



PISA: HOW WELL CAN STUDENTS WORK TOGETHER TO SOLVE PROBLEMS?

Latin America and the Caribbean

By: María Soledad Bos, Nicholas Moffa, Emiliana Vegas, and Pablo Zoido

Improving students' social skills is a critical challenge for the region. Schools and families play a critical role in developing these skills by providing opportunities for students to work together and collaborate at home, in class, and through extracurricular activities.

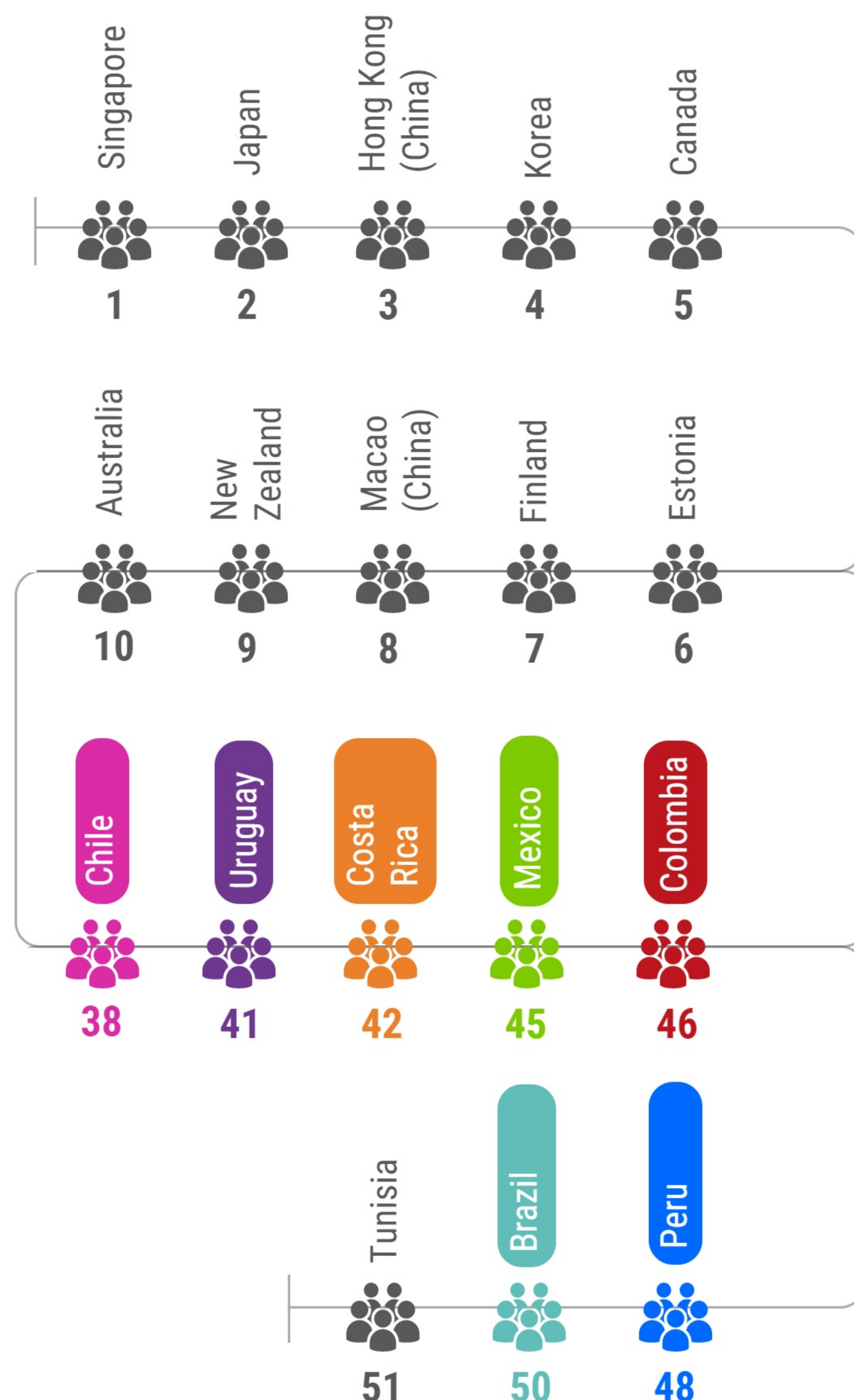
Social skills are low in the region

- As in all academic subjects, Chile is the top performer in the region in collaborative problem-solving, though the average score in Chile remains over 40 points lower than the average score in the OECD.
- Costa Rica and Uruguay lag behind Chile by more than 15 points, Mexico and Colombia lag behind by 20 points, and Peru and Brazil lag behind Chile by about 35 points.
- Most countries held similar positions in both the social skills and science achievement rankings, with the biggest improvement seen in Iceland (which climbs 17 positions).
- In the region, Costa Rica saw the largest change; its place in the social skills rankings slightly improved over its position in the 2015 science rankings, climbing three positions.
- Students in Singapore, Japan, Hong Kong (China), Korea, and Canada placed their countries at the top of the rankings.

What are social skills and how are they measured?

- PISA measures social skills through a new domain called collaborative problem-solving, defined as "the capacity of an individual to effectively engage in a process whereby two or more agents attempt to solve a problem by sharing the understanding and effort required to come to a solution and then pooling their knowledge, skills, and efforts to reach that solution." (PISA 2015, Volume 5).
- Social skills were measured through tasks where the student interacts with computer agents communicating by email, chats, or text messages. To solve the tasks, students played different roles on teams, both as leaders and followers.
- A study comparing students' interactions with computer and human agents found statistically significant differences between the interactions, though the differences were judged to be practically irrelevant.

RANKING IN SOCIAL SKILLS, PISA 2015



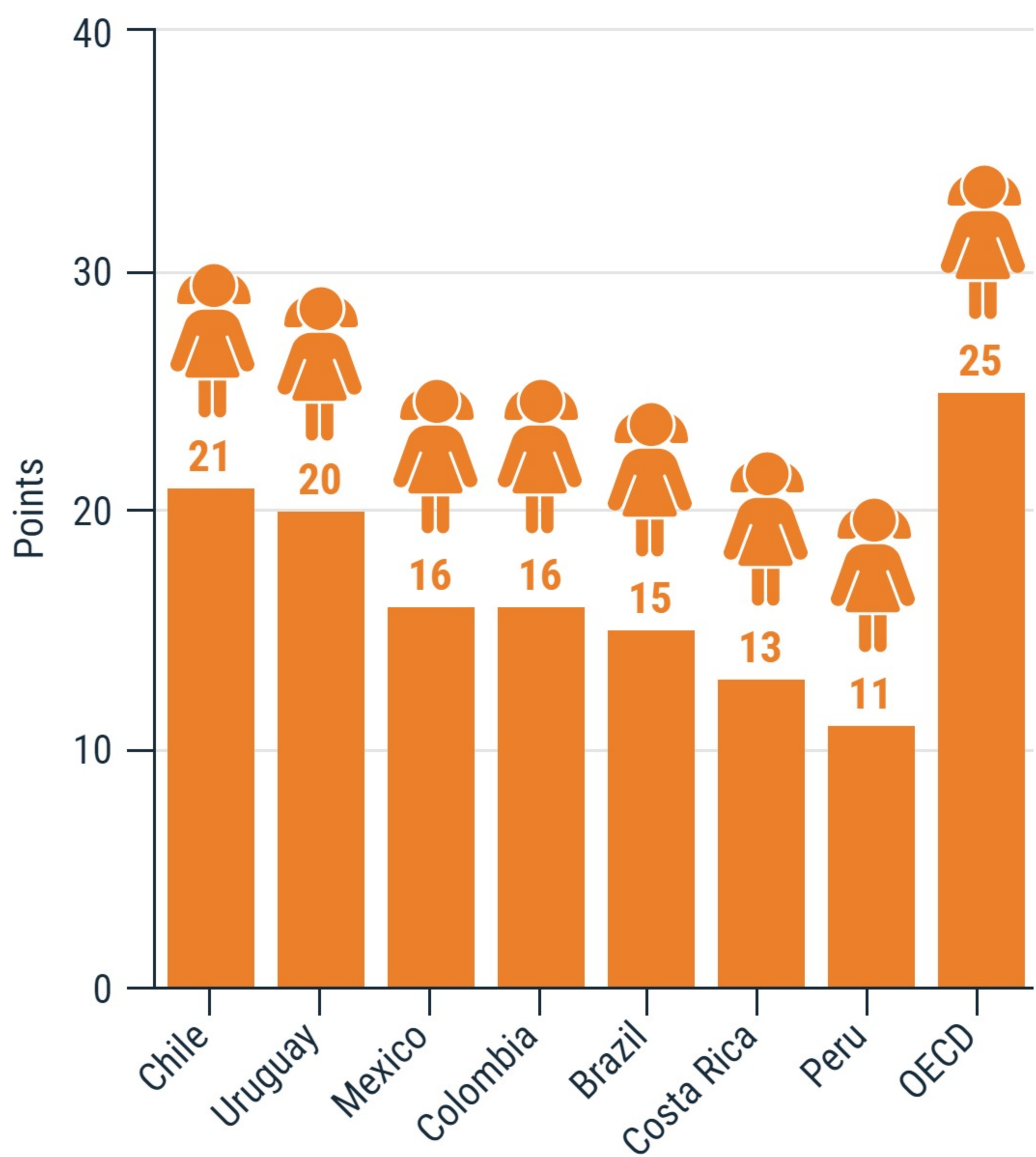
Source: PISA 2015 Results, Volume 5, Table V.3.2.

Note: (1) Only 7 countries from Latin America and the Caribbean participated in this test.
(2) A total of 51 countries participated in this test.

Many students do not know how to work together to solve even the simplest problems

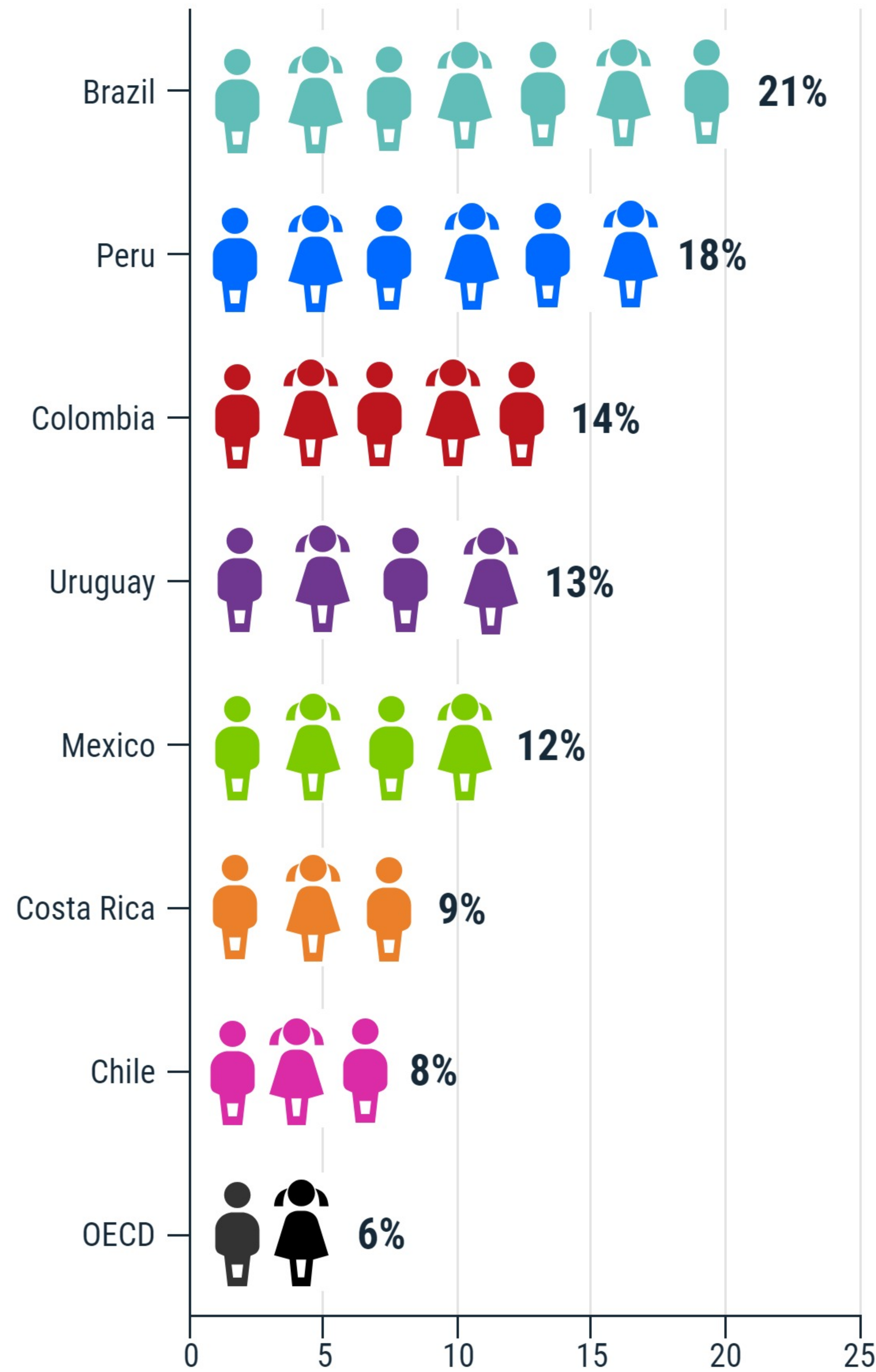
- About one in seven students (15%) in participating Latin American countries (6% among OECD countries) are low achievers, meaning they cannot complete even the easiest tasks involving simple problems and limited collaboration.
- In Chile and Costa Rica, the top-performing countries in the region, only 8% and 9% cannot complete such tasks, while 21% of students in Brazil cannot do so.
- Around 40% of students in the region (22% in the OECD) are considered intermediate performers (i.e., can only solve simple problems with limited collaboration). This proportion varies from 34% in Chile to 42% in Brazil, Colombia, and Peru
- Only in Chile and Uruguay do more than 1% of students qualify as top performers (i.e., can solve the most complicated problems requiring complex collaboration). In the OECD, 8% of students can do so.
- Among the top-performing countries, like Singapore and Japan, fewer than 2% of students do not reach the most basic level of performance. Meanwhile, around 10% can only solve simple problems with limited collaboration, while 21% and 14%, respectively, can solve the most difficult tasks requiring complex collaboration.

GENDER GAPS IN SOCIAL SKILLS, PISA 2015



Source: PISA 2015 Results, Volume 5, Table V.4.3b.

LOW ACHIEVEMENT RATE IN SOCIAL SKILLS, PISA 2015

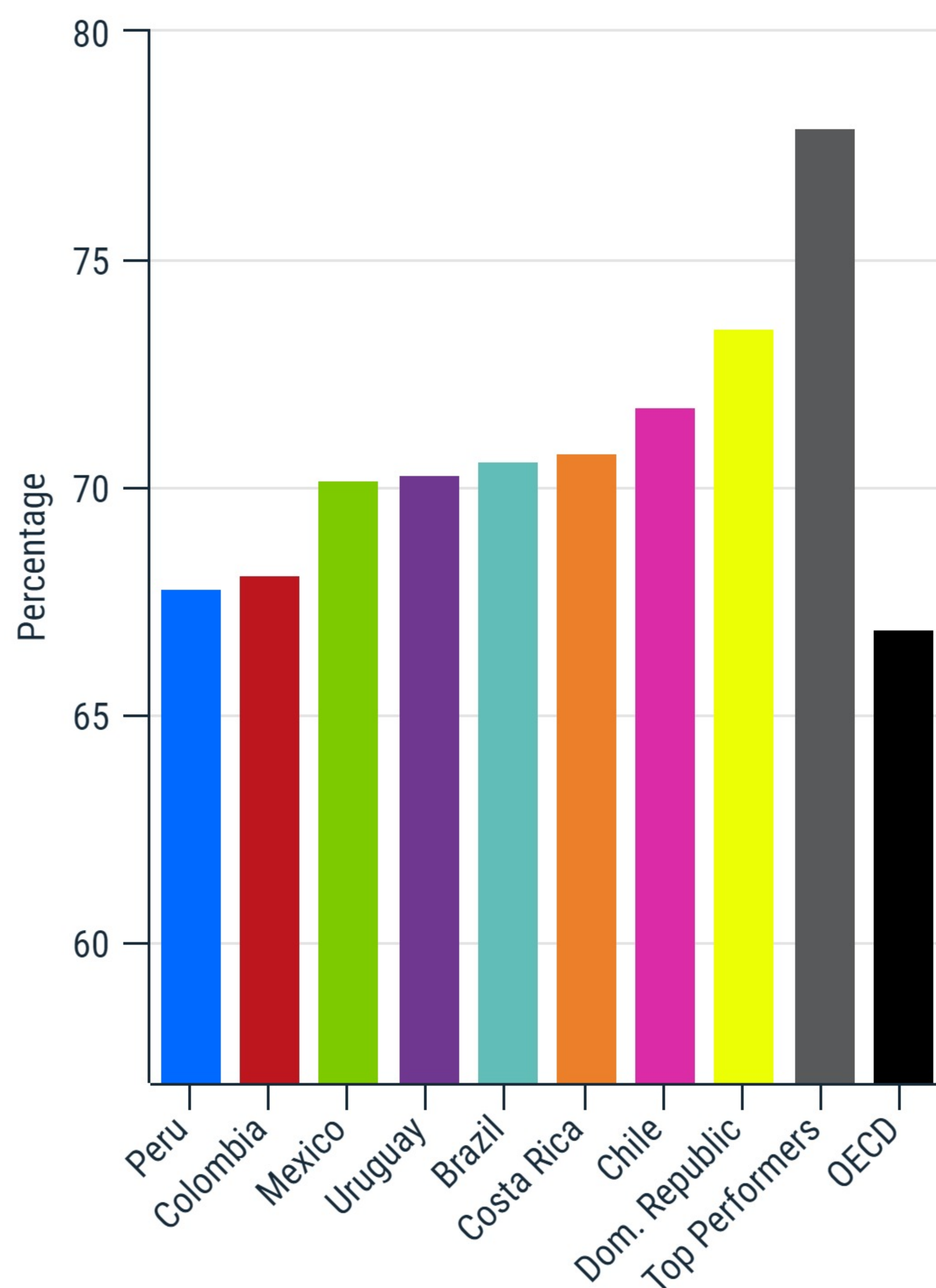


Source: PISA 2015 Results, Volume 5, Table V.3.1.

Girls have better social skills than boys, even after accounting for their academic skills

- Latin American girls outperform boys in social skills, but by a smaller margin than in most countries.
- The average gap among participating countries in Latin America is 16 points, compared with 25 points across the OECD.
- Girls in Colombia, Costa Rica, and Peru have the smallest performance advantages over boys across all participating countries.
- Girls in Chile have the largest performance advantage over boys (21 points) across participating countries in the region, while globally the largest gap is observed in New Zealand (39 points).

% OF STUDENTS WHO PREFER WORKING IN TEAMS, PISA 2015



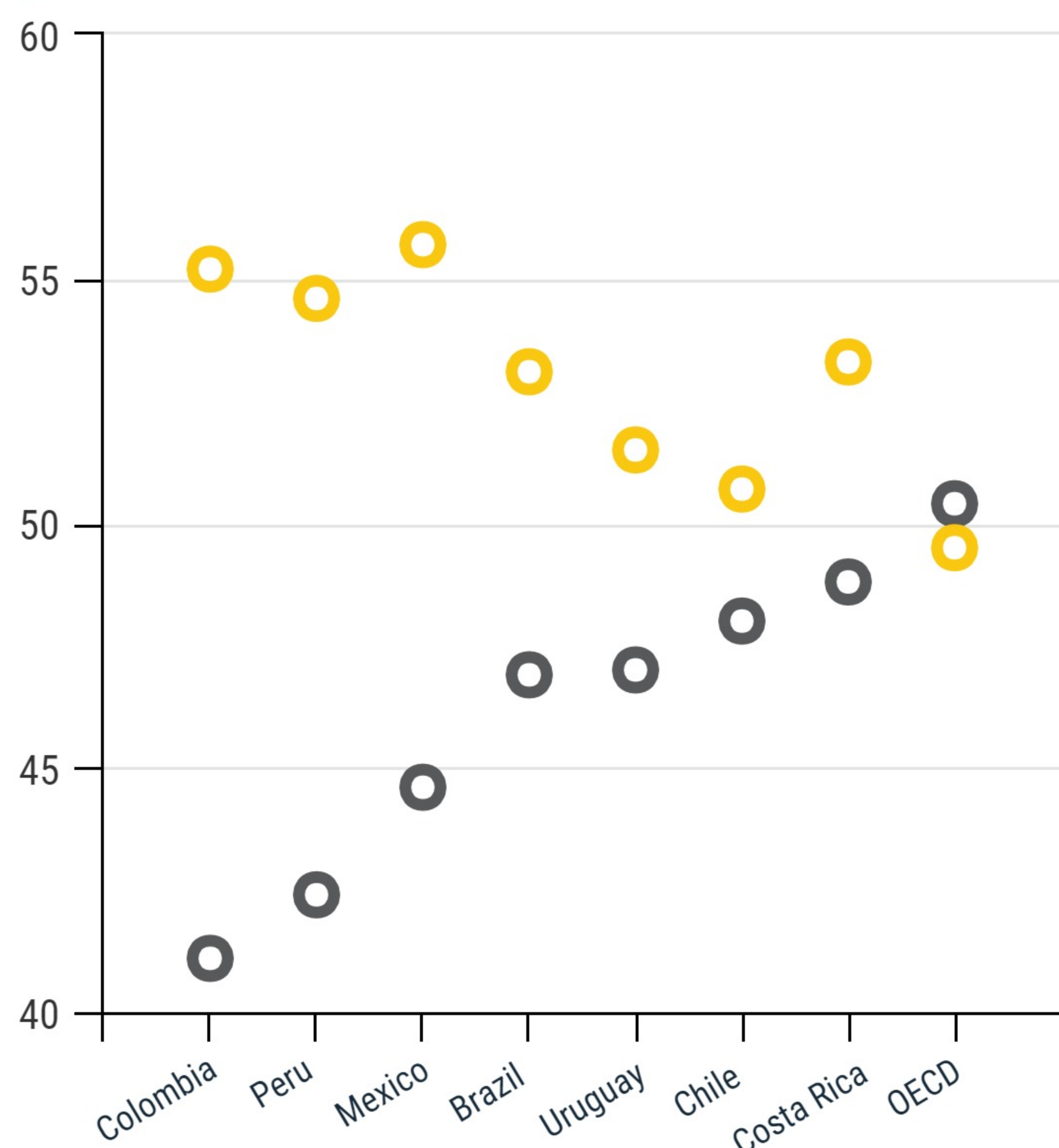
Source: PISA 2015 Results, Volume 5, Table V.5.2a.

Notes: (1) The top-performing countries on this metric (excluding those in the region) are: B-S-J-G (China), Chinese Taipei, Croatia, Hungary, Korea, Lithuania, Poland, Switzerland, Thailand, and Tunisia.

Latin American students, especially boys, value teamwork

- Students in the Dominican Republic value teamwork the most out of any participating country, while students in Costa Rica, Mexico, Chile, Colombia, Brazil, Uruguay, and Peru are all above the OECD average.
- In all countries in the region except for Colombia and the Dominican Republic, boys value teamwork significantly more than girls. However, this gap is smaller than in the average OECD country in Mexico, Brazil, Costa Rica, Peru, and Uruguay.
- Students in Mexico, Brazil, and Colombia who preferred working as part of a team scored higher in collaborative problem-solving than those who did not, after accounting for their gender and socioeconomic status.
- In Brazil, Peru, and Uruguay, students who enjoyed cooperating with peers scored higher in collaborative problem-solving than those who did not.

% OF STUDENTS PERFORMING BETTER THAN EXPECTED IN COLLABORATIVE PROBLEM-SOLVING, PISA 2015



Rich students

Poor students

Source: PISA 2015 Results, Volume 5, Table V.3.1.

Note: (1) The differences are statistically significant in Brazil, Colombia, Mexico, and Peru.

Rich students possess better social skills than poor students

- In the region, many students demonstrate better social skills than would be expected relative to their academic performance, but this tendency is more common among rich students.
- The largest gaps among all participating countries can be found in Colombia and Peru, where 55% of rich students demonstrate better social skills than predicted by their academic performance. Around 41% of poor students demonstrate better social skills.
- In Mexico and Brazil, 56% and 53% of rich students demonstrate better social skills, while 45% and 47% of poor students do the same.

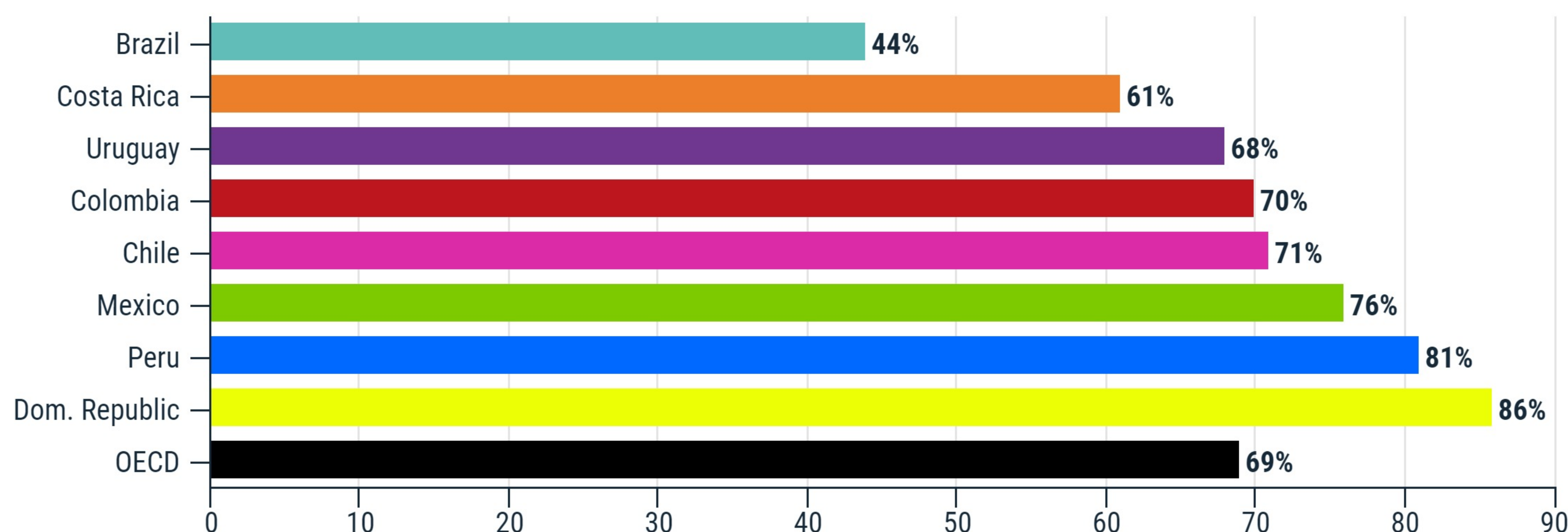
Students who don't feel lonely and perceive that teachers discipline fairly have better social skills

- After accounting for socioeconomic status of students and schools, students who don't feel lonely at school perform better in collaborative problem-solving than their peers in every country in the region. The difference is greater in every country in the region than in the average OECD country.
- After accounting for socioeconomic status, students who perceive that their teachers fairly distribute discipline perform significantly better in collaborative problem-solving than their peers. This difference is larger in the average OECD country than in any country in the region.
- Chile has the highest percentage of students who believe teachers discipline fairly (24%), while Costa Rica has the lowest percentage (6%). All countries in the region remain below the OECD average (25%).

Class collaboration and physical activity are associated with better performance and positive attitudes

- Students granted the opportunity to explain their ideas in most of their classes more highly value teamwork than their counterparts who do not have the same opportunities to do so in every country in the region except Brazil.
- In Mexico, Chile, the Dominican Republic, and Costa Rica, the difference in the valuing of teamwork is even greater than in the average country in the OECD.
- In Mexico, Colombia, Peru, and Uruguay, students who participate in moderate physical activity at least five times per week perform better than their peers who participate in no moderate physical activity.
- On average in the region, students engage in moderate physical activity 4.1 days per week (4.9 in the OECD, defined as walking, climbing stairs, or riding a bicycle to school for at least 60 minutes).

% OF STUDENTS GIVEN THE OPPORTUNITY TO EXPLAIN THEIR IDEAS IN CLASS, PISA 2015



Source: PISA 2015 Results, Volume 5, Table V.6.14a.

The Information Center for Improvement in Learning (CIMA, for its acronym in Spanish) of the Education Division of the Inter-American Development Bank seeks to promote the use of data and indicators in evidence-based decision-making when developing education policy, with the goal of providing a quality education for all. With this objective, CIMA publishes a series of briefs that analyze indicators that contribute to the improvement of education quality in the region.

Web: www.iadb.org/pisa | www.iadb.org/cima | www.iadb.org/pridi | Twitter: @BIDEducacion

Contact: education@iadb.org

References: UNESCO Institute of Statistics (2017). PRIDI (2012). CIMA (2017).



Copyright © 2017 Inter-American Development Bank. This work is licensed under a Creative Commons IGO 3.0 Attribution-NonCommercial-NoDerivatives (CC-IGO BY-NC-ND 3.0 IGO) license (<http://creativecommons.org/licenses/by-nc-nd/3.0/igo/legalcode>) and may be reproduced with attribution to the IDB and for any non-commercial purpose. No derivative work is allowed.

Any dispute related to the use of the works of the IDB that cannot be settled amicably shall be submitted to arbitration pursuant to the UNCITRAL rules. The use of the IDB's name for any purpose other than for attribution, and the use of IDB's logo, shall be subject to a separate written license agreement between the IDB and the user and is not authorized as part of this CC-IGO license. Note that the link provided above includes additional terms and conditions of the license.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank, its Board of Directors, or the countries they represent.