



PISA

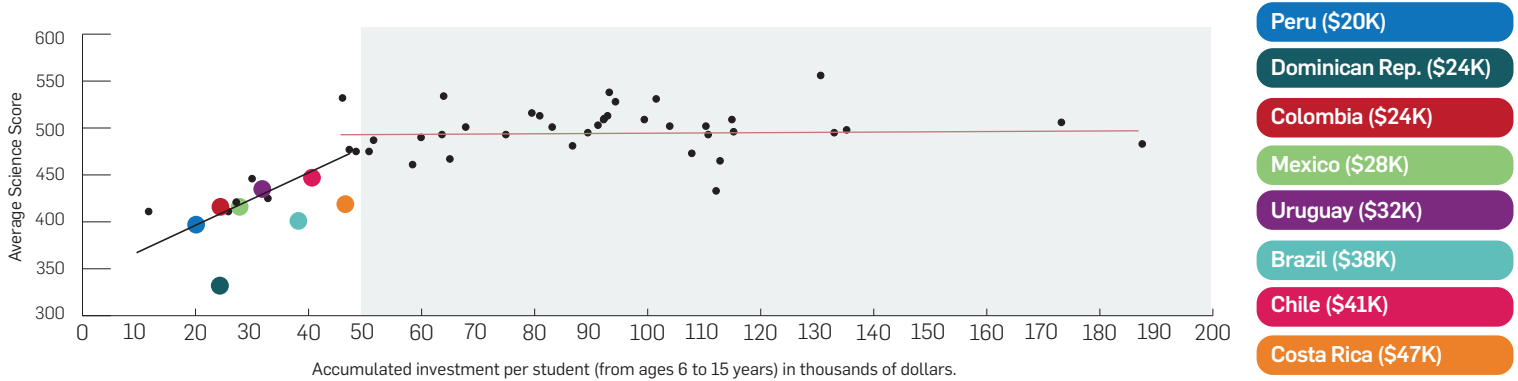
Latin America and the Caribbean

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WHAT IS THE RELATIONSHIP BETWEEN LEARNING AND RESOURCES?

Poor performance, a lack of educational resources, and inadequate infrastructure all suggest that Latin American and Caribbean countries not only must invest more in education, but also consider how they can do so more fairly and efficiently.

CORRELATION BETWEEN SCIENCE SCORES AND INVESTMENT PER STUDENT AGED 6-15, PISA 2015



Source: Figure II.6.2, PISA 2015
 Notes: (1) Investment per student is expressed in purchasing power parity dollars. (2) There are two lines of best fit: One before USD 50,000 per student and another after USD 50,000 per student. (3) PISA 2015 did not report this information for Trinidad and Tobago.

Investment in education is low and varies considerably across Latin America and the Caribbean

- No country in the region matches investment per student for those aged 6-15 in the average OECD country (USD 90,294).
- Costa Rica (USD 46,531) invests the most in the region, while Peru (USD 20,114) invests the least.
- The remaining countries fall somewhere between Costa Rica and Peru: Chile (USD 40,607), Brazil (USD 38,190), Uruguay (USD 31,811), Mexico (USD 27,848), Colombia, (USD 24,395), and the Dominican Republic (USD 24,264). PISA 2015 did not report this information for Trinidad and Tobago.
- Investment in the region does not surpass that of countries with similar levels of economic development (GDP per capita).
- The average investment per students for those aged 6-15 in countries with the best science performance (USD 88,240) is almost twice the amount invested by Costa Rica.

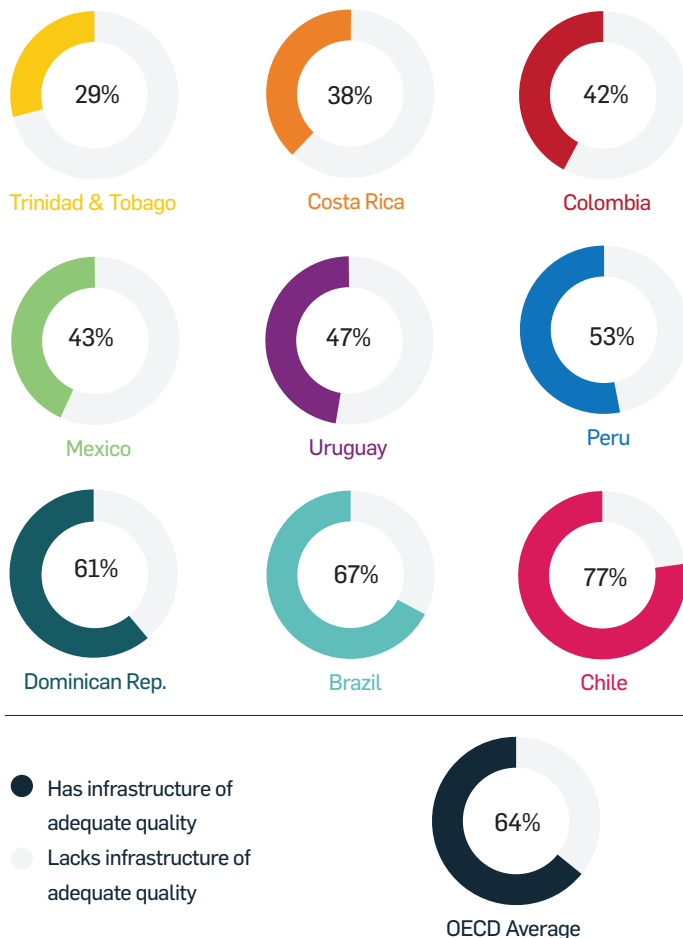
In the region, greater investment is associated with improved performance

- For the countries of the region, which invest less than USD 50,000 in their students aged 6-15, greater investment can lead to improved performance. An increase of USD 10,000 correlates with an additional 26 points on the PISA Test.
- This does not mean that each dollar spent results in an improvement, but it does suggest that there could be a minimum level of investment necessary to attain acceptable results.
- Chile, Mexico, Colombia, and Peru all perform at a level that would be expected based on their investments. However, Brazil, Costa Rica, and the Dominican Republic perform at lower-than-expected levels considering their investments.
- On the other hand, for countries that spend more than USD 50,000, greater investment does not necessarily lead to better results on the PISA Test.

Countries in the region do not have sufficient educational resources

- Chile is the country with the highest-quality educational resources in the region, followed by Brazil, the Dominican Republic, Uruguay, Mexico, and Peru. Chile and Brazil are the only countries in the region with more and higher-quality educational resources than the average OECD country.
- Costa Rica, Trinidad and Tobago, and Colombia rank among the bottom 10 of all participating countries.
- Through the educational resources index, PISA reports on school principals' perceptions of whether the quality or availability of school infrastructure (such as buildings, temperature control, and lighting systems) and educational materials (such as books, science laboratories, and libraries), or lack thereof, negatively impacts students' education.

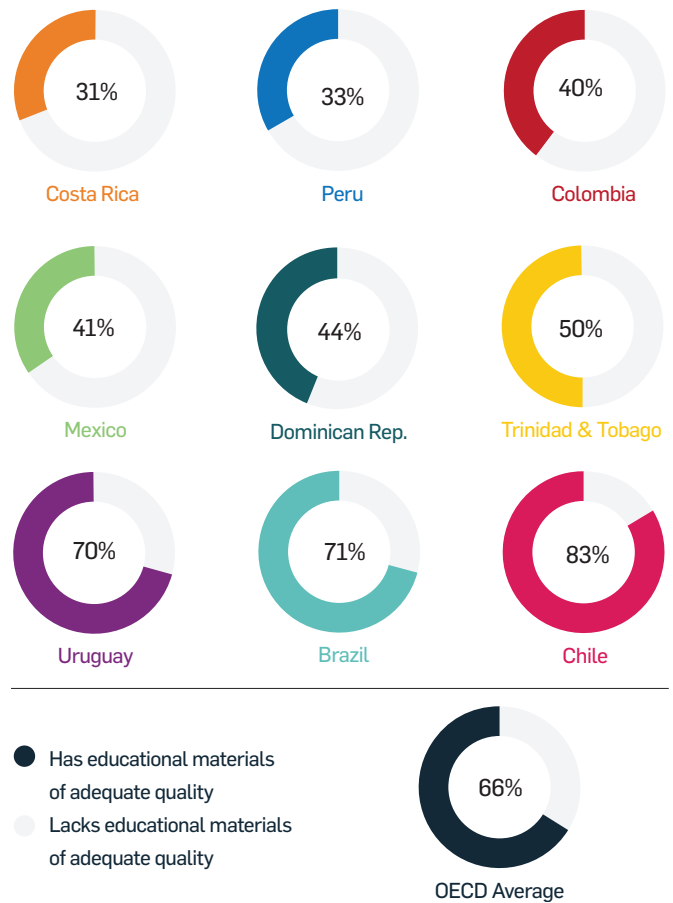
PERCENTAGE WITH ADEQUATE INFRASTRUCTURE, PISA 2015



Source: Table II.6.1, PISA 2015

Notes: (1) The percentage for each country was calculated by adding the sets of columns (V+X and AD+AF) and using the highest number for each country. (2) The figures were rounded to the nearest whole number. (3) These figures should be interpreted with caution, due to varying definitions of "inadequate" and/or "lacks" in different countries.

PERCENTAGE WITH ADEQUATE EDUCATIONAL MATERIALS, PISA 2015



Source: Table II.6.1, PISA 2015

Notes: (1) The percentage for each country was calculated by adding the sets of columns (F+H and N+P) and using the highest number for each country. (2) The figures were rounded to the nearest whole number. (3) These figures should be interpreted with caution, due to varying definitions of "inadequate" and/or "lacks" in

Many schools do not have adequate infrastructure and educational materials

- In Trinidad and Tobago, seven out of 10 students are in schools where the principals report that the lack of (or low quality of) school infrastructure is harmful to their education. In Chile, only two out of 10 students are in such schools. In the OECD, three out of 10 students are in such schools.
- In Costa Rica, seven out of 10 students are in schools where the principals report that the lack of (or low quality of) educational materials is harmful to their education. At the other extreme, in Chile, two out of 10 students are in schools with these conditions. In the OECD, four out of 10 students are in such schools.

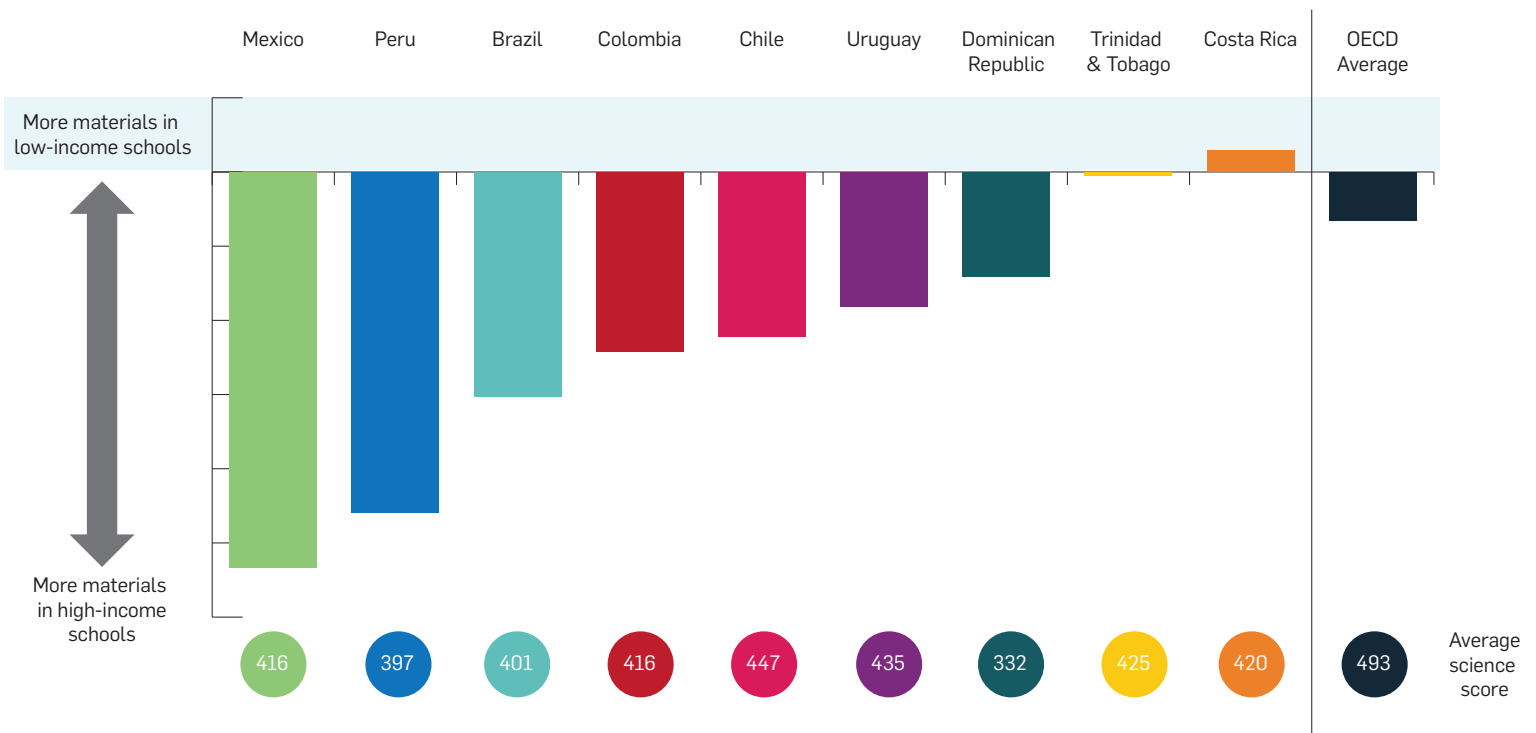
High-income individuals have access to more and higher-quality educational resources

- In all the countries in the region (except Costa Rica), the principals of schools with low-income students are more concerned about the lack (or poor quality) of educational materials than their peers in higher-income schools. This indicates that the distribution of resources is highly unequal.
- Costa Rica is the only country in the region where low-income students receive more and higher-quality resources than their high-income peers, while Trinidad and Tobago is the only country where both low- and high-income students receive the same quantity and quality of resources (according to school principals).
- In the remaining countries, low-income students receive fewer and lower-quality resources. Peru and Mexico have the highest levels of inequality among all PISA 2015 participating countries.
- In countries that allocate more and higher-quality resources to the lowest-income schools, all students perform better.

There are significant gaps that favor students in urban areas or private schools

- Students in urban areas have access to more and higher-quality resources than their peers in rural areas. Within the region, the largest gap between students in different geographic areas is found in Mexico, followed by Peru, the Dominican Republic, Brazil, and Colombia. There are no differences in Chile, Costa Rica, and Uruguay.
- Students who attend private schools have access to more and higher-quality resources than their peers in public schools. The largest gap between the two groups is found in Peru, followed by Colombia, Mexico, Brazil, Uruguay, Chile, the Dominican Republic, and Trinidad and Tobago.
- Trinidad and Tobago. Costa Rica is the only country where there are no differences.
- When one controls for the socioeconomic status of students and schools, these gaps diminish or disappear, implying that they reflect, in part, socioeconomic differences.

EQUITY IN RESOURCE DISTRIBUTION AND SCIENCE PERFORMANCE, PISA 2015



Source: Table II.6.2, PISA 2015

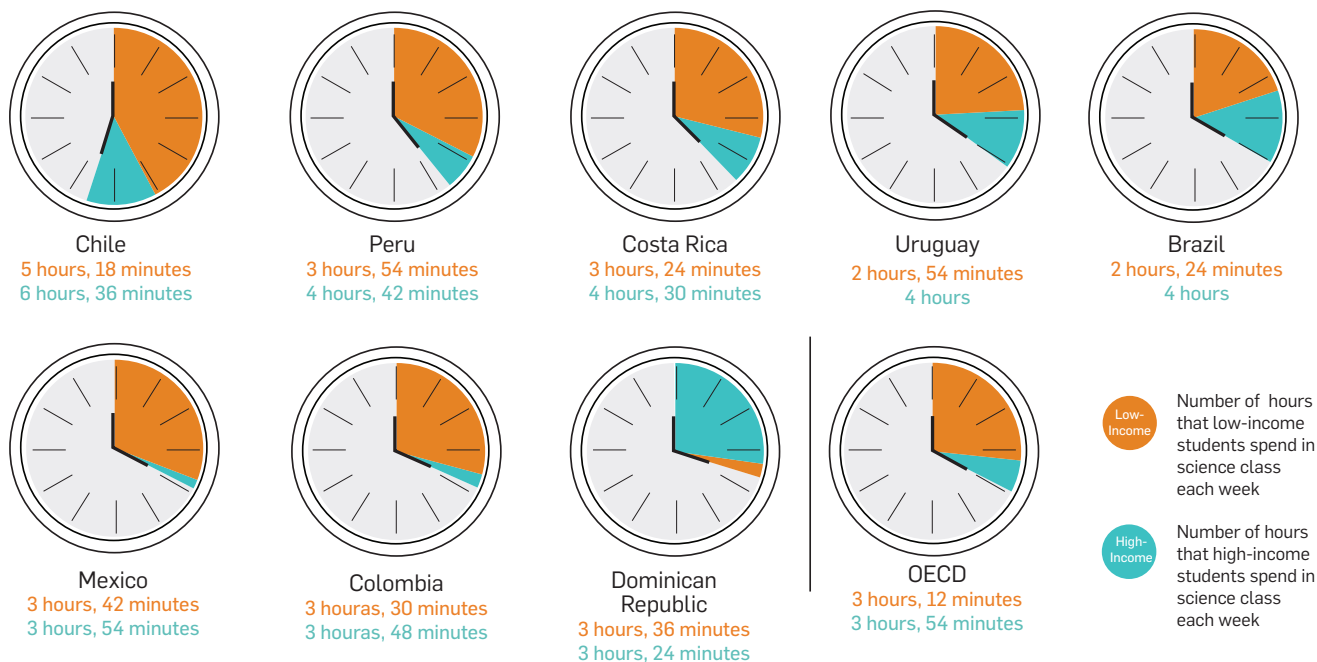
High-income students and those in urban areas spend the most time in class each week

- Chile, Costa Rica, and Peru rank among the 10 participating countries where students spend the most time in class each week. Uruguay, Brazil, and the Dominican Republic are among the 10 countries where students spend the least amount of time in class. PISA did not report this information for Trinidad and Tobago.
- Out of all participating countries, Chile is where students spend the most time in science classes.
- Regarding time spent in science classes, Chile is followed by Peru, Mexico, Costa Rica, the Dominican Republic, Colombia, Uruguay, and Brazil.
- High-income students spend more time in class than low-income students in all countries in the region except Chile. Urban students spend more time in class than rural students in Mexico, Colombia, and the Dominican Republic. PISA 2015 did not report this information for Trinidad and Tobago.

More hours spent in class and improved science scores go hand in hand in Latin America and the Caribbean

- When controlling for the socioeconomic status of students and schools in Brazil, Colombia, Costa Rica, and the average OECD country, an additional hour of time in science classes is associated with an additional five points in science.
- There is a positive correlation between the number of hours spent in science class and performance in science in Chile and Uruguay.
- There is also a positive correlation between the number of hours spent in any kind of class and performance in science in Chile, Mexico, Colombia, Costa Rica, the Dominican Republic, and Peru.

NUMBER OF HOURS THAT STUDENTS SPEND IN SCIENCE CLASS, PISA 2015



Source: Table II.6.33, PISA 2015, Vol. I, Chart 1.6.14, Note: (1) The blue segment represents the number of hours that high-income students spend in class, in addition to the number of hours that low-income students spend in class.

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References: OECD (2016), PISA 2015 Results Excellence and Equity in Education (Volume I).

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