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Effectiveness of Interactive Satellite-Transmitted Instruction: Experimental Evidence from Ghanaian Primary Schools

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ABSTRACT

In lower- and middle-income countries, including Ghana, students in rural areas dramatically underperform their urban peers. Rural schools struggle to attract and retain professionally trained teachers (GES 2012; World Bank 2012). We explore one potential solution to the problem of teacher recruitment: distance instruction. Through a cluster randomized controlled trial, we estimate the impact of a program that broadcasts live instruction via satellite to rural primary school students. The program equipped classrooms in 70 randomly selected Ghanaian schools with the technology required to connect to a studio in Accra. An additional 77 schools served as the control. Instructors in Accra provided math and English lessons to classrooms in the treatment group. The model is interactive, and students in satellite classes could communicate in real time with their remote teachers. We estimate significant gains ($p<0.01$) in rural students' numeracy and foundational literacy skills. We find no impact on attendance and classroom time-on-task (as measured through unannounced classroom observations), suggesting that these gains may result from improved instructional quality rather than from increased instruction time.

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Effectiveness of Interactive Satellite-Transmitted Instruction: Experimental Evidence from Ghanaian Primary Schools

In lower- and middle-income countries, including Ghana, students in rural areas dramatically underperform their urban peers. Rural schools struggle to attract and retain professionally trained teachers (GES 2012; World Bank 2012). We explore one potential solution to the problem of teacher recruitment: distance instruction. Through a cluster randomized controlled trial, we estimate the impact of a program that broadcasts live instruction via satellite to rural primary school students. The program equipped classrooms in 70 randomly selected Ghanaian schools with the technology required to connect to a studio in Accra. An

additional 77 schools served as the control. Instructors in Accra provided math and English lessons to classrooms in the treatment group. The model is interactive, and students in satellite classes could communicate in real time with their remote teachers. We estimate significant gains ($p<.05$) in rural students' numeracy and foundational literacy skills. We find no impact on attendance and classroom time-on-task (as measured through unannounced classroom observations), suggesting that these gains may result from improved instructional quality rather than from increased instruction time.

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