Unlocking Spatial Dynamics of Efficiency in Primary Education Across India

Mallika Sinha¹, Rama Pal²
Indian Institute of Technology Bombay, India

Abstract

Reduction in inefficiencies can be a potential pathway to improve the learning performance in India. Given the unequal distribution of educational opportunities across regions, it can be insightful to identify spatial clusters in learning performance and investigate how far are the regions from tapping their full potential of educational resources. This paper begins with the illustration of spatial clusters in learning performance in language and maths of standard III children. We estimate district-level technical efficiency in primary education. Finally, we explore the relationship between efficiency and learning performance. The study is based on a nationwide educational performance survey, the National Achievement Survey (NAS), 2021, conducted by the Ministry of Education, Government of India. We use spatial stochastic frontier analysis to examine the abovementioned questions. We find evidence of spatial clustering in learning performance. Detection of coldspots in learning performance is crucial from the perspective of policy formulation. The mean technical efficiency is 89 percent, indicating that with given resources, districts could raise their educational performance by 11 percent. Overall, 50.21% of districts in language and 46.72% of districts in maths are efficient and have high learning performance, whereas 34.4% of districts in language and 35.3% in maths are inefficient and yield low learning performance. Districts lagging in educational performance are located in regions marked with social, economic and health disparities. Thus, augmenting efficiency levels through correction of regional imbalances can lead to inclusive, equitable and better learning of children.

Keywords: Learning performance, technical efficiency, Spatial stochastic frontier model, Regional disparity, India