Trends in learning proficiency in the last twenty years

How close are we to reliable regional and global SDG 4.1.1 trend statistics?

Report on work done for UIS

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To be covered

- Main findings
- Points on the data and methodology
- International or national assessments?
- Steeper gains in more recent years?
- Poorer countries seeing larger gains?
- Are e.g. steep PASEC gains believable?

Main findings

Draws from almost complete draft of 15 November 2022.

Background

- Annual gain needed globally 2015 to 2030: around **2.7** percentage points.
- Rough published estimates of pre-pandemic gains range from **0.7** to *minus* **1.0** a year.

From the analysis

- Gains using officially published 4.1.1 indicator values 2000 to 2019 have been around **0.23** points a year, one-twelfth of what is needed.
- This over-represents gains as countries with no trend data at all (**52%** of world's children) are on average worse governed (unweighted countries used). (Two-thirds of the 52% is India + China, but one-third is 104 smaller countries.)

Main findings (contd.)

- However, participation has improved, meaning **0.23** annual gain becomes **0.33** when participation taken into account.

Implications for broader planning

- Even before the pandemic, no evidence of substantial improvements, so no room for complacency. Yet important pockets of success exist, e.g. in Sub-Saharan Africa.
- Even small gains at the national level worth celebrating, and assessments must be fine-tuned to pick up even small changes.

Implications for UNESCO

- Expanding availability of data points should continue, including for India and China. But quality of data should also be evaluated.
- Reporting that takes into account changes in participation is critical. 4.1.1 on its own a deceptive indicator.

Data and methodology

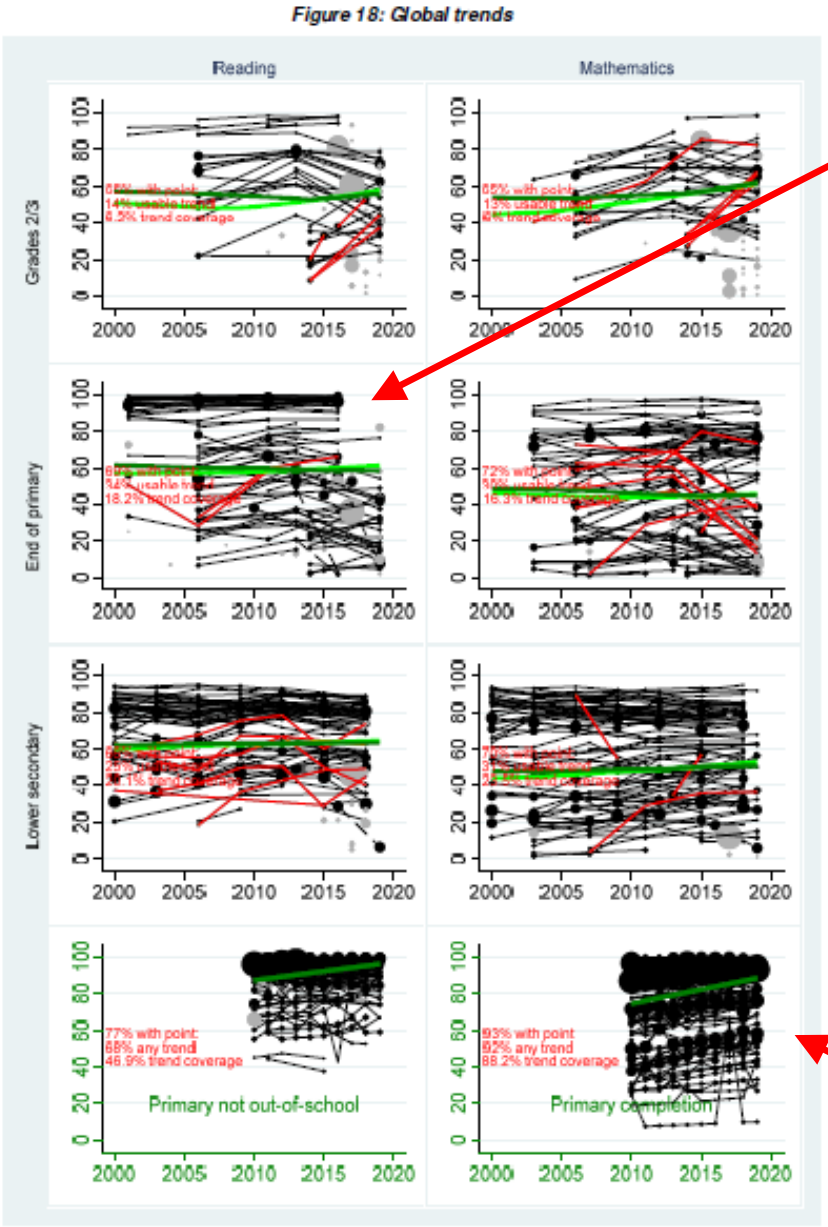
Data

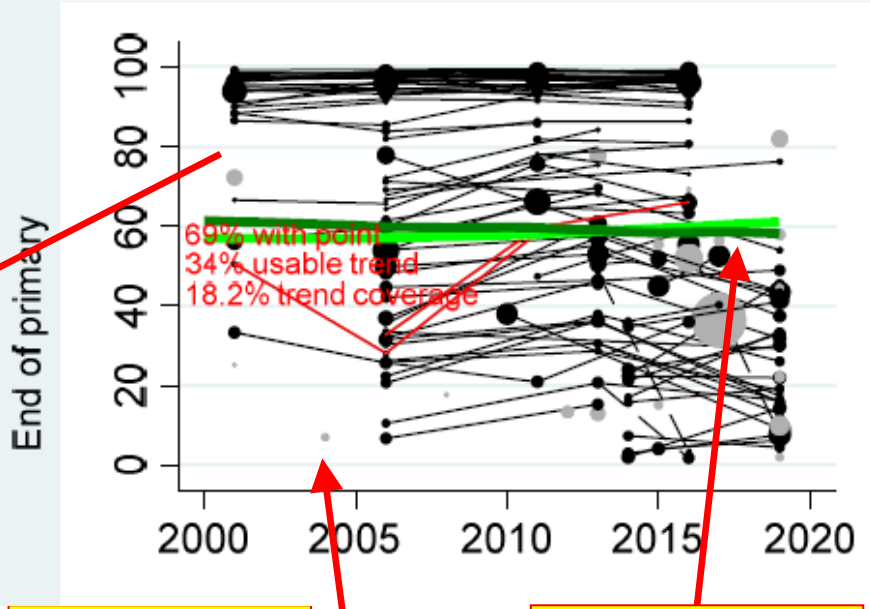
- A total of **1,097** two-point trends produce **384** trends of two or more points. 52% of world's children have no trend at all.
- End of primary reading has richest trend data of all six 4.1.1 indicators.
- Problems arising from (a) incomparable data sources and (b) unbelievably steep gains or declines must be taken into account, but are a minor problem.

Methodology

- A 'continuous approach' (timing of trend measurement is non-random) and a 'restricted approach' used. Reality probably lies somewhere in between.
- Changes in child population by country and region taken into account.

Data and methodology (contd.)





SDG 4.1.1

Just 6% of the world's children in countries with no **point** estimate.

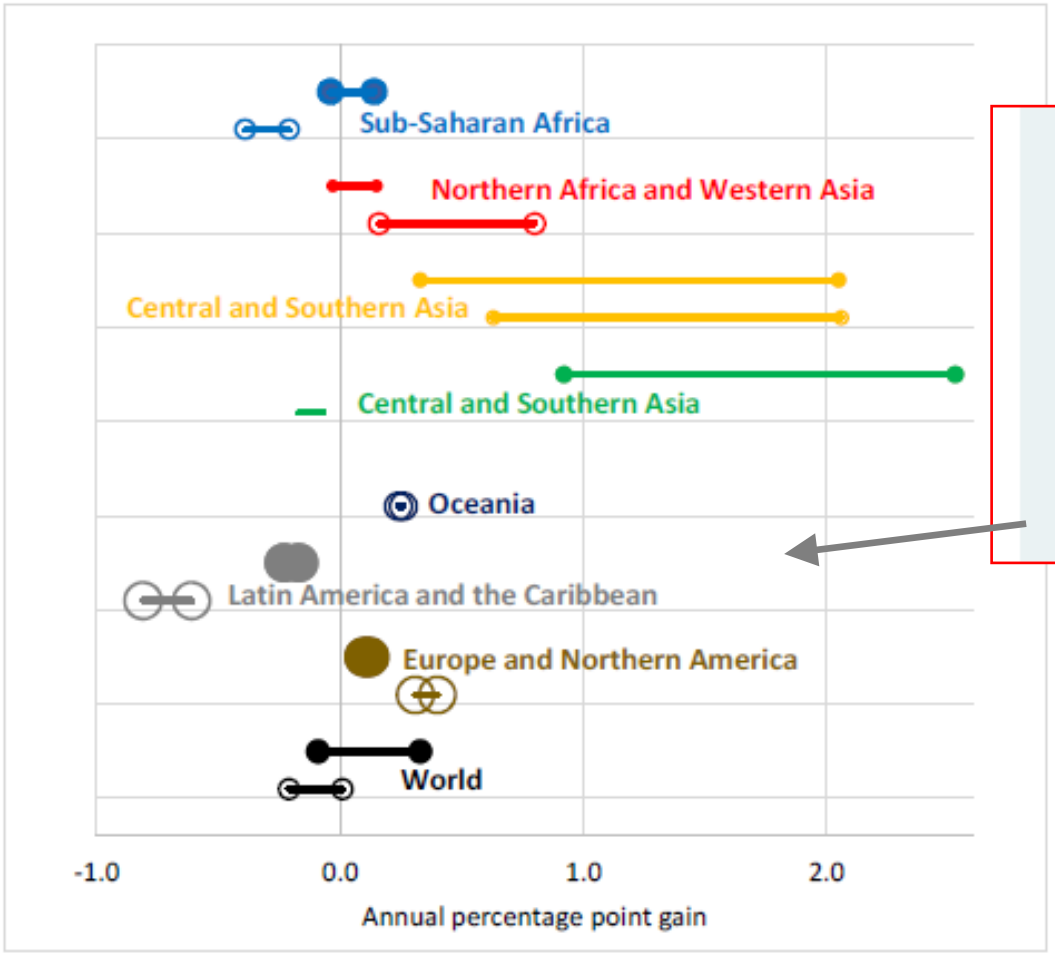
Restricted and continuous approaches produce similar global trends.

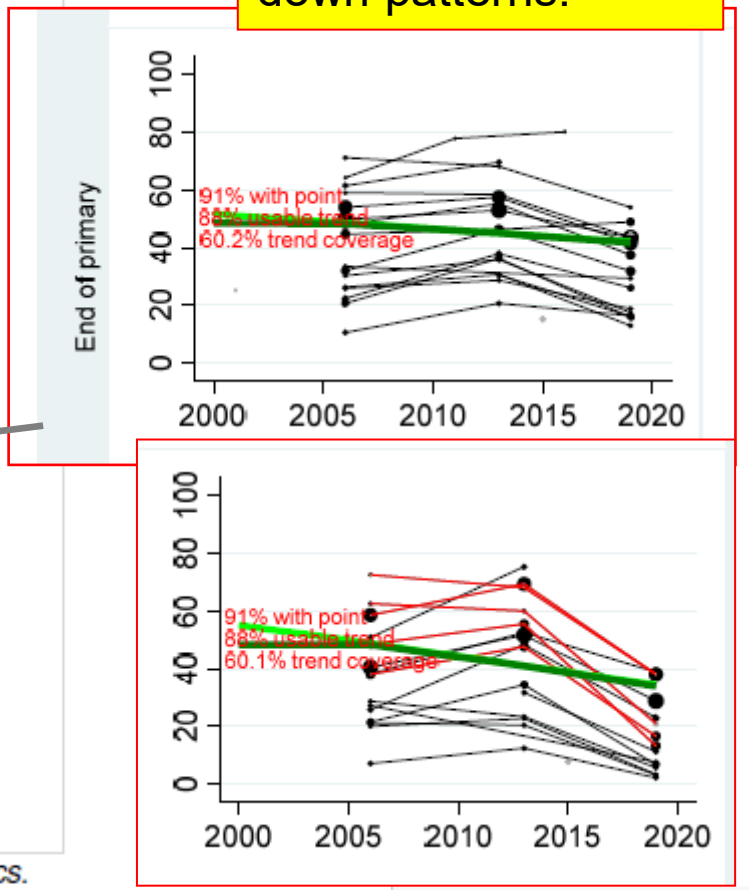
Participation (from 2010 only)

Data and methodology (contd.)

Latin America and the Caribbean all negative – but suspicious up-and-down patterns.

Figure 20: Population-focussed region breakdown with end of primary details





Note: Solid markers reflect reading, markers with no fill reflect mathematics. The lower (left-hand) marker uses the 'restricted approach' while the higher (right-hand) marker uses the 'continuous approach'. Marker areas are proportional to '% of population with a usable trend'.

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International or national assessments?

Table 3: Metadata behind the trends

	Number of two-point trends	% of population-weighted two-point trends
LLECE	116	12.6
PASEC	44	4.5
PIRLS	100	8.3
PISA	598	54.4
SACMEQ	18	1.6
TIMSS	200	15.6
Total for international programmes	1,076	96.9
Bangladesh	4	2.1
Kenya	2	0.5
Kyrgyzstan	2	0.1
Uganda	2	0.5
Total for national programmes	10	3.1
Grand total	1,086	100.0

National assessments currently play a tiny role in the monitoring of trends.

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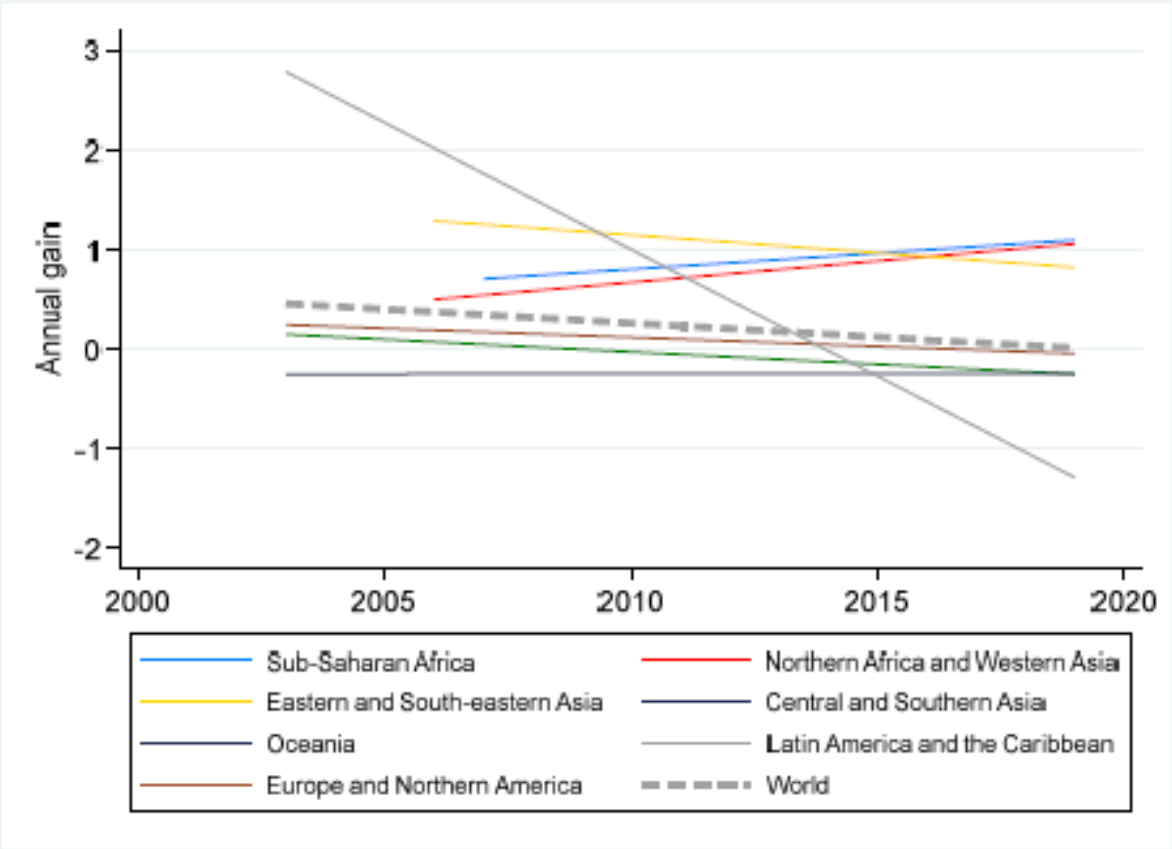
Steeper gains in more recent years?

Figure 4: Changes in gains over time



Note: Initial years are not covered by the trendlines as they begin at the earliest end *point in the available two-point trends.*

No.

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Poorer countries seeing larger gains?

As opposed to enrolment-focussed. Uses recent completion dataset of Dharamshi *et al.*

Table 12: Population-focussed World Bank income group breakdown with end of primary details

	Year range		% of population with a usable trend	Average level within year range	Annual percentage point gain (continuous approach)	Annual percentage point gain (restricted approach)
Low income countries						
End of primary reading	2006	2019	32	9	-0.35	-0.16
End of primary mathematics	2003	2019	21	4	-0.02	0.03
Lower middle income countries						
End of primary reading	2001	2019	23	43	1.51	0.34
End of primary mathematics	2003	2019	16	20	0.81	0.10
Upper middle income countries						
End of primary reading	2001	2019	34	50	-0.01	-0.12
End of primary mathematics	2003	2019	36	48	-0.40	-0.40
High income countries						
End of primary reading	2001	2019	75	94	0.15	0.12
End of primary mathematics	2003	2019	74	74	0.35	0.23

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Are e.g. steep PASEC gains believable?

Access to the microdata allow for three data quality controls to be run

- Credibility of sampling (e.g. via access to electricity in the home). ✓
- Risk of cheating during test administration (via item-level analysis).
- Credibility of conversion of raw results to final scores. ✓

Two of the above controls run, and the trends seem believable for most (not all) countries. All questions centre around the accuracy of sampling.

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