Modelling long-term learning loss from COVID-19 school closures

Michelle Kaffenberger

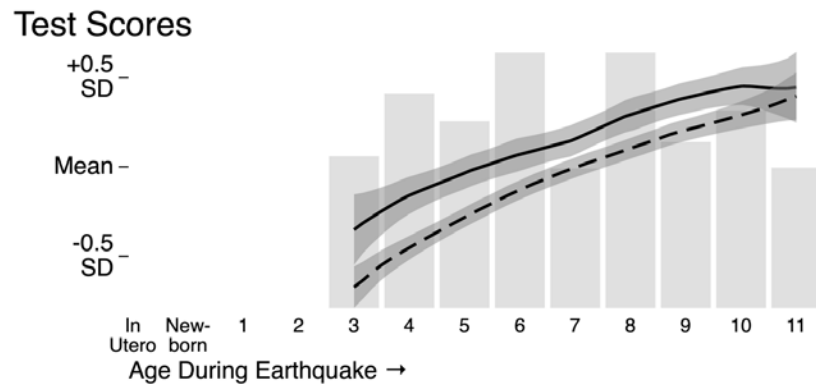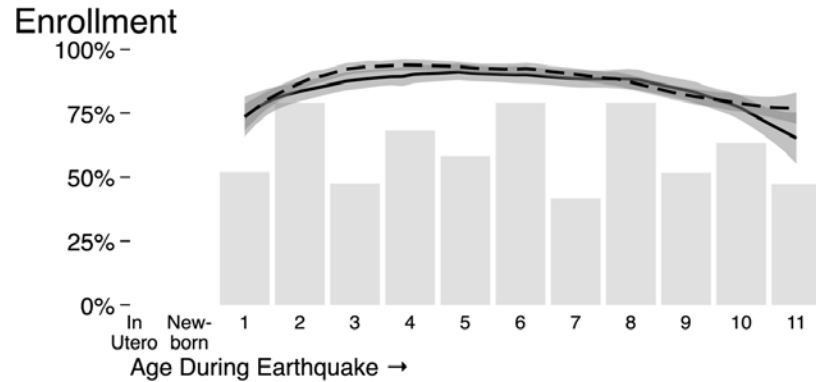Research Fellow, RISE Programme

Technical Cooperation Group on the Indicators for
SDG 4 Annual Meeting

28 October 2020

Why is it necessary to model long-term learning loss?

Four years after Pakistan earthquake, affected children were equally likely to be in school, but had much lower learning
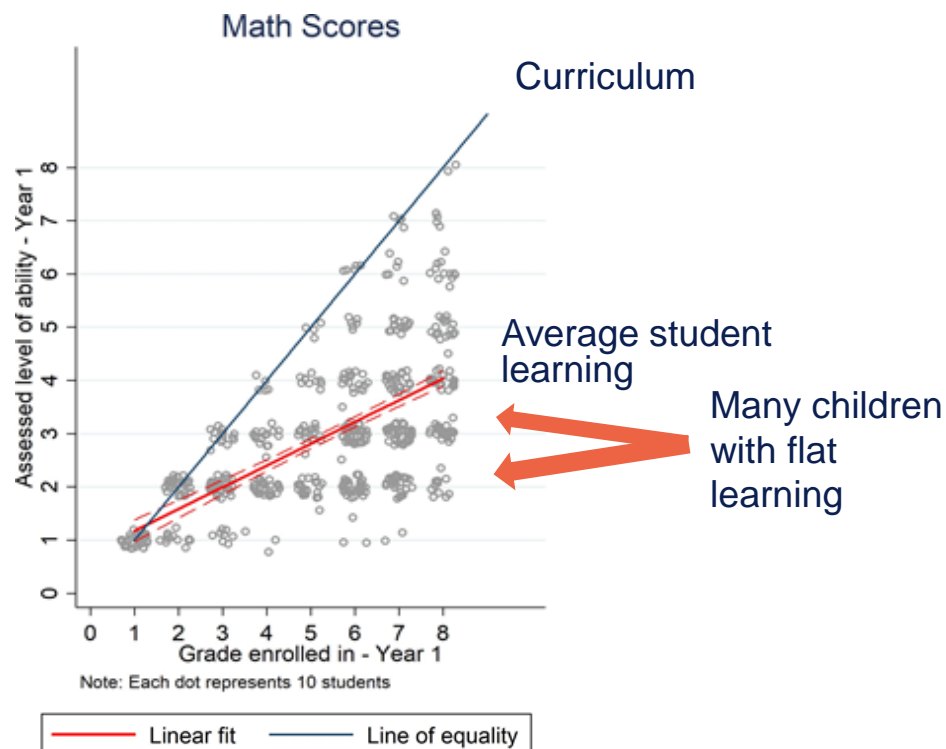

- Learning losses can continue to accumulate even *after* children return to school

- Evidence from Pakistan: 14 weeks of missed school resulted in **2 years of lost learning** four years later

Source: We Have to Protect the Kids (Tahir Andrabi, Benjamin Daniels, Jishnu Das)

Why do learning losses continue to accumulate?

Computer-based testing in India shows children were years behind curricular expectations

Math Scores

Curriculum

Average student learning

Many children with flat learning

Assessed level of ability - Year 1

Grade enrolled in - Year 1

Note: Each dot represents 10 students

— Linear fit — Line of equality

Source: Muralidharan and Singh (forthcoming)

- Even before COVID, curriculum was overambitious in many countries

- Once children fall behind, they can stop learning even if they stay in school

- Missing foundational skills without remediation could permanently reduce their learning trajectory as they cannot engage in later learning

For more on overambitious curriculum see Kaffenberger & Pritchett (2020) and Beatty and Pritchett (2015)

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- Kaffenberger and Pritchett (2020) proposes a *calibrated simulation model* of learning trajectories

- Allows modeling of ***cohort learning***

- Calibrated based on learning profiles literature, calibrated to replicate PISA-D learning outcomes

- Use this to introduce a learning shock

The model simulates learning in each year for a child at each point in the initial student distribution, and is iterated over multiple years
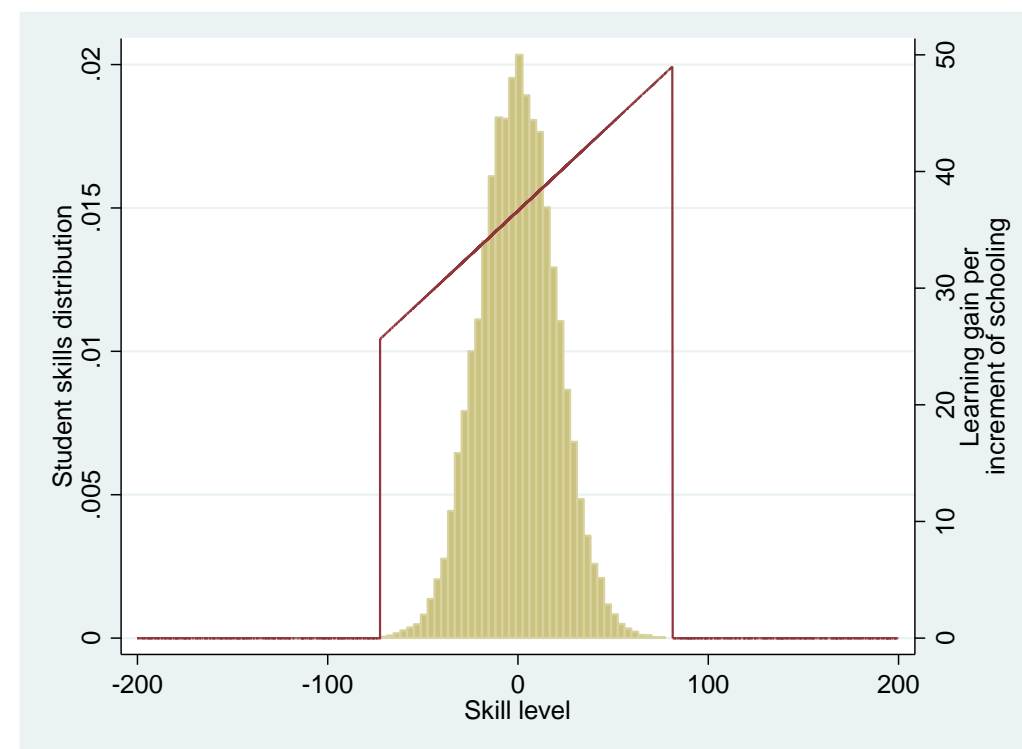
# How much learning could be lost in the long run due to COVID-19 school closures?

Modelling long term learning loss of today's grade 1 students: Average years of learning lost by grade 10
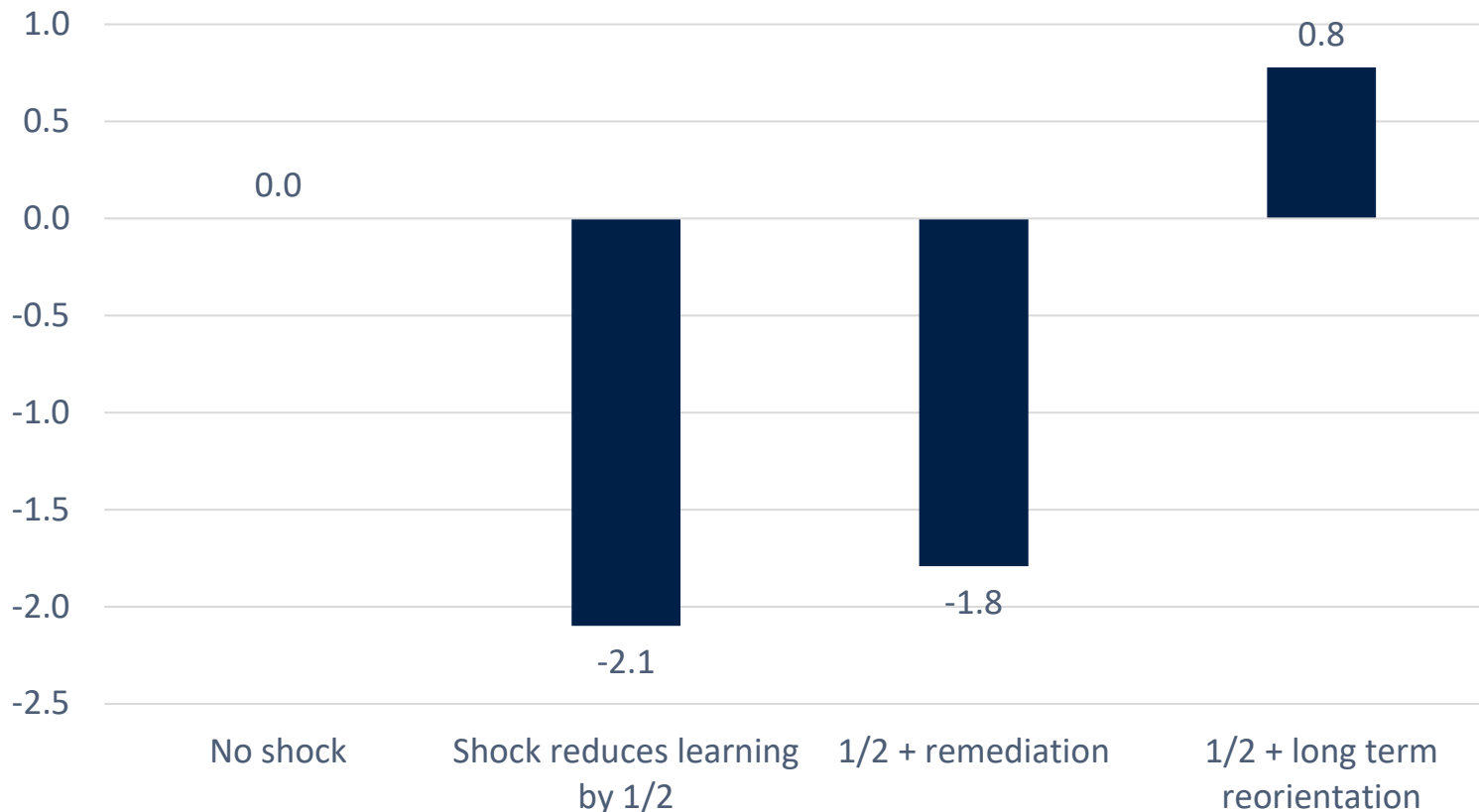
- ½ a year's learning loss for today's grade 1 students could result in 2 years' accumulated loss when they reach grade 10

- Modelling suggests short term remediation could reduce losses slightly, long term systems improvements could enable a system to come back stronger

How much learning could be lost in the long run due to COVID-19 school closures?

The learning shock substantially increases the percent of in-school children who have fallen behind the curriculum and are not learning

Legend:
- No shock
- Learning loss, no mitigation
- Learning loss, short term remediation
- Learning loss, long term system reorientation
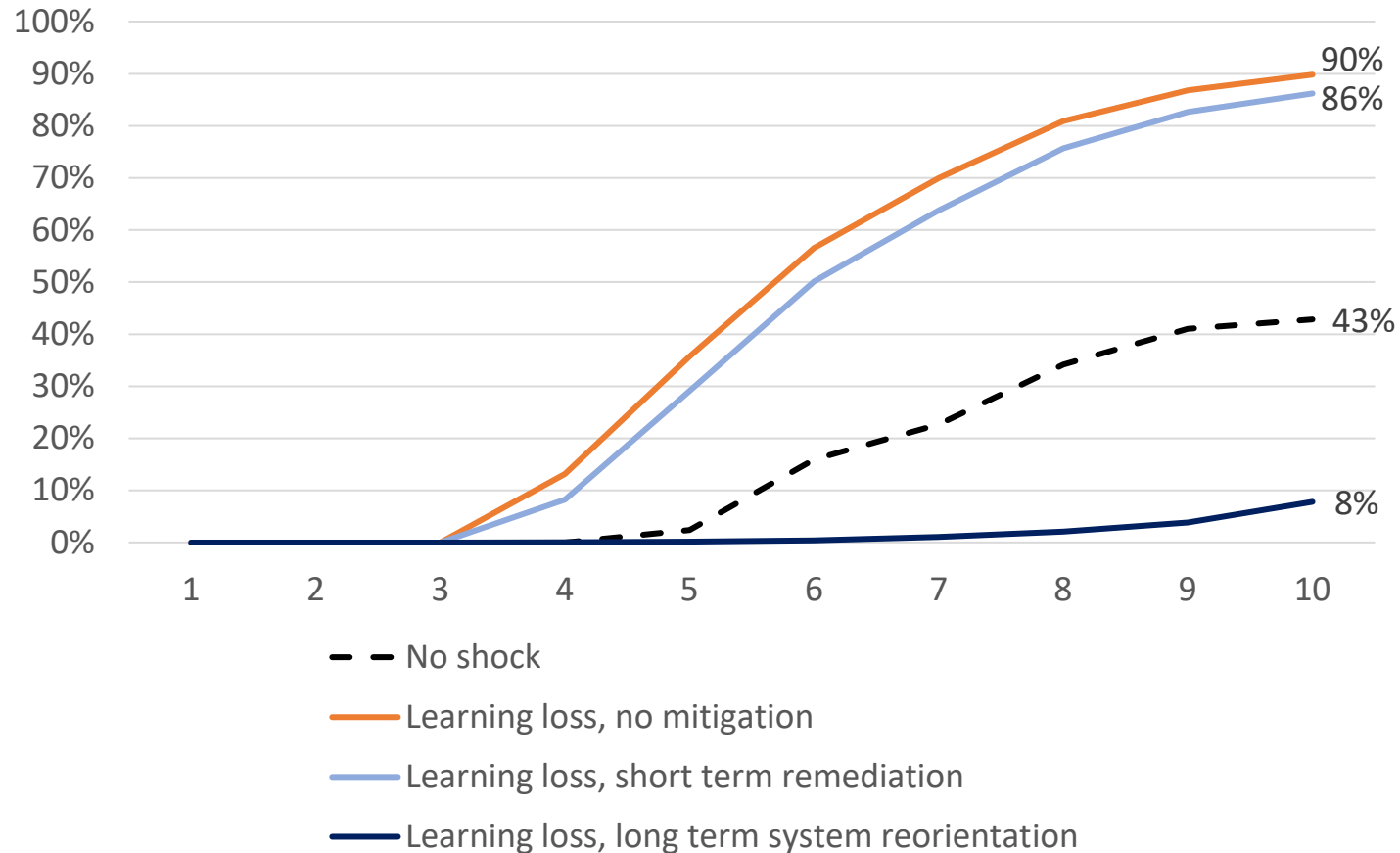
- The dynamics of learning loss: more than twice as many children have fallen behind and are not learning in grade 10 in the "shock" scenario than in the counterfactual.

- Remediation helps slightly, long term reforms make a huge difference.

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riseprogramme.org

information@riseprogramme.org

@riseprogramme

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