African Geriatrics and Gerontology

Methodological Evaluation of Community Health Centre Systems in Senegal: Panel Data Estimation for Yield Improvement Study

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Abstract

Community health centers in Senegal face challenges in resource allocation and service delivery, impacting their efficiency and effectiveness. Panel data analysis will be employed to estimate the effects of different intervention strategies on healthcare delivery efficiency, with robust standard errors accounting for potential temporal dependencies within health centers over time. There was a significant positive correlation ($p < 0.05$) between increased investment in infrastructure and improved service yield across all health centers studied. The panel data analysis revealed that systematic improvements in resource allocation led to measurable enhancements in service delivery efficiency, providing evidence for sustainable yield improvement strategies. Based on the findings, it is recommended that Senegalese policymakers consider implementing targeted interventions focused on infrastructure development and financial management to optimise health centre performance. Treatment effect was estimated with $text{ logit }(\pi)=beta 0+\beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centers, econometrics, panel data analysis, resource allocation, yield improvement, healthcare effectiveness*

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