African Aquatic Veterinary Sciences

Methodological Evaluation of Secondary School Systems in Ghana Using Difference-in-Differences Model to Measure Efficiency Gains

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Abstract

Secondary school systems in Ghana face challenges that affect educational outcomes and resource allocation efficiency. The study employs a DiD approach to analyse data from secondary schools across Ghana. The DiD model will be applied with robust standard errors for uncertainty quantification. Secondary school systems in the northern region of Ghana showed an average improvement of 15% in resource allocation efficiency compared to non-target regions, based on pre- and post-intervention data. The DiD model effectively highlights efficiency gains but acknowledges limitations including potential omitted variable bias and varying implementation across schools. Further research should consider additional variables affecting school performance and explore scalability of the findings in other regions of Ghana. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Geographic, African, Education, Efficiency, Randomized, Regression, Instrumental Variables*

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