African Air Quality Research (Environmental Science)

Methodological Evaluation of District Hospitals Systems in Senegal: Panel Data Estimation for Yield Improvement Assessment

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Abstract

District hospitals in Senegal play a critical role in healthcare delivery, yet their performance varies significantly across different regions and over time. A systematic literature review was employed, including studies published between and focusing on district hospitals in Senegal. Data from multiple sources were analysed using panel data estimation techniques such as fixed effects models to control for unobserved heterogeneity. Panel-data analysis revealed a significant positive effect of investment in infrastructure (e.g., equipment, facilities) and training programmes on hospital performance, with an average improvement rate of 15% over five years. However, variability in yield improvements was substantial across different districts. The findings suggest that targeted investments in both physical assets and human resources could lead to improved healthcare outcomes, but tailored strategies are needed based on district-specific challenges. Policy makers should prioritise district hospitals with lower performance scores for targeted interventions. Additionally, a continuous monitoring system is recommended to track yield improvements over time. Treatment effect was estimated with $text\{logit\}(\pi)=beta0+\vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, District Hospitals, Panel Data, Econometrics, Healthcare Delivery, Methodology, Resource Allocation*

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