



centro de información para la mejora de los aprendizajes

# CIMA

Latin America and the Caribbean

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## HOW ADEQUATE AND EQUITABLE IS SCHOOL INFRASTRUCTURE?

Learning spaces in the schools Latin American children and youth attend are inadequate and distributed unequally, disadvantaging the poorest students and those who attend rural schools.

### Not all students attend schools with sufficient infrastructure

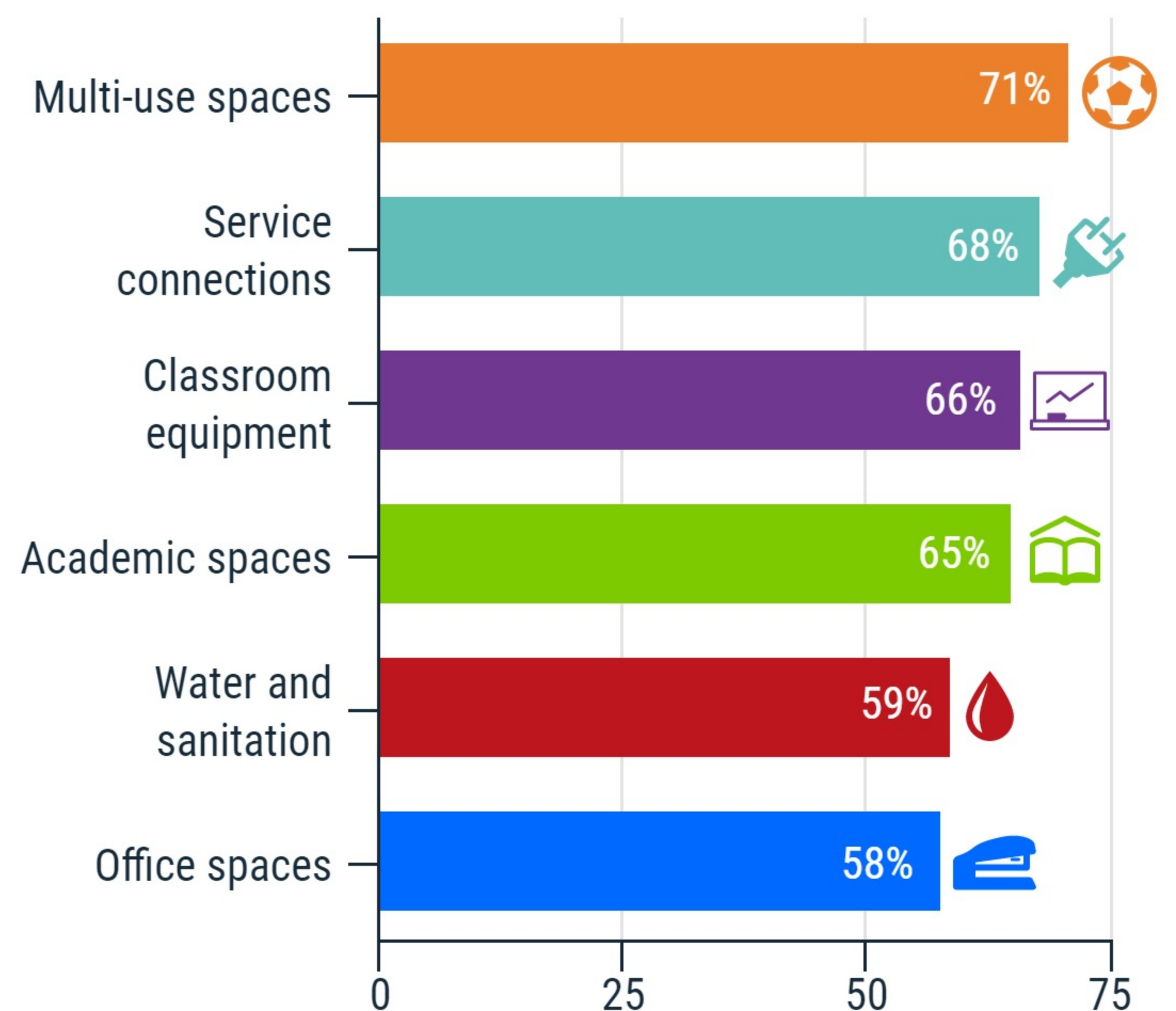
- Almost 60% of students attend schools with sufficient access to water and sanitation and an adequate number of administrative offices.
- Around 65% of students have adequately furnished classrooms or attend schools that have at least one academic space in addition to classrooms (i.e., library, science labs, etc.).
- Two out of every three students attend schools with service connections (i.e., electricity or telephone) or attend schools that have at least some type of multi-use space (i.e., gymnasium, auditorium, or sports court or field).

### What is TERCE?

- The Third Regional Comparative and Explanatory Study (TERCE, for its acronym in Spanish) took place in 2013 and evaluated the language, mathematics, and science performance of students in basic education in 15 countries in Latin America and the Caribbean. The present study analyzes the responses of students and their families to questions regarding their socioeconomic status and the responses of school principals regarding the socioeconomic status of their schools.

<sup>1</sup> This brief summarizes the key results of the study by Duarte, Jaureguiberry, and Racimo (2017) entitled *Suficiencia, equidad y efectividad de la infraestructura escolar en América Latina según el TERCE*. The analysis focuses on students in third grade, but comes to similar conclusions for students in sixth grade. The publication can be found in the "CIMA Products" section of the CIMA portal or at <https://tinyurl.com/duartejaureguiberry>.

### % OF STUDENTS IN SCHOOLS WITH ADEQUATE INFRASTRUCTURE



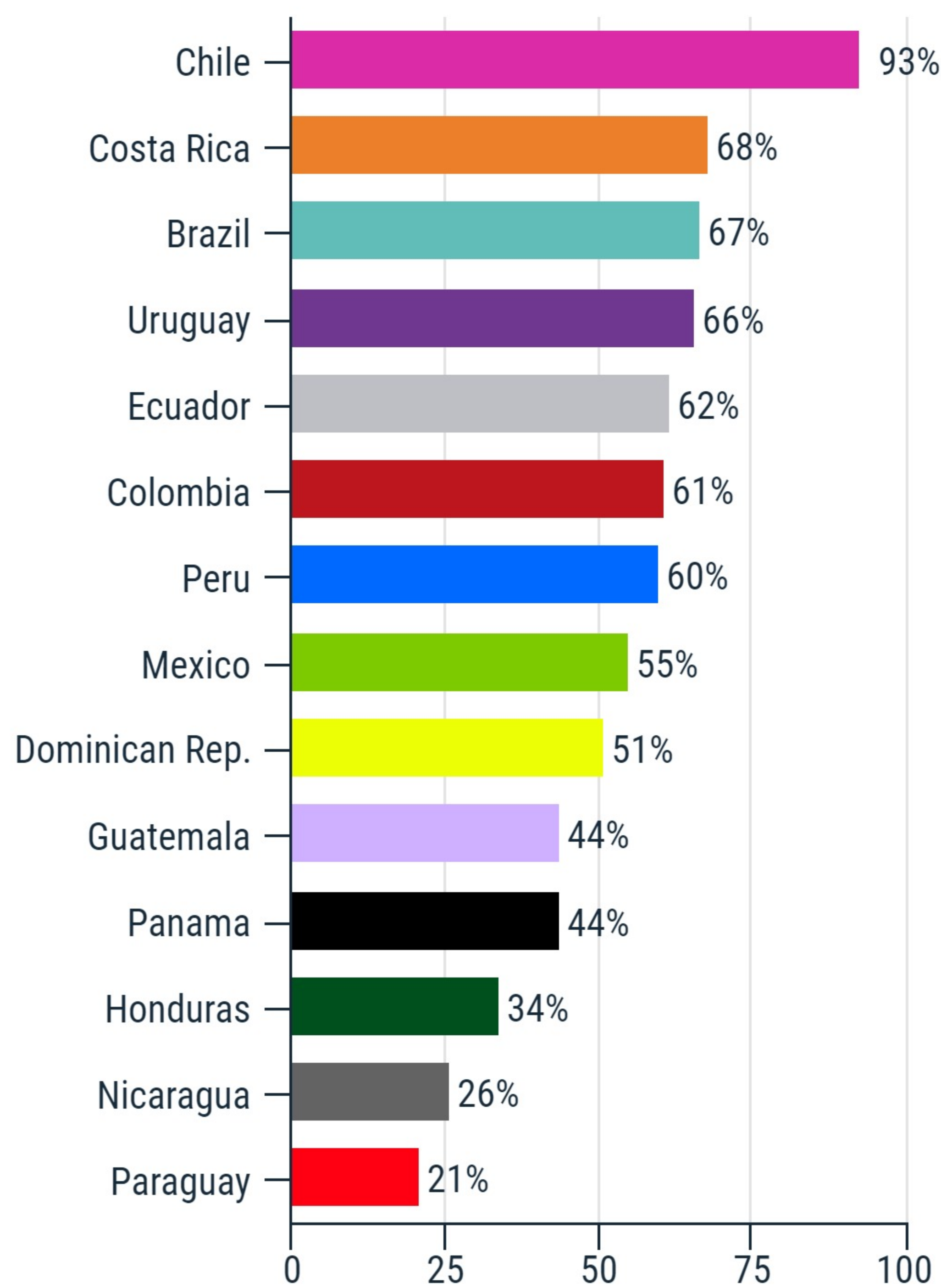
Source: CIMA, IADB, 2017.

Note: The data presented are averages of the countries that participated in TERCE 2013.

### How do we define sufficient infrastructure?

- WATER AND SANITATION:** Potable water, drainage or sewage, bathrooms in good condition, and garbage collection
- SERVICE CONNECTIONS:** Electricity and telephone
- ACADEMIC SPACES:** Library
- OFFICE SPACES:** Office for the principal and an administrative office
- MULTI-USE SPACES:** At least one multi-use space (gymnasium, auditorium, or sports court or field)
- CLASSROOM EQUIPMENT:** Classrooms with chairs and desks for students and teachers in addition to chalk or markers

## % OF STUDENTS IN SCHOOLS WITH WATER AND SANITATION



Source: CIMA, IADB, 2018.

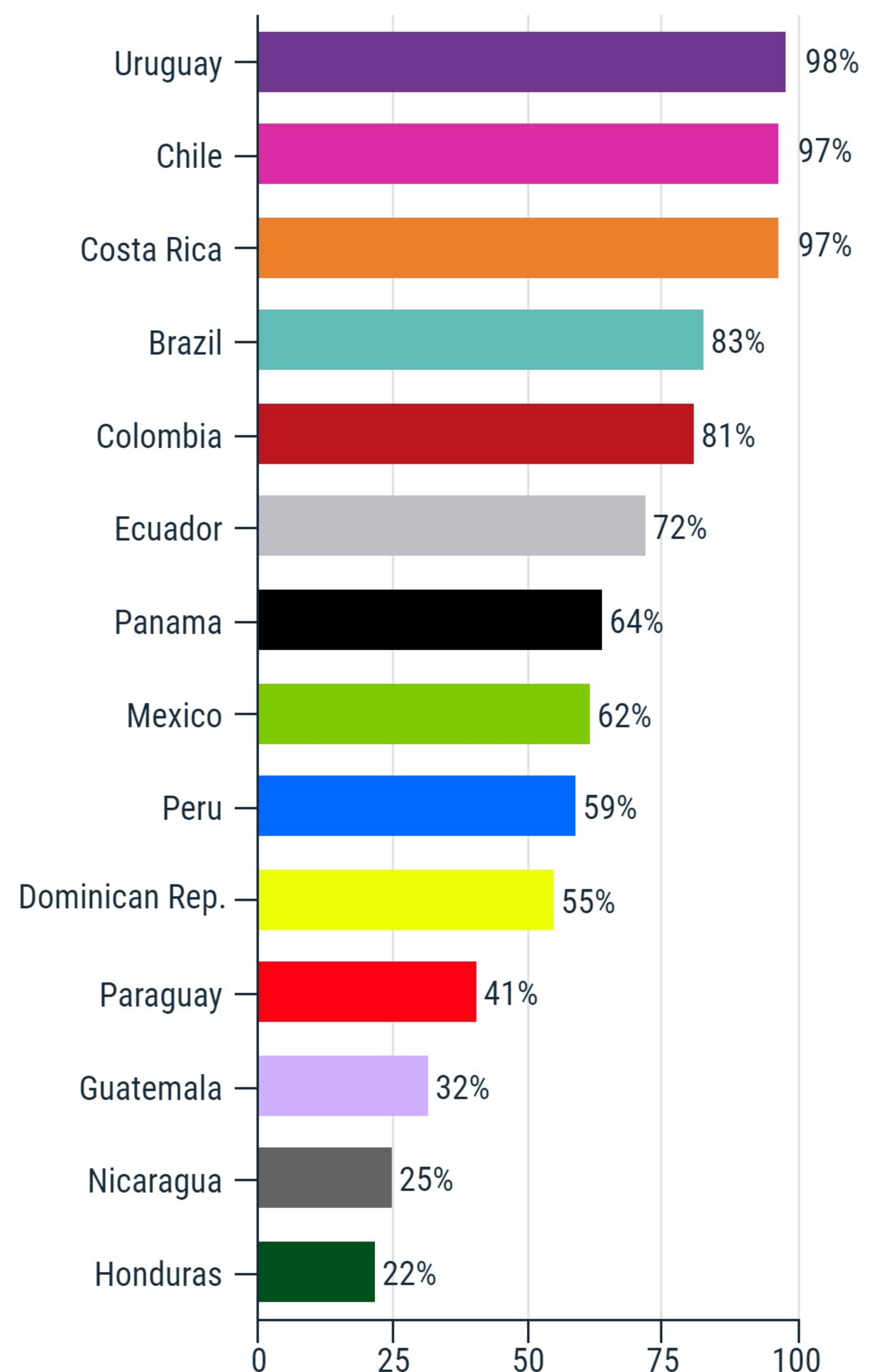
### The level of access to sufficient infrastructure cannot be explained by a country's wealth

- Countries with the same per-capita income, like Panama and Uruguay, vary greatly in the access their students have to both adequate water and sanitation (44% vs. 66%) and service connections (64% vs. 98%). Those differences are exacerbated when comparing Panama and Uruguay to Chile, which only has a slightly higher per-capita income yet offers 93% and 97% of its students, respectively, with access to adequate infrastructure.
- Colombia (81%), Ecuador (72%), and Peru (60%), with per-capita incomes of approximately \$12,000, vary widely in the access their students have to service connections. Colombia and the Dominican Republic have similar per-capita GDP, yet the percentage of Colombian students with access to service connections tops the percentage in the Dominican Republic by almost 26 percentage points (and 10 percentage points in water and sanitation).

## Central America is the region with the most challenges in basic infrastructure

- The averages hide important regional variation between countries regarding the percentage of students with access to sufficient infrastructure.
- Students in the Southern Cone countries (except Paraguay) have greater access to sufficient infrastructure. Chile, Brazil, and Uruguay are among the four countries with the highest percentages of students in schools with adequate access to water and sanitation and service connections.
- In Paraguay, Guatemala, Honduras, and Nicaragua, more than half of all students do not have access to schools with either water and sanitation or adequate service connections.

## % OF STUDENTS IN SCHOOLS WITH SERVICE CONNECTIONS

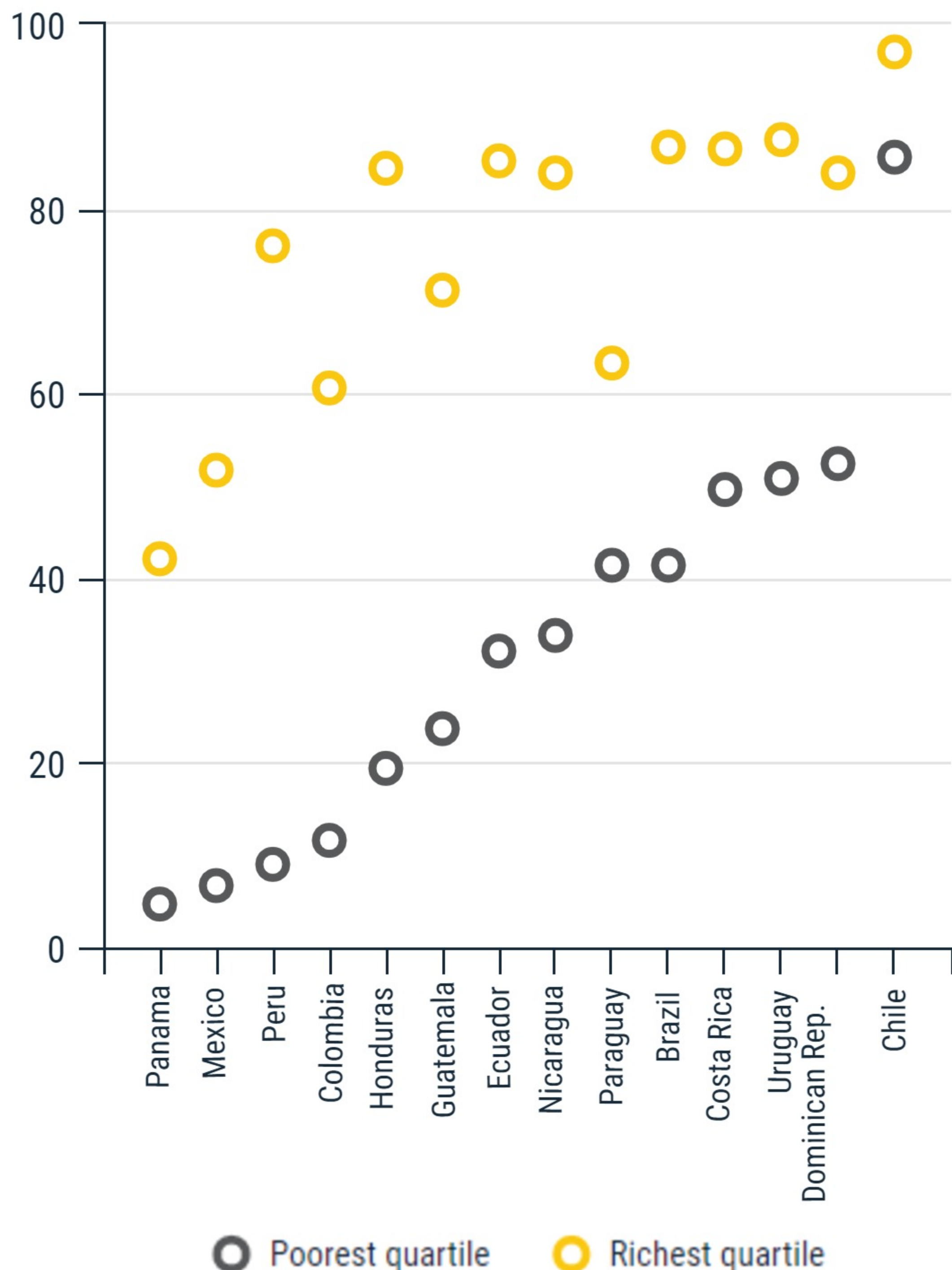


Source: CIMA, IADB, 2018.

## The poorest students attend schools with weak infrastructure in service connections and water and sanitation

- The largest gap in access exists in service connections, with a difference of more than 51 percentage points. 92% of the richest students have access to schools with adequate electricity and telephone access, while only 40% of the poorest students have similar access.
- 82% of the richest students attend schools with adequate water and sanitation, while only one in three of the poorest students do so.
- 78% of the richest students attend schools with a sufficient number of academic spaces; this rate declines to 56% for the poorest students.
- 51% of the poorest students study in adequately equipped classrooms compared to 78% of the richest students.

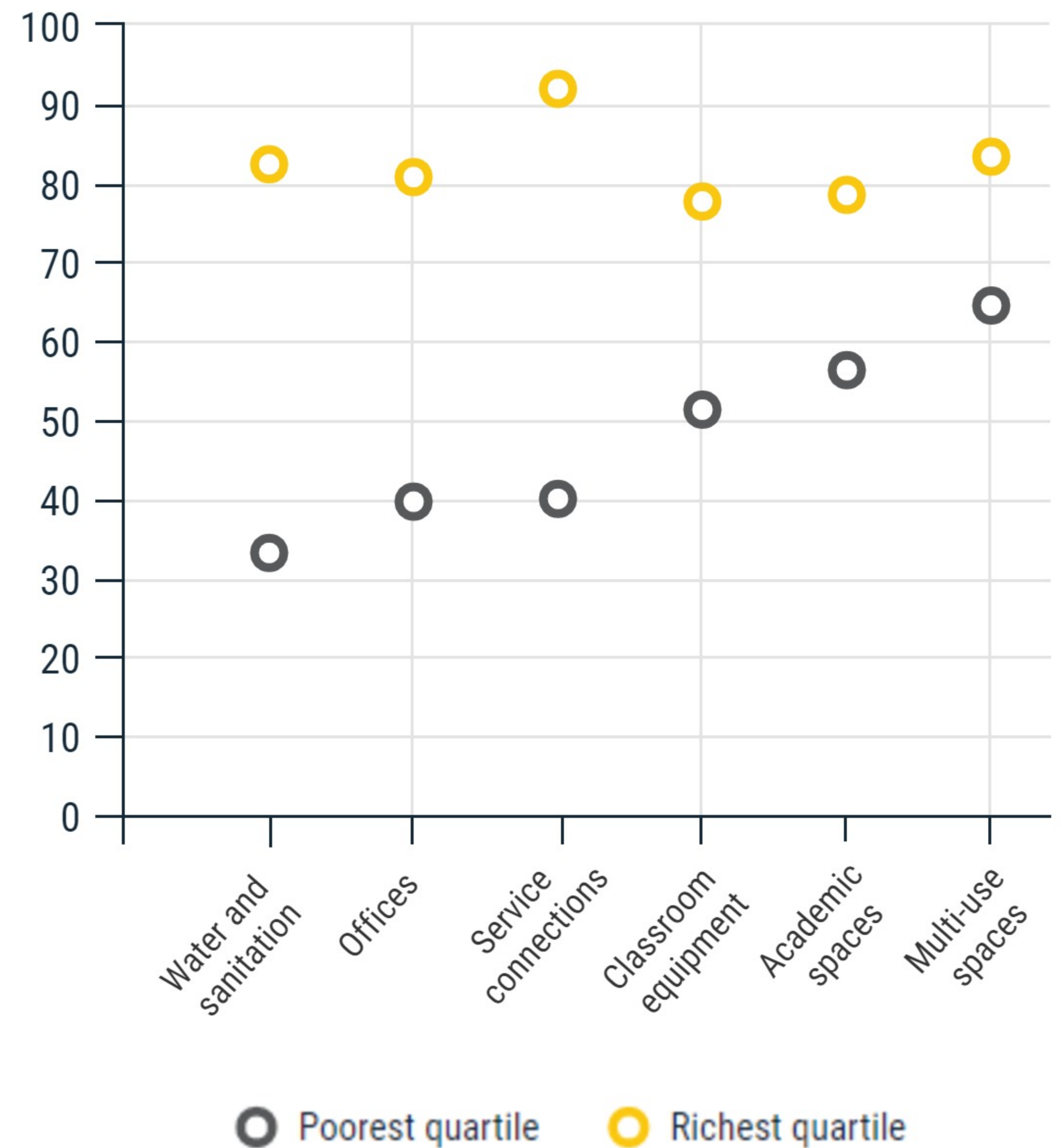
## SOCIOECONOMIC GAP: WATER AND SANITATION



Source: CIMA, IADB, 2018.

Note: This graph refers to the percentage of students in schools with sufficient infrastructure.

## SUFFICIENT INFRASTRUCTURE BY SOCIOECONOMIC STATUS



Source: CIMA, IADB, 2018.

Note: This graph refers to the percentage of students in schools with sufficient infrastructure. Data are averages of the countries that participated in TERCE 2013.

## All countries except Chile are unable to provide adequate infrastructure to all socioeconomic groups

- Chile stands out for having the least inequity in the region and adequate infrastructure for all. It is the only country in which access to infrastructure for the poorest students tops 86%. In other countries, access for the poorest students fluctuates between 4.7% and 52%.
- In Paraguay, Nicaragua, and Panama, fewer than 10% of the poorest students have access to adequate water and sanitation.
- Although the access gap between the richest and poorest students in the Dominican Republic is one of the smallest, the level of access is relatively low for everyone.
- In Uruguay, the differences are also less pronounced.
- In Peru, Mexico, and Panama, access is very inequitable. In the case of potable water and sanitation, the gaps are as large as 53, 65, and 67 percentage points, respectively, with 32%, 19%, and 9% of the poorest students having said access, respectively.

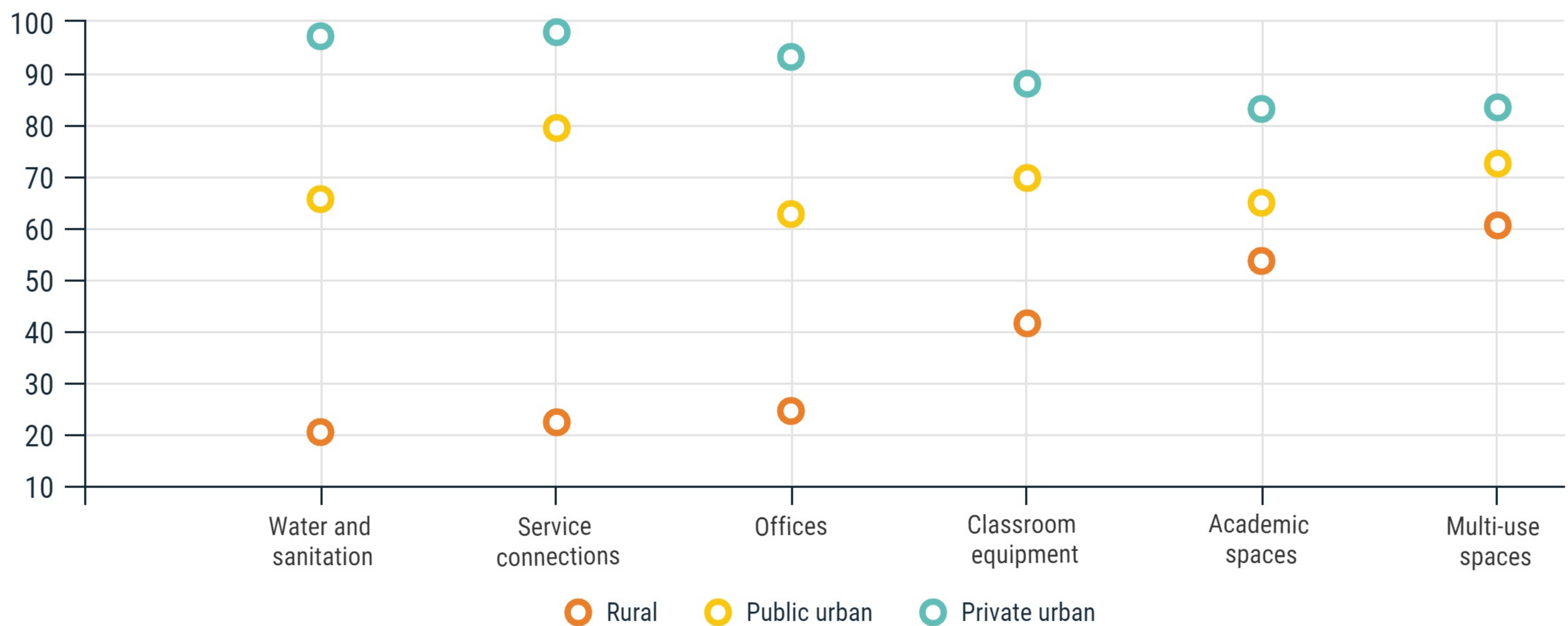
## Access to adequate school infrastructure is worse in rural and better in private urban schools

- 20% of the students in rural schools have sufficient access to potable water and sanitation.
- Less than half (41%) of students attend schools with sufficiently-equipped classrooms, and only one in every five students attends a school with adequate electricity or a telephone connection.
- Half of students are in schools with adequate academic spaces and a fourth are in schools with inadequate administrative spaces.
- The most important gaps in access exist in relation to basic services, like water or electricity.

## Infrastructure in rural schools is lacking, though it varies between countries

- Chile has gaps smaller than 10 percentage points in three of the six categories (and fewer than 20 points in access to multi-use spaces). Ecuador has gaps smaller than 15 points in four categories. Colombia and Uruguay have gaps smaller than 20 percentage points in two categories.
- The rural access gap is largest in service connections; examples include Guatemala, Mexico, Peru, Panama, and Paraguay.
- The geographic gap is smallest when considering access to academic spaces and multi-use spaces.

### SUFFICIENT INFRASTRUCTURE BY GEOGRAPHIC AREA



Source: CIMA, IADB, 2018.

Note: This graph refers to the percentage of students in schools with sufficient infrastructure.

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References: TERCE (2013). CIMA (2018).



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