What drives children's learning?
An exploratory study in two Millennium Villages in Kenya and Tanzania

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Context/Background

Despite higher enrollment rates across Sub-Saharan Africa, several studies assessing learning outcomes in the region have shown that many children reach the final grades of primary school without having acquired basic reading and numeracy skills. Opportunity costs of schooling, cultural barriers to education, and poor quality of education are known to be some of the main drivers of school failure. However, the linkage between household factors, school context, and poor learning has not been systematically studied.

Objectives

In this paper we explore the relationship between reading and numeracy skills of children between 5 and 16 years of age, and the potential factors affecting their learning. We consider a wide range of household- and individual-level variables in the analysis, including household assets, access to electricity, water and sanitation, parental education, language spoken at home, schooling status of children and their participation in child labor. We also include school characteristics that shape the context in which teaching and learning happens, including school conditions (i.e. quality, type and availability of infrastructure, furniture, learning and teaching supplies) and teachers' background and experience.

The study also investigates the spatial distribution of learning outcomes, households characteristics' and school quality, to assess whether there are any spatial correlations between children's performance and the potential factors affecting learning (e.g. socio-economic status of households, distance to school, quality of school attended). In addition to assessing factors driving quality of education, this paper will explore whether spatial analysis and data can be used to identify failing schools, and if so, how to guide interventions to improve learning.

Methods / Setting / Work done

The paper analyzes data collected in the Millennium Villages Project (MVP) clusters of Sauri (Kenya) and Mbola (Tanzania) in 2012-2013.

School-level data includes information on student enrollment, school conditions, teachers' characteristics and teaching resources from primary schools in the MV clusters of Sauri (Kenya) and Mbola (Tanzania). These data sets were collected through a combination of interviews, classroom observations and school records, and captured using both smart phones and paper questionnaires.

Household-level data includes demographic and socio-economic characteristics from 348 households in Sauri, and 354 households in Mbola. As part of the household data collection

process, all household members between 5 and 16 years old were administered reading and numeracy tests developed by UWEZO. These are the same tests used in UWEZO's national assessments in Kenya and Tanzania. Information regarding children's current schooling status, past school exposure and participation in child labor (in or outside the household) was also collected. The name of the school attended was also captured in the study, allowing us to link household- and individual-level information with school characteristics.

Preliminary results

As expected, the preliminary results from Sauri (Kenya) confirm that primary students are not learning at grade level. For example, only 12% of children in Class 3 and 70% of children in Class 6 can read a Class 2 level story. And nearly a third of the students in Class 3 cannot do subtraction, which is a numeracy competence expected to be mastered at the end of Class 2. When compared to the results of comparable learning assessments conducted by the organization UWEZO, the situation at the MV sites is very similar to the situation in the Siaya district. No preliminary results are available yet from the assessments in Mbola (Tanzania).

Further analysis will be conducted to explore the relationships between students' performance and their individual-, household- and school-level characteristics. Spatial analysis will also explore any potential spatial correlations between socio-economic variables or other types of clustered values, and learning levels.

Conclusions

This study will contribute to understanding the main drivers of learning in the rural African context, by linking children's learning outcomes to their households characteristics as well as to the learning and teaching environment in their schools. The study also presents a unique opportunity to illustrate how spatial analysis and visual mapping of data can be used in the interpretation of factors affecting learning and school quality.