Outcomes-based funding in education: Assessing cost effectiveness and accountability

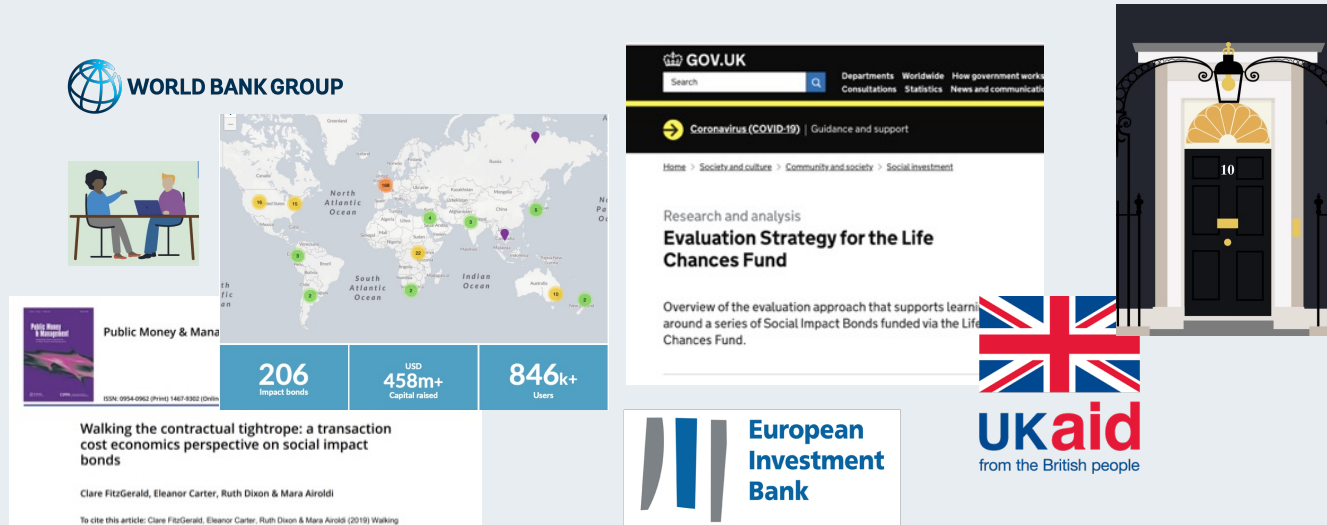*Engaging with Evidence Session 10*
31 January 2022

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About the Government Outcomes Lab (GO Lab)

Established in 2016

Partnership between UK Government & University of Oxford

We investigate government's role in unlocking fruitful **cross-sector partnerships to improve social outcomes**

Welcome to the tenth session of the Engaging with Evidence series

An open platform for policymakers, practitioners and researchers around the world to engage with key findings from the latest research and evaluation work in the field

- Distillation of key research findings
- Practical insights from practitioners across different sectors and fields
- Honest and constructive dialogue

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Engaging with Evidence
Webinar series

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GOVERNMENT OUTCOMES LAB

BLAVATNIK SCHOOL OF GOVERNMENT · UNIVERSITY OF OXFORD

In today's session:
PART 1
I. Context setting- challenges within education and use of outcomes-based financing globally
II. Delivering education interventions in India- is outcomes-based financing cost effective?

PART 2
Panel discussion on two main themes:
I. Role of outcomes-based financing in improving learning outcomes and enhancing accountability
II. Practical considerations for policymakers and practitioners

Speakers

Dayoung Lee
Dalberg

Emily Gustafsson-Wright
Brookings Institution

Gagandeep Nanda
Dalberg

Grace Wood
UK Government

Krisha Mathur
British Asian Trust

Mara Airoldi
Government Outcomes Lab

Milena Castellnou
Education Outcomes Fund

Moderators

Tanyah Hameed
Government Outcomes Lab

Laura Bonsaver
Government Outcomes Lab

Our audience this morning

Context setting- challenges within education and use of outcomes-based financing for education globally

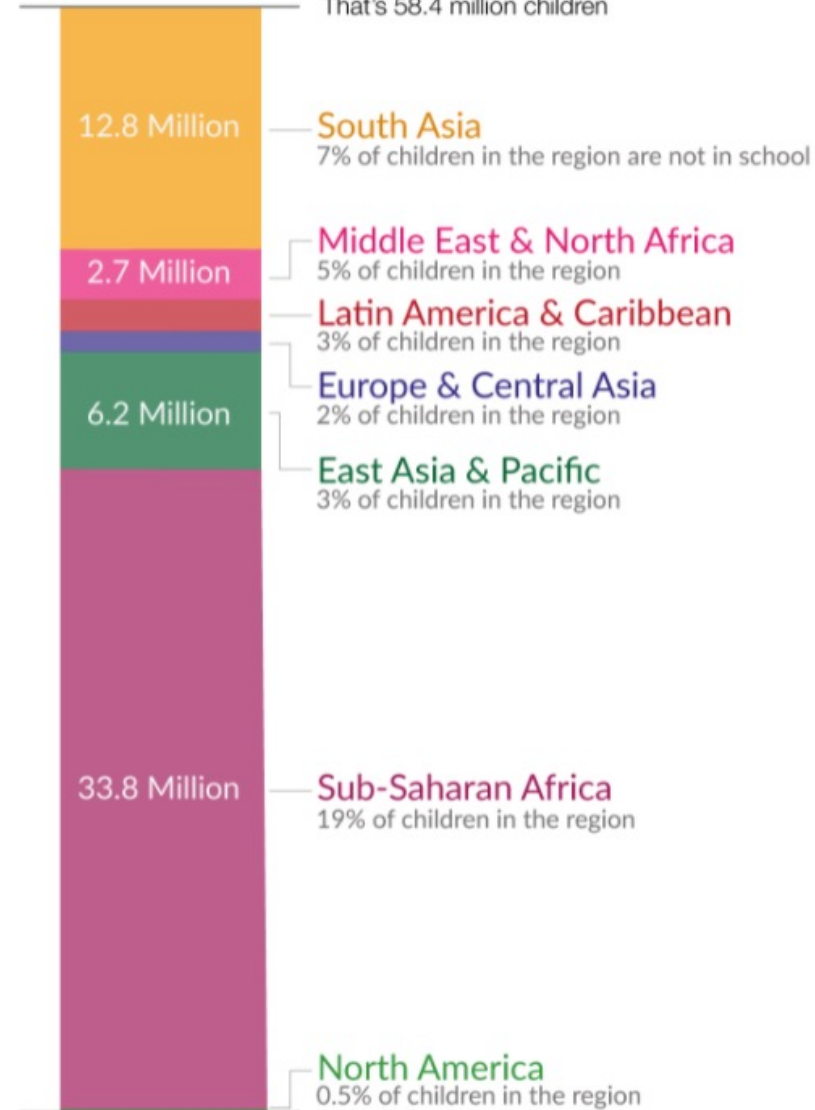**Emily Gustafsson-Wright, Senior Fellow, Brookings Institution**

Global Education has been in a crisis

Where are the 58 million primary school age children who are not in school?

Our World in Data

8% of the world's 787 million children of primary school age are not in school.
That's 58.4 million children

12.8 Million — South Asia
7% of children in the region are not in school

2.7 Million — Middle East & North Africa
5% of children in the region

Latin America & Caribbean
3% of children in the region

Europe & Central Asia
2% of children in the region

6.2 Million — East Asia & Pacific
3% of children in the region

33.8 Million — Sub-Saharan Africa
19% of children in the region

North America
0.5% of children in the region

Data source: UNESCO for the year 2019   Licensed under CC-BY by the author Max Roser
OurWorldinData.org – Research and data to make progress against the world's largest problems.

Education Outcomes are falling short, and the Pandemic has made a bad problem worse

Children are considered to be in *learning poverty* if they reach age 10 without being able to read a simple text or are out of school. Most children who cannot read by age 10 never master reading.

For every 100 primary school-age children in low- and middle-income countries:

53 were already in learning poverty before the pandemic (of which 9 were out of school and the rest were in school but not learning)

10 more will enter learning poverty as a result of COVID (of which almost all will be in school but not learning)
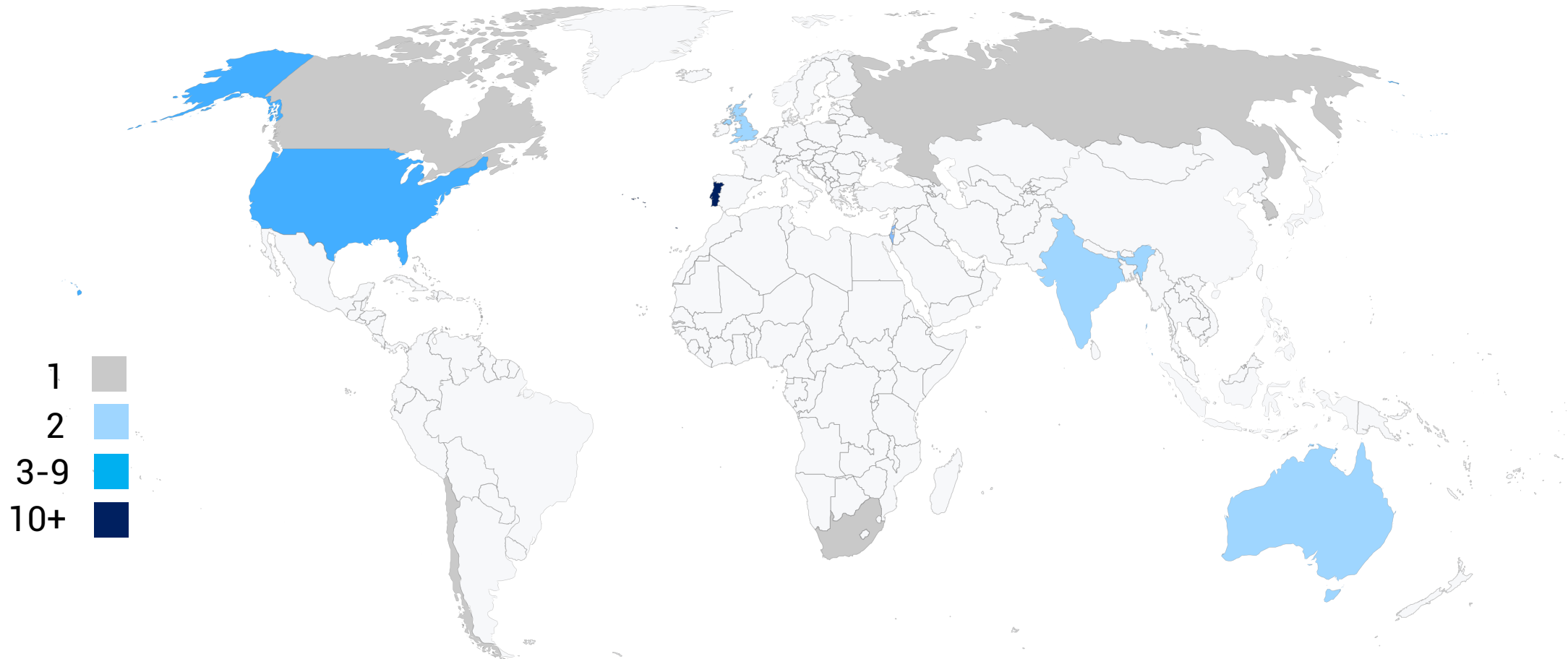
Source: Education Commission, 2020

This generation of students now risks losing **$17 trillion in lifetime earnings** in present value, or about **14 percent of today's global GDP**

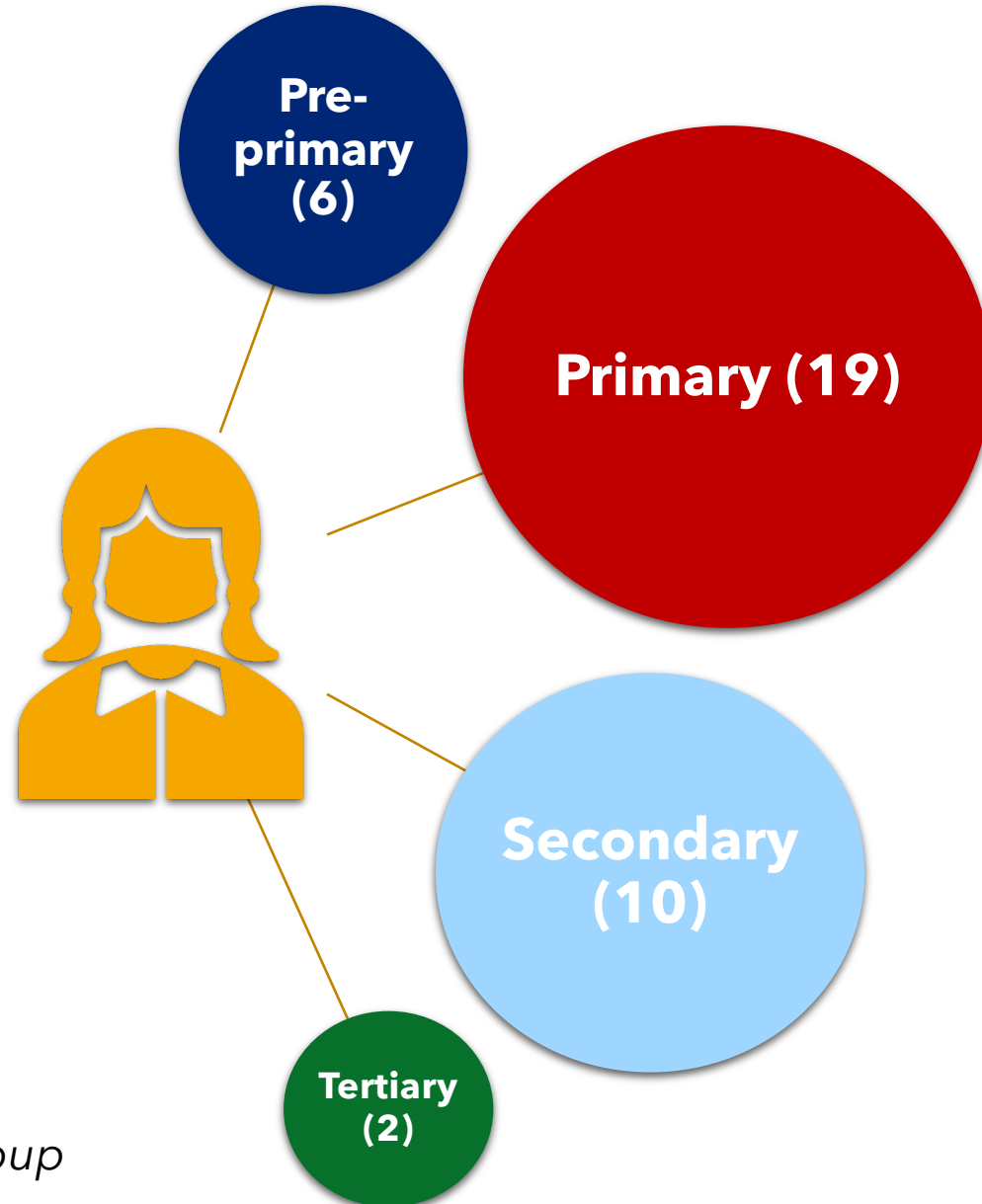# OBF could help to address some of these challenges

- An outcomes focus can improve likelihood of addressing learning crisis
  - Clearly defined measurable outcomes
  - Flexibility to tailor interventions to learner and contextual needs
  - Strengthen ecosystem for sustainable impact
- Contingent payments utilize limited budgets wisely
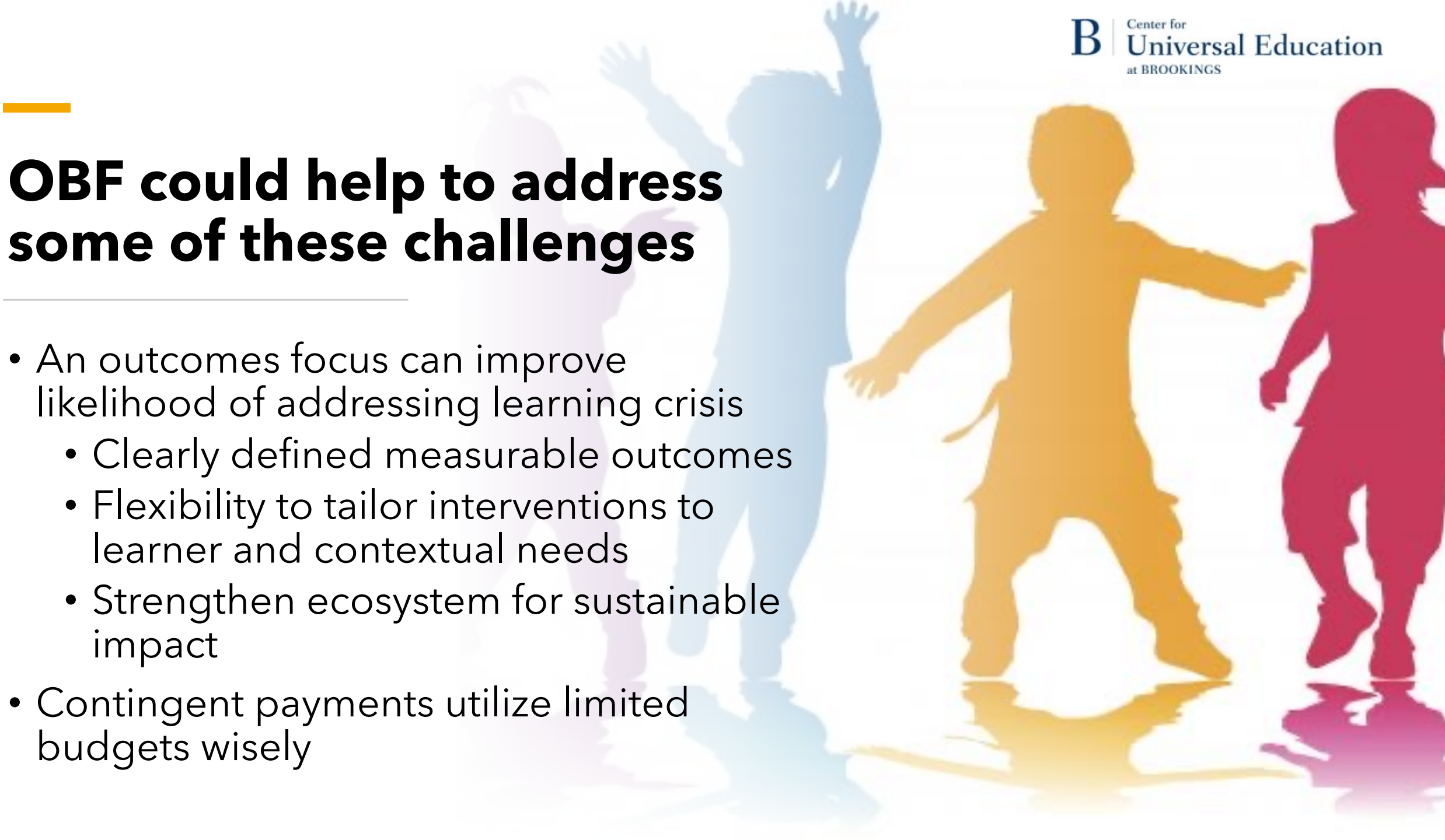
29 Impact Bonds in
Education

Legend:
- 1
- 2
- 3-9
- 10+

Citation: Brookings Institution Global Impact Bond Database, February 1, 2022

Impact bond beneficiaries targeted by education level

Pre-primary (6)

Primary (19)

Secondary (10)

Tertiary (2)

Center for Universal Education at BROOKINGS

Note: *a program can have more than one age-group*

Citation: Brookings Institution Global Impact Bond Database, February 1, 2022

Education Impact Bond Interventions

4 TEACHER/ADMIN SUPPORT

6 FAMILY SUPPORT

16 STUDENT SUPPORT

7 EDUCATION TECHNOLOGY

Note: *a program can have more than one intervention*

Citation: Brookings Institution Global Impact Bond Database, February 1, 2022

Education Impact Bonds in LMICs

Name	Location	Beneficiaries	Intervention
Educate Girls DIB	India: Rajasthan	7,300 children in Grades 3-5	Identification of out-of-school girls and child-centric curriculum
Impact Bond Innovation Fund	South Africa: Cape Town	2,000 children ages 3-5	Home visiting for preschool-aged children
Quality Education India DIB	India: Delhi, Gujarat, Maharashtra, Uttar Pradesh	200,000 students in Grades 1-8	Principal and teacher training, direct school management, remedial teaching, computer-based adaptive learning

Citation: Brookings Institution Global Impact Bond Database, February 1, 2022

educate girls

In its final year, Educate Girls achieved:

- **116%** of the **enrollment** target and

- **160%** of the **learning** target.

CIFF repaid UBSOF its initial $270,000 investment, plus a 15% internal rate of return.

Impact Bond Innovation Fund

- **Recruitment and retention** targets (1,000 children retained per year) were **exceeded** in all three performance years

- **Attendance targets** (1000 children achieve >50% each year) were met all three years, on avg

- **Development Assessment** (measured by ELOM) target not achieved but showed improvement.

Quality Education India
DEVELOPMENT IMPACT BOND

As of its second year of implementation, QEI was achieving **2-3x** its **learning** targets.

The risk investor is on track to achieve an 8% return if outcome targets continue to be met.

Impact Bonds Research at Brookings

Thank you!

egustafssonwright@brookings.edu
@EGWBrookings

B | Center for
Universal Education
at BROOKINGS

Understanding cost effectiveness of education interventions in India: a key step towards outcomes-based financing

January 2022

As QEI DIB is coming to an end, we wanted to draw broader lessons for the outcomes-based financing ecosystem in education in India

1

Assess evidence for the case for outcomes-based financing

Why outcomes-based financing? Are they worth the additional costs involved?

2

Reduce negotiation costs by setting guidance on appropriate pricing

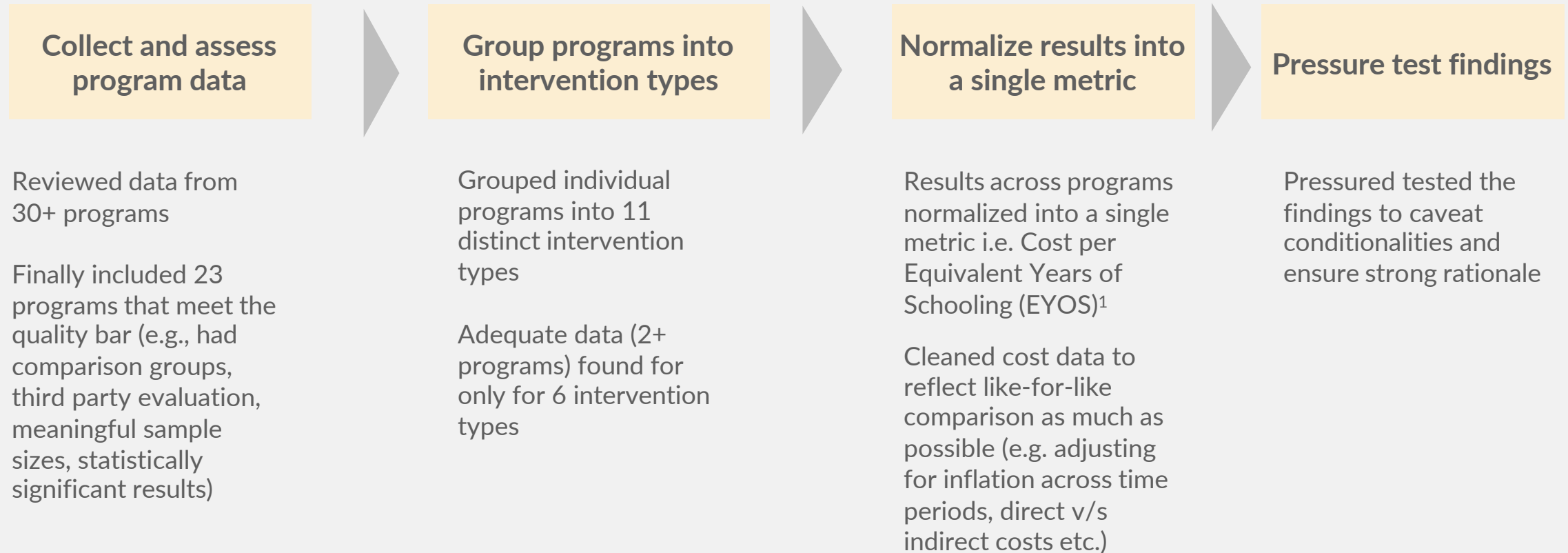*How much* should learning outcomes cost?

3

Facilitate discovery of cost effective interventions for future investments

What types of interventions to invest in?

These answers can help scale outcomes-based financing

A four-step methodology was followed covering data review, intervention categorization, results normalization and pressure testing

Collect and assess program data

Group programs into intervention types

Normalize results into a single metric

Pressure test findings

Reviewed data from 30+ programs

Finally included 23 programs that meet the quality bar (e.g., had comparison groups, third party evaluation, meaningful sample sizes, statistically significant results)

Grouped individual programs into 11 distinct intervention types

Adequate data (2+ programs) found for only for 6 intervention types

Results across programs normalized into a single metric i.e. Cost per Equivalent Years of Schooling (EYOS)[1]

Cleaned cost data to reflect like-for-like comparison as much as possible (e.g. adjusting for inflation across time periods, direct v/s indirect costs etc.)

Pressured tested the findings to caveat conditionalities and ensure strong rationale

QEI DIB suggests that outcomes-based mechanisms can further help improve outcomes

50%

higher learning outcomes for outcome-based funding compared to non-results settings for same interventions/ organizations, costs not higher*
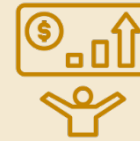
Enhanced accountability

More flexibility & innovation

Emphasis on monitoring & evaluation

There are many ways to improve outcomes focus

Performance bonuses / penalties for implementors

Performance incentive for school/program stakeholders

Impact bonds

Performance-based selection and multi-stage contracting

Note: * This does not imply that costs for grant programs should be reduced going forward. There are certain fixed costs per child -- even if more outcomes can be expected per child, cost s may not be reducible to serve the same number of children.

4

Additional investment
of
**INR 1,000 – 3,000
(or USD 13-40)
per student** in high quality in-person interventions in government schools can deliver an **additional year of learning in India**

Despite nation-wide learning losses, QEI interventions combining physical and digital support helped achieve meaningful gains...

Digital components increase reach while physical components maximize engagement and boost reach

'Phygital' remote models can help achieve at least **1/3** of the learning achieved in a regular gov't school setting (pre-COVID, without interventions)

SARD (an education NGO) increased reach by **15-20%** by complementing digital with in-community interventions
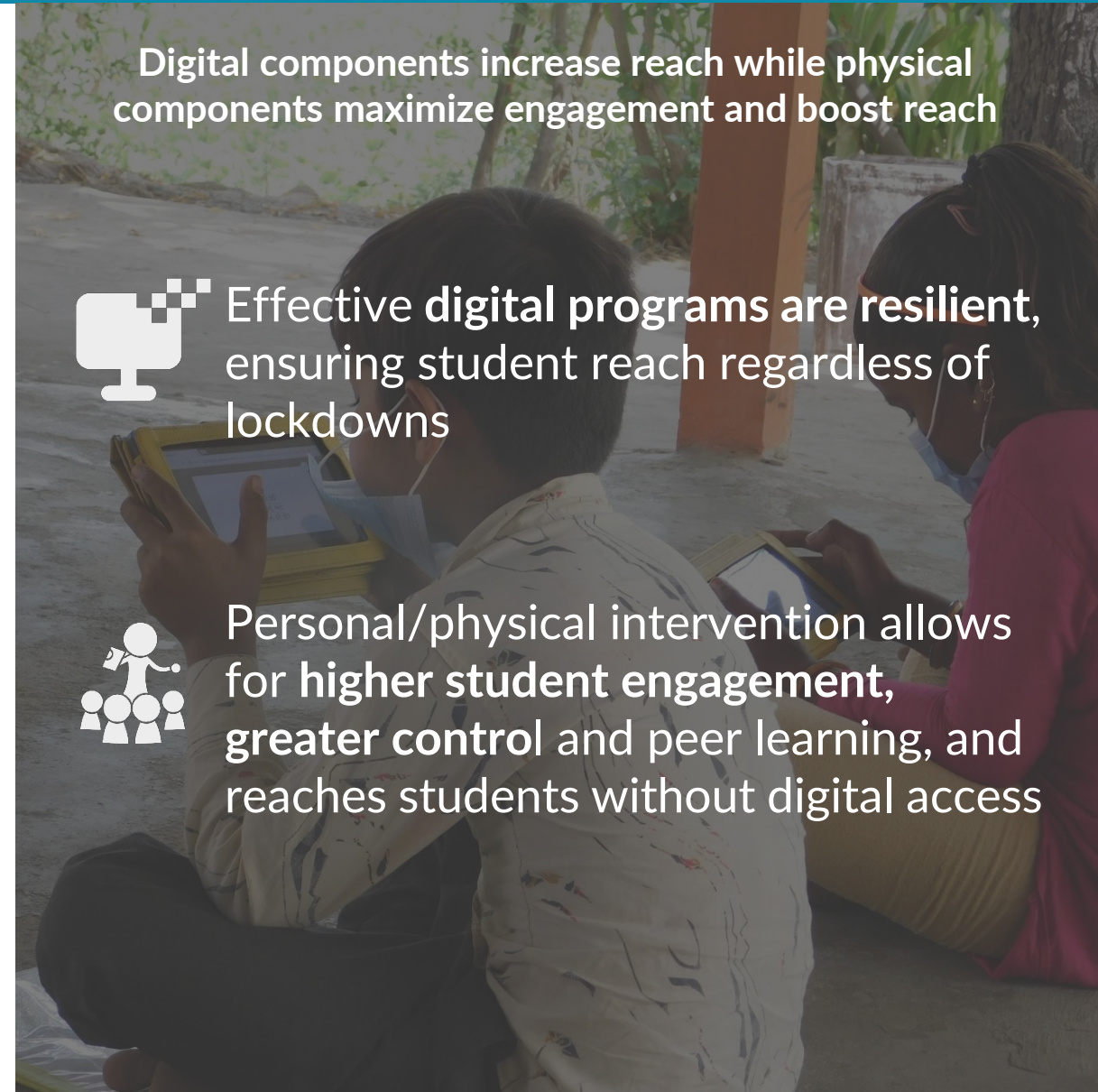
Effective **digital programs are resilient**, ensuring student reach regardless of lockdowns

Personal/physical intervention allows for **higher student engagement, greater control** and peer learning, and reaches students without digital access

As schools re-open, adopt remedial, TarL, and EdTech interventions can help students catch-up and accommodate varying learning levels

Remedial and TarL are among the most cost-effective interventions that can be easily adopted...

...while EdTech can be powerful with the right resources

Only INR 1000-2000 cost per additional year of learning

Effective at delivering outcomes even in **low resource settings** as requires only basic human resources

Adaptive EdTech effective in higher resource settings with required infra; only intervention to show evidence of effectiveness in secondary grades

Non-adaptive EdTech can be cost effective, particularly if implemented as a complement to high quality instruction and with supervision

Going forward, there is need to further bolster our evidence base to make the case for scaling outcomes-based financing...

Build outcome-readiness of implementing organizations *(e.g., MEL capabilities, focus on precise execution and program planning etc.)*

Collect cost data and disaggregated data *(e.g., by gender, rural/urban)* **to measure efficiency along with effectiveness for different segments/sectors/geographies**

Fund interventions and evaluations in areas where there are big gaps *(e.g., middle/senior grades, low-capacity states, rural areas)*

Implications for governments, funders & implementors to ensure remote learning during COVID-19

Government

- As students come back to school after closures, prioritize **Teaching at the Right Level (TaRL)** & **Adaptive EdTech** interventions to cater to diverse learning levels, and prioritize **Remedial Education** to support students that have fallen behind.
- When considering edtech interventions, high quality **Non-adaptive EdTech** can be cost effective esp. if **includes teacher assistance.** In cases where **laptops/tablets are already available or learning levels are particularly diverse, Adaptive EdTech** can have high returns
- Implement **teacher training and school leadership training programs together as part of NEP priorities**, to improve cost effectiveness
- **Integrate outcomes-focus** into procurement – monitor impact on outcomes, not just completion of activities, and tie some level of funding to improvements in performance of students if possible. Consider providing performance incentives for students/teachers

Funders
(philanthropic, multi-/bi-lateral)

- When allocating funding, **target less than approximately INR 3000 per student per year of learning gains** (i.e., if intervention is ~INR 6000 per student, expect ~2 years of additional equivalent schooling gains for high quality interventions)
- Provide **funding for interventions and research** (e.g. through third party assessments) **in areas where there are big gaps** such as interventions on students in **middle and senior grades, low-capacity states, rural areas, students with disability, gender disaggregation**
- **Deploy outcome-based funding** and **support the 6 intervention types with proven cost effectiveness** in government school contexts

Implementors

- While designing interventions, **target less than approximately INR 3000 per student per year of learning gains**
- While designing interventions, consider **levers for further enhancing cost-effectiveness** (e.g., including teacher assistance for Non-adaptive Edtech, device sharing for Adaptive Edtech etc.)
- During school closures, ensure remote models have **both digital and in-community aspects** for better reach and engagement
- Prioritize both **adapting remote interventions to better teach math concepts,** as well as **focusing on refreshing math concepts** once schools re-open, due to potentially more learning losses in math compared to language
- Conduct more innovation **for improving learning levels of students with already high learning levels, esp. in remote settings**

While devising the methodology, few principles need to kept in mind to ensure that the findings are easy understand, meaningful and pass the quality bar
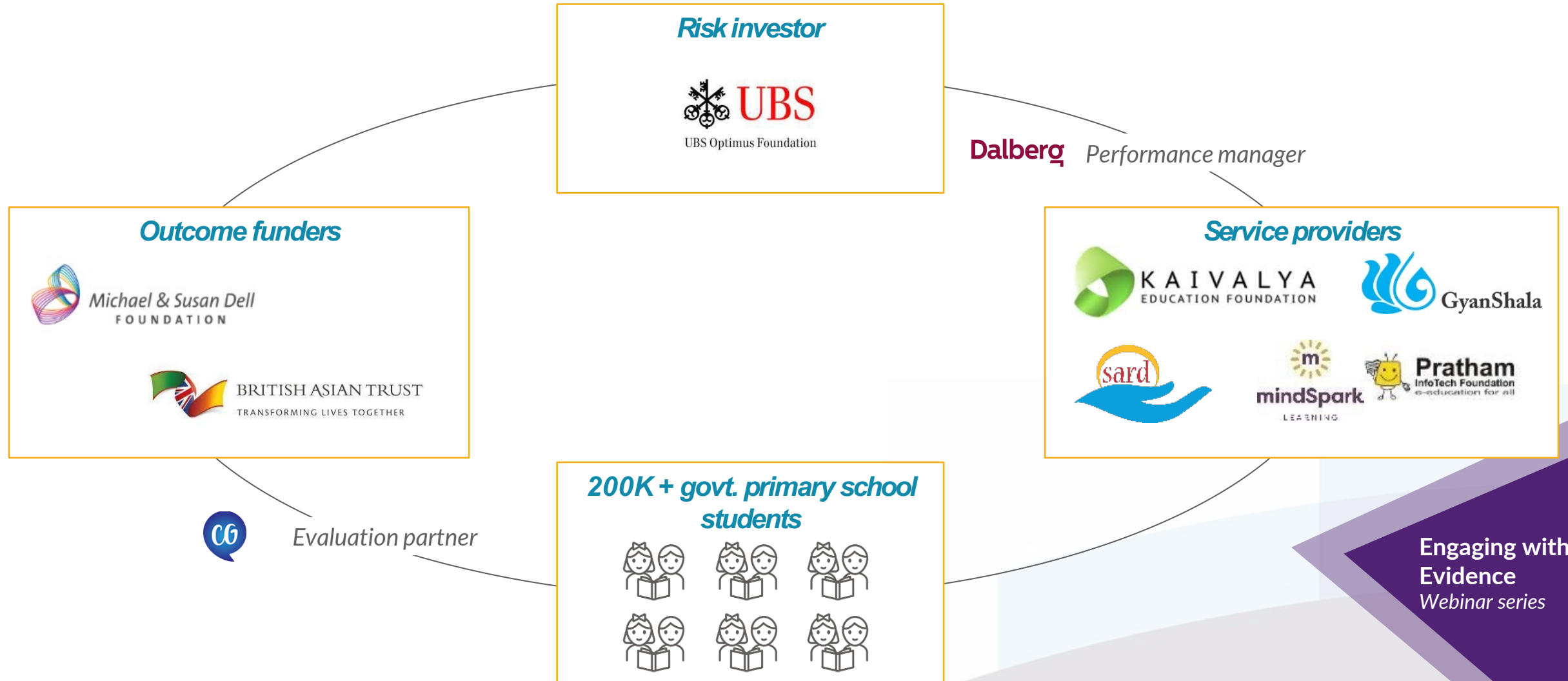
Choose the right...

1. **Metric for comparison** – easy to understand, widely recognized, comparable, meaningful

2. **Quality bar for what evidence to include** – high enough that results are meaningful but not so high that too few studies qualify. Consider:
   - *Research type* experimental / quasi-experimental studies
   - *Validation* conducted by third party v. own internal evaluation
   - **Sample size** e.g., 500+ students
   - *Vintage* conducted in the last 5 years or cited in reputable publications in recent years
   - *Meaningful* statistical significance that tell us improvements are not likely to be pure chance

3. **Price points for 'smart buys'** – assess the distribution and provide a range that ensures enough interventions/orgs can deliver within that (not set too low) but don't set too high so that it becomes a poor deal for buyers

The findings need to be framed keeping in mind any selection biases, conditionalities and should be pressure tested

- *Keep in mind selection bias and caveat appropriately*

    - Orgs that give permission to use data are likely to have higher effects – many programs following these intervention types may yield much poorer/no results
    - By including some medium quality evidence, we are likely exaggerating effects

- *Ensure to pressure test implications and clarify conditionality*

    - Pressure test implications & ensure strong rationale for counterintuitive ones (e.g., non-Adaptive EdTech is more cost effective than Adaptive EdTech)
    - Clarify conditionality – when does one intervention work better than another (e.g., low vs. high resource settings)

Annex

The Quality Education India (QEI) Development Impact Bond (DIB) has delivered outstanding results pre-COVID and has been instrumental in helping students through COVID

Risk investor

Outcome funders

Service providers

Dalberg *Performance manager*

Evaluation partner

200K + govt. primary school students

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Building on our QEI DIB work, we studied 20+ programs to understand the costs to improve learning outcomes in India

Of 30+ programs, we assessed 23 with high quality evidence, which were across 6 intervention types:

Adaptive EdTech

Non-Adaptive EdTech

Remedial Education

School Leadership / Teacher Training
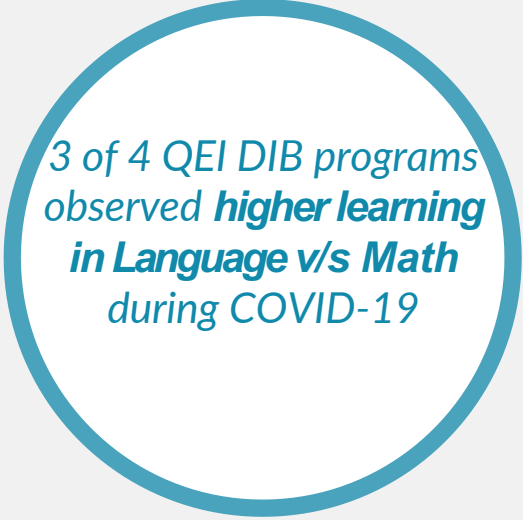

EdTech Enabled Teacher Training & Development

Teaching at the Right Level

Note: We looked at 11 intervention types through 30+ programs. Of these only 6 intervention types had high quality evidence data through 23 programs.

There is need to prioritize teaching of math and advanced concepts

*3 of 4 QEI DIB programs observed **higher learning in Language v/s Math** during COVID-19*

*Students with **higher initial learning levels observed learning losses**, while those with lower initial learning levels gained*

✓ Math requires **more structured practice** than Language, which is difficult to do remotely

✓ **Lack of informal avenues** through which students can learn (e.g. parents), unlike in language

✓ Advanced concepts might **require different/ innovate approaches** to be better taught, retained, and practiced

The study has implications for governments, funders, implementors and evaluators to ensure remote learning during COVID-19 and as students come back to school

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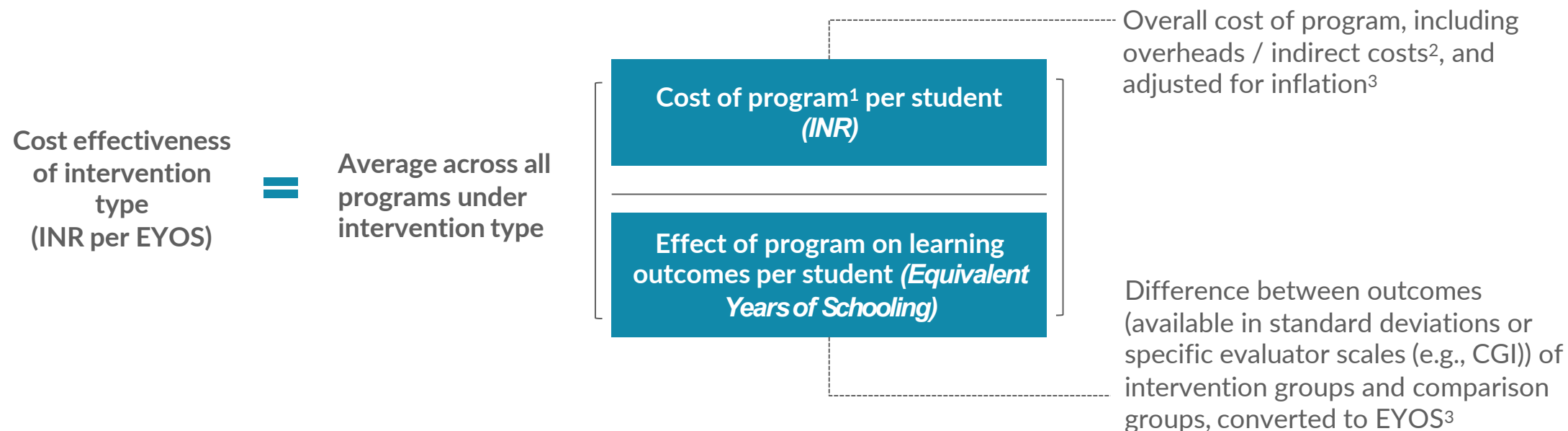
Evaluators

- While assessing learning outcomes for interventions, **collect and analyse gender-disaggregated data** along with other demographics (e.g. students with disabilities) to understand differentiated impacts
- While assessing learning outcomes for interventions, **also collect cost data to measure efficiency along with effectiveness**

Summary of methodology to compute cost effectiveness

Quality bar for studies / assessments included

- Experimental or quasi-experimental studies with moderate to large sample sizes (500+), either conducted in the last 5 years (~70% of programs) or cited in reputable publications in recent years (~30%)
- Only interventions that showed some level of effectiveness on learning outcomes with statistical significance were included

Estimation method for intervention type cost effectiveness

Cost effectiveness of intervention type (INR per EYOS) = **Average across all programs under intervention type**

$$\frac{\text{Cost of program}[1] \text{ per student } (INR)}{\text{Effect of program on learning outcomes per student } (Equivalent\ Years\ of\ Schooling)}$$

Overall cost of program, including overheads / indirect costs[2], and adjusted for inflation[3]

Difference between outcomes (available in standard deviations or specific evaluator scales (e.g., CGI)) of intervention groups and comparison groups, converted to EYOS[3]

Notes: 1. Programs where RCT-based evaluation data or quasi-experimental data (e.g. DIB) was available have been included; 2. Took the overall cost of intervention v/s direct programmatic costs as funders / governments will typically need to fund even the overheads of an organization, not just the program; for DIB programs, added a 30% cost for DIB overhead costs (including performance manager, investor returns, advocacy, legal cost etc.); 3. GDP deflator was used to inflate costs to 2019 prices; ~70% programs were recent and did not require inflation; 4. Effects measured in specific evaluator metrics were converted first into S.D., and all S.D.s were converted into EYOS using 1 EYOS = 0.6 S.D, determined based on expert interviews
Source: Evidence for Learning, Effect sizes in education: Bigger is better right?, 2020

High quality interventions[1] can deliver an additional year of learning for students in government schools for additional investment of INR 1,000 – INR 3,000 per student

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Cost per incremental EYOS (INR)[2,3,4]	Intervention types	When do these interventions work	
1,000-2,000	**Teaching at the Right Level**	• Useful when learning levels are diverse; can be effective at delivering outcomes even in low resource settings	Suitable in low resource settings
	Remedial education	• Useful to bridge learning gaps for students who are behind track but not for others	
	Non-adaptive Edtech	• Useful when implemented as a complement v/s substitute to high quality existing instruction[5], requires presence of supervisor to be effective	
2,000-3,000	**School leadership/teacher training**	• Enables reach to a large set of beneficiaries but requires quality trainers	Suitable in high resource settings
	Adaptive EdTech	• Useful when learning levels are diverse, effective even for middle grades; requires a unique device for every 1-2 students	
?	**Ed-tech enabled teacher training and development**	• Limited evidence so far (tried at small scale, little assessment information available), but promising early results	

Notes: 1. High quality interventions includes programs that have robust evidence from third party assessments and have been tried at scale. Further details on how these interventions can be made more effective can be found on page 12. 2. These overall price ranges do not include costs in outcome-based settings (e.g. impact bonds), since procurements are less common in these settings; 3. Incremental EYOS means additional EYOS gains above that made a control group; 4. Only 3 of 23 programs have costs over INR 3000, and on aggregate, costs of all intervention types are less than INR 3000; 5. In Gyanshala CAL program, of the two programs – one which complemented the public schooling system and one which replaced it, the complementary program showed significant impact on student learnings

Panel discussion on two main themes:

I. Role of outcomes-based financing in improving learning outcomes and enhancing accountability

II. Practical considerations for policymakers and practitioners

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Grace Wood

Education Adviser, British High Commission Ghana & Foreign, Commonwealth and Development Office (FCDO), UK Government
- Grace Wood is Education Adviser for FCDO Ghana, leading UKAid policy and programmes to support the COVID-19 education response, basic education reforms, teacher education, girls' education, out-of-school children, and partnerships between government and non-state actors.
- From 2016-2018, she was Education Adviser for DFID Pakistan, leading UKAid work to support children with disabilities, education through non-state actors, and education advocacy. She previously held a range of UK-based roles in DFID, leading policy for the Girls Education Forum 2016, and UK support to GPE.
- She holds an MA in Education and International Development from UCL and a BA in English and Spanish from Durham University.

Krisha Mathur

Social Finance Manager, The British Asian Trust

- Krisha leads the British Asian Trust's work in social finance in India and Bangladesh and has over 10 years of experience spanning strategy consulting, financial services, healthcare delivery, gender, livelihoods and social impact.
- Previously, she co-founded Clinic Didi - a nurse-led rural healthcare model that aims to improve care delivery in existing public clinics at the last mile. She has also led the India Health portfolio at the Institute for Transformative Technologies, a technology incubator seeded at the University of Berkeley.
- She has a Bachelor's Degree in Finance & Investment from the Delhi University and an MBA from Indian School of Business.

Mara Airoldi

Director, Government Outcomes Lab, Blavatnik School of Government

- Mara is an Economist and Decision Analyst and holds degrees from Bocconi University in Milan and the London School of Economics and Political Science. Her research is motivated by a desire to improve decision making in government, with a special interest and extensive expertise in the field of healthcare.
- Mara has worked extensively with managers of the English and the Italian National Health Systems. She has also consulted for the Ministry of Health and Long-Term Care in Ontario (Canada), the Home Office, the Ministry of Defence and the (then) Department for Environment, Food and Rural Affairs in England, NATO and the Global Fund to fight Aids, Tuberculosis and Malaria.

Milena Castellnou

Chief Programs Officer, Education Outcomes Fund (EOF)

- Milena has extensive experience in the design and implementation of Results-Based Financing (RBF) programs, including the first Social Impact Bond in a developing country, in Colombia, and a $10 million RBF program in employment for the Millennium Challenge Corporation and the Government of Morocco.
- She is currently overseeing EOF's large scale outcomes fund in basic education in Sierra Leone and leads EOF's work in skills-for-employment in several countries.
- Milena holds an undergraduate and Master's degree from Science Po Grenoble and an LLM in Public International Law from the University of Nottingham.

Thank you for joining us!

We would love your feedback!

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Results and learnings from the Village Enterprise Development Impact Bond

| ONLINE EVENT | 9 MARCH 3 p.m. - 4:30 p.m. (GMT) | Set my timezone |

This Engaging with Evidence session will explore insights from the Village Enterprise Development Impact Bond, a poverty alleviation project in Uganda and Kenya.

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