index

Family Socioeconomic Status Index
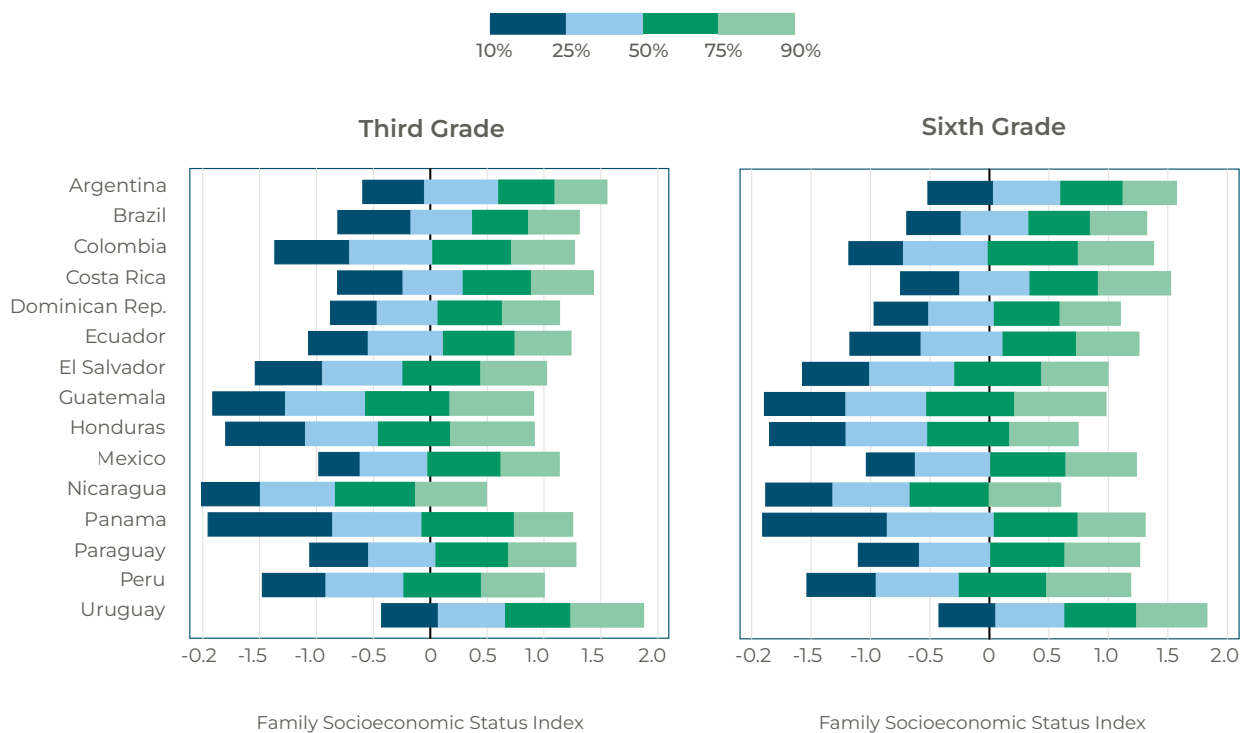
Source: Authors' calculations based on ERCE 2019 databases.

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[4] Figure 6 shows the distribution of the family socioeconomic status index among third- and sixth-grade students in each country, illustrating the specific values of the index at which 10, 25, 50, 75, and 90 percent of students fall. The bars on the right side of each graph represent populations with higher socioeconomic status, as opposed to the bars on the left side, which represent populations with lower socioeconomic status. Longer bars indicate a higher degree of heterogeneity in student socioeconomic status, whereas countries with smaller socioeconomic gaps are represented by shorter bars.

Achievement gaps in the region by socioeconomic background

The ERCE 2019 data highlights substantial achievement gaps between students from the lowest (first quintile) and highest (last quintile) socioeconomic backgrounds across all participating countries (Figure 7). In third-grade mathematics, these gaps range from 25 to 114 points, disproportionately favoring students from more affluent families.[5] By sixth grade, achievement gaps in mathematics often widen, expanding from 29 to 137 points, although Argentina and the Dominican Republic show no change in the extent of their gaps. Brazil and Uruguay have the largest achievement gaps in mathematics, while Honduras and Nicaragua claim the smallest gaps. Notably, while Honduras and Nicaragua initially exhibit no significant gaps in third grade, by sixth grade, they display gaps of 36 and 29 points, respectively, indicating that disparities tend to emerge or widen as students progress through school.

Figure 7: Achievement gaps between students with high and low levels of socioeconomic status, third- and sixth-grade mathematics (average test score points)

Statistically significant difference favoring students with high socioeconomic status

	Third Grade	Sixth Grade
Argentina	88	88
Brazil	114	137
Colombia	96	105
Costa Rica	97	107
Dominican Rep.	77	75
Ecuador	47	84
El Salvador	80	94
Guatemala	91	113
Honduras	2	36
Mexico	78	84
Nicaragua	2	29
Panama	96	121
Paraguay	25	76
Peru	90	110
Uruguay	112	122

Test score points
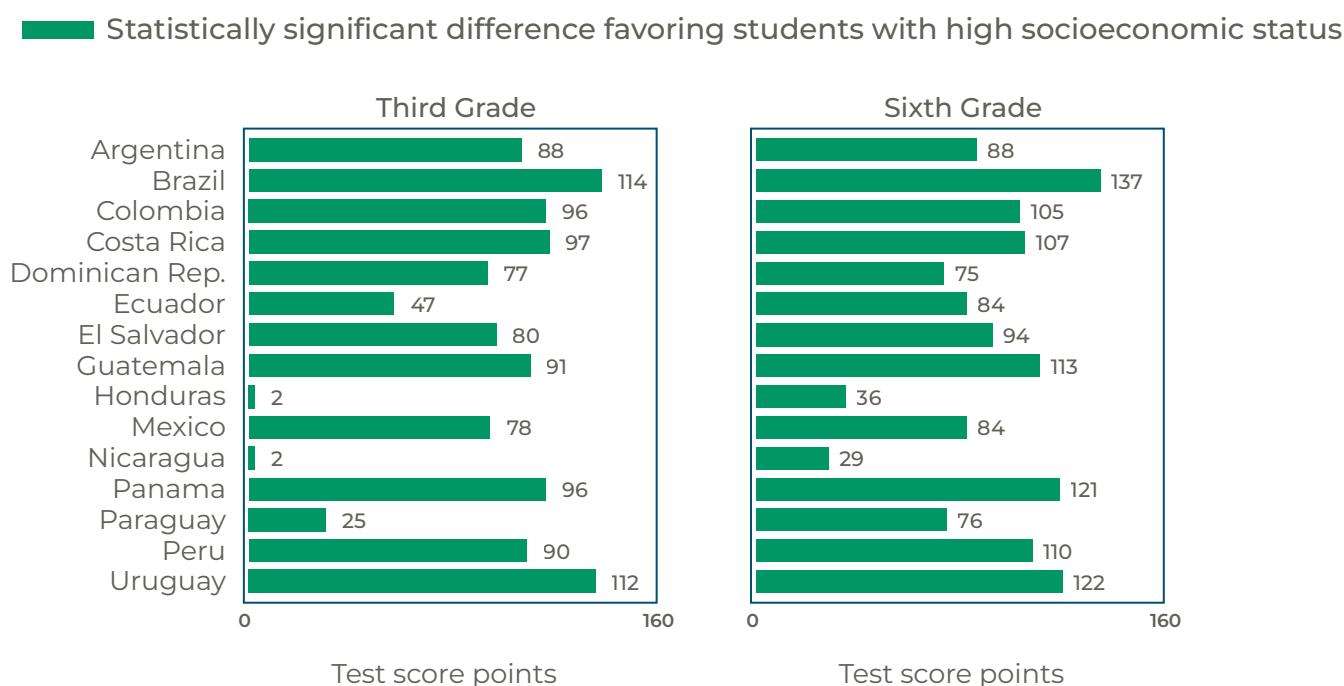
Source : Authors' calculations based on ERCE 2019 databases.

[5] The maximum scores across the region show variation: third-grade mathematics peaks at 1013, third-grade language at 1046, sixth-grade mathematics at 1021, sixth-grade language at 1031, and sixth-grade science at 1016.

Students from lower SES backgrounds also face challenges in language, as seen in the achievement gaps with their high SES peers (Figure 8). These gaps range from 50 to 138 points, underscoring the disadvantage. In third grade, the most pronounced gaps in language are observed in Colombia, Guatemala, Panama, and Uruguay. Conversely, Honduras and Nicaragua report the smallest gaps in third-grade language scores, indicating fewer disparities in these nations at the outset of education. The situation for language becomes more attenuated, however, as the gap expands to between 71 and 163 points when comparing students from low and high SES levels, emphasizing the persistent and often growing divide as students advance through their schooling.

Figure 8: Achievement gaps between students with high and low levels of socioeconomic status, third- and sixth-grade language (average test score points)

Statistically significant difference favoring students with high socioeconomic status

Source: Authors' calculations based on ERCE 2019 databases.

In science, pronounced performance gaps are seen between low and high SES students, ranging from 44 to 148 points favoring affluent students (Figure 9). This divide is starkest in Brazil, Guatemala, and Panama, indicating major inequalities in science outcomes arising from socioeconomic status. Conversely, Honduras and Nicaragua display minimal gaps in science achievement between students of differing socioeconomic backgrounds.

Figure 9: Achievement gaps between students with high and low levels of socioeconomic status, sixth-grade science (average test score points)
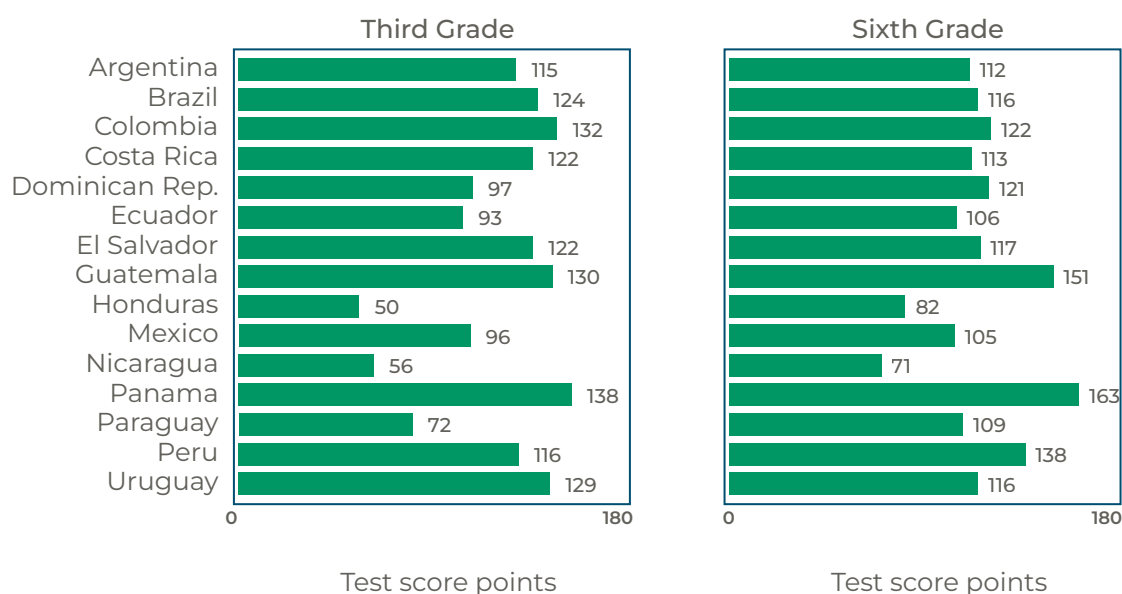
Statistically significant difference favoring students with high socioeconomic status

Sixth Grade

Country	Test score points
Argentina	92
Brazil	124
Colombia	109
Costa Rica	114
Dominican Rep.	90
Ecuador	88
El Salvador	109
Guatemala	131
Honduras	52
Mexico	87
Nicaragua	44
Panama	148
Paraguay	83
Peru	101
Uruguay	113

Test score points
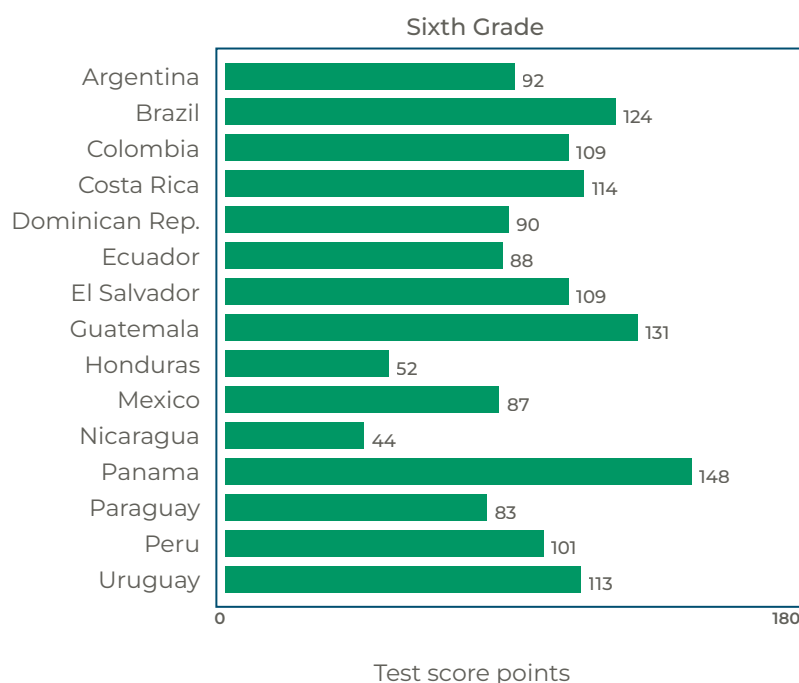
Source: Authors' calculations based on ERCE 2019 databases.

Relation between family socioeconomic status and student achievement

Across the region, there's a clear, positive correlation between the family socioeconomic status and students' average test scores in mathematics, language, and science.[6] This relationship holds true for both third and sixth graders across these subjects, demonstrating a pattern whereby higher family socioeconomic status correlates with better academic outcomes (Figure 10).

Notably, Brazil, Costa Rica, Cuba, Colombia, Ecuador, El Salvador, Mexico, Peru, and Uruguay are reporting test scores that surpass what might be expected from socioeconomic status, pointing to the role of strategies or policies to mitigate disadvantages. At the same time, Argentina, the Dominican Republic, Guatemala, Nicaragua, Panama, and Paraguay are underperforming given their socioeconomic status, suggesting areas where better access, quality, and support might help students from all backgrounds, so they all have opportunities to succeed.

6 For results by subject, see figures A.1 to A.3 in the annex.

Figure 10: Relation between family socioeconomic status and average test scores, third and sixth grades

Third grade

Sixth grade
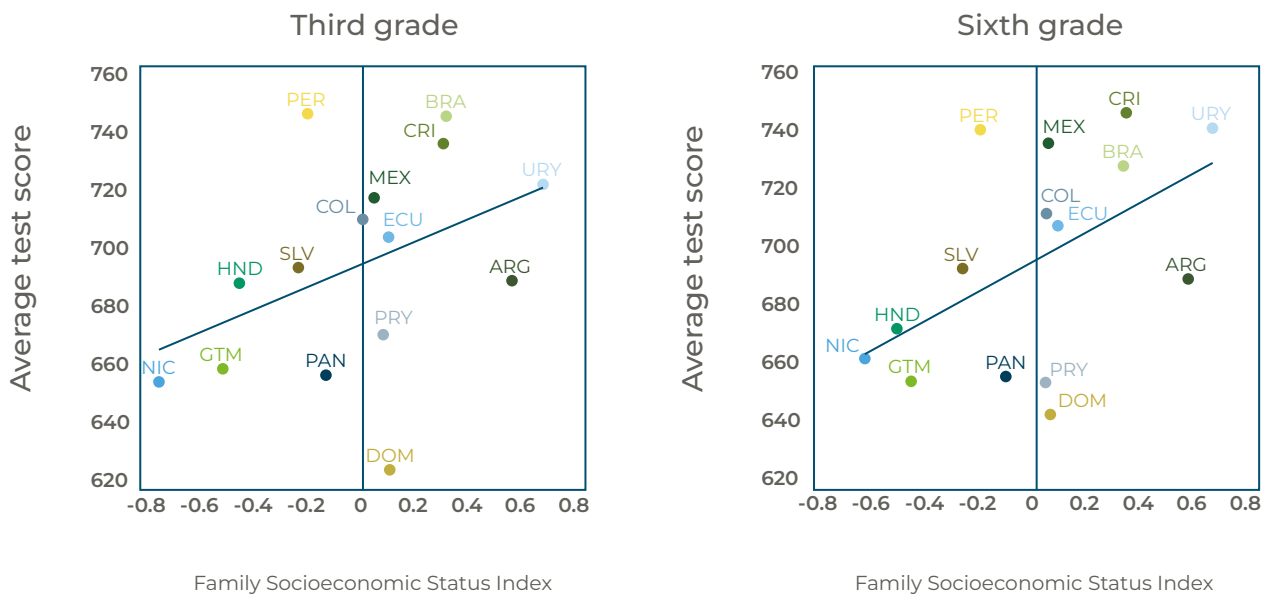
Source: Authors' calculations based on ERCE 2019 databases.

Are the region's socioeconomic achievement gaps widening?

The comparison between the Third Regional Comparative and Explanatory (TERCE) study conducted in 2013 and the Fourth Regional Comparative and Explanatory (ERCE) study in 2019 reveals a concerning trend:[7] the achievement gaps between students from low and high socioeconomic backgrounds have not only persisted but also widened over the six-year period. On average, gaps identified in 2019 were more than double those recorded in 2013.

In Brazil, Colombia, Costa Rica, the Dominican Republic, Guatemala, Panama, and Uruguay, the third-grade achievement gap doubled for mathematics after the 2013 evaluation (Figure 11). Peru saw an even more dramatic increase, its gap quadrupling by 2019. Meanwhile, Ecuador, Honduras, Mexico, Nicaragua, and Paraguay observed smaller rises. The trend continued into sixth-grade mathematics, where most countries, except for Costa Rica, Mexico, Nicaragua, and Uruguay, witnessed the gap more than doubling from 2013 to

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[7] The achievement results of the ERCE 2019 are comparable with those of the TERCE 2013, allowing countries to monitor their progress between 2013 and 2019 and analyze them in the context of the region (LLECE, 2021).

to 2019. In Argentina, Guatemala, Panama, and Peru, the disparity grew even more severe, with the gap more than tripling.

Figure 11: TERCE 2013 and ERCE 2019 achievement gaps between students with high and low levels of socioeconomic status, third- and sixth-grade mathematics (average test score points)
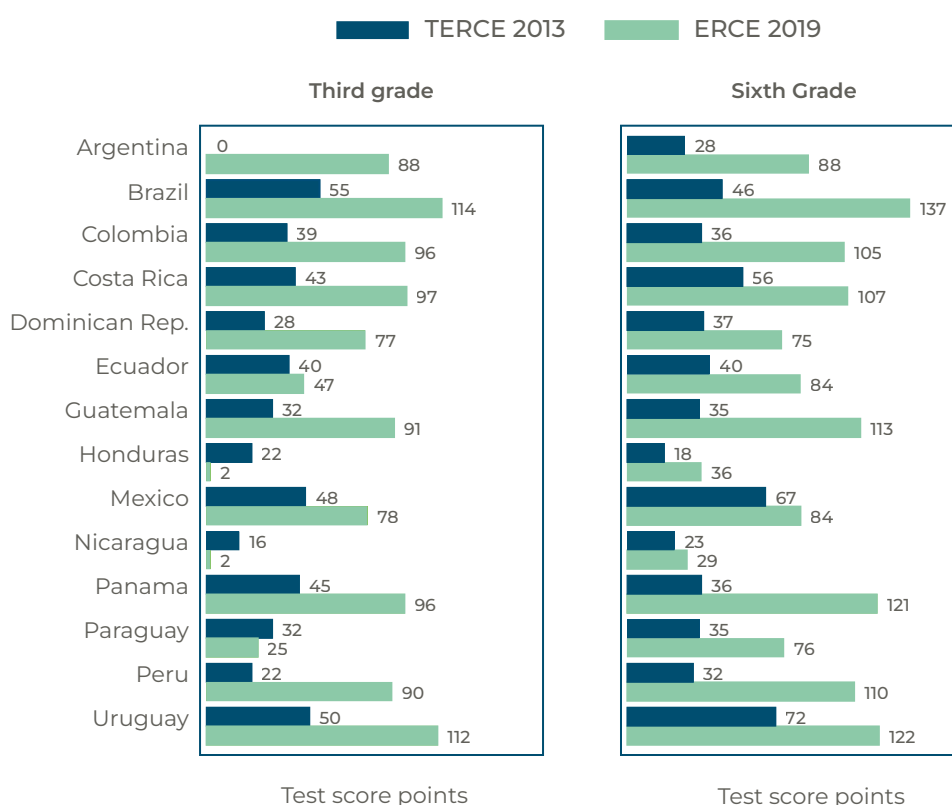
Source: IADB CIMA calculations based on TERCE 2013 database and authors' calculations based on ERCE 2019 databases.

In language, the achievement gaps between students from low and high socioeconomic backgrounds have soared since the 2013 evaluation (Figure 12). Most countries saw their gaps at least double for third graders, with Argentina, Colombia, Costa Rica, Guatemala, and Peru observing achievement gaps more than triple. Honduras, Mexico, and Nicaragua were exceptions as far as third graders were concerned, showing less significant gaps. For sixth graders, language achievement gaps widened drastically, at least doubling in seven of the fourteen countries analyzed since the 2013 evaluation. Argentina, Colombia, Guatemala, and Peru underwent the most dramatic escalations, their gaps more than tripling. Yet Brazil, Costa Rica, Honduras, Mexico, Nicaragua, Paraguay, and Uruguay showed less pronounced increases for sixth graders.

In science, the achievement gaps widened for sixth graders as well. Argentina

and Uruguay saw the sharpest rises, their socioeconomic achievement gaps more than tripling since the previous evaluation. Almost all other countries also saw their science achievement gaps nearly or more than double, except for the Dominican Republic, Honduras, Mexico, and Nicaragua, which showed smaller rises.

Figure 12: TERCE 2013 and ERCE 2019 achievement gaps between students with high and low levels of socioeconomic status, third- and sixth-grade language (average test score points)
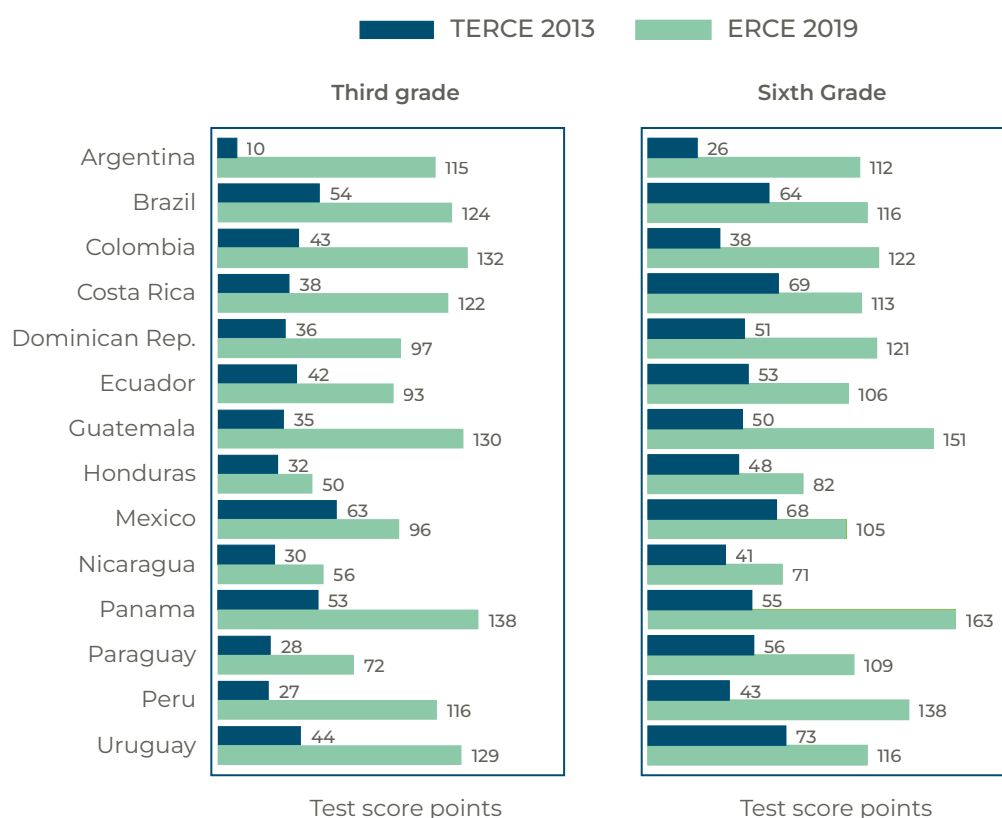

Source: IADB CIMA calculations based on TERCE 2013 database and authors' calculations based on ERCE 2019 databases.

V. Ethnic Origin, Inequality and Academic Achievement

The ERCE 2019 data highlights systemic disadvantages in learning[4] achievement among Indigenous students across Latin America. The representation of students from Indigenous communities in the participating countries ranges from 4 percent in Costa Rica to 68 percent in Guatemala (Figure 13). Other countries with large Indigenous student populations include Ecuador, Honduras, Panama, and Peru, each reporting that 20 percent of its students are from Indigenous communities. Following them are El Salvador with 13 percent, Mexico with 10 percent, and Nicaragua with 15 percent. Notably, the Dominican Republic and Uruguay report no Indigenous students

Figure 13: Students who belong to an Indigenous community, sixth grade (percent)
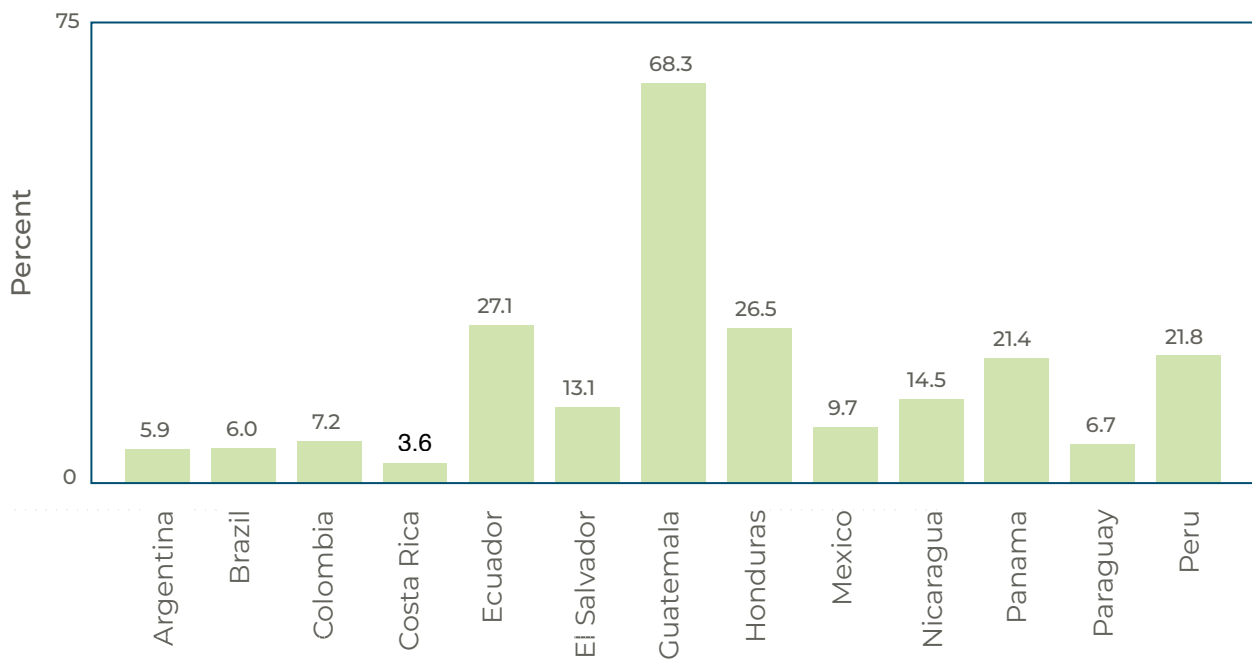
Source: Authors' calculations based on ERCE 2019 databases.

Achievement gaps between Indigenous students and their non-Indigenous peers

Sixth graders from Indigenous communities scored, on average, 38 points lower across tests than their non-Indigenous counterparts. These achievement gaps vary by country, ranging from a 22-point difference in Honduras to a substantial 117-point difference in Costa Rica, indicating that Indigenous students face varying degrees of disadvantage across the region. These gaps remain significant even after accounting for socioeconomic status, underscoring that the challenges Indigenous students face are not solely economic. Costa Rica and Panama report the most pronounced achievement gaps across mathematics, language, and science, pointing to substantial barriers in access to quality education for Indigenous students in these countries.

In mathematics, Indigenous students face major challenges, with achievement gaps ranging from 22 to 76 points compared to their non-Indigenous counterparts (Figure 14). Costa Rica, Panama, and Paraguay exhibit the widest disparities, underscoring substantial inequalities in outcomes within these nations. The situation is similarly stark in language, where gaps extend from 38 to 117 points. Costa Rica and Panama display the most pronounced discrepancies, closely followed by Colombia and Paraguay. Science achievement gaps further illustrate these disparities, varying from 37 to 97 points, again with Costa Rica and Panama at the forefront and Colombia and Paraguay not far behind (Figure 15).

Figure 14: Achievement differences between Indigenous students and their non-Indigenous peers, sixth-grade mathematics and language (average test score points)

Statistically significant difference favoring students who are not Indigenous, without SES controls
Statistically significant difference favoring students who are not Indigenous, with SES controls

Mathematics

Country	Without SES	With SES
Argentina	50	38
Brazil	30	19
Colombia	50	26
Costa Rica	76	35
Ecuador	43	27
El Salvador	36	33
Guatemala	38	19
Honduras	22	18
Mexico	55	35
Nicaragua	32	31
Panama	76	33
Paraguay	57	48
Peru	52	34

Test score points (0 – 135)

Language

Country	Without SES	With SES
Argentina	50	35
Brazil	38	29
Colombia	72	45
Costa Rica	117	75
Ecuador	49	28
El Salvador	46	42
Guatemala	55	29
Honduras	38	27
Mexico	61	36
Nicaragua	47	43
Panama	100	42
Paraguay	77	63
Peru	67	45

Test score points (0 – 135)
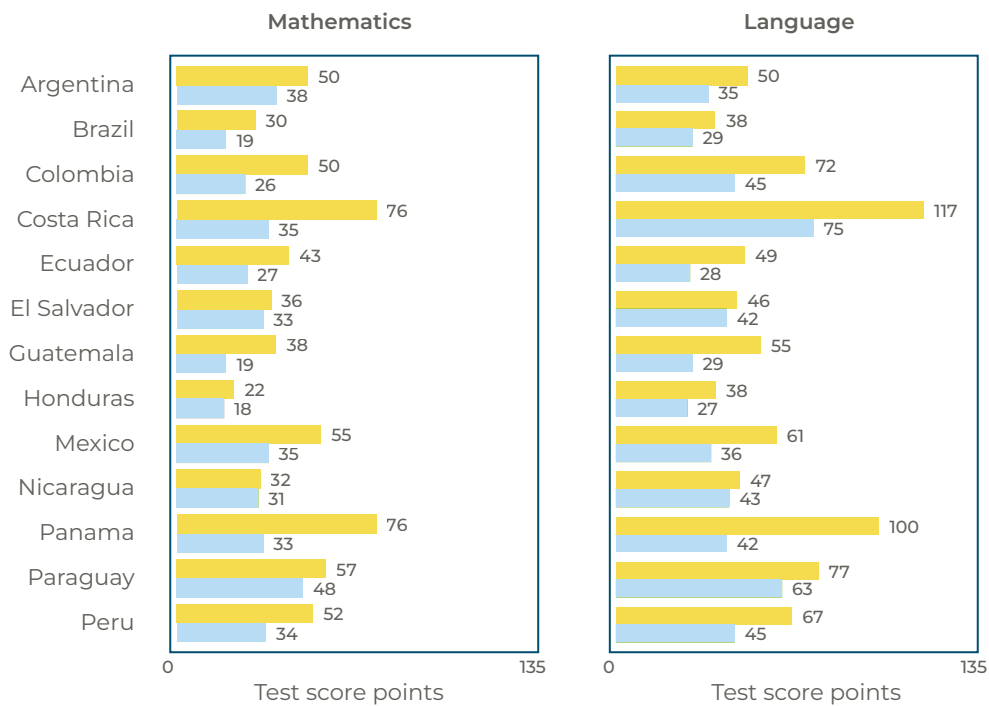
Source: Authors' calculations based on ERCE 2019 databases.

Figure 15: Achievement differences between Indigenous students and their non-Indigenous peers, sixth-grade science (average test score points)

▬ Statistically significant difference favoring students who are not Indigenous, without SES controls
▬ Statistically significant difference favoring students who are not Indigenous, with SES controls

Science

Country	Without SES	With SES
Argentina	48	36
Brazil	37	27
Colombia	60	35
Costa Rica	91	47
Ecuador	42	24
El Salvador	43	39
Guatemala	48	26
Honduras	38	31
Mexico	59	39
Nicaragua	42	40
Panama	97	47
Paraguay	67	56
Peru	51	35

Test score points

Source: Authors' calculations based on ERCE 2019 databases.

The achievement gap between Indigenous students and their non-Indigenous peers showcases distinct patterns across genders. In Argentina, Costa Rica, Mexico, and Peru, the mathematics achievement gap in favor of non-Indigenous students is notably wider among boys, suggesting that Indigenous boys in these regions face greater challenges in mathematics compared to their female peers (Figure 16). Yet in El Salvador, Guatemala, Nicaragua, Panama, and Paraguay, girls face a mathematics achievement gap that favors of non-Indigenous than boys, indicating specific difficulties for girls within the subject.

When it comes to language, the scenario changes (Figure 16). In Argentina, Brazil, Colombia, Costa Rica, and Peru, non-Indigenous boys benefit from a pronounced achievement gap over girls, suggesting gender-specific barriers to language achievement. Conversely, in Ecuador, El Salvador, Guatemala, Nicaragua, and Panama, non-Indigenous girls enjoy a language achievement gap over boys, highlighting the nuanced challenges Indigenous girls encounter in developing language skills.

Figure 16: Achievement differences between Indigenous students and their non-Indigenous peers by gender, sixth-grade mathematics and language
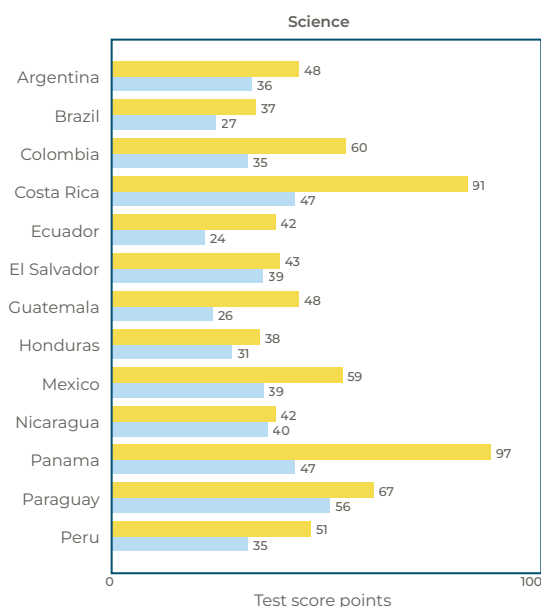
Statistically significant difference favoring students who are not indigenous, with SES controls

Mathematics

	Girls	Boys
Argentina	25	50
Brazil	14	24
Colombia	26	26
Costa Rica	37	37
Ecuador	19	33
El Salvador	36	31
Guatemala	20	18
Honduras	18	18
Mexico	30	39
Nicaragua	33	31
Panama	34	33
Paraguay	52	48
Peru	25	41

-95 ... 95

Test score difference, favoring students who are not Indigenous

Language

	Girls	Boys
Argentina	22	42
Brazil	21	32
Colombia	42	49
Costa Rica	59	83
Ecuador	29	26
El Salvador	45	38
Guatemala	30	29
Honduras	21	31
Mexico	29	42
Nicaragua	55	33
Panama	44	40
Paraguay	60	60
Peru	36	50

-95 ... 95

Test score difference, favoring students who are not Indigenous

Source: Authors' calculations based on ERCE 2019 databases.

In science education, compared to girls, boys face a wider achievement gap that favors non-Indigenous students in Colombia, Costa Rica, Ecuador, Guatemala, Mexico, and Peru, indicating difficulties the boys have in accessing or benefiting from science education in these countries (Figure 17). Conversely, in El Salvador, Honduras, Nicaragua, Panama, and Paraguay, it is girls who encounter a more pronounced science achievement gap in favor of non-Indigenous students. This pattern suggests that Indigenous girls are disproportionately affected by barriers in science education, highlighting the intersection of gender and ethnicity as significant factors influencing outcomes.

Figure 17: Achievement differences of Indigenous students and their non-Indigenous peers, sixth-grade science

Statistically significant difference favoring students who are not indigenous, with SES controls

Sixth Grade

	Girls	Boys
Argentina	19	48
Brazil	22	30
Colombia	32	39
Costa Rica	35	56
Ecuador	16	32
El Salvador	40	38
Guatemala	23	29
Honduras	31	30
Mexico	34	43
Nicaragua	45	36
Panama	53	40
Paraguay	63	52
Peru	21	45

-95   95

Test score difference, favoring students who are not Indigenous
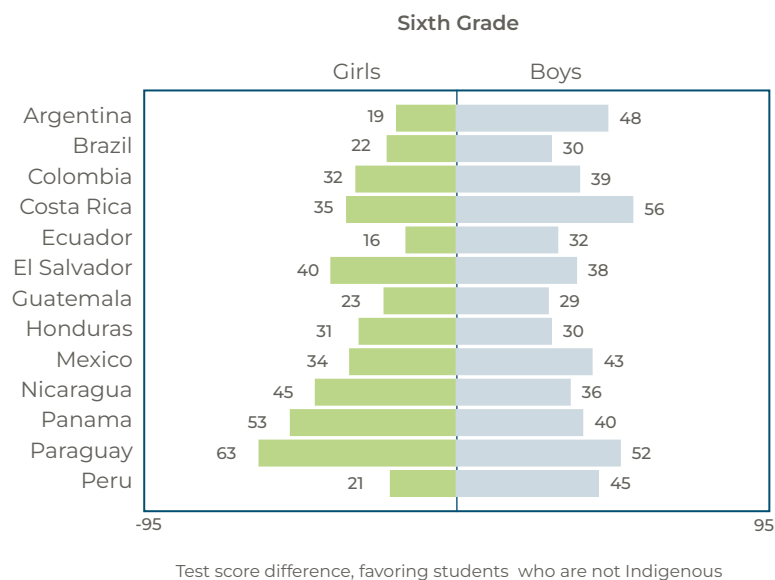
Source: Authors' calculations based on ERCE 2019 databases.

VI. Decomposition of Achievement Gaps between Indigenous Students and Non-Indigenous Students

The Model

The study employs the Oaxaca-Blinder Decomposition to examine the achievement gaps between Indigenous students and students who are not Indigenous across math, science, and language, comparing the average test scores for the two groups. This analytical approach splits the gap in scores into two components:

1. The **explained component** highlights the portion of the test score differences lodged in identifiable and observable factors. It assesses the extent to which certain quantifiable variables contribute to the observed differences in academic performance between Indigenous students on the one hand and non-Indigenous students on the other, pinpointing specific drivers for the gap.

2. The **unexplained component** encompasses the fraction of the score gap that remains after accounting for the measurable influences analyzed. This portion is often regarded as reflecting the impact of unobservable or intangible factors that are not directly measured in the study but still play a role in shaping the academic achievement gap between Indigenous and non-Indigenous.

By dissecting the score gap through this decomposition, the study aims to uncover the factors, both tangible and intangible, influencing gender disparities in outcomes. Our goal is to reveal the causes of achievement gaps between Indigenous and non-Indigenous students.

In the Oaxaca-Blinder Decomposition used to analyze achievement gaps between Indigenous and non-Indigenous students, it's posited that the average test score of a student in math, science, and language (denoted by Y) has a linear relationship with a set of explanatory variables X. These variables consider factors potentially influencing differences in scores between Indigenous and non-Indigenous students, such as student, family, teacher, and school backgrounds. The model assumes that the error term ν is conditionally independent of X:

$$Y_{ji} = \beta_{j0} + \sum_{k=1}^{K} X_{ik} \beta_{jk} + v_{ji'} \; j = N, I$$

where $E(X_i) = 0$, and X is the vector of covariates $(X_i = [X_{i1}, .., X_{ik}])$. The overall difference in average outcomes between group N and I,

$$\hat{\Delta}_O^\mu = \overline{Y}_I - \overline{Y}_{N'}$$

can be written as:

$$\hat{\Delta}_O^\mu = \underbrace{\left(\hat{\beta}_{I0} - \hat{\beta}_{N0}\right) + \sum_{k=1}^{K} \overline{X}_{Ik}\left(\hat{\beta}_{Ik} - \hat{\beta}_{Nk}\right)}_{\hat{\Delta}_S^\mu (Unexplained)} + \underbrace{\sum_{k=1}^{K} \left(\overline{X}_{Ik} - \overline{X}_{Nk}\right)\hat{\beta}_{Mk}}_{\hat{\Delta}_X^\mu (Explained)}$$

where $\hat{\beta}_{j0}$ and $\hat{\beta}_{jk}(k = 1, .., K)$ are the estimated intercept and slope coefficients, respectively (that show how each observable characteristic affects the [math, science, language] test score) of the regression models for groups $g = N, I$. The first term in the equation, $\hat{\Delta}_S^\mu$, is called the "unexplained" effect in Oaxaca decompositions, which accounts for the portion of the difference not explained by observable factors. The second term, $\hat{\Delta}_X^\mu$, is a composition effect, which is called the "explained" effect, representing the portion of the difference in test scores between Indigenous and non-Indigenous students attributable to differences in observable characteristics in the Oaxaca-Blinder Decomposition (Fortin, Lemieux, & Firpo, 2011). The unexplained component captures effects due to coefficient differences, reflecting potential discrimination or other non-observable factors. In contrast, the explained component quantifies the impact of differences in group characteristics, offering insights into how specific observable attributes contribute to the observed gaps in achievements between Indigenous and non-Indigenous students.

The Oaxaca-Blinder Decomposition models include covariates specifically chosen for the dependent variable, which in this case are test scores in mathematics, language, or science. All models encompass a range of factors including student language proficiency, student grade repetition, student expectations about completing postgraduate studies, family socioeconomic status, mother's tertiary education completion, parental expectations for child's postgraduate studies, parental beliefs about child's learning ease, proportion of teachers who speak a language different from the test language, proportion of Indigenous students, urban school location, school enrollment size, proportion of poor students, and availability of school services.

For models focusing on mathematics test scores, additional covariates like student mathematics self-efficacy and mathematics anxiety are included. Similarly, models assessing language test scores also consider whether the student has access to more than 10 books at home, reflecting the importance of reading resources. These detailed and tailored covariates provide a compre-

hensive framework to analyze the complex influences on academic performance across different subjects, ensuring that the models accurately capture the factors that contribute to achievement gaps.

Results

The relationship between Indigenous status and the achievement gap presents a more complex picture in mathematics and language (Figures 18 and 19). The analysis using the Oaxaca-Blinder Decomposition method suggests that the non-observable factors of being Indigenous, like discrimination, for example, in many cases, do not account for an important portion of the total gap observed in achievement scores between Indigenous students and their non-Indigenous classmates.

In Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Panama, Paraguay, and Peru, the achievement gaps in sixth-grade mathematics are largely explained (more than 50 percent and in some cases more than 70 percent) by observable factors such as parental beliefs regarding their child's abilities and the level of interest (both parents and child) in the student's higher education (Figure 18). Conversely, in Argentina, El Salvador, Honduras, and Nicaragua, non-observable differences between Indigenous students and their non-Indigenous classmates play a heftier role in the achievement gap for mathematics. This indicates that Indigenous students in these countries face unique challenges that directly affect their performance in mathematics, possibly stemming from systemic inequalities or biases.

Figure 18: Test score differences explained by Indigenous status using the Oaxaca-Blinder Decomposition method, sixth-grade mathematics (percent of the total gap)
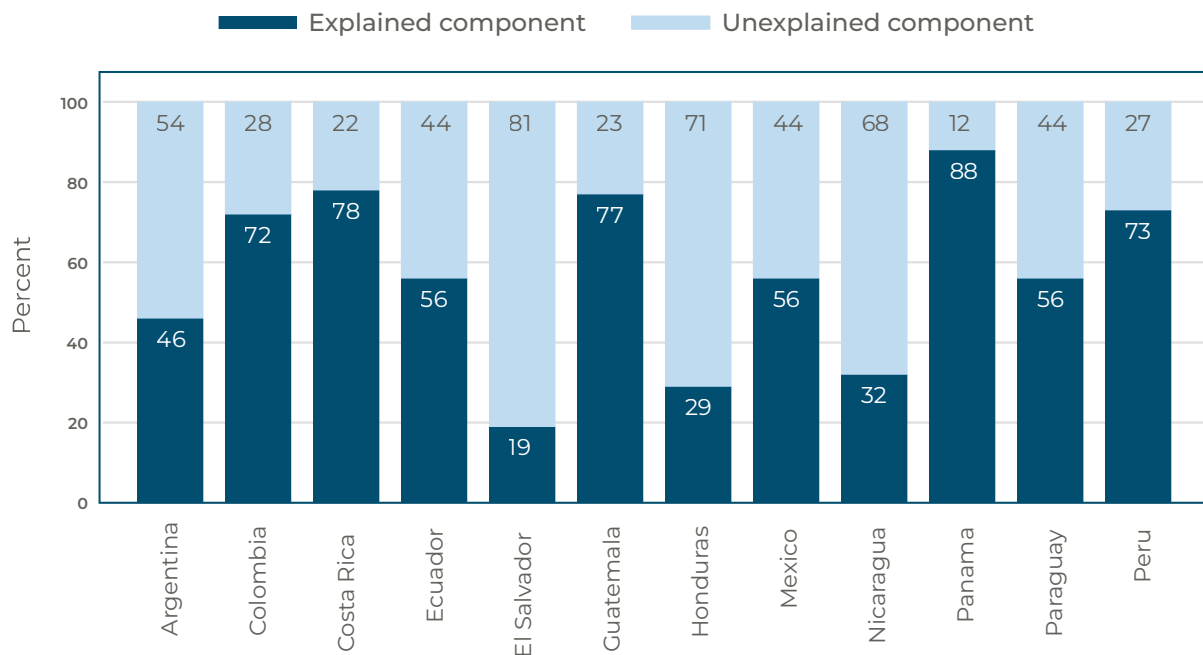
Source: Authors' calculations based on ERCE 2019 databases.

When examining language proficiency (Figure 19), a similar pattern emerges. In Argentina, Costa Rica, Ecuador, Guatemala, Mexico, Panama, Paraguay, and Peru, the achievement gaps between Indigenous students and their non-Indigenous classmates are largely explained by parental perceptions about and aspirations for their children. These factors suggest that a range of socioeconomic and familial factors, beyond Indigenous status, shape language outcomes. Conversely, in Brazil, Colombia, El Salvador, Honduras, and Nicaragua, the gaps in language achievement are more significantly linked to non-observable differences. In these countries, factors that are not directly measurable, such as cultural biases or systemic inequalities affecting Indigenous students, may play a greater role in language proficiency.
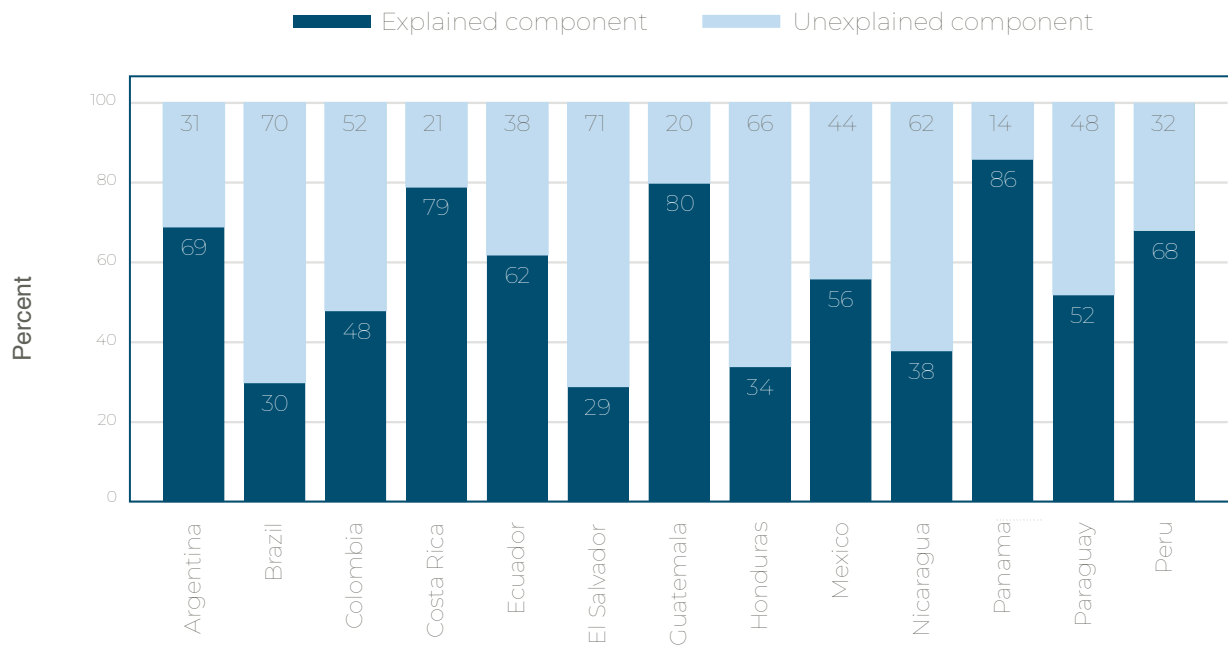
Figure 19: Test score differences explained by Indigenous status using the Oaxaca-Blinder Decomposition method, sixth-grade language (percent of the total gap)

Source: Authors' calculations based on ERCE 2019 databases.

In science education throughout most of the region, the gap in achievement between Indigenous students and their non-Indigenous peers hinges on the non-observed component of differences in Indigenous status in most countries (explaining up to 83 percent of the total gap). Affected countries include Argentina, Brazil, El Salvador, Honduras, Mexico, Nicaragua, and Paraguay. Conversely, the science achievement gap in Colombia, Costa Rica, Ecuador, Guatemala, Panama, and Peru is more closely linked to the non-observed component inherent in Indigenous status. Key determinants include access to resources, grade repetition, parental perceptions and ambitions around education, and the student's own academic aspirations (Figure 20). In short, disparities in science achievement are influenced by a broader set of variables.
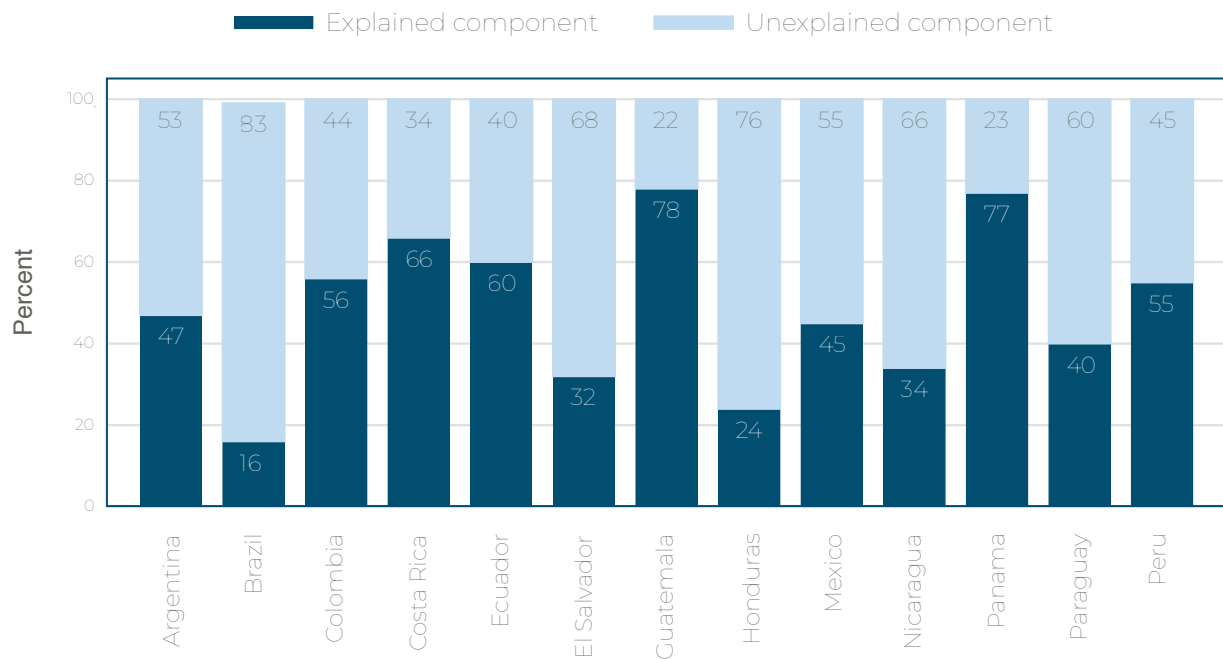
Figure 20: Test score differences explained by Indigenous status using the Oaxaca-Blinder Decomposition method, sixth-grade science (percent of the total gap)

Source: Authors' calculations based on ERCE 2019 databases.

VII. Key Policy Messages to Address Inequality Gaps

This study sheds light on achievement gaps by socioeconomic status, particularly for the region's disadvantaged and Indigenous students. The gap seen in mathematics achievement grows between third and sixth grades. The gap is also observed for language achievement in nine of the fifteen participating countries, with major differences in Brazil, Colombia, Guatemala, Panama, Peru, and Uruguay. Indigenous students face a very wide achievement gap in Costa Rica and Panama.

The use of the Oaxaca-Blinder Decomposition method in the analysis reveals that the primary drivers of achievement gaps in mathematics and language are observable factors: differential access to books, parental expectations, and students' own aspirations for postgraduate studies. These factors contribute greatly to the disparities observed, emphasizing the importance of resource availability and the influence of family expectations on outcomes. Conversely, the achievement gap in science is predominantly associated with non-observable factors arising from Indigenous status, indicating that Indigenous students face cultural biases or systemic barriers that hinder learning.

The gaps highlighted by this study using the ERCE 2019 data, particularly among Indigenous students and those from marginal backgrounds, illustrate how poverty, race, and ethnicity intersect to influence classroom experiences. Tackling these disparities requires governments, schools, and civil society to take a unified approach to undertake and foster policies and practices that elevate quality while ensuring accessibility and relevance for every student, irrespective of their background. These findings point to the intricate nature of inequalities, in particular the non-observable factors stemming from Indigenous status that drive achievement gaps in mathematics, language, and science. Such insights call for strategies and interventions tailored to meet the unique socioeconomic and cultural realities of Indigenous students. A more equitable and inclusive landscape could be cultivated if these deficits—ranging from resources to parental engagement—are confronted in ways that benefit all students so all might succeed.

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Annex

Table A.1: Differences between Indigenous students and their non-Indigenous peers in student and family characteristics, sixth grade

Country	Student Self-Efficacy in Mathematics Index	Student mathematics anxiety	Student is a girl	Student speaks an Indigenous language	Student repeated a grade level	Student has more than 10 books at home	Student expects to complete postgraduate studies	Student Family Socio-economic Status Index	Mother completed tertiary education
Argentina	-3.66 (0.08)	4.96 (0.04)	-10.80 (0.04)***	6.76 (0.02)***	9.84 (0.03)***	-0.14 (0.04)***	-2.53 (0.04)	-0.31 (0.07)***	-7.37 (0.03)***
Brazil	8.66 (0.08)	5.44 (0.03)	-7.26 (0.04)*	2.13 (0.01)	7.59 (0.03)**	-0.08 (0.04)**	-0.07 (0.01)	-0.18 (0.06)***	-3.62 (0.03)
Colombia	-16.16 (0.08)**	14.79 (0.03)***	-0.29 (0.04)	15.31 (0.05)***	10.92 (0.05)**	-0.14 (0.04)***	-12.25 (0.03)***	-0.68 (0.10)***	-13.30 (0.02)***
Costa Rica	-23.11 (0.12)**	4.27 (0.06)	-16.97 (0.06)***	32.01 (0.07)***	34.71 (0.04)***	-0.20 (0.04)***	-20.11 (0.08)**	-1.01 (0.16)***	-5.02 (0.04)
Ecuador	-6.87 (0.05)	4.03 (0.02)**	-4.30 (0.02)**	9.21 (0.03)***	3.67 (0.01)**	-0.07 (0.02)***	-12.40 (0.02)***	-0.57 (0.08)***	-10.36 (0.02)***
El Salvador	-4.79 (0.05)	6.14 (0.03)**	-8.49 (0.03)***	10.40 (0.02)***	9.39 (0.02)***	-0.06 (0.03)**	-2.73 (0.02)	-0.10 (0.06)*	-3.29 (0.01)**
Guatemala	-3.09 (0.05)	0.67 (0.02)	-1.03 (0.02)	17.32 (0.03)***	8.55 (0.02)***	-0.13 (0.03)***	-7.52 (0.02)***	-0.52 (0.09)***	-5.04 (0.02)***
Honduras	-10.44 (0.06)	-0.31 (0.03)	-8.97 (0.03)***	2.76 (0.01)***	1.92 (0.02)	-0.05 (0.03)	-7.13 (0.03)***	-0.42 (0.09)***	-1.83 (0.02)
Mexico	-12.23 (0.07)*	2.96 (0.03)	-2.94 (0.03)	15.77 (0.04)***	5.61 (0.02)***	-0.14 (0.05)***	-12.41 (0.03)***	-0.65 (0.09)***	-8.54 (0.02)***
Nicaragua	-5.69 (0.07)	5.65 (0.03)*	-3.17 (0.03)	9.41 (0.03)***	5.47 (0.03)*	-0.03 (0.03)	-5.72 (0.03)**	-0.14 (0.07)*	-5.10 (0.01)***

Panama	-39.03 (0.05)***	5.75 (0.02)***	-2.30 (0.02)	35.79 (0.04)***	22.95 (0.03)***	-0.37 (0.03)***	-8.42 (0.03)***	-1.41 (0.10)***	-22.91 (0.02)***
Paraguay	-8.27 (0.09)	3.24 (0.05)	-19.43 (0.04)***	10.14 (0.06)*	10.11 (0.04)**	-0.15 (0.05)***	-10.95 (0.03)***	-0.33 (0.08)***	-4.36 (0.03)*
Peru	-12.67 (0.05)**	6.03 (0.02)**	-7.06 (0.03)**	16.50 (0.02)***	3.84 (0.02)**	-0.06 (0.02)**	-7.92 (0.02)***	-0.52 (0.07)***	-12.11 (0.02)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.2: Differences between Indigenous students and their non-Indigenous peers in parent involvement and expectations, sixth grade

Country	Parent Involvement Index	Parent expects child to complete postgraduate studies	Child learns Mathematics easily	Parent believes child learns Language easily	Parent believes child learns Science easily
Argentina	-0.20 (0.07)***	-5.20 (0.02)**	-9.98 (0.05)**	-20.69 (0.04)***	-11.22 (0.04)**
Brazil	0.05 (0.07)	-5.45 (0.04)	-2.53 (0.04)	-8.39 (0.03)**	2.64 (0.04)
Colombia	-0.23 (0.07)***	-14.08 (0.03)***	-8.71 (0.03)***	-10.82 (0.05)**	-3.95 (0.05)
Costa Rica	-0.36 (0.08)***	-23.72 (0.04)***	-24.46 (0.05)***	-11.36 (0.05)**	-11.97 (0.06)**
Ecuador	-0.17 (0.04)***	-11.70 (0.02)***	-9.43 (0.02)***	-7.56 (0.02)***	-5.93 (0.02)***
El Salvador	0.03 (0.05)	-3.53 (0.02)**	-2.64 (0.03)	-2.78 (0.03)	-2.72 (0.02)
Guatemala	-0.06 (0.05)	-10.23 (0.03)***	-8.01 (0.02)***	-5.84 (0.03)**	-7.00 (0.03)**
Honduras	-0.19 (0.08)**	-5.36 (0.03)**	-9.81 (0.04)***	-6.81 (0.04)*	-11.26 (0.03)***
Mexico	-0.15 (0.09)	-8.73 (0.03)***	-10.68 (0.03)***	-13.90 (0.04)***	-12.46 (0.04)***
Nicaragua	-0.15 (0.07)**	-7.07 (0.02)***	-8.96 (0.03)***	-10.41 (0.03)***	-11.85 (0.04)***
Panama	-0.46 (0.05)***	-29.17 (0.03)***	-23.28 (0.03)***	-24.61 (0.03)***	-27.71 (0.03)***
Paraguay	0.05 (0.07)	-11.51 (0.03)***	-20.56 (0.05)***	-19.87 (0.05)***	-16.66 (0.05)***
Peru	-0.17 (0.05)***	-9.17 (0.03)***	-5.88 (0.03)**	-8.94 (0.03)***	-10.61 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases

Table A.3: Differences between Indigenous students and their non-Indigenous peers in teacher and school characteristics, sixth grade

Country	Teacher Interest in Student Welfare Index	Teacher Support of Student Learning Mathematics Index	Teacher Support of Student Learning Language Index	Teacher Support of Student Learning Science Index	Teacher speaks an Indigenous language	School is located in an urban area	Size of school enrollment	Proportion of poor students	School Services Index
Argentina	-0.22 (0.06)***	-0.18 (0.07)**	-0.22 (0.06)***	-0.07 (0.07)	3.46 (0.03)	-4.38 (0.03)	28.40 (26)	11.03 (3.94)***	-0.14 (0.06)**
Brazil	-0.01 (0.07)	-0.07 (0.07)	-0.11 (0.07)	-0.06 (0.08)	-1.46 (0.04)	1.29 (0.03)	-42.63 (40)	1.05 (2.98)	0.00 (0.05)
Colombia	0.10 (0.10)	-0.09 (0.06)	-0.01 (0.07)	0.01 (0.06)	-2.85 (0.07)	-37.67 (0.10)***	-306.56 (90)***	15.94 (7.97)**	-0.63 (0.16)***
Costa Rica	-0.46 (0.17)***	-0.32 (0.13)**	-0.25 (0.14)*	-0.37 (0.09)***	35.28 (0.07)***	-35.58 (0.07)***	-185.36 (42)***	25.71 (6.02)***	-0.85 (0.22)***
Ecuador	-0.14 (0.05)***	-0.18 (0.05)***	-0.15 (0.05)***	-0.10 (0.05)*	3.69 (0.03)	-14.25 (0.05)***	-55.88 (54)	19.43 (3.30)***	-0.24 (0.08)***
El Salvador	-0.07 (0.05)	-0.10 (0.05)**	-0.02 (0.05)	-0.05 (0.05)	2.08 (0.02)	2.03 (0.03)	-16.69 (15)	0.44 (2.42)	0.02 (0.06)
Guatemala	-0.14 (0.06)**	-0.10 (0.06)*	-0.08 (0.06)	-0.06 (0.05)	15.87 (0.03)***	-20.99 (0.04)***	-4.25 (17)	15.38 (3.14)***	-0.40 (0.07)***
Honduras	-0.05 (0.11)	-0.08 (0.11)	-0.07 (0.10)	-0.09 (0.11)	0.70 (0.02)	16.25 (0.05)***	-161.15 (44)***	1.83 (3.43)	-0.31 (0.10)***
Mexico	-0.05 (0.11)	-0.18 (0.10)*	-0.09 (0.11)	-0.04 (0.10)	17.83 (0.07)**	-27.55 (0.08)***	-40.04 (34)	26.21 (5.45)***	-0.68 (0.14)***
Nicaragua	-0.24 (0.06)***	-0.23 (0.08)***	-0.10 (0.06)*	-0.11 (0.06)*	10.88 (0.04)***	-3.28 (0.04)	-60.63 (22)***	-1.44 (3.09)	-0.28 (0.09)***
Panama	-0.32 (0.08)***	-0.49 (0.06)***	-0.39 (0.05)***	-0.44 (0.06)***	28.64 (0.06)***	-39.93 (0.04)***	-199.14 (38)***	28.75 (3.37)***	-0.99 (0.13)***
Paraguay	-0.17 (0.08)**	-0.22 (0.08)***	-0.22 (0.08)***	-0.21 (0.08)**	6.27 (0.05)	-11.98 (0.05)**	-60.54 (21)***	12.29 (3.24)***	-0.31 (0.06)***
Peru	-0.14 (0.06)**	-0.12 (0.06)*	-0.17 (0.06)***	-0.10 (0.06)	20.42 (0.05)***	-20.61 (0.04)***	-21.90 (15)	18.17 (3.36)***	-0.49 (0.08)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases

Table A.4: Differences between students from low and high levels of socioeconomic backgrounds in student and family characteristics, third grde

Country	Student Self-Efficacy in Mathematics Index	Student mathematics anxiety	Student repeated a grade level	Student has more than 10 books at home	Mother completed tertiary education
Argentina	0.03 (0.06)	-12.17 (0.03)***	-15.41 (0.02)***	70.11 (0.02)***	47.26 (0.03)***
Brazil	-0.19 (0.06)***	-6.26 (0.03)**	-19.10 (0.03)***	53.61 (0.03)***	50.58 (0.03)***
Colombia	0.21 (0.10)**	-0.49 (0.04)	-26.12 (0.06)***	64.97 (0.05)***	54.13 (0.03)***
Costa Rica	-0.17 (0.07)**	-12.38 (0.04)***	-18.46 (0.02)***	68.61 (0.02)***	49.28 (0.03)***
Dominican Republic	0.28 (0.07)***	-14.97 (0.04)***	-20.12 (0.03)***	58.13 (0.03)***	46.83 (0.05)***
Ecuador	0.07 (0.06)	-6.01 (0.03)**	-8.98 (0.02)***	52.19 (0.02)***	45.25 (0.03)***
El Salvador	0.32 (0.05)***	-10.28 (0.03)***	-23.81 (0.02)***	63.52 (0.03)***	31.08 (0.03)***
Guatemala	0.29 (0.06)***	-21.99 (0.03)***	-28.98 (0.03)***	62.84 (0.03)***	18.36 (0.03)***
Honduras	0.23 (0.08)***	-5.53 (0.04)	-6.14 (0.03)**	52.24 (0.04)***	26.00 (0.05)***
Mexico	0.07 (0.07)	-10.09 (0.03)***	-13.49 (0.03)***	51.38 (0.03)***	43.72 (0.03)***
Nicaragua	0.01 (0.08)	-2.63 (0.06)	-25.13 (0.04)***	33.22 (0.03)***	24.57 (0.02)***
Panama	0.18 (0.08)**	-19.18 (0.04)***	-20.12 (0.03)***	76.30 (0.02)***	63.70 (0.02)***
Paraguay	0.13 (0.07)*	-10.43 (0.04)***	-10.47 (0.02)***	69.33 (0.02)***	43.27 (0.03)***
Peru	0.09 (0.06)	-8.24 (0.04)**	-10.93 (0.02)***	59.34 (0.02)***	55.14 (0.03)***
Uruguay	-0.08 (0.05)	-18.82 (0.03)***	-24.03 (0.02)***	72.83 (0.02)***	51.86 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.5: Differences between students from low and high levels of socioeconomic backgrounds in parent involvement and expectations, third grade

Country	Parent Involvement Index	Parent expects child to complete postgraduate studies	Parent believes child learns Mathematics easily	Parent believes child learns Language easily
Argentina	0.27 (0.05)***	3.35 (0.02)	18.74 (0.03)***	21.22 (0.03)***
Brazil	0.25 (0.06)***	51.81 (0.03)***	30.53 (0.03)***	23.24 (0.03)***
Colombia	0.44 (0.14)***	45.01 (0.04)***	26.39 (0.06)***	31.25 (0.05)***
Costa Rica	0.22 (0.06)***	33.70 (0.03)***	26.71 (0.03)***	24.32 (0.03)***
Dominican Republic	0.15 (0.07)**	37.05 (0.04)***	24.68 (0.03)***	24.86 (0.03)***
Ecuador	0.26 (0.07)***	35.60 (0.03)***	23.34 (0.03)***	22.48 (0.03)***
El Salvador	0.27 (0.05)***	27.65 (0.03)***	23.14 (0.03)***	18.31 (0.03)***
Guatemala	0.60 (0.11)***	37.75 (0.03)***	31.94 (0.04)***	31.85 (0.04)***
Honduras	0.19 (0.10)*	43.18 (0.05)***	26.61 (0.05)***	30.45 (0.05)***
Mexico	0.34 (0.08)***	37.30 (0.03)***	25.29 (0.03)***	28.96 (0.03)***
Nicaragua	0.34 (0.10)***	28.47 (0.04)***	12.08 (0.05)**	12.81 (0.07)*
Panama	0.31 (0.07)***	58.24 (0.03)***	43.65 (0.04)***	40.67 (0.04)***
Paraguay	0.15 (0.08)*	34.23 (0.03)***	29.86 (0.04)***	33.13 (0.04)***
Peru	0.38 (0.05)***	49.86 (0.03)***	22.44 (0.03)***	29.37 (0.03)***
Uruguay	0.04 (0.06)	23.22 (0.02)***	26.48 (0.03)***	28.35 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.6: Differences between students from low and high levels of socioeconomic backgrounds in teacher and school characteristics, third grade

Country	Teacher Interest in Student Welfare Index	Teacher Support of Student Learning Index	School is located in an urban area	Size of school enrollment	Proportion of poor students	School Services Index
Argentina	0.32 (0.05)***	0.18 (0.06)***	20.01 (0.03)***	51.32 (19.00)***	-33.49 (3.65)***	0.38 (0.05)***
Brazil	0.28 (0.07)***	0.29 (0.08)***	28.22 (0.02)***	150.52 (50.60)***	-33.22 (3.56)***	0.68 (0.07)***
Colombia	0.26 (0.11)**	0.32 (0.09)***	61.48 (0.07)***	-12.48 (155.09)	-43.19 (7.47)***	1.56 (0.19)***
Costa Rica	0.10 (0.07)	0.04 (0.06)	41.01 (0.05)***	63.44 (37.43)*	-33.68 (3.41)***	0.29 (0.05)***
Dominican Republic	0.20 (0.11)*	0.25 (0.09)***	25.35 (0.03)***	12.05 (46.61)	-25.08 (4.51)***	0.73 (0.07)***
Ecuador	-0.06 (0.09)	-0.03 (0.09)	30.85 (0.04)***	206.58 (34.87)***	-31.27 (4.03)***	0.68 (0.07)***
El Salvador	0.33 (0.05)***	0.34 (0.06)***	60.46 (0.03)***	180.65 (28.10)***	-31.63 (4.08)***	1.13 (0.07)***
Guatemala	0.35 (0.11)***	0.31 (0.11)***	53.27 (0.04)***	48.58 (24.12)**	-34.50 (4.24)***	1.27 (0.13)***
Honduras	0.14 (0.09)	0.07 (0.12)	-55.00 (0.06)***	232.14 (37.20)***	-21.85 (7.52)***	1.25 (0.15)***
Mexico	0.22 (0.05)***	0.17 (0.06)***	35.99 (0.04)***	83.16 (34.90)**	-25.69 (3.99)***	0.80 (0.09)***
Nicaragua	0.25 (0.08)***	0.13 (0.10)	56.89 (0.03)***	327.19 (22.77)***	-3.59 (4.96)	1.36 (0.09)***
Panama	0.27 (0.08)***	0.36 (0.08)***	73.71 (0.04)***	377.62 (53.68)***	-43.57 (5.41)***	1.75 (0.19)***
Paraguay	-0.09 (0.08)	-0.22 (0.09)**	57.29 (0.04)***	211.77 (22.43)***	-35.07 (3.85)***	1.06 (0.07)***
Peru	0.47 (0.07)***	0.35 (0.07)***	42.10 (0.03)***	76.25 (18.64)***	-44.52 (3.44)***	1.13 (0.08)***
Uruguay	0.24 (0.06)***	0.18 (0.05)***	4.45 (0.02)*	-87.93 (66.48)	-37.22 (3.12)***	0.24 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.7: Differences between students from low and high levels of socioeconomic backgrounds in student and family characteristics, sixth grade

Country	Student Self-Efficacy in Mathematics Index	Student mathematics anxiety	Student repeated a grade level	Student has more than 10 books at home	Student expects to complete postgraduate studies	Mother completed tertiary education
Argentina	0.29 (0.05)***	-17.11 (0.03)***	-12.40 (0.02)***	61.78 (0.03)***	16.26 (0.02)***	45.28 (0.03)***
Brazil	0.32 (0.06)***	-11.45 (0.03)***	-26.35 (0.03)***	42.87 (0.04)***	-1.22 (0.01)*	35.21 (0.04)***
Colombia	0.16 (0.06)**	-3.67 (0.03)	-26.36 (0.03)***	58.91 (0.03)***	34.64 (0.04)***	52.62 (0.03)***
Costa Rica	0.19 (0.06)***	-13.13 (0.03)***	-23.72 (0.03)***	69.71 (0.03)***	14.19 (0.03)***	52.07 (0.03)***
Dominican Republic	0.13 (0.06)**	-9.75 (0.03)***	-24.61 (0.02)***	54.55 (0.03)***	11.44 (0.03)***	48.50 (0.03)***
Ecuador	0.14 (0.05)***	-9.14 (0.03)***	-12.66 (0.02)***	42.28 (0.02)***	27.33 (0.03)***	47.60 (0.03)***
El Salvador	-0.02 (0.06)	-13.72 (0.03)***	-18.03 (0.02)***	63.93 (0.02)***	19.65 (0.02)***	31.81 (0.02)***
Guatemala	0.09 (0.06)	-15.91 (0.03)***	-27.12 (0.03)***	61.97 (0.02)***	26.99 (0.03)***	20.02 (0.03)***
Honduras	0.13 (0.08)	-10.87 (0.04)**	-7.93 (0.02)***	50.78 (0.04)***	22.29 (0.03)***	23.71 (0.03)***
Mexico	0.23 (0.06)***	-6.57 (0.03)**	-3.80 (0.01)***	42.01 (0.03)***	23.02 (0.03)***	42.12 (0.03)***
Nicaragua	-0.04 (0.06)	-4.04 (0.04)	-15.35 (0.03)***	47.83 (0.02)***	6.05 (0.02)**	30.86 (0.02)***
Panama	0.40 (0.07)***	-10.25 (0.03)***	-27.10 (0.03)***	75.81 (0.02)***	20.25 (0.03)***	59.60 (0.02)***
Paraguay	0.17 (0.06)***	-10.38 (0.04)***	-14.97 (0.02)***	66.68 (0.03)***	17.62 (0.03)***	40.01 (0.03)***
Peru	0.16 (0.06)***	-5.33 (0.03)*	-17.85 (0.03)***	44.24 (0.03)***	26.13 (0.03)***	54.69 (0.03)***
Uruguay	0.14 (0.05)***	-12.67 (0.03)***	-29.32 (0.02)***	62.98 (0.02)***	13.14 (0.02)***	48.49 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.8: Differences between students from low and high levels of socioeconomic backgrounds in parent involvement and expectations, sixth grade

| Country	Parent Involvement Index	Parent expects child to complete postgraduate studies	Child learns Mathematics easily	Child learns Language easily	Child learns Science easily
Argentina	0.25 (0.06)***	4.15 (0.03)	16.55 (0.03)***	15.82 (0.03)***	16.34 (0.03)***
Brazil	0.29 (0.06)***	42.35 (0.03)***	18.14 (0.03)***	19.33 (0.03)***	15.13 (0.03)***
Colombia	0.31 (0.07)***	44.15 (0.04)***	16.10 (0.04)***	20.54 (0.03)***	20.32 (0.03)***
Costa Rica	-0.06 (0.06)	33.06 (0.03)***	26.11 (0.03)***	19.30 (0.03)***	24.84 (0.03)***
Dominican Republic	0.19 (0.06)***	35.33 (0.03)***	14.53 (0.03)***	21.73 (0.03)***	21.09 (0.03)***
Ecuador	0.37 (0.06)***	36.78 (0.02)***	19.86 (0.03)***	16.82 (0.03)***	12.91 (0.02)***
El Salvador	0.05 (0.05)	28.63 (0.02)***	18.21 (0.03)***	20.24 (0.03)***	23.99 (0.03)***
Guatemala	0.38 (0.07)***	38.45 (0.04)***	20.69 (0.04)***	22.82 (0.04)***	23.92 (0.04)***
Honduras	0.37 (0.08)***	36.45 (0.05)***	8.87 (0.05)*	15.94 (0.04)***	14.95 (0.04)***
Mexico	0.32 (0.06)***	33.05 (0.03)***	15.64 (0.03)***	24.57 (0.03)***	26.00 (0.03)***
Nicaragua	0.27 (0.07)***	20.55 (0.03)***	9.27 (0.03)***	8.22 (0.04)**	7.43 (0.04)**
Panama	0.47 (0.07)***	59.80 (0.03)***	32.01 (0.04)***	38.12 (0.04)***	38.20 (0.04)***
Paraguay	0.23 (0.06)***	31.79 (0.03)***	27.22 (0.04)***	28.75 (0.04)***	31.93 (0.04)***
Peru	0.30 (0.08)***	43.51 (0.04)***	19.16 (0.03)***	25.74 (0.03)***	24.30 (0.03)***
Uruguay	0.10 (0.06)*	25.75 (0.02)***	14.51 (0.03)***	21.27 (0.03)***	20.74 (0.03)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Table A.9: Differences between students from low and high levels of socioeconomic backgrounds in teacher and school characteristics, sixth grade

| Country	Teacher Interest in Student Welfare Index	Teacher Support of Student Learning Mathematics Index	Teacher Support of Student Learning Language Index	Teacher Support of Student Learning Science Index	Teacher speaks an Indigenous language	School is located in an urban area	Size of school enrollment	Proportion of poor students	School Services Index
Argentina	0.17 (0.05)***	0.26 (0.06)***	0.18 (0.05)***	0.15 (0.05)***	-2.87 (0.02)	17.69 (0.02)***	28.83 (19)***	-33.11 (2.68)***	0.34 (0.06)***
Brazil	0.14 (0.07)**	0.31 (0.07)***	0.28 (0.07)***	0.28 (0.06)***	-3.69 (0.06)	27.52 (0.04)***	81.83 (53)***	-37.43 (3.94)***	0.63 (0.07)***
Colombia	0.02 (0.07)	0.17 (0.06)***	0.04 (0.06)	0.09 (0.07)	9.97 (0.05)*	43.02 (0.04)***	172.74 (107)***	-49.33 (5.16)***	1.06 (0.08)***
Costa Rica	0.08 (0.08)	-0.06 (0.08)	0.09 (0.10)	0.12 (0.08)	-6.59 (0.03)**	44.24 (0.05)***	145.90 (32)***	-40.04 (3.45)***	0.49 (0.08)***
Dominican Republic	0.16 (0.06)**	0.20 (0.07)***	0.14 (0.06)**	0.15 (0.06)**	-5.81 (0.04)	28.06 (0.04)***	84.71 (148)***	-27.56 (3.50)***	0.79 (0.07)***
Ecuador	0.08 (0.07)	0.11 (0.07)	0.11 (0.07)*	0.07 (0.07)	-1.16 (0.04)	34.31 (0.04)***	222.54 (43)***	-34.96 (3.81)***	0.70 (0.08)***
El Salvador	-0.03 (0.06)	0.02 (0.06)	0.04 (0.06)	-0.06 (0.06)	-1.82 (0.01)	63.20 (0.04)***	200.93 (31)***	-34.96 (4.23)***	1.17 (0.08)***
Guatemala	0.45 (0.07)***	0.46 (0.08)***	0.32 (0.07)***	0.39 (0.07)***	-27.18 (0.05)***	60.70 (0.04)***	59.51 (23)***	-37.39 (4.41)***	1.38 (0.10)***
Honduras	-0.11 (0.10)	-0.05 (0.10)	0.00 (0.11)	-0.01 (0.11)	-2.28 (0.02)	-52.81 (0.05)***	296.73 (59)***	-21.87 (5.43)***	1.39 (0.14)***
Mexico	0.20 (0.09)**	0.31 (0.08)***	0.23 (0.07)***	0.20 (0.08)***	-10.59 (0.05)**	40.82 (0.04)***	111.36 (32)***	-29.73 (4.30)***	0.87 (0.08)***
Nicaragua	0.01 (0.08)	0.05 (0.08)	0.07 (0.06)	0.06 (0.06)	2.82 (0.04)	64.26 (0.03)***	317.93 (25)***	-13.02 (4.23)***	1.30 (0.09)***
Panama	0.18 (0.08)**	0.50 (0.07)***	0.33 (0.08)***	0.36 (0.08)***	-26.20 (0.06)***	78.83 (0.04)***	345.48 (50)***	-50.28 (4.59)***	1.87 (0.17)***
Paraguay	0.02 (0.07)	0.18 (0.07)**	0.07 (0.07)	0.12 (0.08)*	-25.83 (0.06)***	55.24 (0.04)***	224.38 (25)***	-31.47 (3.86)***	1.10 (0.07)***
Peru	0.14 (0.07)**	0.26 (0.08)***	0.29 (0.09)***	0.18 (0.08)**	-7.80 (0.04)*	45.40 (0.04)***	77.68 (20)***	-50.68 (4.05)***	1.24 (0.08)***
Uruguay	0.14 (0.07)**	0.12 (0.06)*	0.12 (0.08)	0.11 (0.07)	-3.44 (0.04)	7.27 (0.03)**	-98.33 (65)***	-33.86 (2.87)***	0.22 (0.04)***

Notes: Standard errors are presented in parentheses. *** significant at 1%, ** significant at 5%, and * significant at 10%.
Source: Authors' calculations based on ERCE 2019 databases.

Figure A.1: Relation between family socioeconomic status and average test scores, third- and sixth-grade mathematics
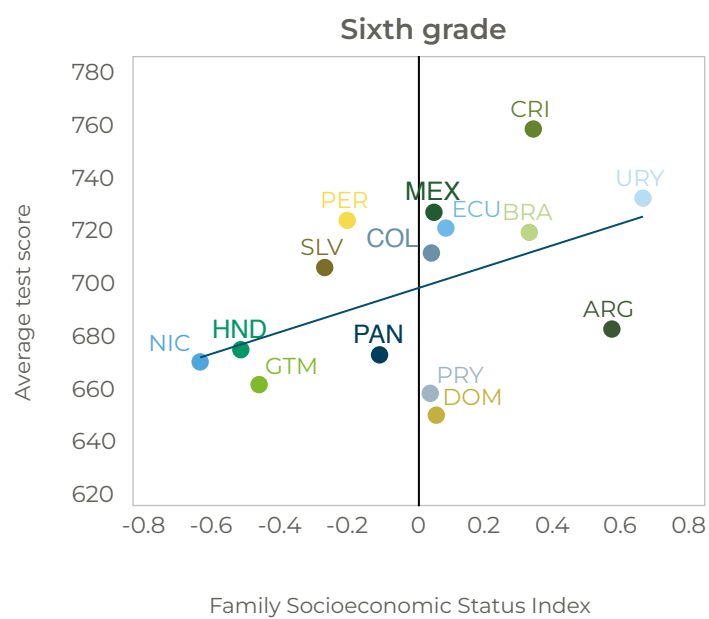
Third grade
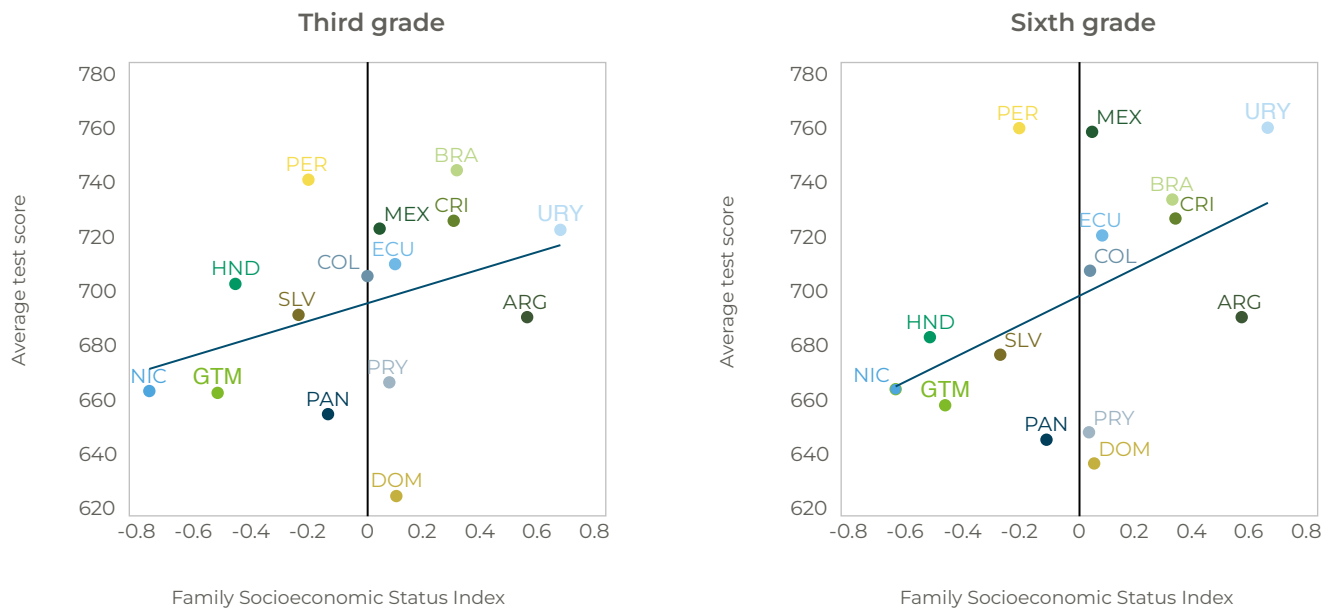
Sixth grade

Source: Authors' calculations based on ERCE 2019 databases.

Figure A.2: Relation between family socioeconomic status Index and average test scores, third- and sixth-grade language
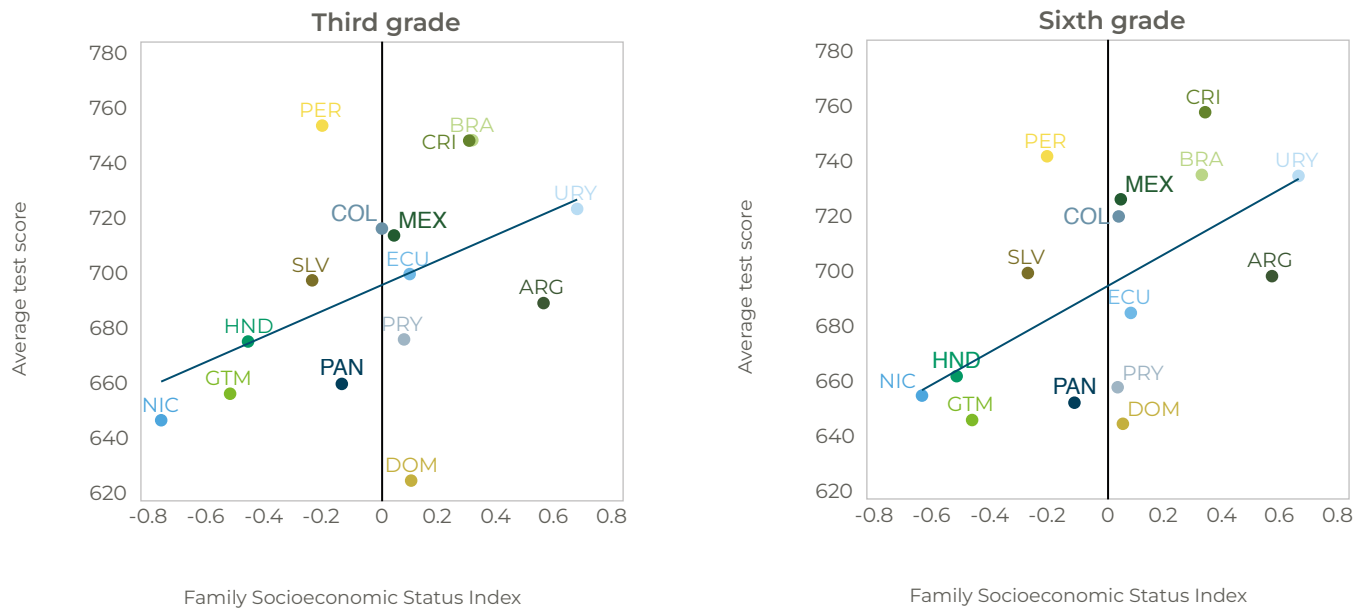
Source : Authors' calculations based on ERCE 2019 databases.

Figure A.3: Relation between family socioeconomic status and average test scores, sixth grade science

Source: Authors' calculations based on ERCE 2019 databases.