

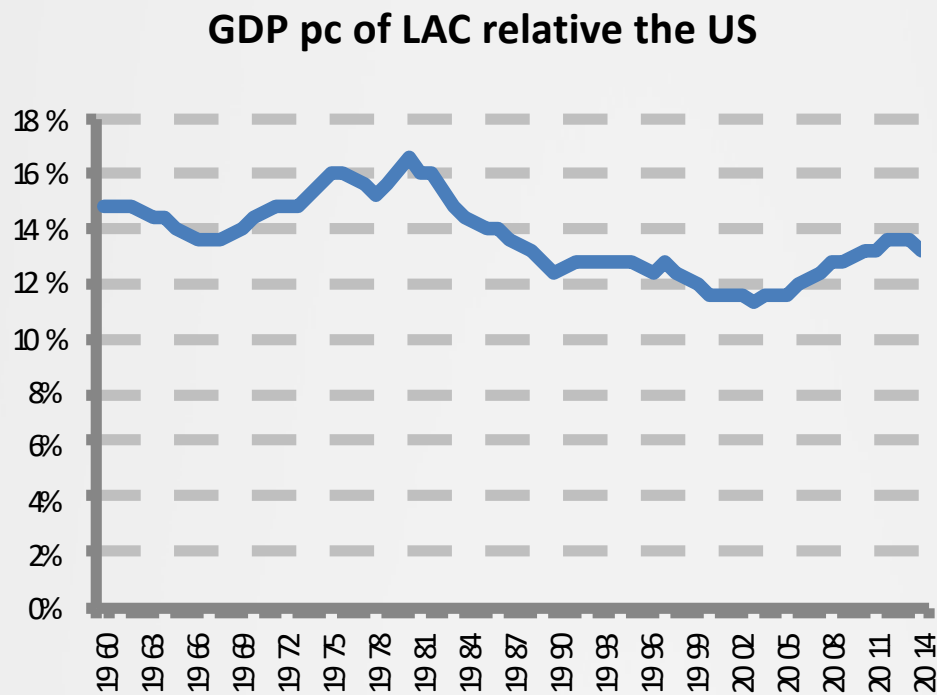
Gender gaps in Science, Technology and Innovation in Latin America and the Caribbean



Charlotte Guillard
Strasbourg University and UNU-MERIT

Gender Summit 15 – Europe, London
June, 18th 2018

Development challenge in LAC



Source: World Bank

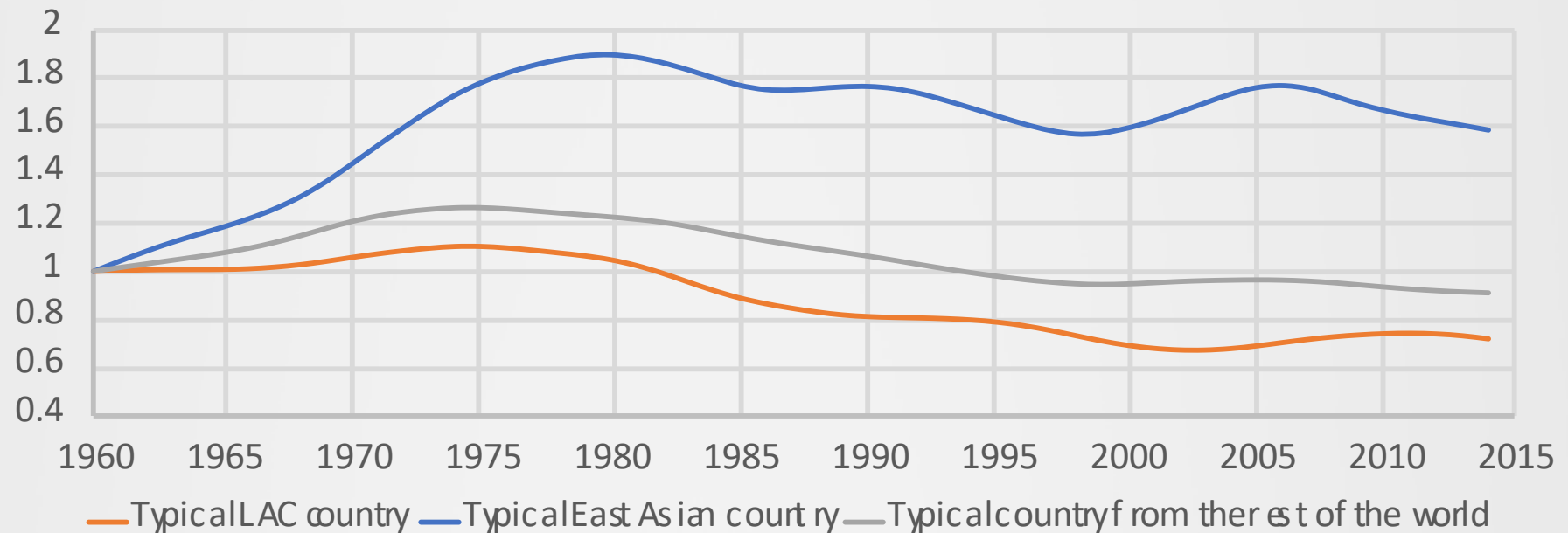
Today it is
of 13.2%

GDP pc relative
to the US was
of 14.8% in
1960.

The difference is bigger than in 1960!

What is the problem?

Productivity index relative to the US (1960=1)



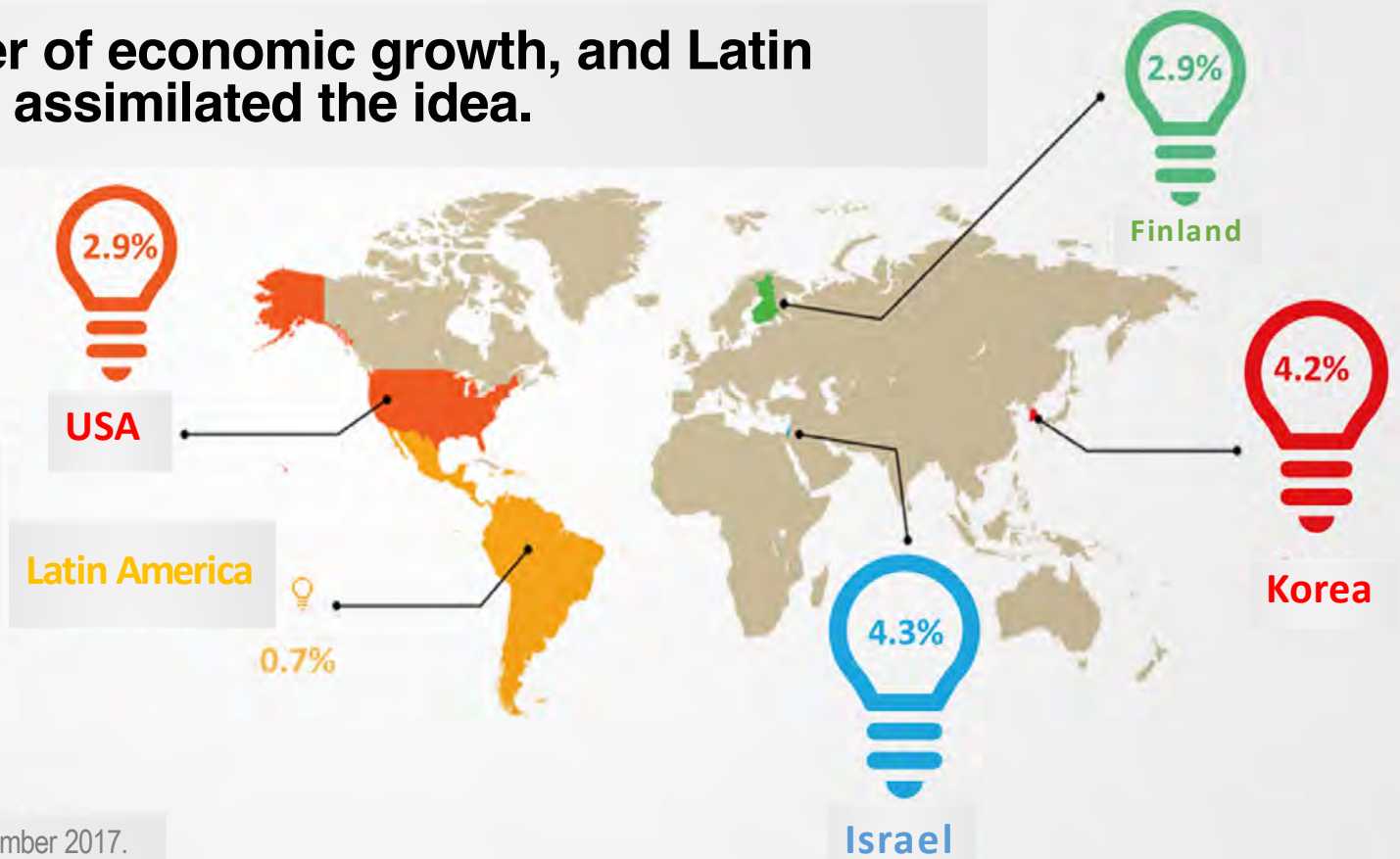
Source: Fernandez-Arias (2014)

Low productivity!

Development challenge in LAC

Innovation is a driver of economic growth, and Latin America has not yet assimilated the idea.

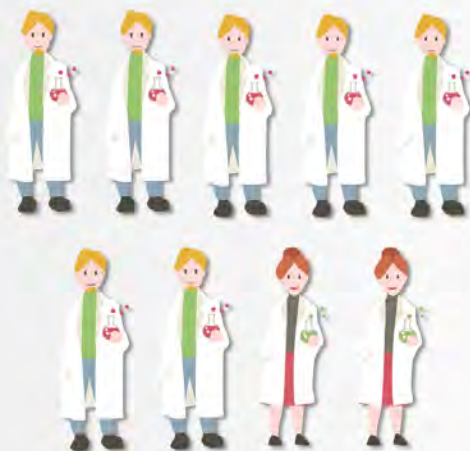
Spending in innovation and development as a percentage of GDP



Source: RICYT and MISTI, accessed on November 2017.

Researchers for every 1000 members of the labor force (2014)

USA



8.6

1.97 women

OECD



7.63

2.6 women

LAC



1.6

0.71 women

Source: RICYT and MISTI, accessed on November 2017.

IDB Project



Project 30 months
(Sept. 2015- March 2018)

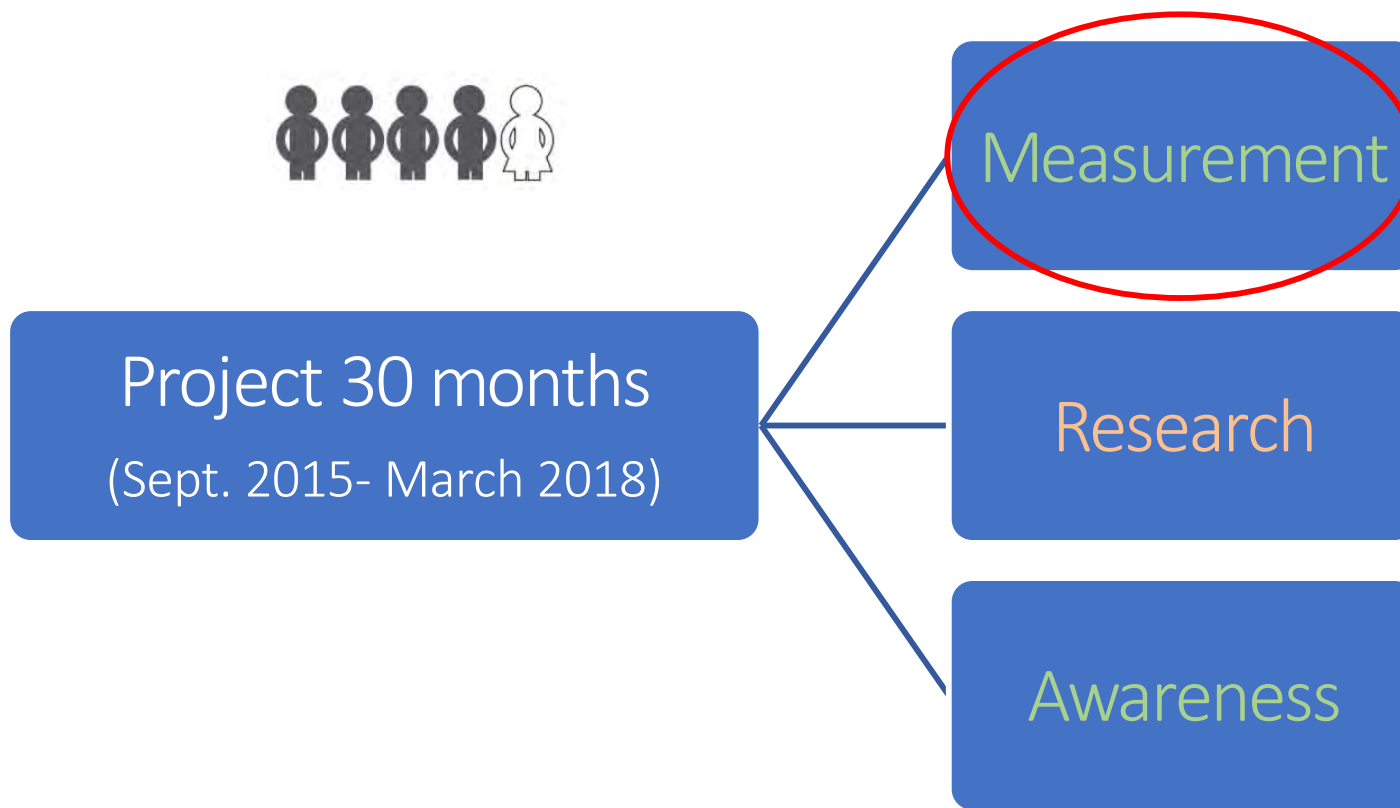
Measurement

Research

Awareness



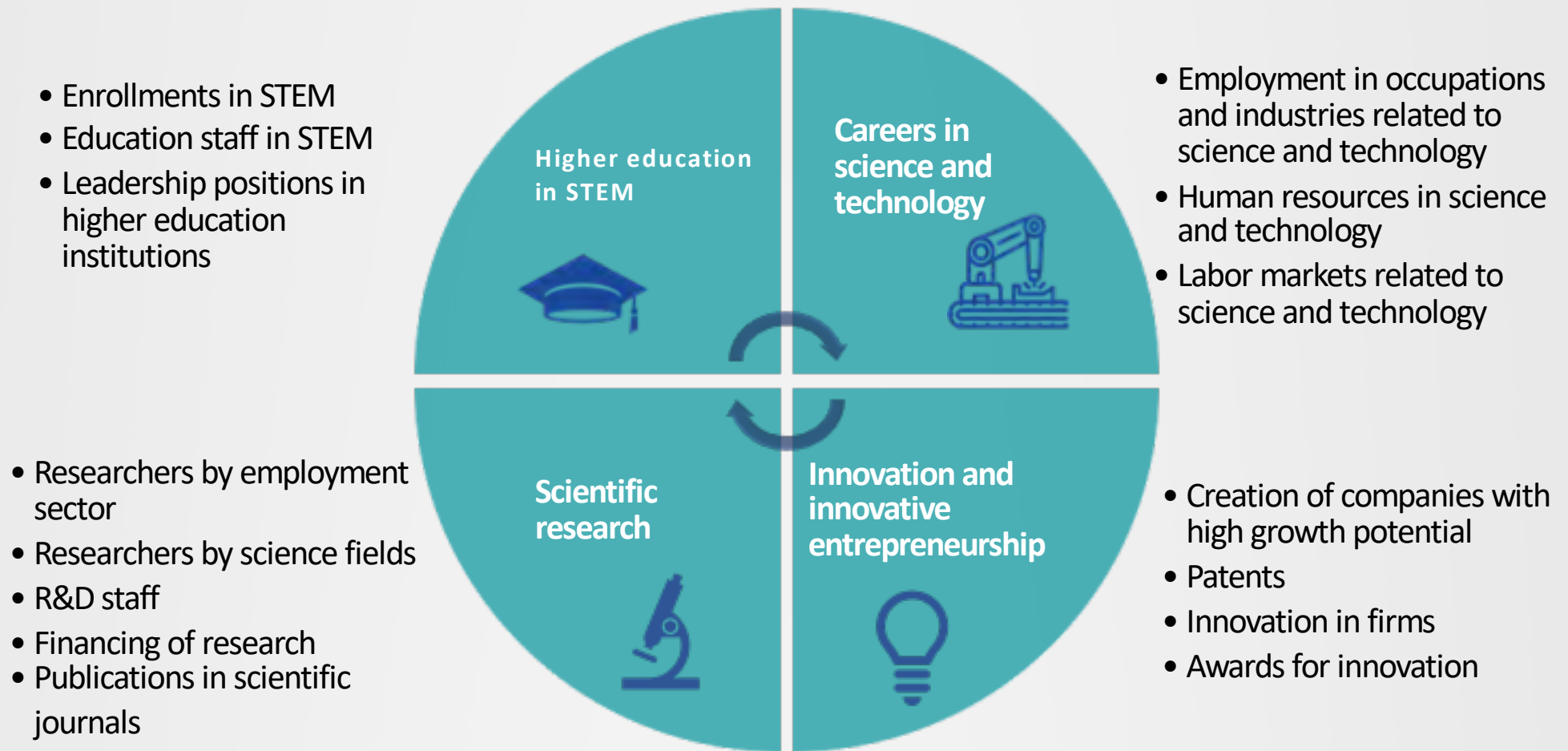
IDB Project



Measurement component

- ▶ Initial review and assessment of best practices (in LAC and other regions) → Conceptual framework
- ▶ Questionnaire on data availability sent to LAC region countries
- ▶ Based on results, pilot data collection in Chile, Colombia, Mexico and Panama.

Conceptual framework and indicators to measure the gender gap in STI

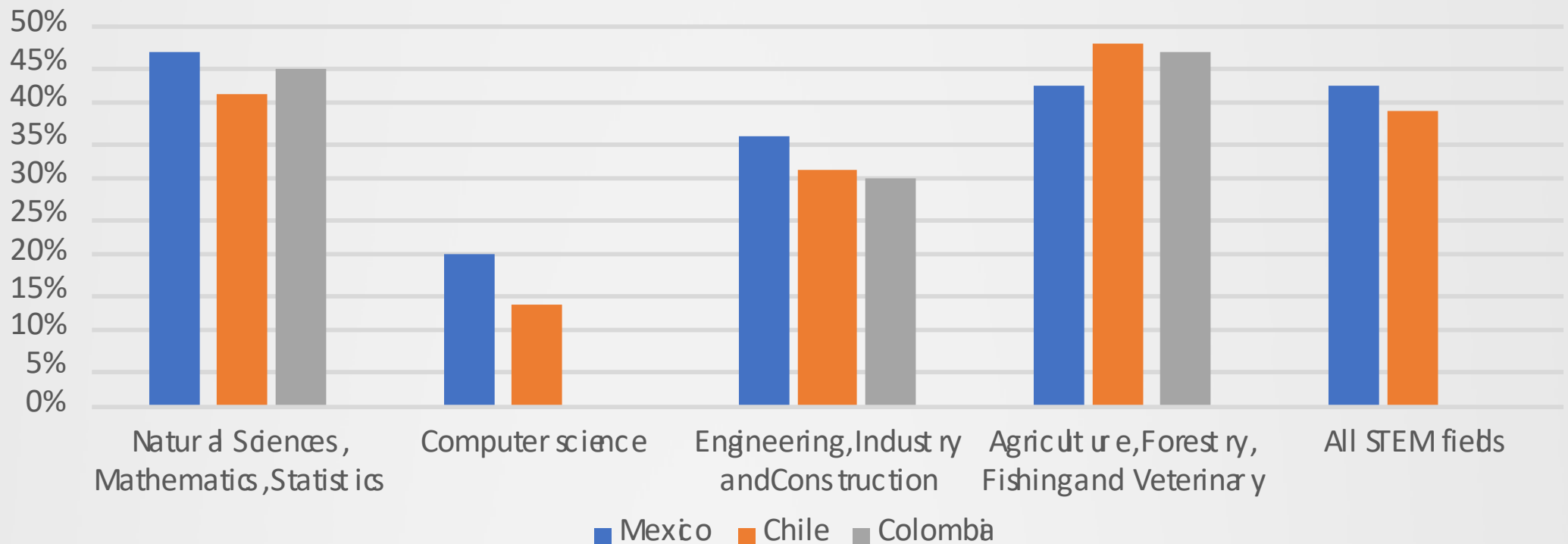


Some results



Higher education in STEM

Share of women enrolled in STEM fields at PhD level, 2015



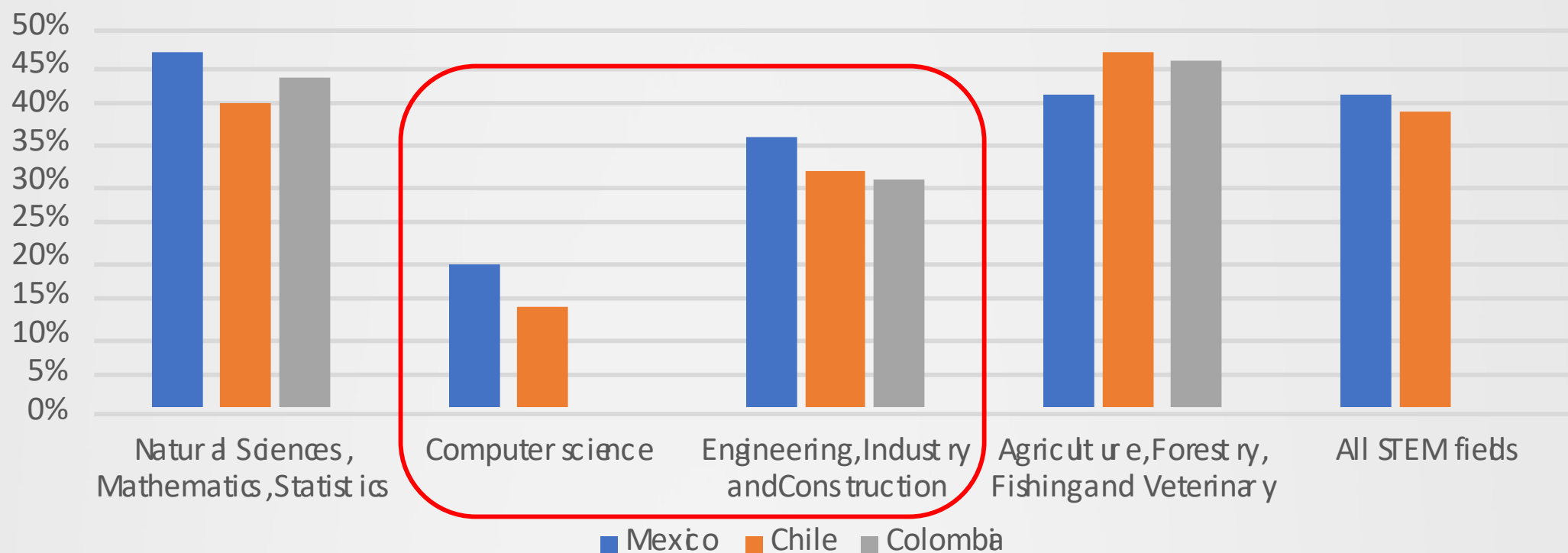
Source: IDB pilot collection based on national data, December 2017.

Note: For Colombia, the category "engineering" includes computer science.



Higher education in STEM

Share of women enrolled in STEM fields at PhD level, 2015



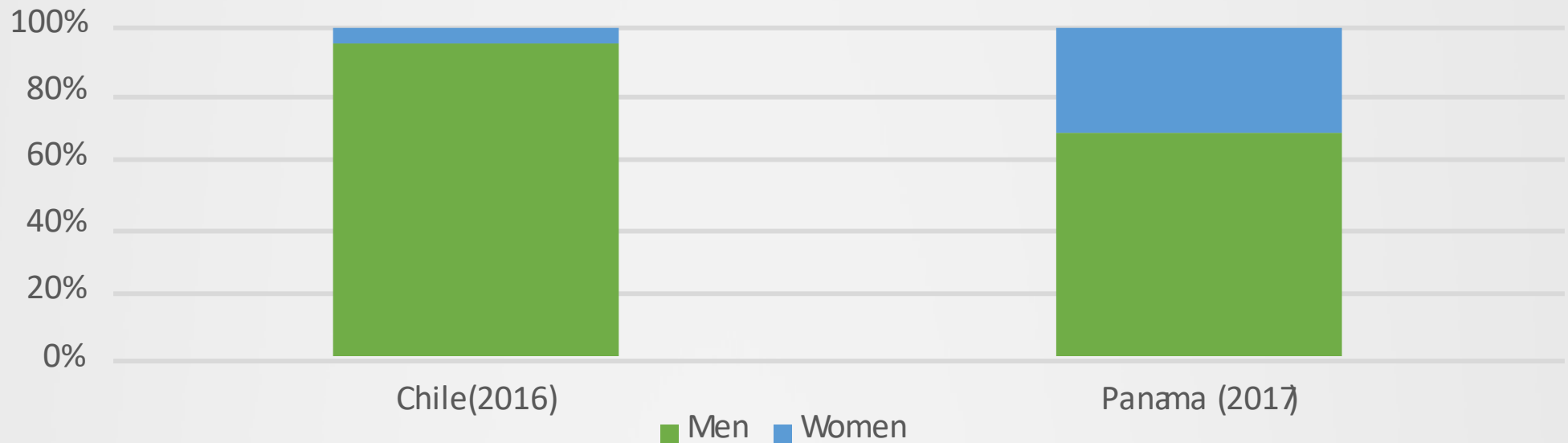
Source: IDB pilot collection based on national data, December 2017.

Note: For Colombia, the category "engineering" includes computer science.



Glass ceiling effect in higher education in STEM

Distribution by sex of the leadership positions in universities

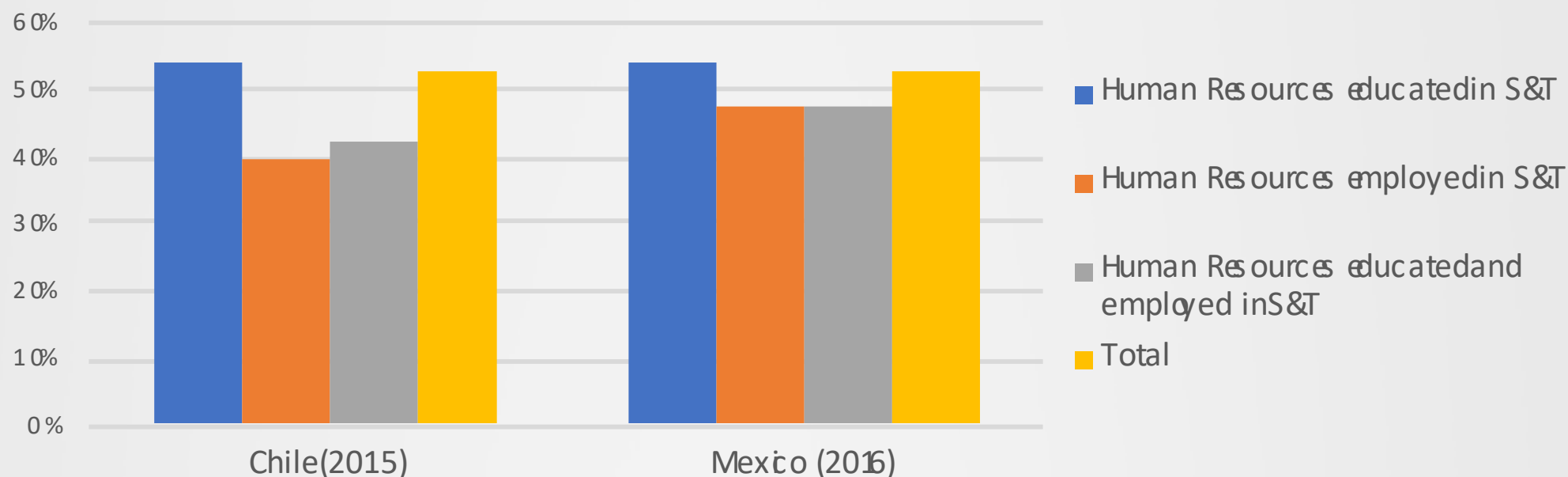


Source: IDB pilot collection based on national data, December 2017.
Note: For Chile the data covers 58 universities and for Panama 43.



Careers in Science and Technology

Share of women in human resources in Science and Technology

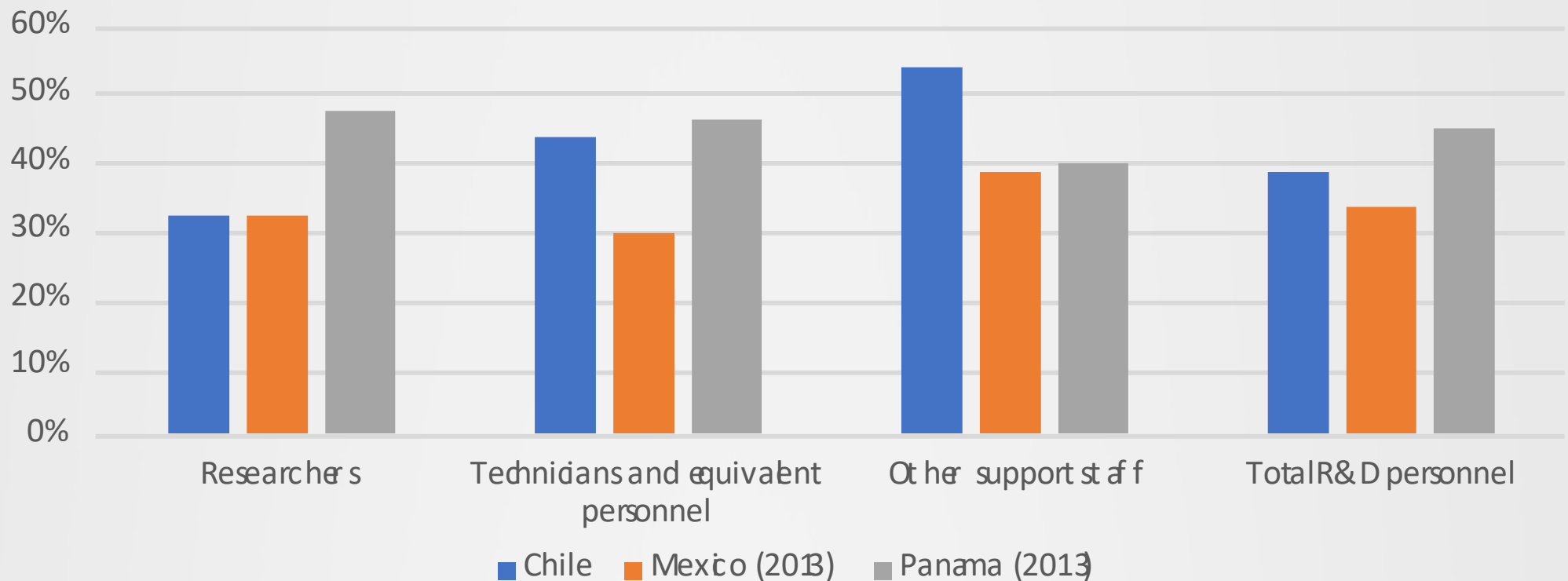


Source: IDB pilot collection based on national data, December 2017.



Scientific research

Share of women in R&D personnel by category, 2015

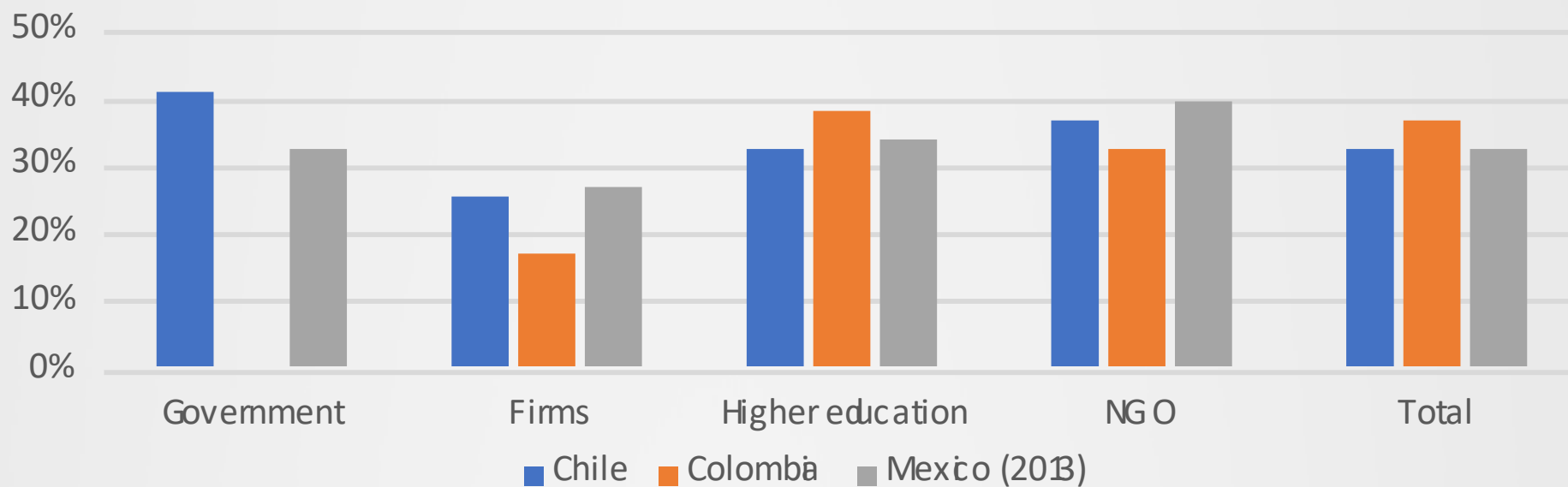


Source: IDB pilot collection based on national data, December 2017.



Scientific research

Share of women researchers by sector of employment,
2015



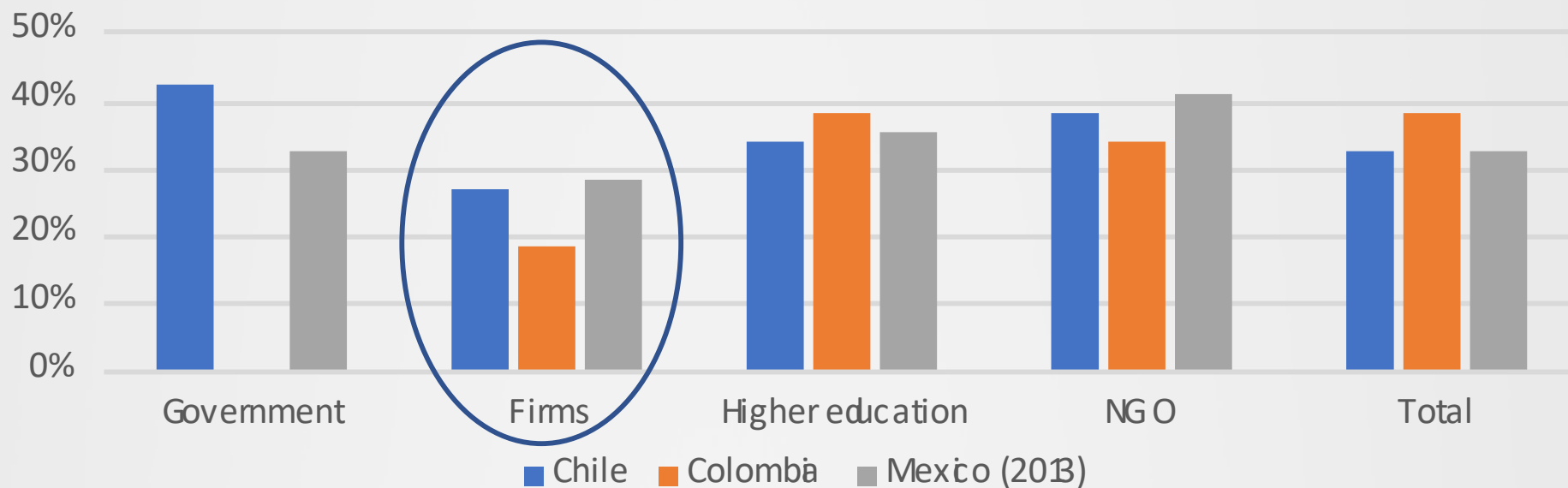
Source: IDB pilot collection based on national data, December 2017.

Note: No data was included for the government sector in Colombia since the number of researchers is minimal.



Little representation in the private sector

Share of women researchers by sector of employment,
2015



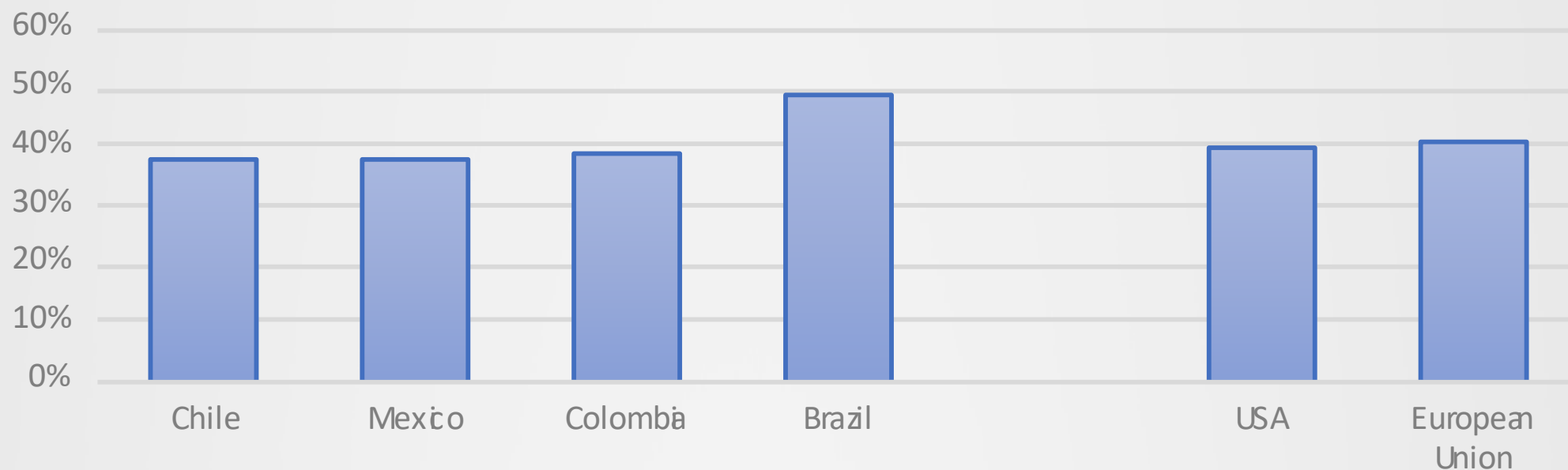
Source: IDB pilot collection based on national data, December 2017.

Note: No data was included for the government sector in Colombia since the number of researchers is minimal.



Scientific research

Proportion of women among named gendered author profiles, 2011-15

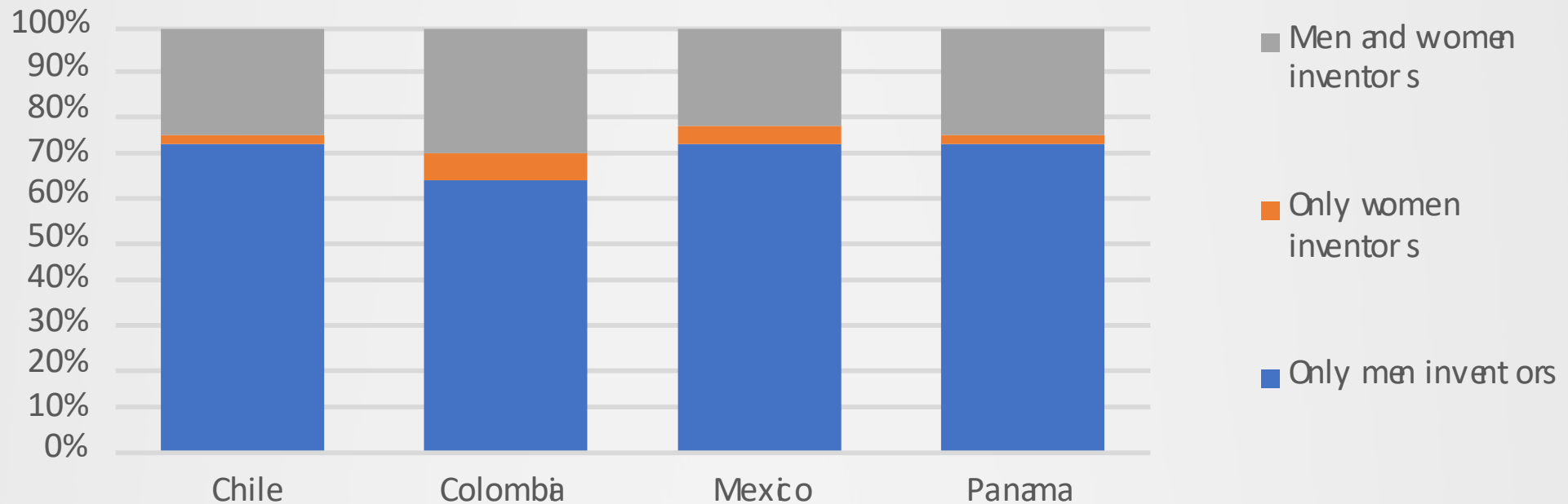


Source: Elsevier, 2017



Innovation and innovative entrepreneurship

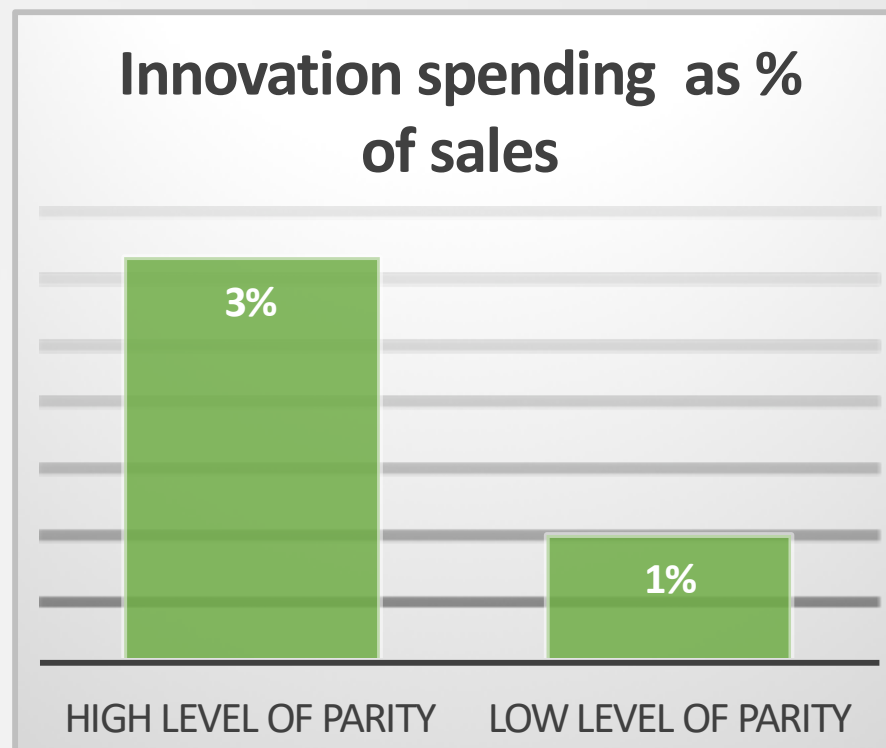
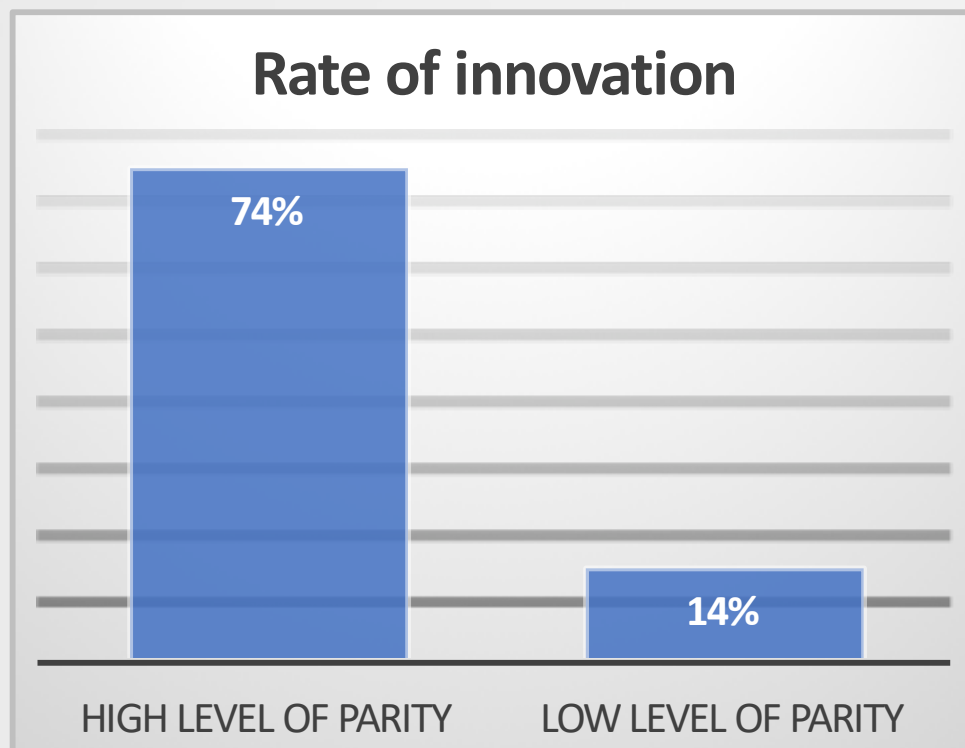
Patent applications by sex of inventor, 2010-2016



Source: WIPO, 2017



Innovation efforts and gender parity in Colombia



Source: IDB pilot collection based on national data, December 2017.

Notes: The innovation rate refers to the percentage of companies that reported product / process innovations in the Manufacturing

Technological Development and Innovation Surveys (EDIT VII) and services (EDITS V). A high level of parity corresponds to those companies in which women represent between 40% and 60% of the labor force with tertiary education level and a low parity level corresponds to a labor force composed of less than 40 % or more than 60% of women.

Some preliminary conclusions

- ▶ Although some indicators show some progress, a **consistent gap** is maintained, especially in some areas (computer science, engineering).
- ▶ There are also **barriers to occupational progression** ("glass ceiling", "leaking pipeline").
- ▶ Finally, there are **barriers to transition to employment** and, in general, to employment in the private sector.

On the data collection exercise

- Challenge to get indicators due to the current design of the surveys and other instruments of data collection of STI.
- Institutional barriers: coordination among multiple agencies, gender issues are not a priority, or even absent in some cases.
- A work of harmonization and formalization is needed: the importance of following international guidelines, the role of the RICYT and other regional / international organizations.
- Need to integrate the gender dimension in indicators for development, and monitoring of better public policies in STI.

Download the new IDB
document on gender gaps
indicators in Science,
technology and innovation
in LAC



<https://publications.iadb.org/handle/11319/8863?locale-attribute=es&locale-attribute=en&locale-attribute=es&>

New empirical evidence on the costs of gender gaps in STI in Latin America



To conclude

- Female researchers tend to face **barriers to promotion** (glass ceiling). Addressing these biases is fundamental: women could be as or more productive than their male counterparts.
- Great opportunity to **improve the performance in STI** in the region. But it is important:
 - ▶ Generate more robust evidence for decision making.
 - ▶ Procure a good design and implementation of public policies.



Next steps

- ▶ Support the dialogue with national agencies and the RICYT to expand the scope of the pilot (countries + indicators)
- ▶ Promote efforts to develop indicators that allow examining other dimensions such as:
 - innovative entrepreneurship;
 - women in leadership positions (universities, science academies, S&T support agencies);
 - gender as a subject in research



Thank you!

Team of the project:

Matteo Grazzi: matteog@iadb.org

Vladimir López-Bassols: vlopezb@Verizon.net

Charlotte Guillard: charlotte.guillard@gmail.com

Mónica Salazar: monicasal@iadb.org