Human Capital and Development

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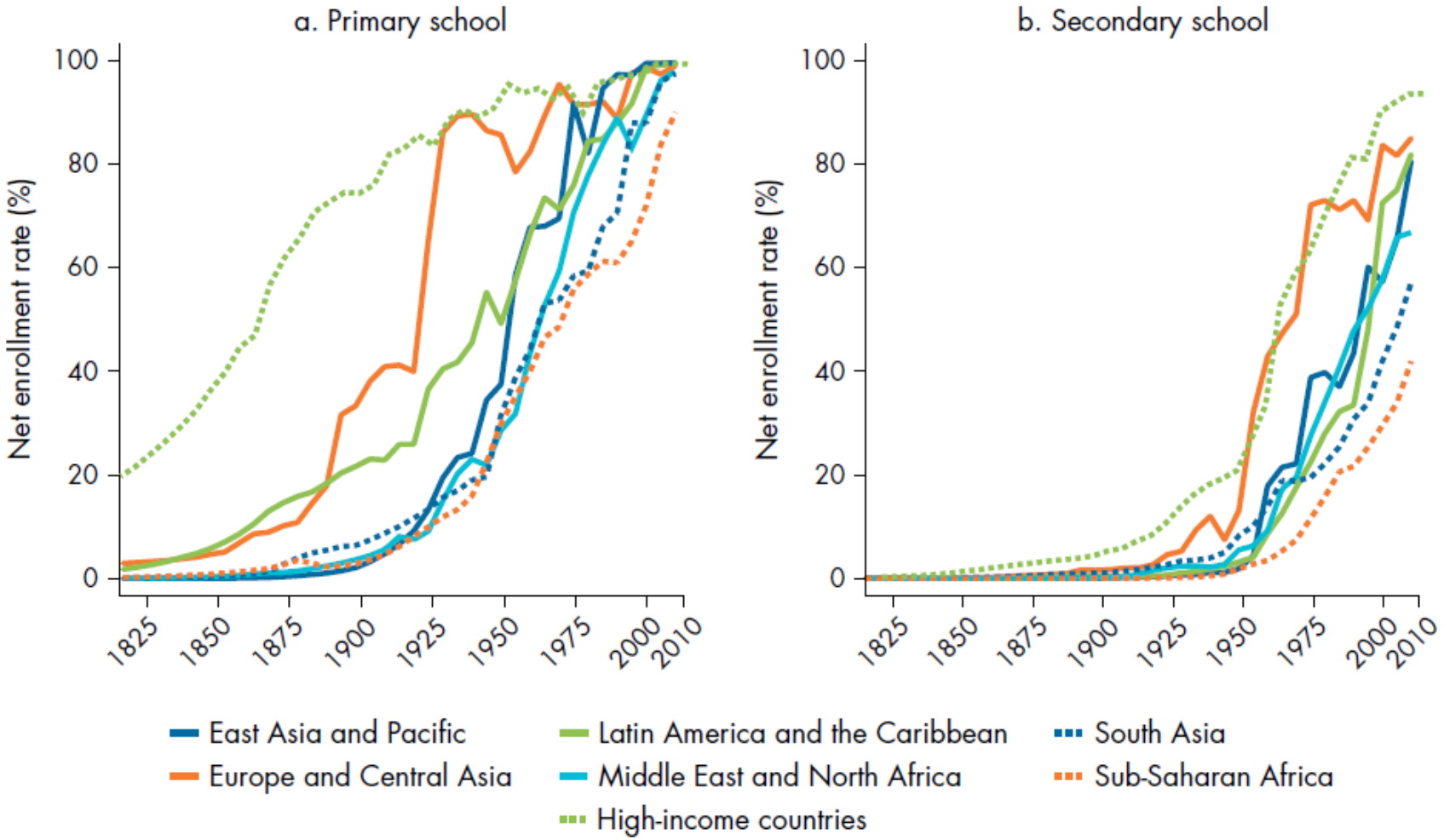
Patrick Premand (DIME)

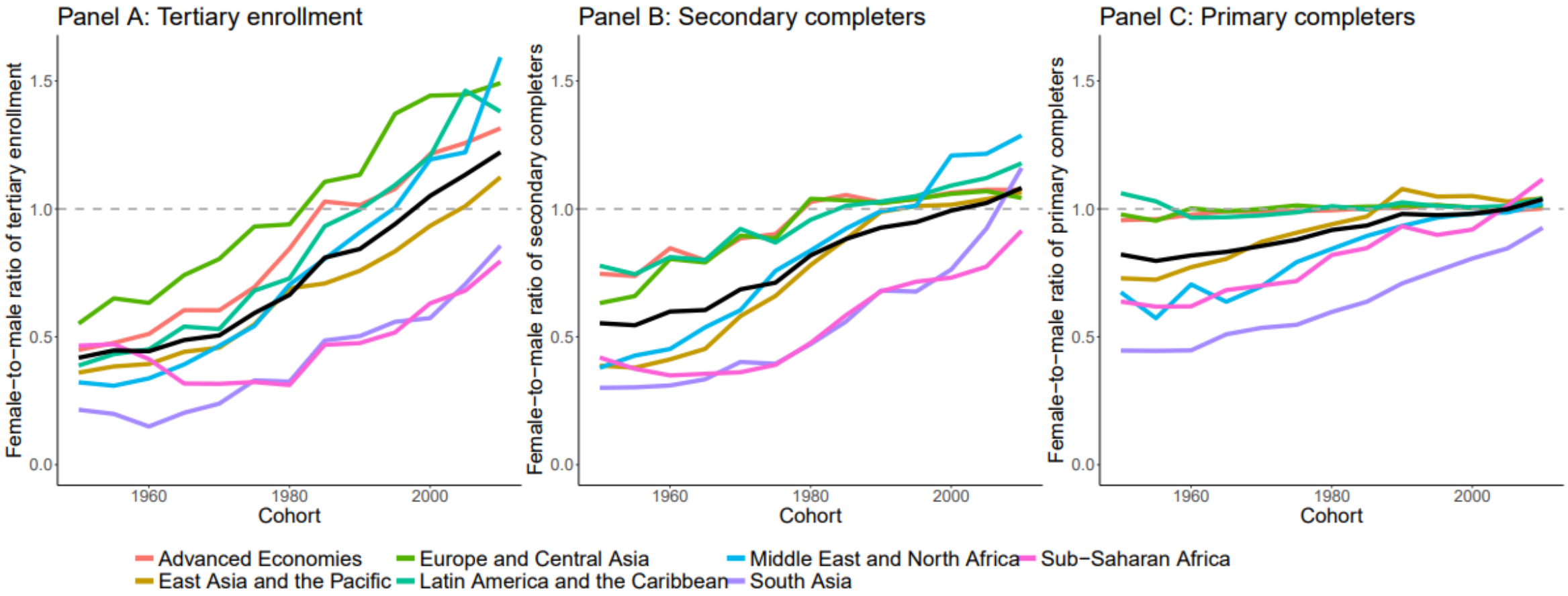
KCP 20+ Event Series
February 2, 2023

WORLDWIDE PROGRESS IN EDUCATION



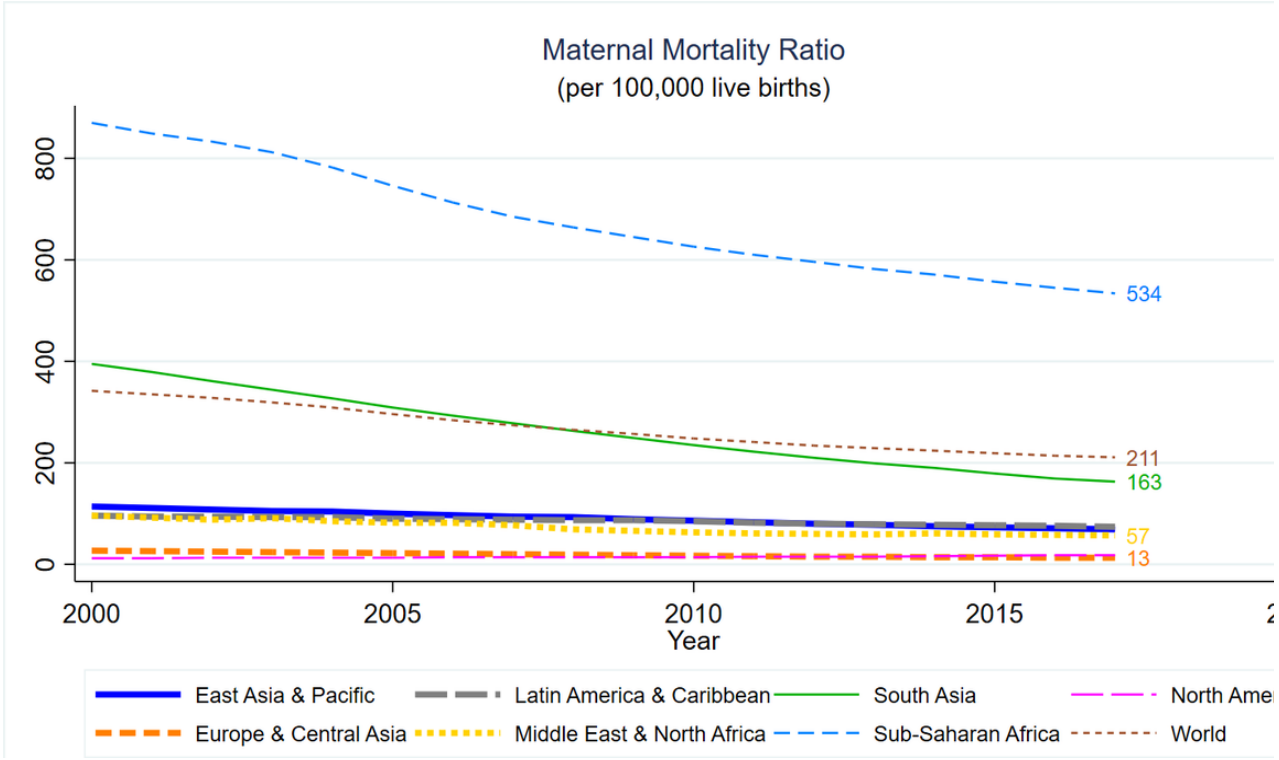
KCP-supported: World Bank. 2018. World Development Report: Learning to Realize Education's Promise.

- And now a gender gap reversal in enrollment most countries…



Bossavie, Laurent and Ohto Kanninen. 2018. “What Explains the Gender Gap Reversal in Education? Theory and Evidence.” World Bank Policy Research Working Paper 8303.

AND PROGRESS IN HEALTH



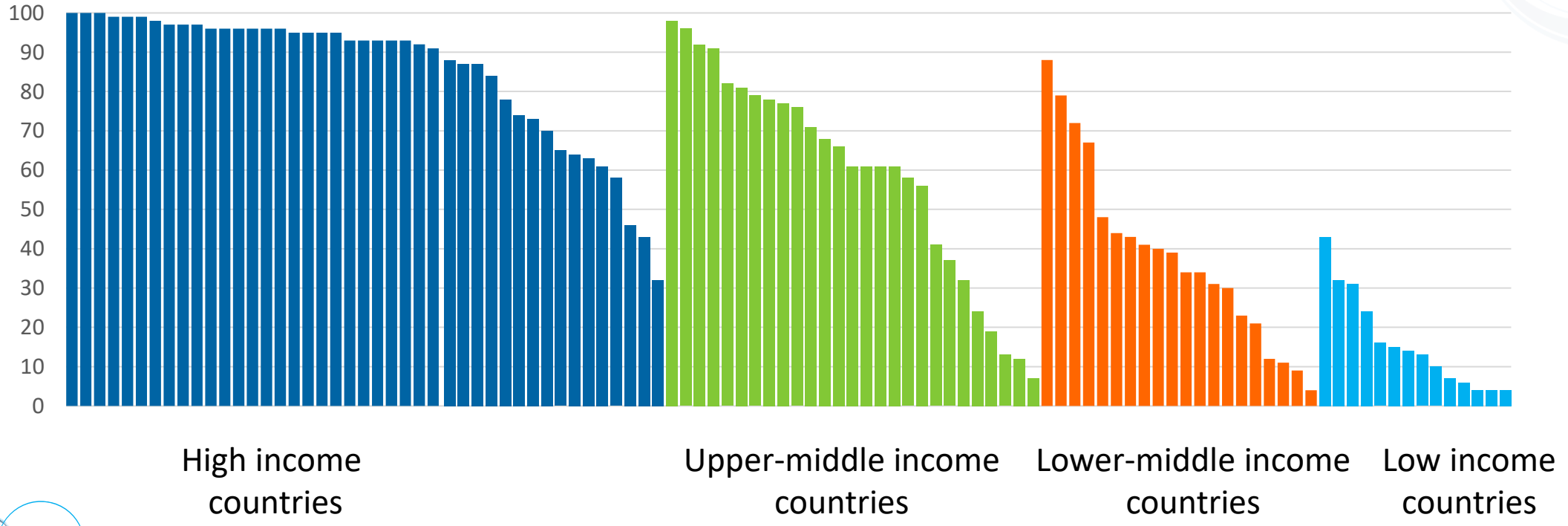
World Bank Gender data portal

Source: WHO and World Bank. 2021. Tracking Universal Health Coverage 2021 Global Monitoring Report.

YET, BIG CHALLENGES…

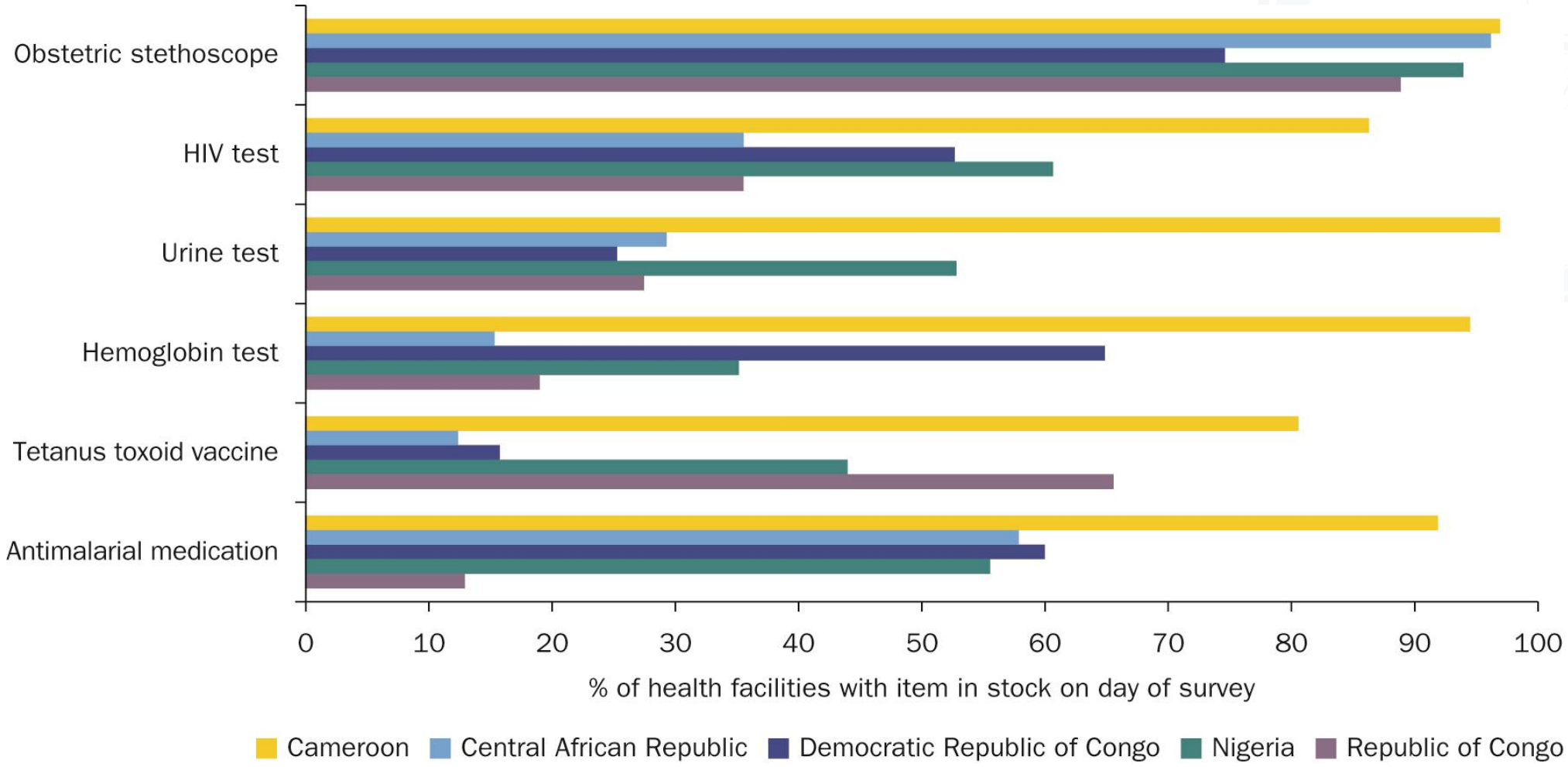
Learning is different than enrollment

Percent of end-of primary students who meet a minimum proficiency threshold for learning in math



KCP-supported: World Bank. 2018. World Development Report: Learning to Realize Education's Promise.

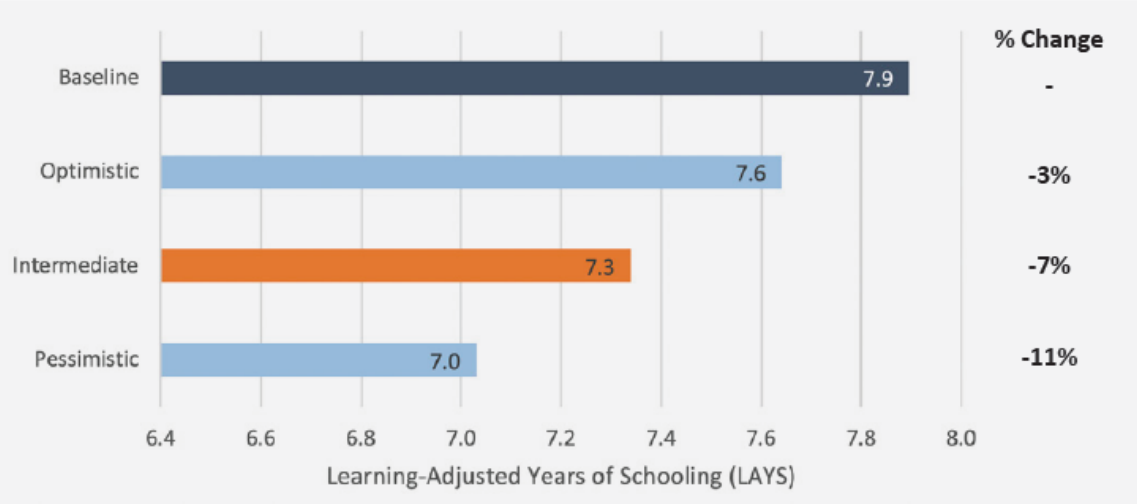
Health centers lack structural capacity needed for quality service delivery



KCP supported: de Walque et al. 2022. Improving effective coverage in health: Do Financial incentives work? World Bank Policy Research Report.

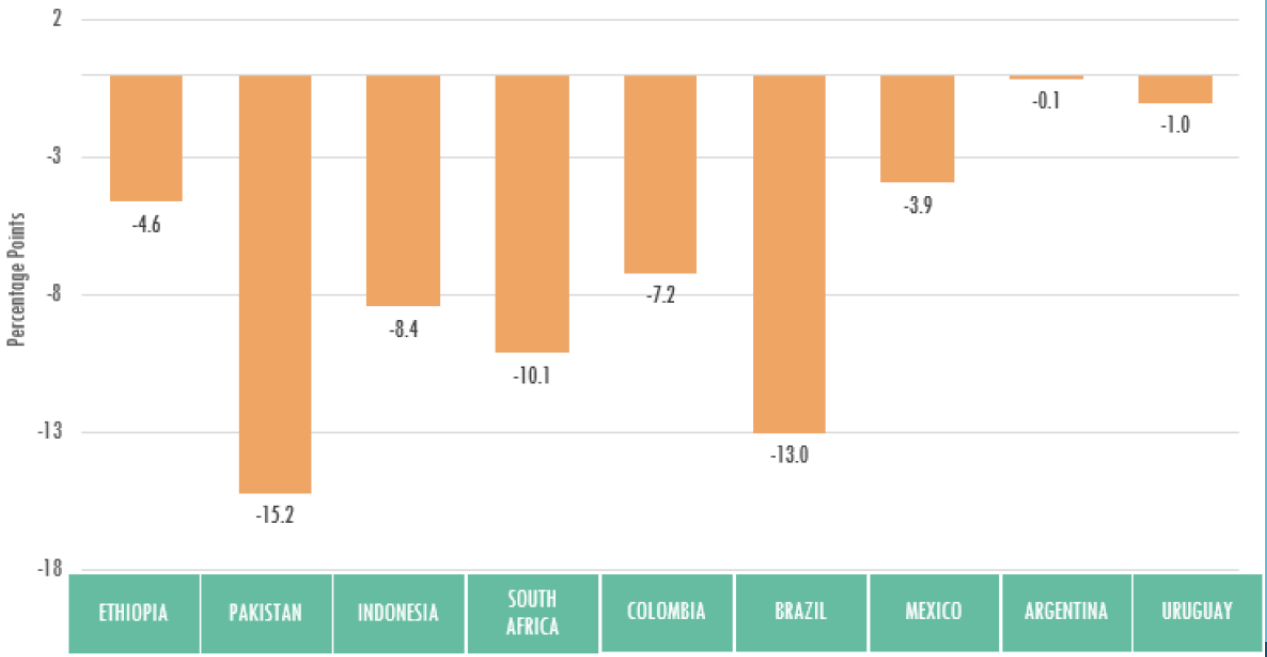
MAJOR COVID DISRUPTIONS IN EDUCATION

Estimates of decline in learning adjusted years of schooling



KCP supported: Azevedo et al 2020. Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates. The World Bank.

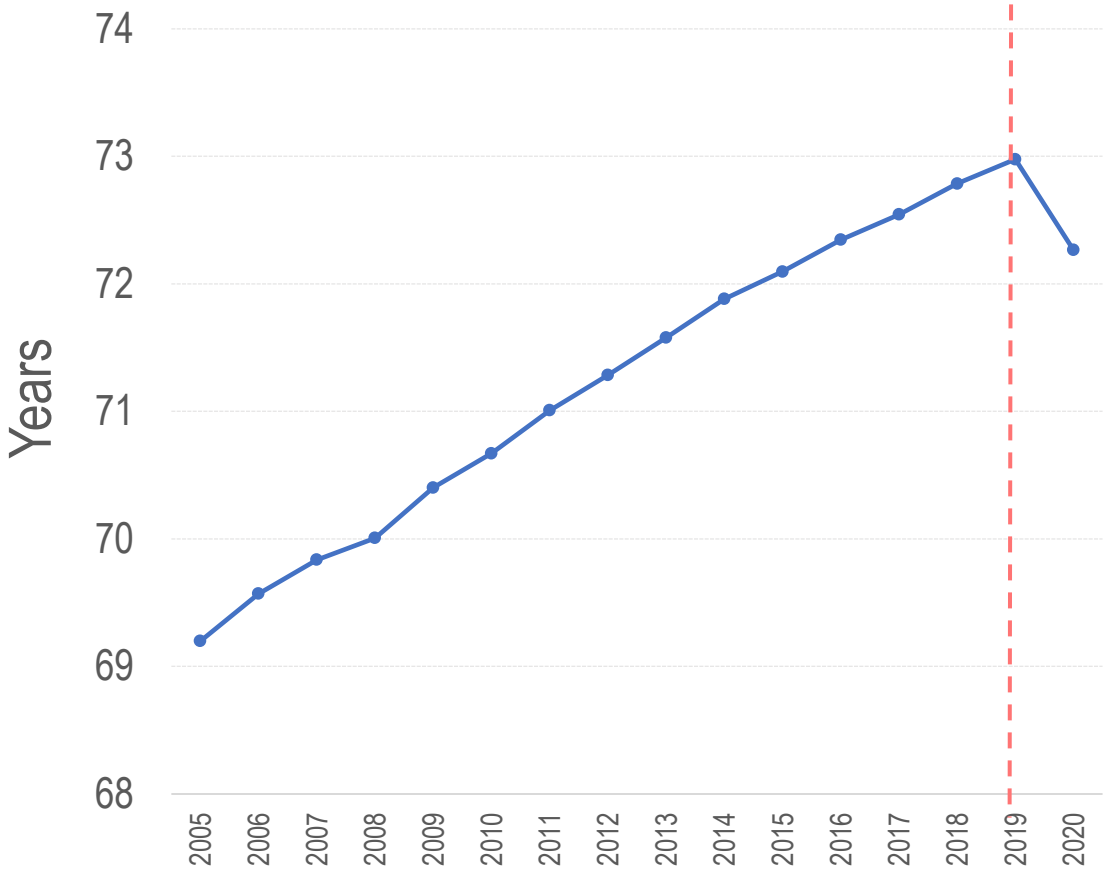
Pre-primary attendance: difference from predicted and actual enrollment in 2021



Schady et al. 2023 forthcoming. "Collapse & Recovery: How COVID-19 Eroded Human Capital and What to Do About It." World Bank.

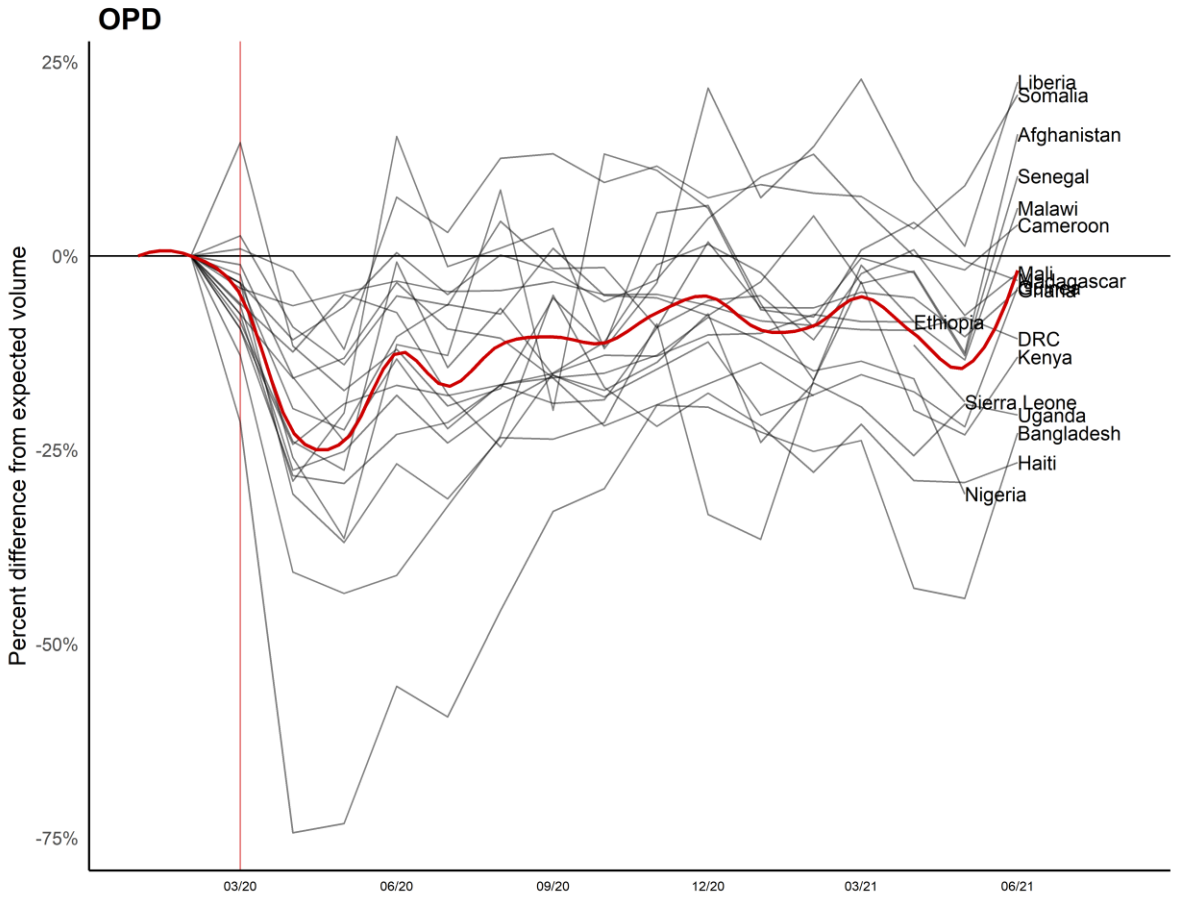
& MAJOR COVID DISRUPTIONS IN HEALTH

World life expectancy at birth



World Development Indicators

Reduction in outpatient consultations during COVID

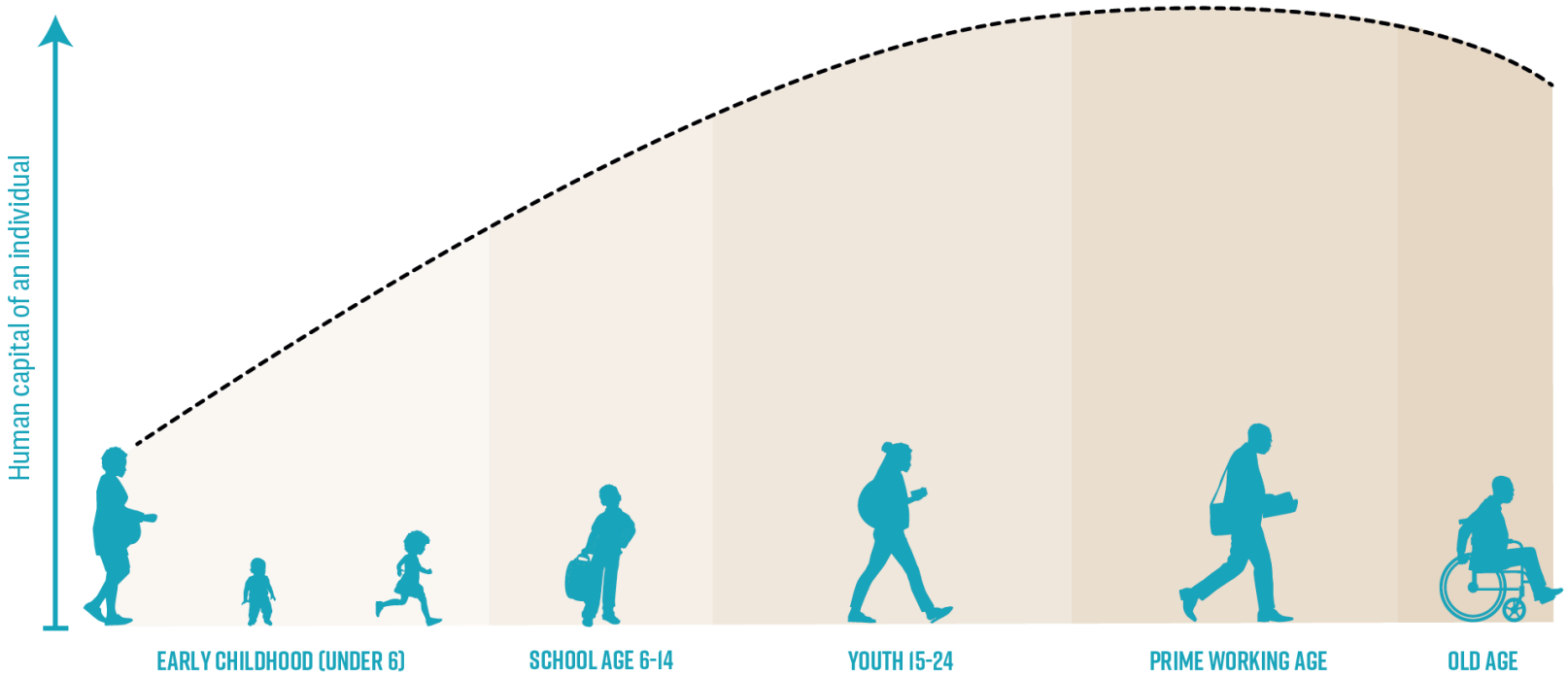


Ahmed et al 2022. "Healthcare utilization and maternal and child mortality during the COVID-19 pandemic in 18 low- and middle-income countries: An interrupted time-series analysis with mathematical modeling of administrative data." PLOS Medicine.

THIS PRESENTATION

- Highlights innovations in **measurement** of human capital
- Discusses a select set of **evidence** on policies interventions
- Kickstart a discussion on **research priorities** moving forward

- Focus on children and youth
  - Not about healthy longevity, lifelong learning, reskilling the workforce…



Schady et al. 2023 forthcoming. "Collapse & Recovery: How COVID-19 Eroded Human Capital and What to Do About It." World Bank.

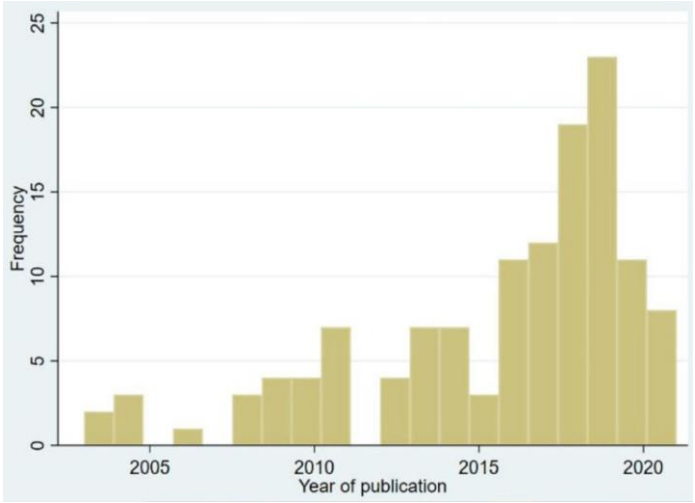
TRENDS IN RESEARCH

- More and better data provides more nuanced measures of human capital and its various facets

- Boom in the use of experimental and quasi-experimental methods to analyze policy effectiveness
  - Leverages and contributes to improvements in data
  - Increasing scope for meta-analysis/synthesis

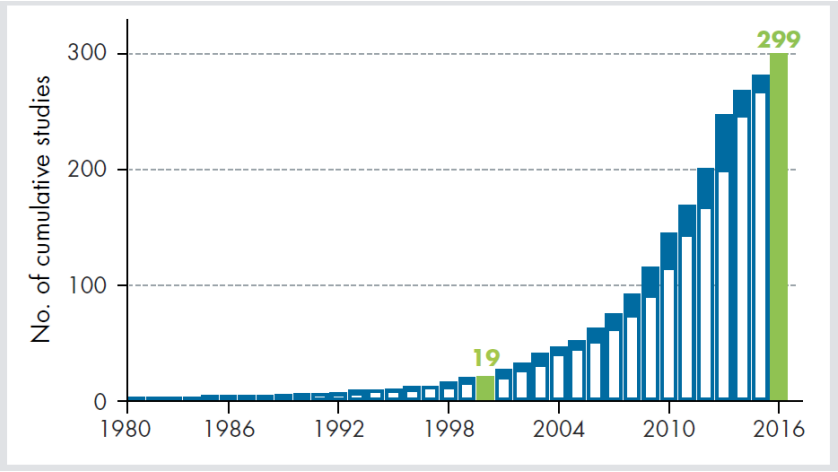
Number of studies documenting impacts on

(i) maternal and child health



Manley et al. 2022, BMJ.

(ii) learning outcomes



KCP-supported: World Bank 2018 World Development Report: Learning to Realize Education's Promise.

Innovations in Measurement

World Bank's Human Capital Index (HCI)

SURVIVAL

Children who don't survive don't grow up to become future workers

x

SCHOOL

Contribution of quality-adjusted years of school to productivity of future workers

x

HEALTH

Contribution of health (adult survival rate and stunting) to productivity of future workers

=

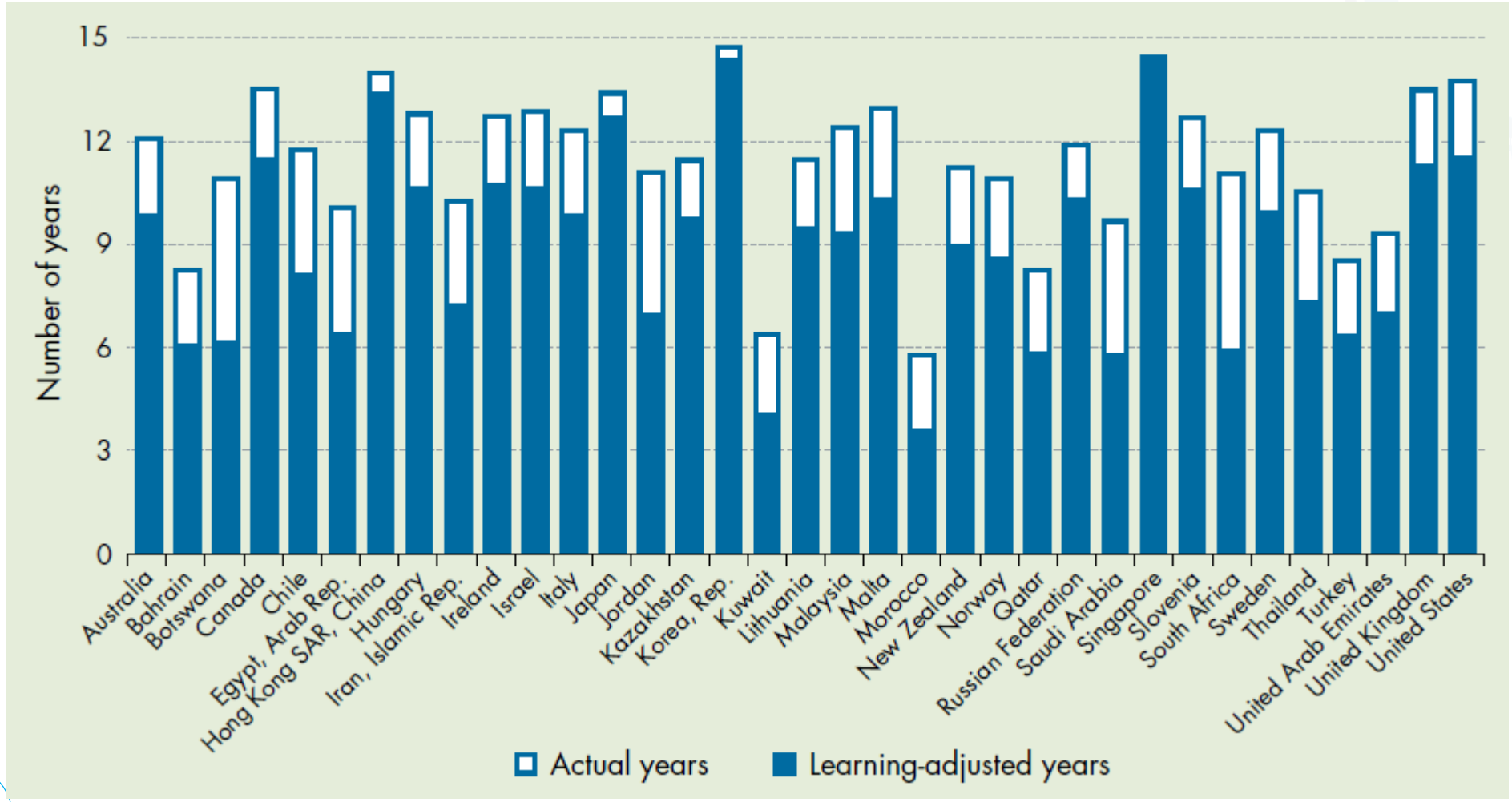
HCI

Productivity of a future worker (relative to benchmark of complete education and full health)

The HCI measures the expected productivity as a future worker of a child born today relative to this benchmark, i.e. $0 < HCI \leq 1$

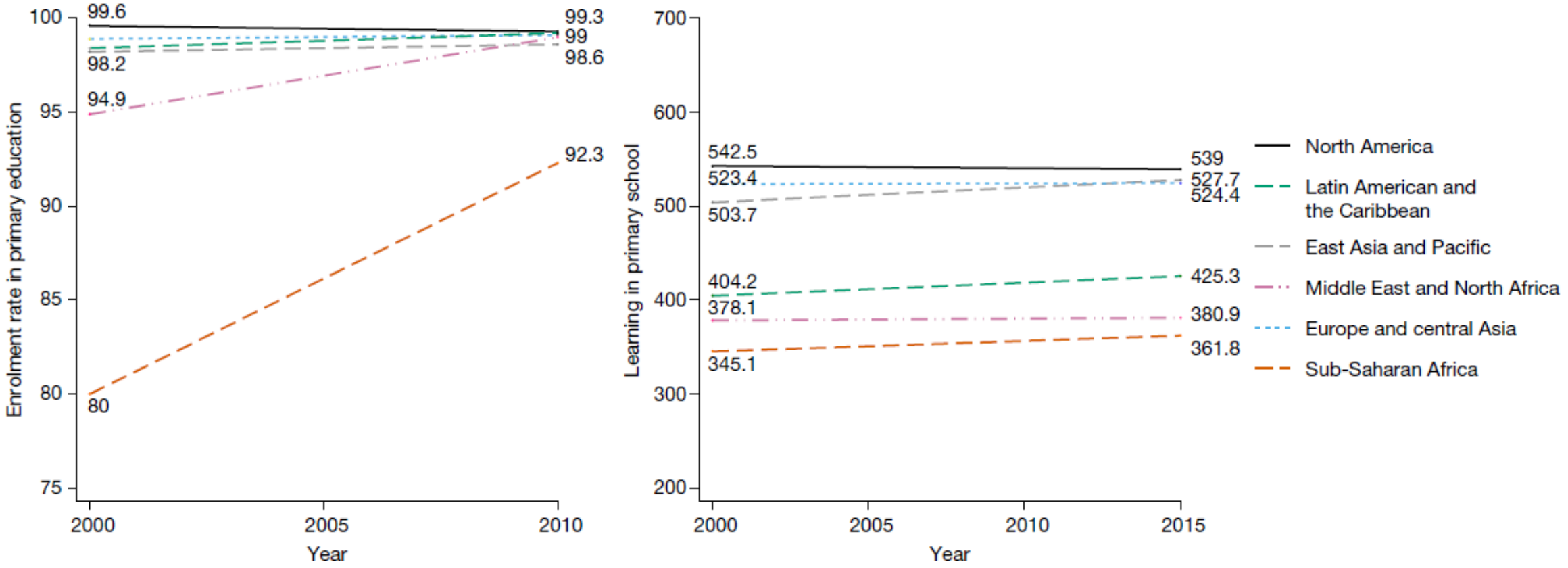
World Bank. 2020. "HCI Methodological Report."

LEARNING-ADJUSTED YEARS OF SCHOOLING (LAYS)



KCP-supported: World Bank. 2018. World Development Report: Learning to Realize Education's Promise.

Enrollment versus learning by region, conditional on country-fixed



KCP-supported: Angrist, Noam, Simeon Djankov, Pinelopi K. Goldberg and Harry A. Patrinos. 2021. "Measuring human capital using global learning data." Nature (592).

SOCIO-EMOTIONAL SKILLS

STEPSKILLS MEASUREMENT
THE WORLD BANK

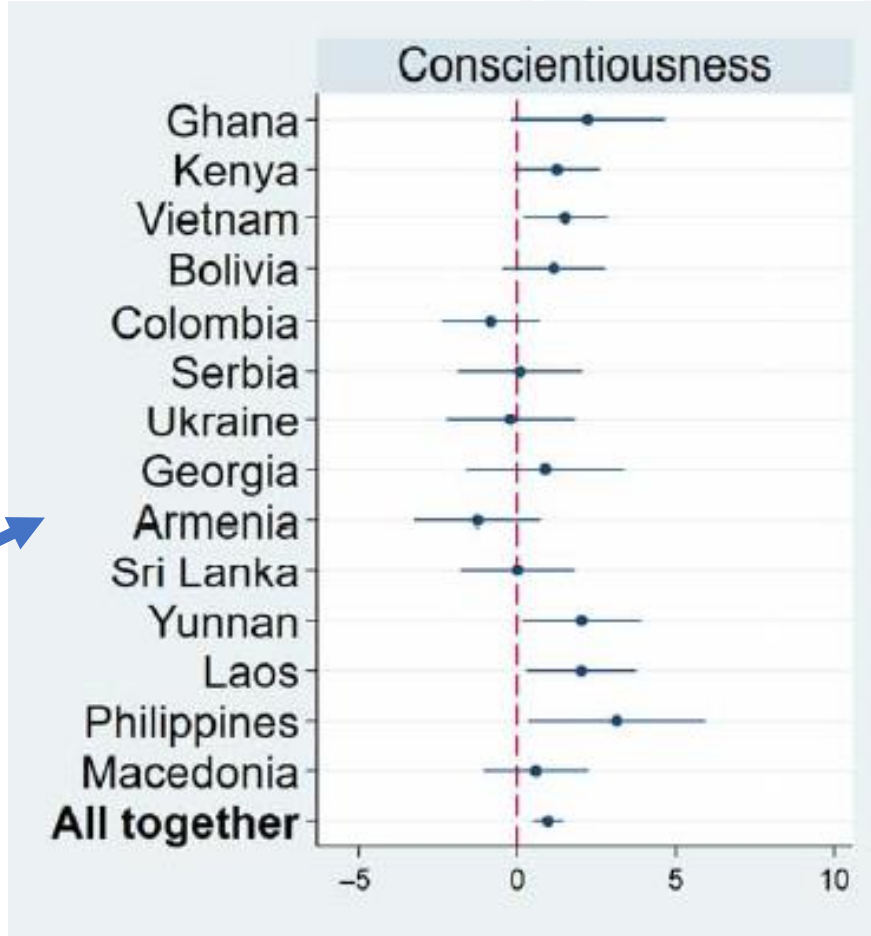
Socio Emotional Skills (Personality, behavior, preferences)	Big Five Inventory (Extraversion, Conscientiousness, Openness to experience, Neuroticism, Agreeableness)
	Grit Scale
	Hostile Bias
	Decision Making
	Preferences (Risk aversion, Time preference)
	Interpersonal skills

Estimated effect of noncognitive skills on hourly earnings, workers ages 25 to 64

	Openness	Conscientiousness	Extra-version	Agreeableness	Emotional stability	Grit	Decision-making
Armenia	0.015	-0.046	0.032	-0.066**	0.012	0.052*	-0.031
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Bolivia	0.049	0.045	0.016	0.021	0.064	-0.008	-0.039
	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Colombia	-0.009	-0.028	-0.027	0.078*	0.028	-0.046	0.085**
	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Georgia	0.041	-0.029	-0.036	0.009	-0.020	-0.072	0.009
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Kenya	0.117*	0.118	0.047	0.104	-0.027	-0.041	0.033
	(0.07)	(0.09)	(0.07)	(0.07)	(0.07)	(0.06)	(0.07)
Ukraine	0.085**	0.039	0.030	-0.073**	0.011	-0.007	0.049
	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Vietnam	0.030	-0.051	-0.006	0.008	-0.05	0.062**	-0.002
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)

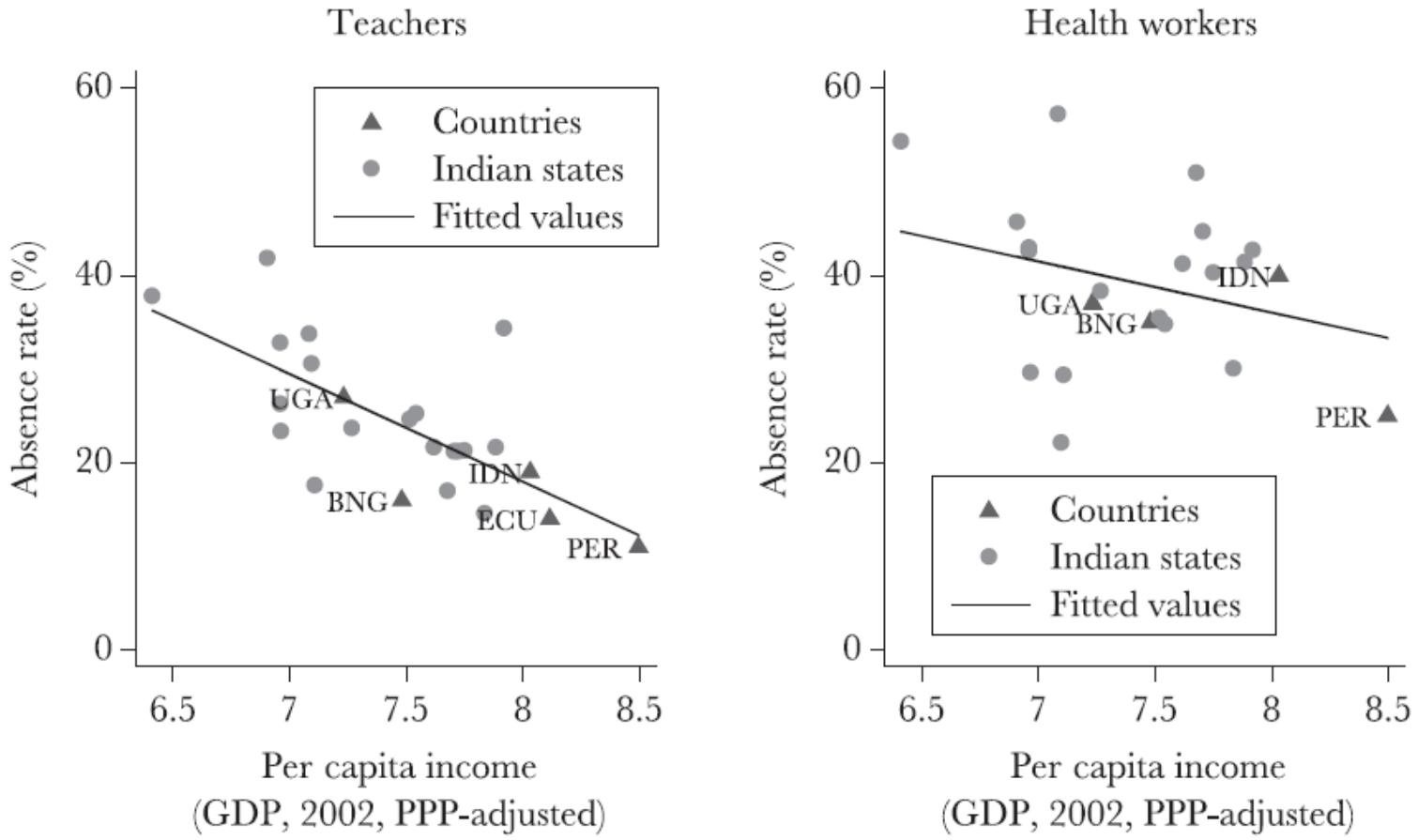
KCP-supported: Valerio et al. 2016. "Are There Skills Payoffs in Low and Middle-Income Countries? Empirical Evidence Using STEP Data." World Bank Policy Research Working Paper 7879.

- Important challenges remain:
  - Proliferation of scales, at times lacking theory on how they map to each other
  - Validity of western/HIC-based measures for other countries
    - For example, conscientiousness (emphasized in US literature) is not a significant predictor of income in 10 out of 14 countries.



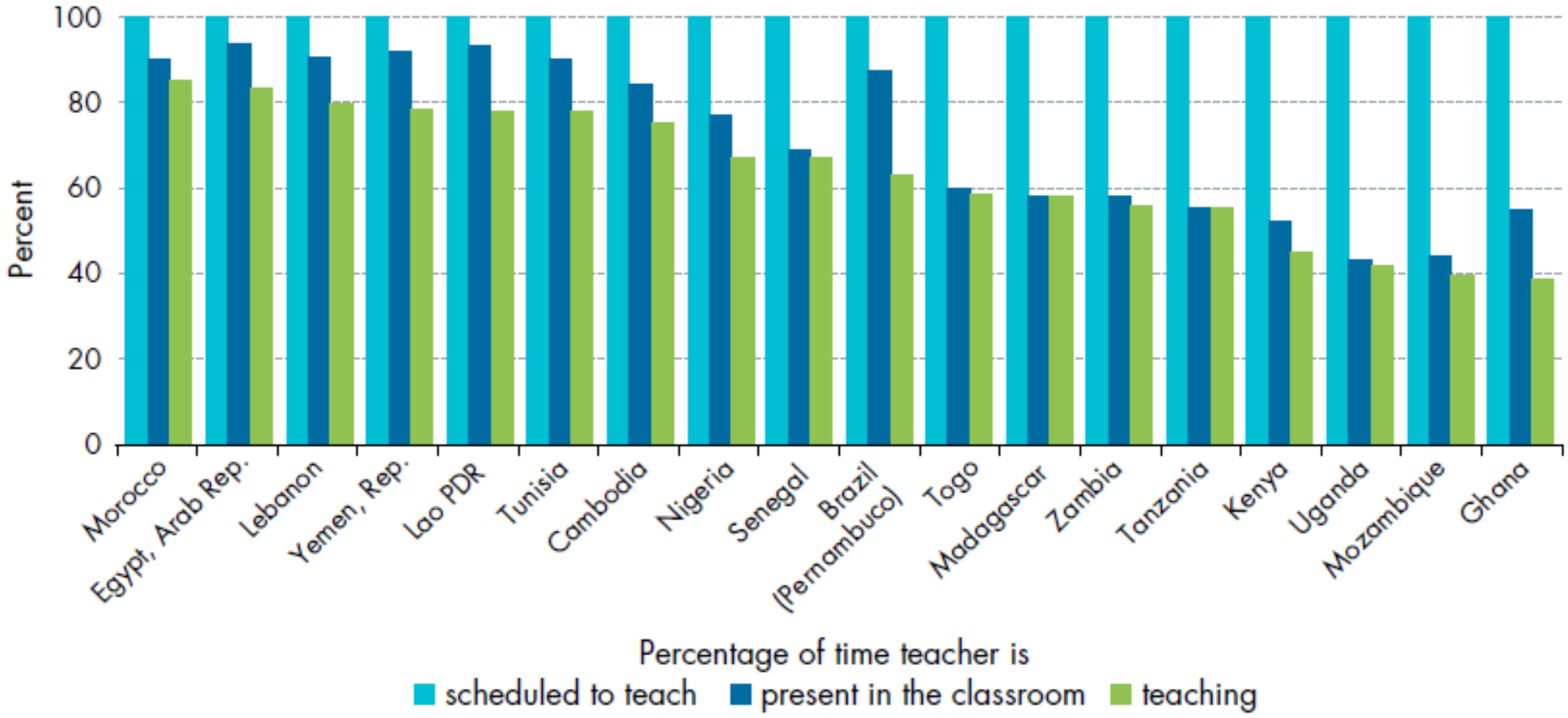
KCP-supported: Laajaj et al. 2019. "Challenges to capture the big five personality traits in non-WEIRD populations." Science Advances.

QUALITY OF SERVICE DELIVERY



KCP-supported: Chaudhury et al. 2006. "Missing in Action: Teacher and Health Worker Absence in Developing Countries." Journal of Economic Perspectives 20(1).

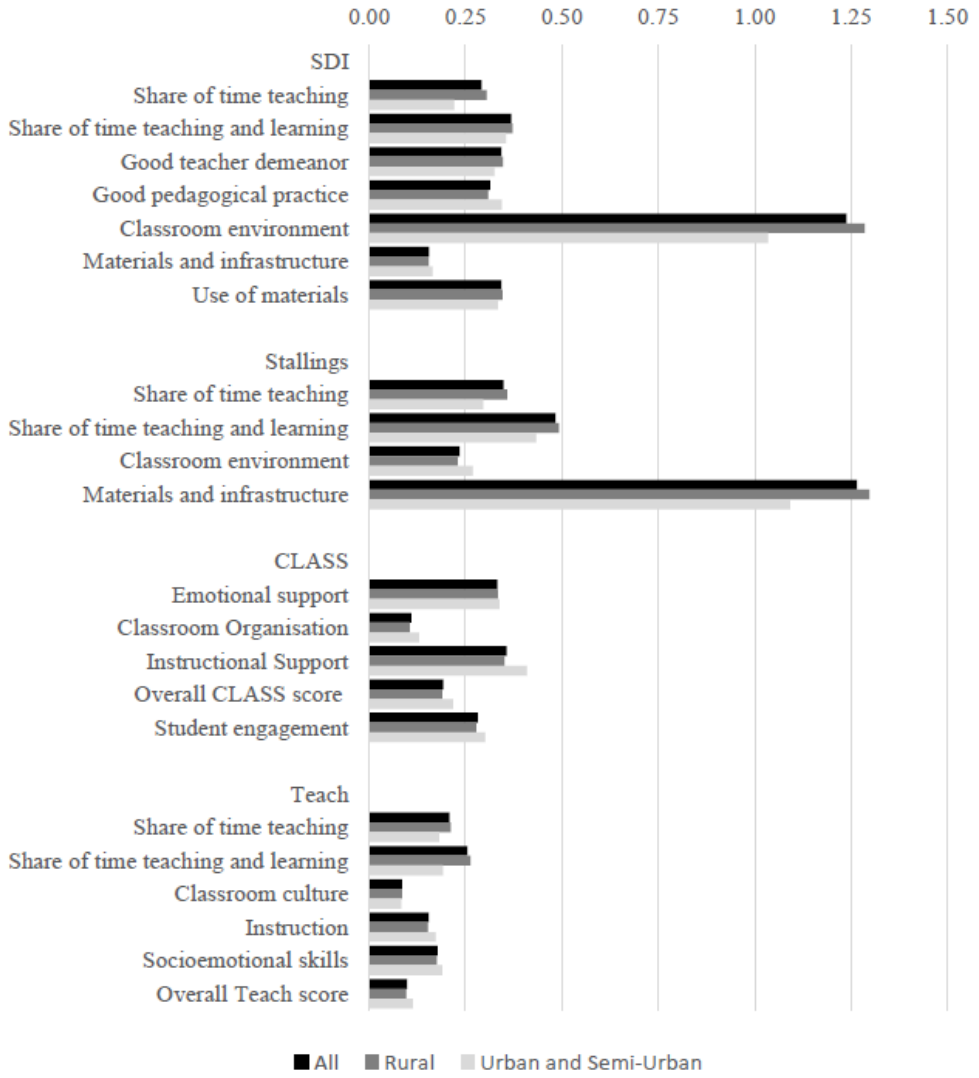
Percentage of time officially allocated to schooling that a teacher is scheduled to teach, is present in the classroom, and is actually teaching



KCP-supported: World Bank. 2018. World Development Report: Learning to Realize Education's Promise.

MEASURING EFFECTIVE TEACHERS

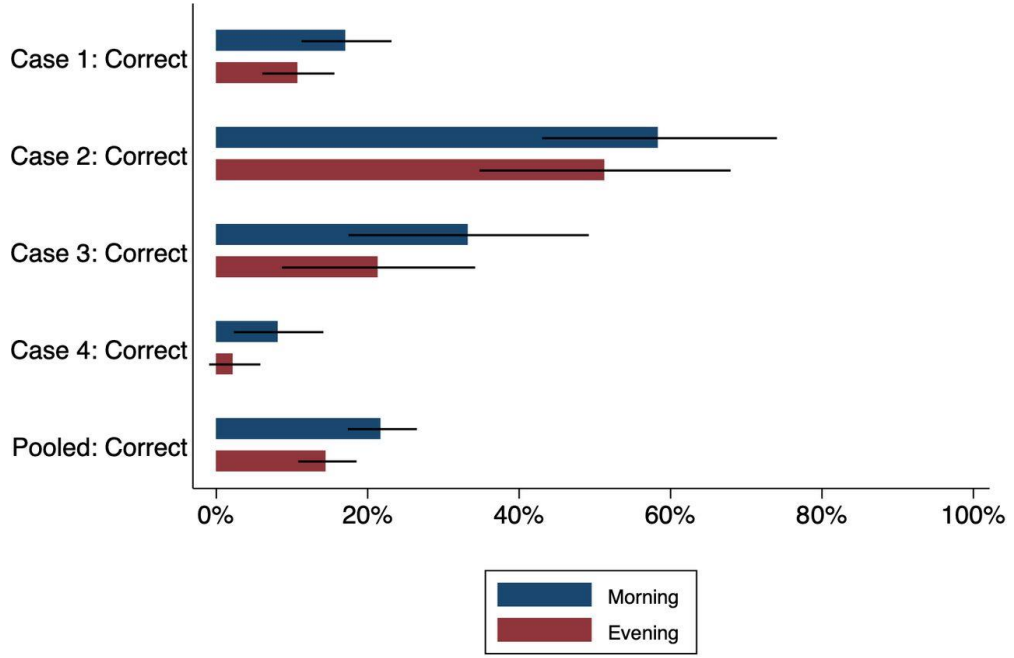
Coefficients of variation for Level 1 variables from the different observation instruments



KCP-supported: Filmer, Deon, Ezequiel Molina, Waly Wane. 2020. “Identifying Effective Teachers Lessons from Four Classroom Observation Tools.” World Bank Policy Research Working Paper 9365.

STANDARDIZED PATIENTS/MYSTERY CLIENTS

Percentage of providers correctly managing TB patient in the morning or evening across SP cases, urban India

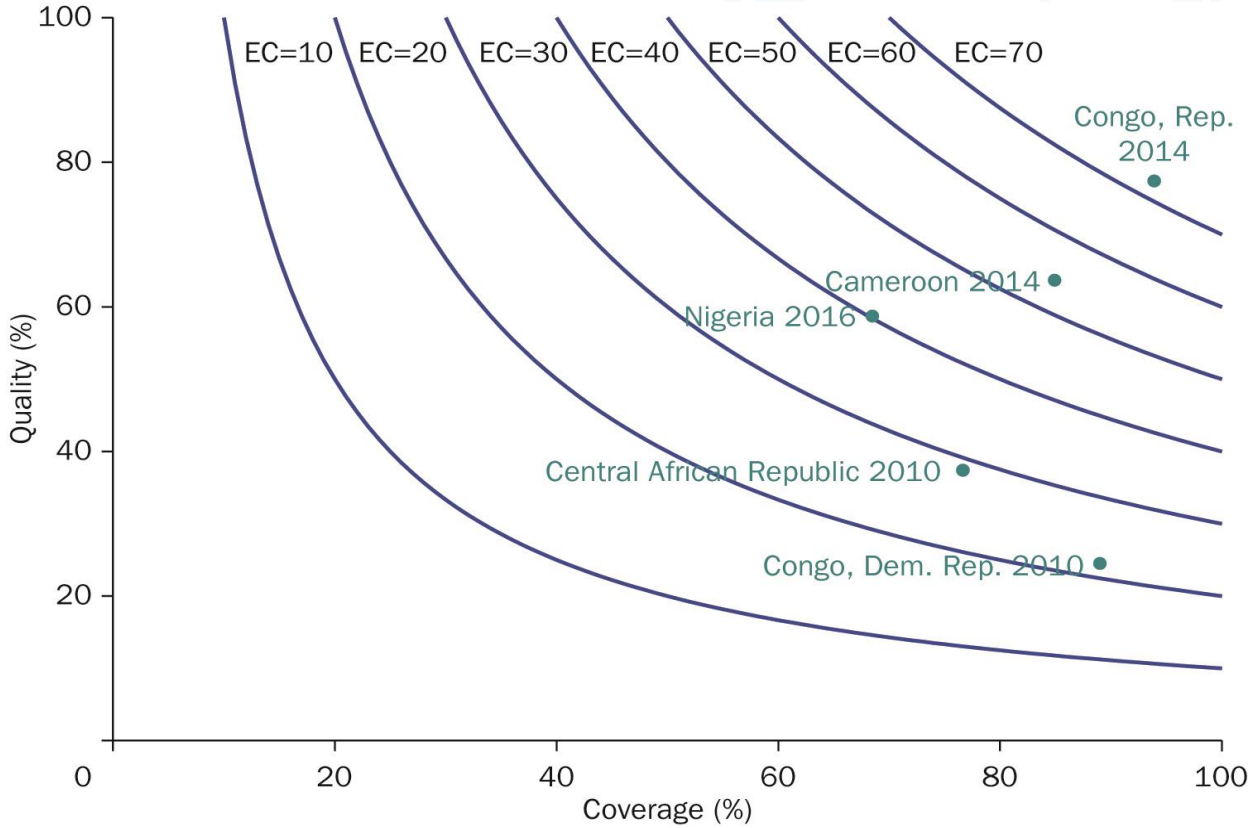


Difference in means for case 1 (p-value = 0.0999), case 2 (p-value = 0.5302), case 3 (p-value = 0.2429), case 4 (p-value = 0.0984), pooled (p-value = 0.0007).

KCP-supported: Kwan et al. 2019. "The use of Standardized Patients for Healthcare Quality Research in Low- and Middle-Income Countries". BMJ Global Health 4(5).

EFFECTIVE COVERAGE

EC in antenatal care



KCP supported: de Walque et al. 2022. Improving effective coverage in health: Do Financial incentives work? World Bank Policy Research Report.

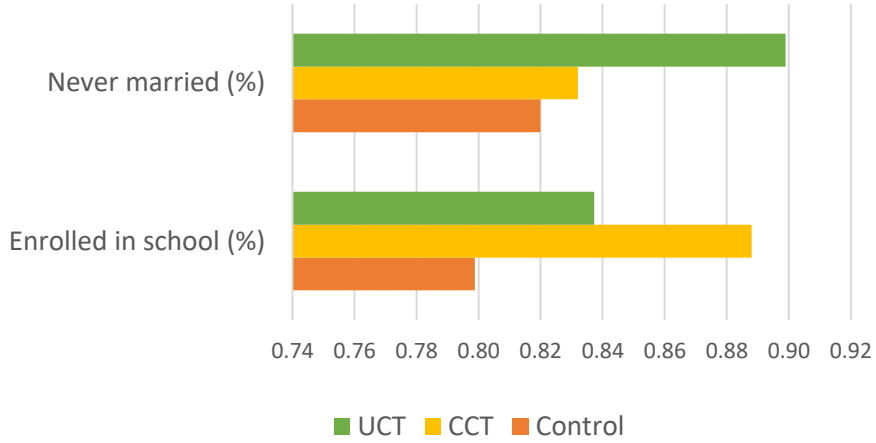
EVIDENCE ON POLICIES TO IMPROVE HUMAN CAPITAL

Featuring a select set of KCP-supported & other research studies

CASH TRANSFERS

- Theoretical underpinnings and empirical evidence on short-term impacts of CCTs in the KCP-supported Policy Research Report "Conditional Cash Transfers: Reducing Present and Future Poverty" by Fiszbein et al. 2009.
- Evidence on long-term effects growing but mixed
  - Including KCP-supported: Macours & Vakis, 2016, Baird et al. 2019.
- CCTs can be successful in improving the outcomes on which they are conditioned
  - School enrollment (KCP-supported: Akresh et al 2012, KCP-supported: de Walque et al., 2016)
  - Safer sexual behavior (KCP-supported: Dow et al 2014; KCP-supported: Cooper et al, 2017).
- There can be tradeoffs between CCTs and UCTs that affect a broader set of outcomes
  - KCP-supported: Baird et al. 2011; KCP-supported: de Walque et al. 2016.

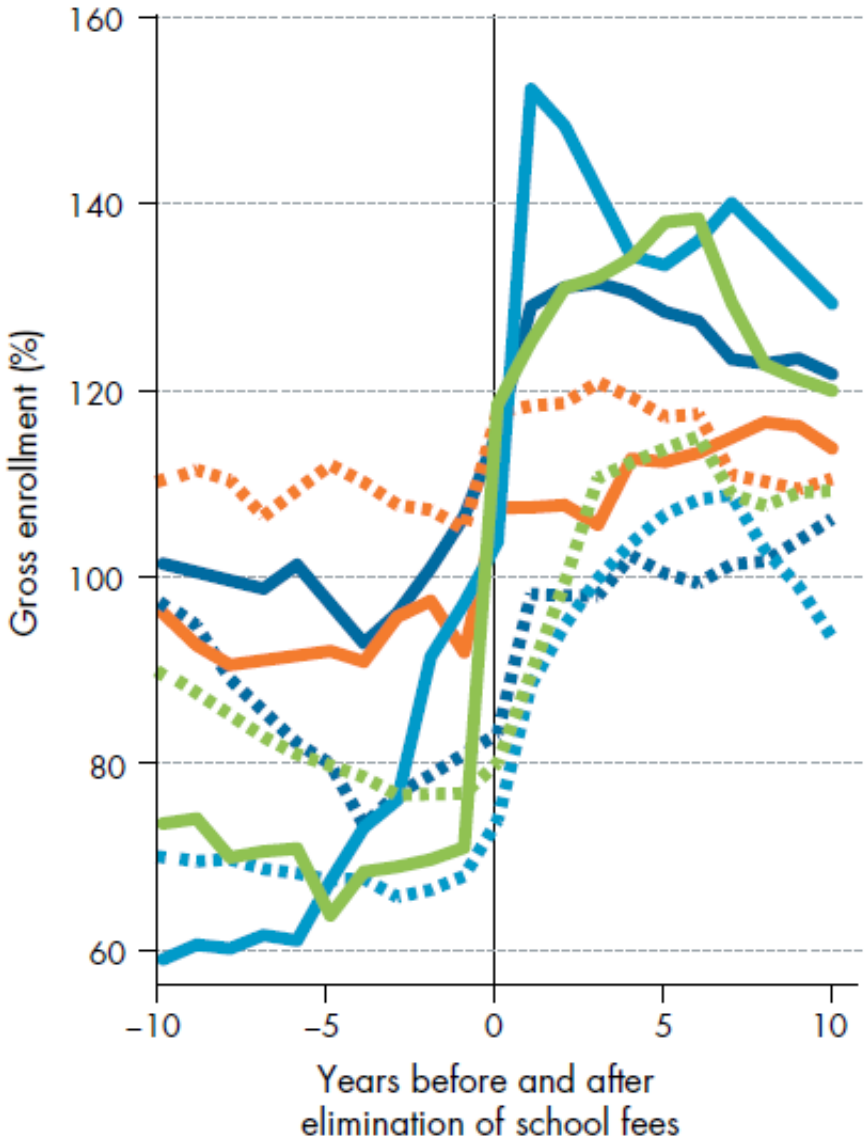
CCTs vs. UCTs
on school enrollment and teen marriage



KCP-supported: Baird et al. 2011. "Cash or Condition? Evidence from a Cash Transfer Experiment." QJE

COST OF SCHOOLING

Gross enrollment in years before and after elimination of school fees

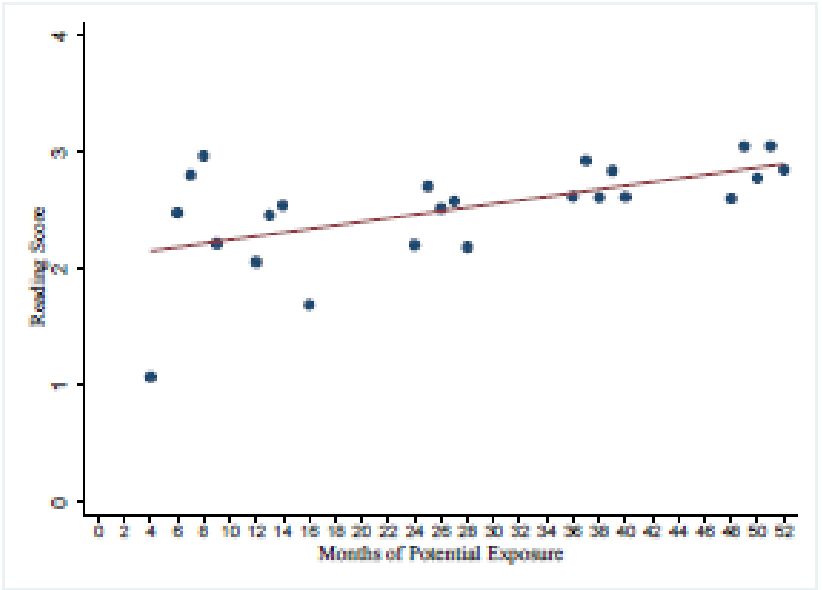


KCP-supported: World Bank. 2018. World Development Report: Learning to Realize Education's Promise.

SCHOOL FEEDING

- School feeding increases health and nutrition status (WFP, 2022)
  - Particularly with micronutrient-fortified meals (e.g . Alderman et al., 2019; Kazianga et al., 2014)
  - Potential complementarities with deworming (Nga et al. 2011; de Gier et al., 2016)
- And it improves grade attainment, learning and cognitive skills (literacy and maths scores) (WFP, 2022)
  - Particularly with complementary school inputs (teacher in attendance, learning material, …) (Chakraborty & Jayaraman, 2019)
- Spill-overs on other siblings and even parents (Chakraborty and Jayaraman, 2019; Kazianga et al., 2012)

Reading score and duration of exposure to school meals in India

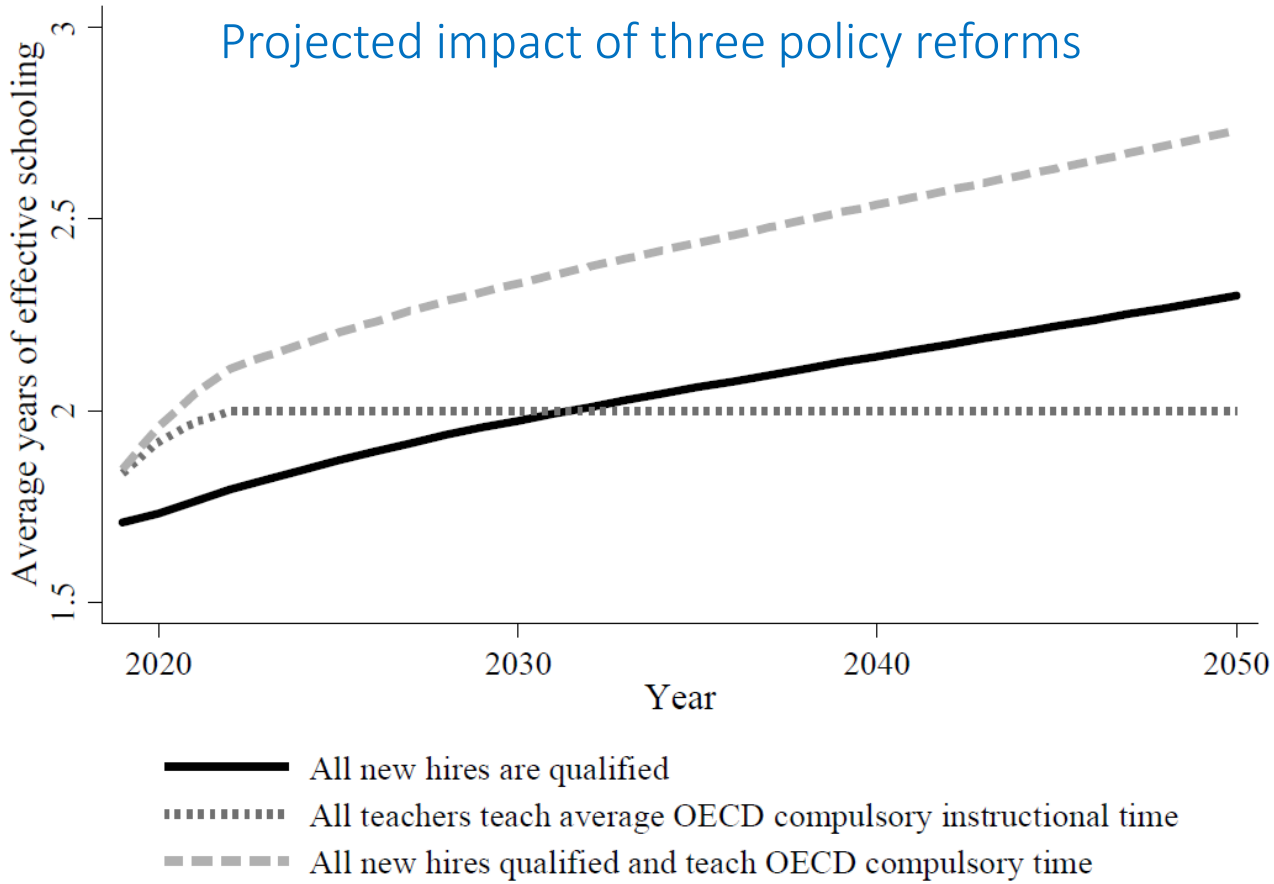


(a) Reading Score

Chakraborty and Jayaraman. 2019. " School feeding and learning achievement." JDE.

Source: WFP (2022)

TEACHER CONTENT KNOWLEDGE

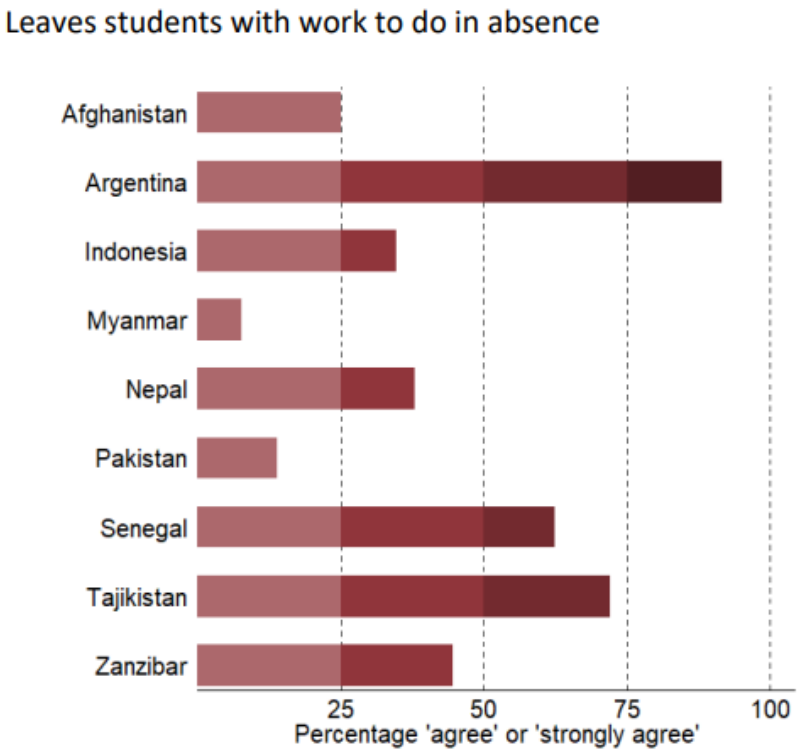


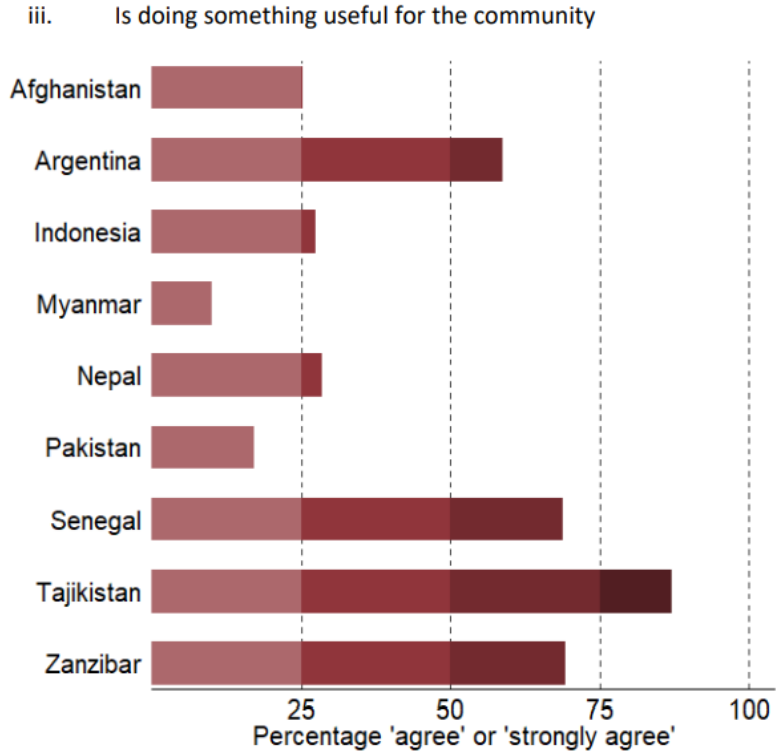
- Yet, "sharp gap between the characteristics of teacher professional development programs that evidence suggests are effective and the global realities of most teacher professional development programs". (KCP-supported Popova et al. 2018. "Teacher Professional Development around the World: The Gap between Evidence and Practice." World Bank Policy Research working paper WPS8572.)

KCP-supported: Bold et al. 2019. The Lost Human Capital: Teacher Knowledge and Student Achievement in Africa." World Bank Policy Research Working Paper 8849.

Teacher Accountability and Perceptions

Share of teachers who believe absence is acceptable if the teacher…





KCP-supported: Sabarwal, Shwetlena and Malek Abu-Jawdeh. 2018. "What Teachers Believe Mental Models about Accountability, Absenteeism, and Student Learning." World Bank Policy Research Working Paper 8454.

EDTECH

- Providing tech inputs or hardware alone is not sufficient (either in school or outside school)

- In Lagos,
  - Modest positive impacts of eReaders on reading levels, but only if the devices had curriculum material and were filling input gaps resulting from a lack of textbooks.
  - Even 6-8 months of exposure to eReaders with non-curriculum recreational material reduced student learning outcomes. Though exposure to eReaders improved student retention (staying in school).

KCP-supported: Habyarimana, James and Shwetlena Sabarwal. 2018. "Re-Kindling Learning eReaders in Lagos." World Bank Policy Research Working Paper 8665.

SCHOOL GRANTS LINKED TO PERFORMANCE

Impact of performance-based grant on student test scores in Indonesia

	Government vs. non-government schools in Jakarta			
	Primary schools		Junior secondary schools	
	No control	Full controls	No control	Full controls
	(1)	(2)	(3)	(4)
Jakarta Government*Year 2015	0.51** (0.25)	−0.26 (0.25)	2.57*** (0.17)	2.61*** (0.18)
Jakarta Government*Year 2016	1.47*** (0.29)	−1.25*** (0.30)	4.47*** (0.36)	4.55*** (0.38)
Jakarta Government*Year 2017	0.28 (0.28)	0.07 (0.29)	4.14*** (0.45)	4.34*** (0.46)

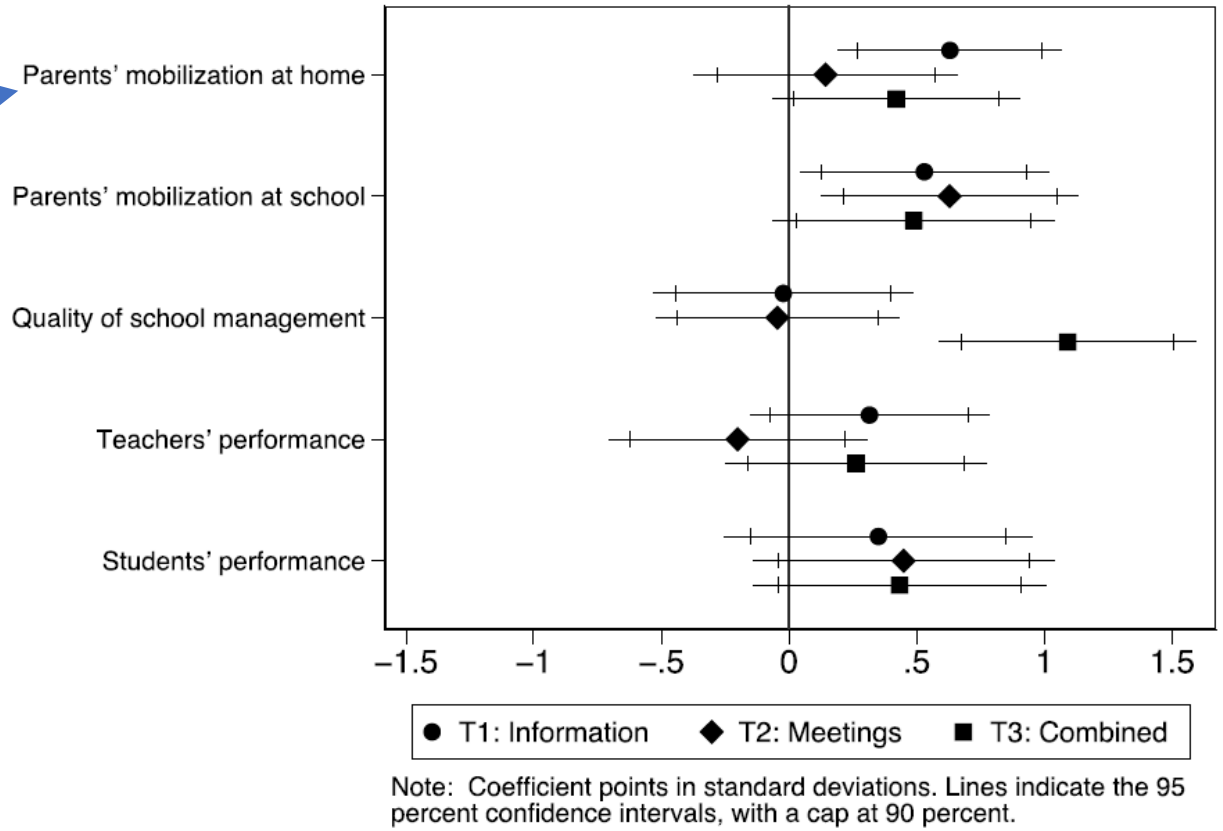
KCP-supported: Al-Samarrai et al. 2018. “Introducing a performance-based school grant in Jakarta: what do we know about its impact after three years?” Economics of Education Review 67.

INFORMATION RELATED TO SCHOOLING

- Information on the benefits, costs (and sources of funding), attendance, and quality of education... A “great buy”

- Can also change behavior at home

- The provision of information can also improve the equilibrium of the market for education. e.g. higher test scores, lower private school fees in Pakistan (Das et al., 2017)

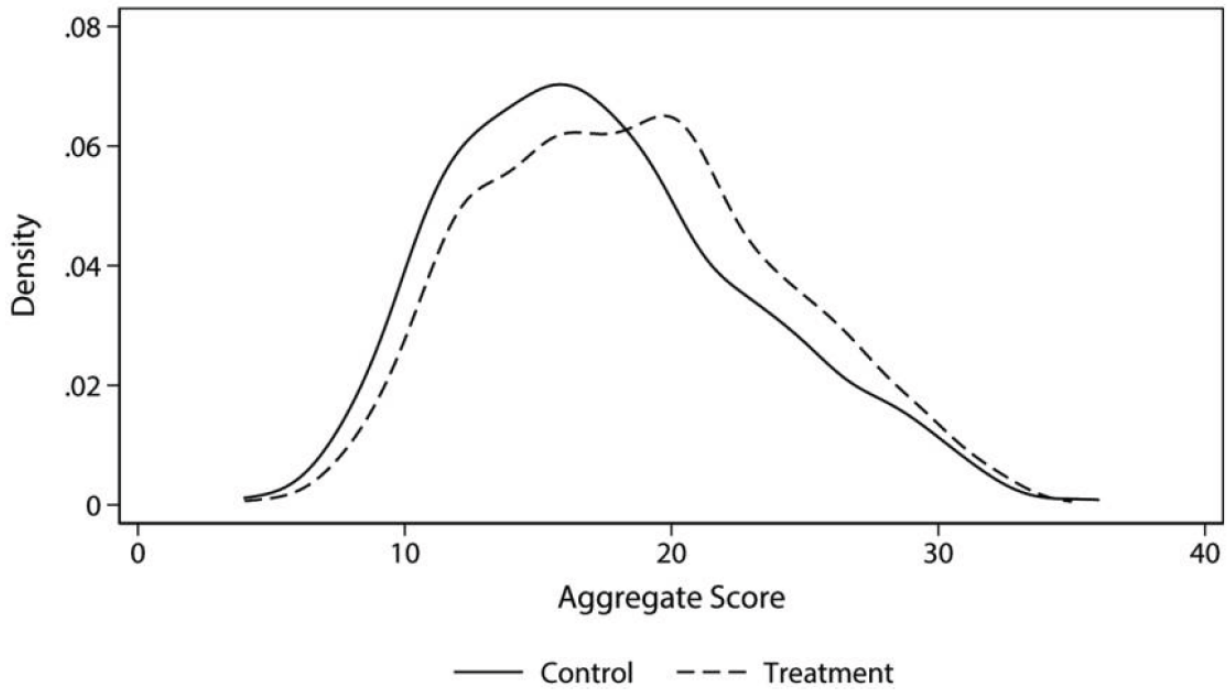


Note: Coefficient points in standard deviations. Lines indicate the 95 percent confidence intervals, with a cap at 90 percent.

KCP-supported: Di Maro et al. 2022. "Mobilizing Parents at Home and at School: An Experiment on Primary Education in Angola." Economic Development and Cultural Change.

PUBLIC-PRIVATE SCHOOL PARTNERSHIPS

Distribution of primary leaving examination scores across treatment and control schools in PPP voucher study in Uganda



KCP-supported : Barrera-Osorio et al. 2020. "The Impact of Public-Private Partnerships on Private School Performance: Evidence from a Randomized Controlled Trial in Uganda." Economic Development and Cultural Change.

DECENTRALIZED HEALTH FACILITY FINANCING

- Direct facility financing with autonomy and accountability can deliver many gains at lower cost and with relatively easier implementation than performance pay.

- Meanwhile, there is scant evidence on impacts of performance pay for health workers in under-resourced health systems.

KCP-supported: de Walque et al. 2022. Improving effective coverage in health: Do Financial incentives work? World Bank Policy Research Report.

KNOW-DO GAP IN HEALTH SERVICES

Vignettes (know) versus Standardized patients (do) in rural China

	Desired (+) Unnecessary (–)	Performance in Vignettes (N=243)	Performance in SPs (N=243)	Difference in Performance between Vignettes and SPs	Odds Ratio
Consultation and Treatment				-100% 100%	
Percentage Mentioning TB	+	47%	12%	-34% [<0.001]	0.14 [<0.001]
Correct management	+	81%	36%	-45% [<0.001]	0.10 [<0.001]
Mean # Medicines Given or Prescribed		2.22	2.45	0.23 [0.257]	-- --
Percentage Giving Any Antibiotic	–	42%	66%	24% [<0.001]	2.81 [<0.001]
Percentage Referring Case	+	48%	19%	-29% [<0.001]	0.22 [<0.001]

KCP-supported: Sylvia et al 2017. "Tuberculosis detection and the challenges of integrated care in rural China: A cross sectional standardized patient study." PLOS Medicine.

IMPROVING SKILLS FOR OUT-OF-SCHOOL YOUTH

- Mixed evidence on training programs
  - KCP-supported: Fox and Kaul, 2018; Card et al., 2018, JPAL, 2022.
- Some more promising models with multiple/innovative components:
  - Integrated training (Attanasio et al. 2017 in Colombia)
  - Dual apprenticeships (Crépon and Premand 2019 in Côte d'Ivoire)
  - Vocational training with certification (Alfonsi et al. 2020 in Uganda)
  - Behavioral interventions (KCP-supported: Saraf et al., 2018; Campos et al. 2017 in Togo)
- Need to consider the training market
  - Firm-side constraints to training provision (e.g. KCP-supported: Saraf 2017; Caicedo et al. 2022)
  - Scope to improve youth demand (e.g. Crépon and Premand 2019)
  - Intermediation inefficiencies (e.g. Hardy & McCasland, forthcoming)

Impact of training programs
on business survival and profits

	Business Survival	Monthly Sales	Monthly Profits
Traditional Business Training	-0.005	38,077	10,746
	(0.008)	(57,812)	(6,802)
Personal Initiative Training	-0.003	114,733*	28,709***
	(0.008)	(58,619)	(7,110)
Number of Observations	5,792	5,642	5,642
Number of Firms	1,499	1,492	1,492
Test of Equality of Treatments p-value	0.813	0.171	0.014
Control Group Mean	0.960	680,807	96,089

KCP-supported : Campos et al. 2017. « Teaching Personal Initiative Beats traditional training in boosting small business in West Africa». Science

Research For Tomorrow…

A DISCUSSION OF RESEARCH PRIORITIES MOVING FORWARD

- **Synthetizing evidence** (in real time) for policymakers given rapidly growing data
- Evidence on effectiveness of interventions **at scale**
- Move towards more "**integrated**" interventions (e.g. nutrition, ECD, skill training,…) raises questions on how to optimize and tailor across populations
- Complementarities between interventions on the **demand and supply sides**
- **System-wide** policies (e.g. regulatory reforms, supply chains,…)

- Better understanding of health and education **markets** (interactions between public and private providers, equilibrium effects,…)
- **COVID-19** impacts and effectiveness of remediation policies
- Human capital accumulation in an era of **climate** change and shocks (heat impacts on education and health, climate shocks as service delivery disrupters,…)
- Leveraging new **technologies** (e.g. artificial intelligence, machine learning) for service providers (to speed up diagnostics, improve care, tailor learning,…) and users (e.g. health trackers, edutainment,…)

Thank you