



What works to improve education quality in developing countries? A systematic review

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Background

- Education policies, and the services that they provide, have long been recognized for their **intrinsic values and instrumental qualities** for the functioning of individuals in particular, and the development strategies of countries more generally (Becker, 1964; Schultz 1962).
- From the perspective of a country's development trajectory, economic theory suggests that the elements of what education policy constitute, and which largely focus on investing in **human capital**, are critical for economic growth and development (Lucas 1988; Romer 1994).
- Policies that that facilitate the process of innovation, knowledge creation, and information, are seen as critical for the long-term pattern of economic and social development (Barro 1991; Rebelo 1991; Benhabib and Spiegel 1994; Barro and Sala-i-Martin 1998).

Background

- Initiatives such as Millennium Development Goals (MDGs) and Education For All (EFA), and the donor community (and developing countries themselves) have implemented education policies largely aimed at improving **access to education**
- The focus has been on *quantitative* school indicators: *school enrolment, school attendance, school dropouts* instead of *qualitative* measures of students' achievements

Significant progress towards universal primary education

School enrolment by gender in primary education (per 100 children)

– **Significant increase in school enrolment** in primary and secondary education notably in sub-Saharan Africa

– **Girls have greatly benefited:** the gender gap in school enrolment has come down significantly

	1990		2010	
	Boys	Girls	Boys	Girls
Developing world	84.2	75.4	90.9	88.9
Northern Africa	87.9	72.5	98.4	93.5
Sub-Saharan Africa	57	50.3	77.8	74.4
Latin America and the Caribbean	88.4	83.9	95.5	95.3
Eastern Asia	98.9	95.6	96.5	96.7
Eastern Asia excluding China	96.8	96.8	97.6	97.3
Southern Asia	83.1	66.1	93.5	91.4
Southern Asia excluding India	74.8	58.6	83.7	76.5
South-Eastern Asia	94	91.4	94.9	95.9
Western Asia	86.6	78.5	94.1	88.8
Caucasus and Central Asia	-	-	94.6	93.2
Developed Regions	95.3	95.4	96.9	97.3

Inconclusive evidence on the education-growth nexus

- Some studies have shown that **primary education spending (and aid) enhanced growth in LICs** whereas **education spending to higher education enhanced economic growth in MICs** (Asiedu and Nandwa, 2010). This is in line with Petrakis and Stamatakis (2002), (Psacharopoulos 1983, and Psacharopoulos and Patrinos (2004).
- In contrast, Arnt et al., (2011) find a moderate small effect of aid on education but and **insignificant relationship between education and growth**. This supports early findings from Pritchett, (2001)
- Hanushek and Woessmann (2012) argue that the lack of a strong relationship is due to the **quality of instruction**. They find larger effects when cognitive skills are included in the growth equation

Poor quality of education in developing countries

- UNESCO's 2014 Education for All Global Monitoring Report shows that:
 - **250 million children and young people aged 15-24 in the developing world are illiterate and innumerate.** The cost of so many children not learning is equivalent to nearly \$130 billion
 - Most of the children came from Arab states, sub-Saharan Africa and South and West Asia. In one-third of these countries, less than 75 percent of teachers were qualified to teach
- **Disturbing evidence on high levels of teacher absenteeism:**
 - Teachers from rural schools in Kenya were absent 20% of the time (Glewwe et al. 2003); in Zambia, teachers were absent 18 per cent of the time (Das et al., 2005) while in Pakistan the absence rate was in the order of 10% at primary level (Reimers 1993).

Aim of the study

- Provide a synthesis of the existing rigorous evidence on the effectiveness of educational policy in improving *education quality* in developing countries
- Unlike previous studies, we focus on *qualitative* learning outcomes:
 - test scores (science, mathematics, language) as proxies for *quality of learning*

Methodology

We followed the Cochrane methodology for systematic reviews

Inclusion criteria

Study Design. The review included quantitative studies that used both experimental (RCTs) and quasi-experimental research designs (RD, DiD, PSM, IV, FE, etc).

Document Typology. Only academic outcomes, published (white) or unpublished (grey) were considered: journal articles, conference proceedings, working papers, chapters in edited volumes.

Policy briefs and reports and documents without a rigorous quantitative methodology were excluded from the systematic review

Geographical Focus. Only studies on developing countries. We follow the World Bank's Atlas Classification System

Methodology

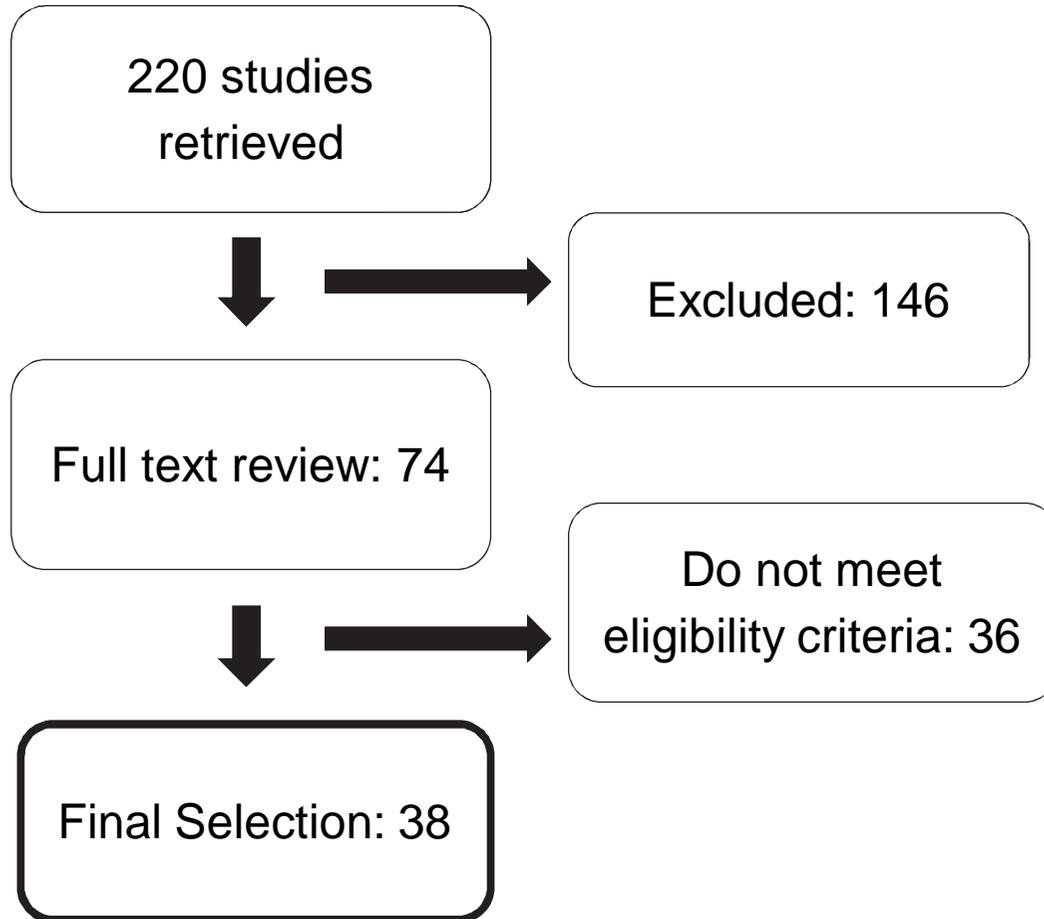
Searching criteria

Papers in English were included in the review.

Search Strings. The search terms were divided into: 1) type of educational policy; 2) level of education; 3) educational outcomes, 4) context and 5) impact evaluation methods

Database Search. Several databases were consulted: JSTOR, EconLit, Social Science Citation Index (Web of Knowledge) SCOPUS, British Library for Development Studies 3ie Systematic Reviews Database, Cochrane library of SR, Eldis, and Google Scholar

Methodology



The final selection of studies based on eligibility criteria:

- 1) Studies reporting students' **learning achievement outcomes**: test scores in maths, reading and writing.
- 2) **Standardisation of learning measures**: We adopt SD, which measures how much a student's test scores changes as a result of a program
- 3) **Study design**: only studies adopting experimental or quasi-experimental research designs were included
- 4) **Geographical Focus**. Only studies in developing countries

Methodology

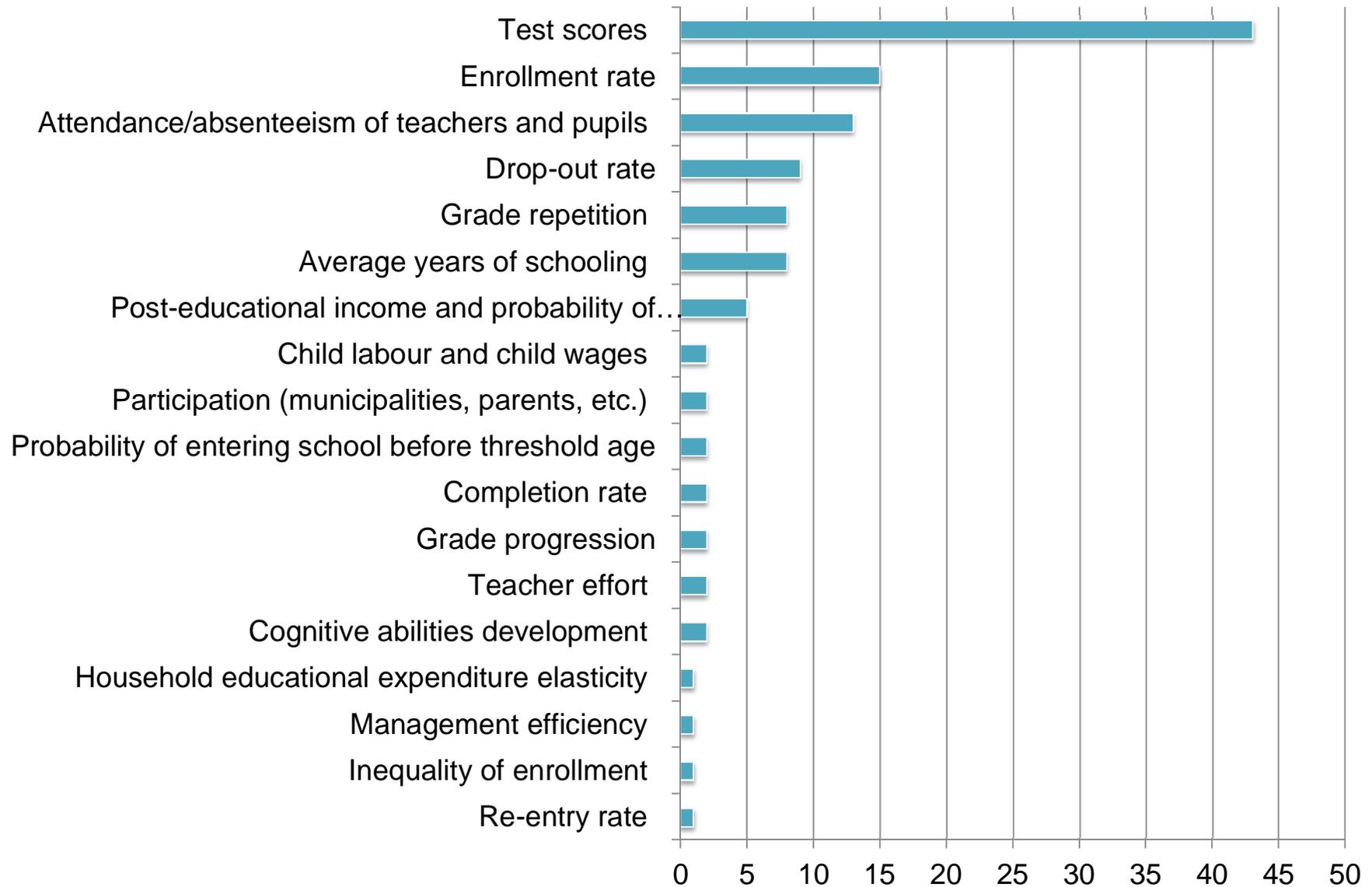
Out of 38 studies 23 were RCTs and 15 followed quasi-experimental methods.

Large number of studies were recently published, indicating an increasing interest in applying experimental and quasi-experimental methods in the field of education policy.

The review included studies in 15 countries in three major regions: Central Asia (Afghanistan) and South-Asia (Bangladesh, India); Latin America (Argentina, Chile, Colombia, El Salvador, Honduras, Mexico, Nicaragua), and sub-Saharan Africa (Kenya, Madagascar, Malawi, Uganda, Zambia).

No studies in Middle East or North-Africa were retrieved, while some studies on Central or East Asia did not meet the inclusion criteria.

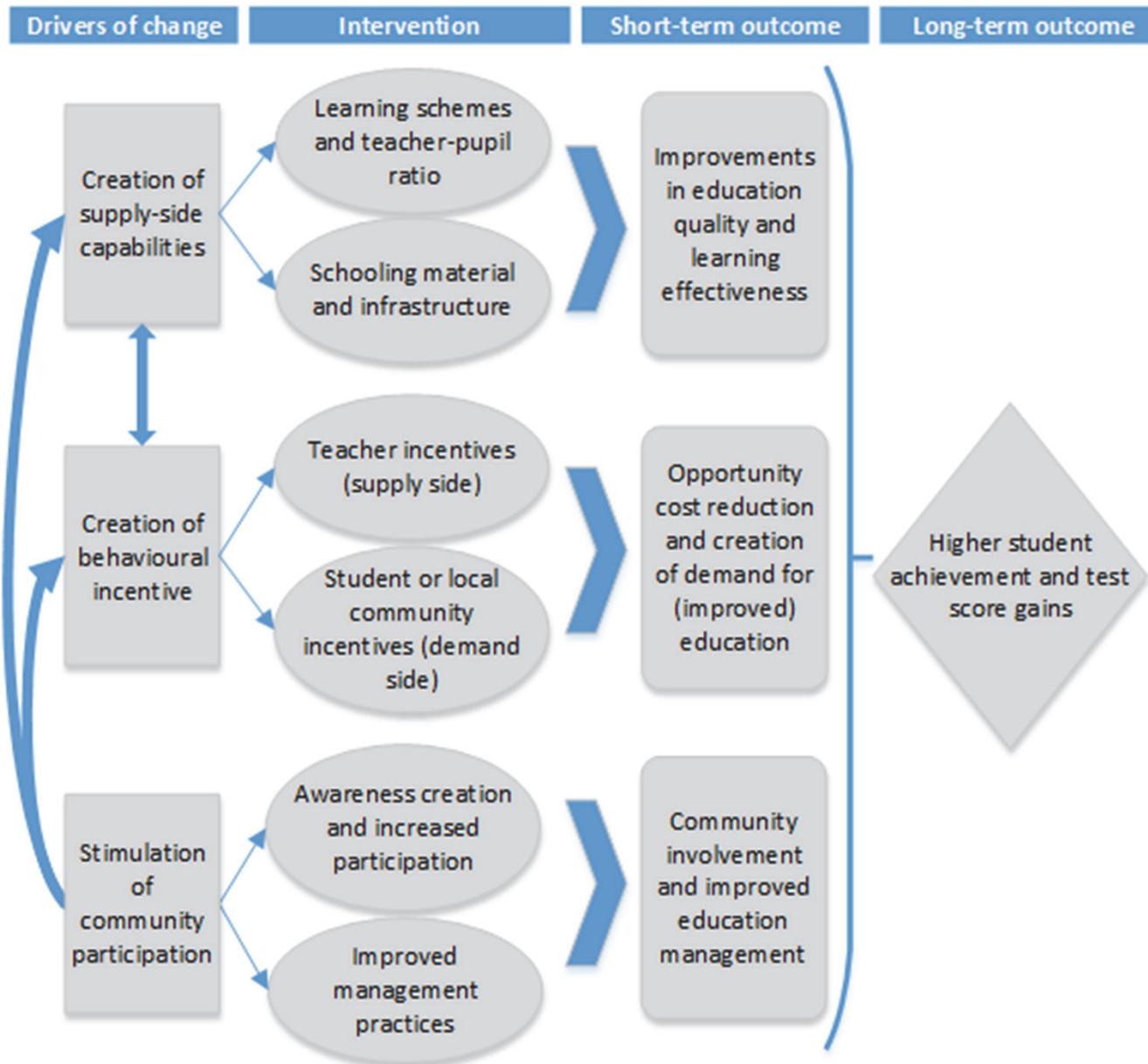
Outcome measures



Theory of change

- Three main policy drivers of students achievements have been identified in the context of developing countries:
 1. Enhancing supply-side capabilities
 2. Provision of incentives to change behaviour
 3. Stimulation of community participation and decentralisation

Theory of Change



Enhancing supply-side capabilities

These Interventions aim at improving student achievements via resource allocations to address infrastructure and organisational deficiencies:

Financial transfers to schools (Paqueo and Lopez-Acevedo 2003; Barrera-Osorio 2007; Bjorkmann, 2004)

Construction of new schools (Burde and Linden, 2012)

Improved school materials (Glewwe et al., 2004; Vermeersch and Kremer, 2004; Glewwe Evans et al., 2009; Banerjee et al., 2007; Muralidharan and Sundararaman, 2010a)

Hiring extra teachers to reduce teacher-pupil ratios (Duflo et al., 2012a; Asadullah, 2005; Linden, 2008; Muralidharan and Sundararaman, 2011).

Management reforms to improve the functioning of education systems (Palomer and Paredes, 2010; King and Ozler, 2005; Galiani et al. 2008; Lassibille et al. 2010).

Incentives for behavioural change

Teachers

Monetary rewards (pay incentives) to discourage teachers' absenteeism

Monitoring and sanction enforcement devices (Rau and Contreras, 2009; Glewwe et al., 2010; Kingdon and Teal, 2007; Duflo et al., 2012b)

Households

Conditional cash transfers (by Das et al. (2004), Kremer et al. (2009), and Baird et al. (2010))

Students

Scholarships and school voucher's programmes (Contreras, 2001; Hsieh and Urquiola, 2003; Anand et al., 2006)

Participation and Management Interventions

Bottom-up participatory interventions

Engage communities in the diffusion of information about education needs and possible solutions. The aim at changing **social norms** and **create demand for education** (Jimenez and Sawada, 1999; Di Gropello and Marshall, 2004).

Top-down interventions

Decentralisation reforms, management reforms, and implementations of standards of practice (Palomer and Paredes, 2010; King and Ozler, 2005; Galiani et al., 2008; Lassibille et al., 2010).

Findings: supply side capabilities

- **Positive impacts when transaction costs to access education are reduced.** For example, construction of village-based community schools in Afghanistan (Burde and Linden, 2012)
- **School meals and uniform programmes** have improved students performance via attendance (Vermeersch and Kremer (2004)
- But infrastructure seems to be insufficient to improve education quality, in the absence of demand-side considerations and contextual factors:
 - **Text books distributions** only increased performance among the strongest students (Glewwe et al., 2009)
 - **Complementary education** strategies (e.g. teachers training) are key: smaller class-size in Bangladesh *per se* don't improve test scores (Asadullah, 2005)
 - **Compensatory or 'remedial' education** is generally positive BUT when a intervention substitutes for teachers, its efficacy vanishes (Linden, 2008; He et al., 2009).

Findings: incentives

- Behavioural incentives have been extensively implemented in secondary school settings: Angrist et al. (2001) and Angrist et al. (2006) report positive impacts of Colombia's PACES school voucher programme
- Kenyan **merit-based scholarship** program that awarded primary school girls with funds to progress to secondary school generated spillover effects boys (Kremer et al., 2009).
- **Role models** can be a cheap and effective way to raise poor students' performance when the role model is from the same socio-economic background (Nguyen 2008)
- **Conditional cash transfers** seem to be more effective than **unconditional cash transfers** at raising test scores (Baird et al. 2010). Resource substitution and redistribution effects may be at work here but also social norms and beliefs
- **Cross-over policy designs** with incentives both to teachers, students and school administrators seem the most effective (Behrman et al. 2012)

Findings: participation and management

Bottom-up Community Involvement

- **Diffusion of knowledge** among local communities, parent-teacher associations, **raise awareness, and increase participation and involvement in the education system management** seem to although rigorous evidence remains scarce
 - Successful examples include EDUCO scheme in El Salvador (Jimenez and Sawada 1999) and PROHECO initiative in Honduras (Di Gropello and Marshall 2004)

Top-down Interventions

Positive test score gains among students allocated to **better-managed schools** (Palomer and Paredes, 2010)

Decentralisation reforms have produced mixed results:

- Test score gains produced by the Argentinian decentralisation reform failed to reach the poorest students (Galiani et al., 2008).
- Nicaragua's education decentralisation reform didn't improve test scores but autonomous management practices did (King and Ozler, 2005)

Concluding remarks

Where no demand for educational services exists, or if the principles underlying the demand patterns are not well understood, mere **supply-side intervention are ineffective**

Local idiosyncrasies and social norms need to be factored in when policies are designed

Whenever demand creation is generated via community involvement or behavioural incentives, it is crucial to upgrade at the same time education infrastructure and organisational capabilities of education systems

All in all, **interventions are more successful when two or more designs are combined**

More research is needed to look at the effects of community participation, top down policies, and the combined effect of complex designs, particularly in South and East Asia and sub-Saharan Africa