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The Science County (1-10 Supplications) (SCIENCE COUNTY CO

## EXPERIMENTAL EVIDENCE ON FOUR POLICIES TO INCREASE LEARNING AT SCALE\*

Annie Duflo, Jessica Kiessel and Adrienne M. Lucas

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shary developing countries have enimated the receivable that so primary scroot ensormers, leading to a substantial rise in the number of enrolled childron (Lucus and Mbia), 2012.) Unfortunately, the existing education systems, designed to serve a smaller and more homogeneous student population, straggle to accommodate more betrogeneous classroots and first-generation lunners. Effective solutions have been proposed through smaller randomised controlled trials, yet whether they can increase learning when integrated into existing systems at scale is unknown. This paper tests, in existing systems, four alternatives to support teachers' transition to the new status que, a frontier challenge for developing countries. In a single 200 echool, nationwide, randomised controlled trial (RCT) that reached over 80,000 students, we test four models that built on some of the most effective content delivery interventions in the last 20 years in developing countries—assistant teachers, unraller class sixes, additional instructional time, tracking, and remedial and differentiated instruction—and show their potential, relative effectiveness and

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The data and codes for this paper are available on the Journal repository (Buffo et al., 2023). They were checked for their adults to respondent the results presented in the paper. The optication package for this paper is a validable at the following addition-lang addition-language.

We guestably acknowledge gussmon funding for the evaluation from the International Growth Conte. the New Accounts from and the Children's Insert extent from Homelance, Many thanks to Annua Abbrayer, Albert Alachilda an Marare Annia Natratich for supprinting and characters upper size and characters and proposed proper size and continuous properties and extension of proposed size of the Internation and project management. We would also falles and the enter #10 Climan tension to contacting one and to implicate extension and project management. We would also falles to think Woody, also the foreign some first property and and and Catific Tallesh and albahasa lifts for extension allows a first indication and an advantagement of the contaction of the property of the and and Catific Tallesh and Shahasa lifts for extension devices and Mandeuv White. We are a characteristic and property of side of the size of the contaction of

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Published paper

## **Experimental Evidence on Four Policies to Increase Learning at Scale**

We partnered with the Ghanaian government to simultaneously test four methods of increasing achievement—assistant-led remedial pull-out lessons, remedial after-school lessons, smaller class sizes, and teacher-implemented partial day tracking—in schools with low and heterogeneous student achievement. The interventions increased student learning by about 0.1 standard deviations, rising to 0.4 standard deviations when adjusting for imperfect implementation, with no effects on attendance, grade repetition, or drop-out. Test score increases were larger for girls. Test score gains persisted after the program ended.

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Assistants implemented the program with higher fidelity than teachers, although their fidelity decreased over time while teacher fidelity marginally improved.

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