

CHANGE IN EQUALITY OF OPPORTUNITY IN EDUCATION OVER 20 YEARS OF PISA

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EQUITY & PISA

This project is a response to three broad and interconnected objectives inherent in the relationship between countries' participation in PISA and changes in their levels of socio-economic equity:

- ✓ to understand whether countries have improved their levels of equality of opportunity since they began participating in PISA
- ✓ to use PISA data to evaluate the effect of national educational policies
- ✓ to understand how PISA is perceived by educational stakeholders, particularly in its relationship to socio-economic equity

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2000	2003	2006	2009	2012	2015	2018
Reading	Math	Science	Reading	Math	Science	Reading
31 countries	41 countries	56 countries	64 countries	63 countries	71 countries	78 countries

Since its beginning, PISA has declared the promotion of educational equity among its core values and goals. Systematically, PISA has provided recommendations regarding promoting equity in the participating countries. However, the OECD's approach to measuring and reporting equity has not always been consistent.

In this study, we aggregate the data from PISA rounds to monitor changes in equity. We focus on one specific indicator: **the share of variance in PISA scores that can be explained by the students' Economic, Social, and Cultural Status, also known as R-squared (R²).**

For each and every country, we use the equity values published in the **PISA reports**, the same values that policymakers and stakeholders use in their decisions.

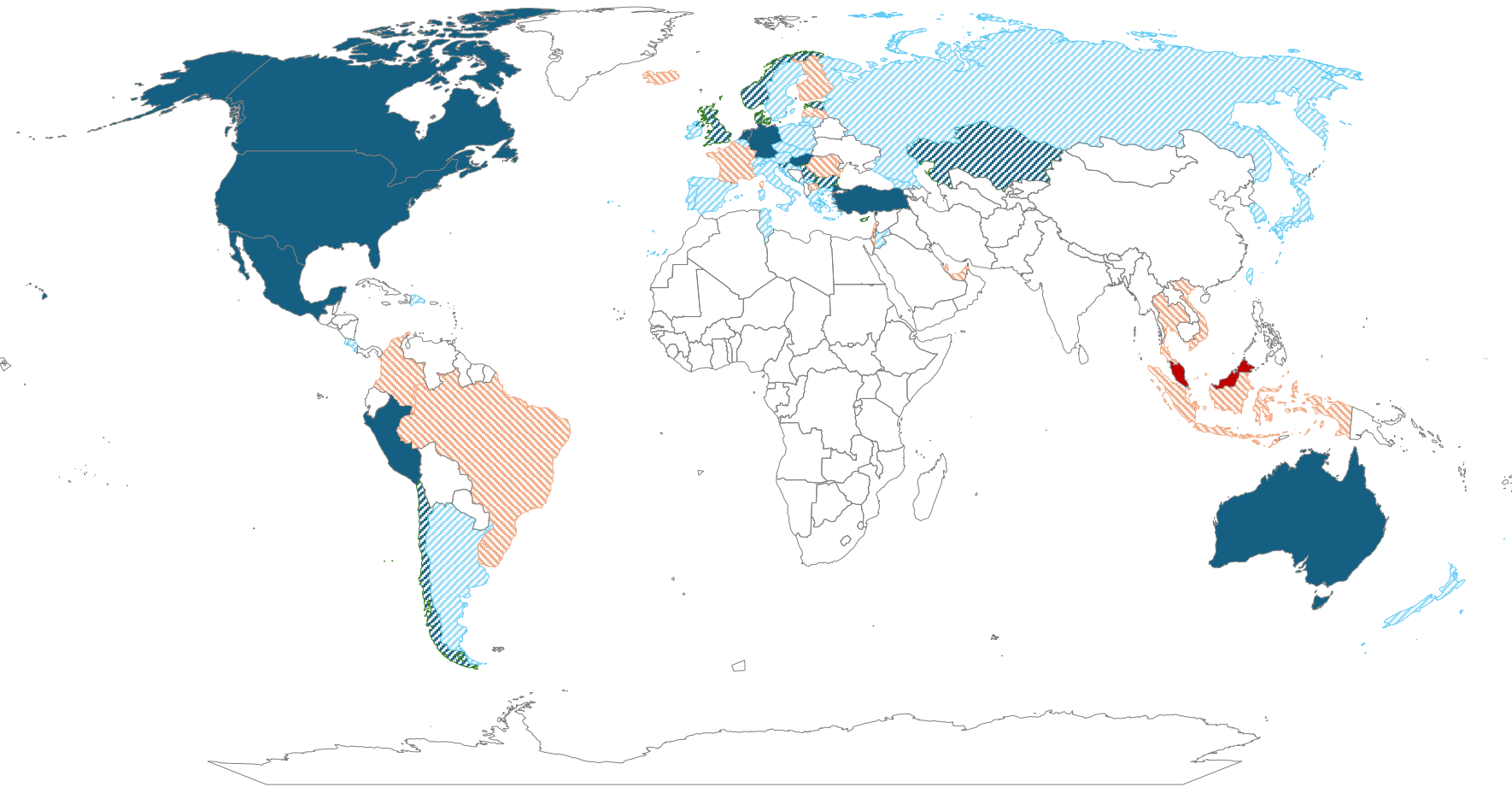
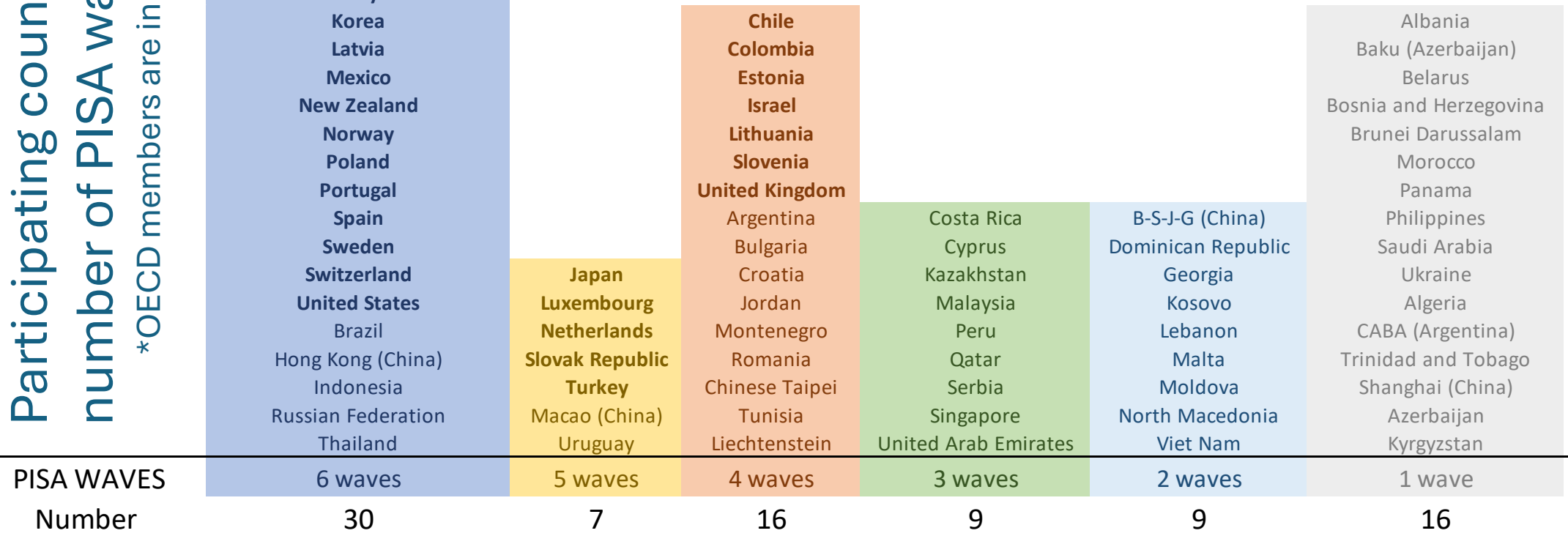
We calculate the trends in equity for each country using **linear regression analysis**, where the years of PISA served as the independent variable, and the observed equity levels acted as the dependent variables. It shows the direction and magnitude of equity trends over time. The B coefficient, also known as the slope, is used to gauge the direction of equity changes over time.

Participating countries and the number of PISA waves

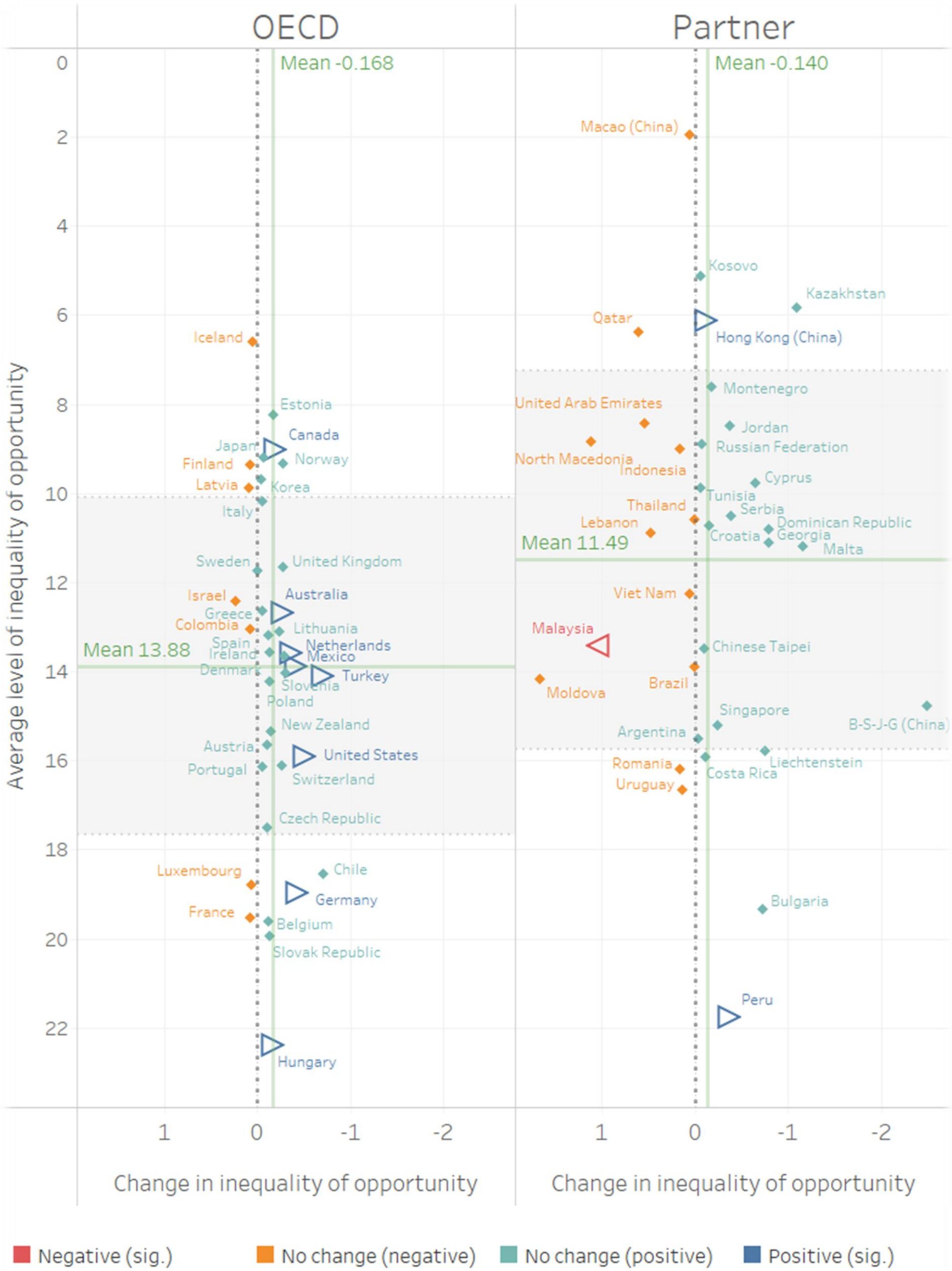
*OECD members are in bold

Data from 87 countries, including 37 OECD members and 50 partners. However, only 71 countries have at least two observation points, needed to build the trend.

And even smaller subset of countries has sufficient observations to calculate the significance of trends and standard errors.

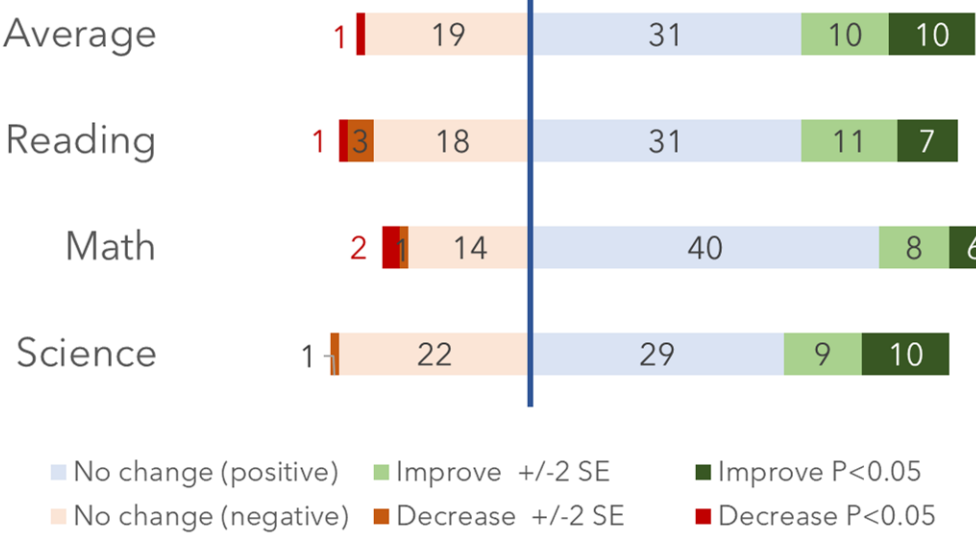


Geography of changes in equity (based on the average of 3 PISA subjects)



Trends in equity – by countries

Country	N	SCIENCE		MATH		READING		AVERAGE	
		Trend	b	Trend	b	Trend	b	Trend	b
OECD average	6	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
Australia	6	-0.2	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.1
Austria	6	-0.1	0.0	-0.1	-0.3	-0.1	-0.1	-0.1	-0.1
Belgium	6	-0.1	-0.1	-0.1	-0.3	-0.1	-0.1	-0.1	-0.1
Canada	6	-0.2	-0.1	-0.1	-0.3	-0.2	-0.2	-0.2	-0.1
Czech Republic	6	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Denmark	6	-0.3	-0.1	-0.1	-0.3	-0.3	-0.3	-0.3	-0.1
Finland	6	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
France	6	0.0	0.0	0.2	-0.1	0.1	0.1	0.1	0.1
Germany	6	-0.4	-0.4	-0.4	-0.5	-0.4	-0.4	-0.4	-0.4
Greece	6	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.1
Hungary	6	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Iceland	6	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Ireland	6	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Italy	6	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Korea	6	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	6	0.0	0.2	0.2	0.0	0.1	0.1	0.1	0.1
Mexico	6	-0.3	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4
New Zealand	6	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
Norway	6	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3
Poland	6	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
Portugal	6	0.0	0.0	0.0	-0.2	-0.1	-0.1	-0.1	-0.1
Spain	6	-0.2	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Sweden	6	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Switzerland	6	-0.3	-0.1	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3
United States	6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Brazil	6	0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
Hong Kong (China)	6	-0.2	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Indonesia	6	0.2	0.3	0.3	0.1	0.2	0.2	0.2	0.2
Russian Federation	6	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
Thailand	6	0.0	-0.1	0.1	0.1	0.0	0.0	0.0	0.0
Japan	5	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Luxembourg	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Netherlands	5	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4	-0.4	-0.4
Slovak Republic	5	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Turkey	5	-0.8	-0.8	-0.8	-0.6	-0.7	-0.7	-0.7	-0.7
Macao (China)	5	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Uruguay	5	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1
Chile	4	-0.8	-0.8	-0.8	-0.5	-0.7	-0.7	-0.7	-0.7
Colombia	4	0.1	-0.1	-0.1	0.3	0.1	0.1	0.1	0.1
Estonia	4	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2
Israel	4	0.1	0.1	0.1	0.4	0.2	0.2	0.2	0.2
Lithuania	4	-0.2	-0.4	-0.4	-0.1	-0.2	-0.2	-0.2	-0.2
Slovenia	4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
United Kingdom	4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Argentina	4	-0.2	-0.1	-0.1	0.2	0.0	0.0	0.0	0.0
Bulgaria	4	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7
Croatia	4	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Jordan	4	-0.3	-0.5	-0.5	-0.3	-0.4	-0.4	-0.4	-0.4
Montenegro	4	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2
Romania	4	-0.1	0.1	0.1	0.5	0.2	0.2	0.2	0.2
Chinese Taipei	4	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
Tunisia	4	0.1	-0.3	-0.3	0.1	-0.1	-0.1	-0.1	-0.1
Liechtenstein	4	-0.9	-0.5	-0.5	-0.9	-0.8	-0.8	-0.8	-0.8
Costa Rica	3	0.2	-0.7	-0.7	0.1	-0.1	-0.1	-0.1	-0.1
Cyprus	3	-0.8	-0.9	-0.9	-0.2	-0.7	-0.7	-0.7	-0.7
Kazakhstan	3	-1.0	-0.9	-0.9	-1.3	-1.1	-1.1	-1.1	-1.1
Malaysia	3	1.1	0.5	0.5	1.4	1.0	1.0	1.0	1.0
Peru	3	-0.3	-0.5	-0.5	-0.3	-0.4	-0.4	-0.4	-0.4
Qatar	3	0.5	0.8	0.8	0.6	0.6	0.6	0.6	0.6
Serbia	3	-0.4	-0.3	-0.3	-0.5	-0.4	-0.4	-0.4	-0.4
Singapore	3	-0.3	0.0	0.0	-0.3	-0.2	-0.2	-0.2	-0.2



- ✓ Countries have (slightly) improved their equity levels (R²)
- ✓ However, these changes are often not robust or consistent enough to be considered statistically significant
- ✓ Although the positive cases are not confined to specific geographical regions or economic contexts, the OECD members have a significantly higher proportion of successful cases compared to the overall number of countries in the group

The study highlights the diversity of national pathways to equity. Some countries with low levels of educational equity have made significant progress, while others with better equity levels struggle to advance further.

In PISA reports, traditionally, attention is focused on the overall rankings of the countries. However, it may be more fruitful to explore the experience of countries that have made significant progress in their equity levels and not those, on the top of the list. Understanding the experience of these countries can be crucial for global efforts to promote equitable education.