African Occupational Medicine

Methodological Assessment of Community Health Centre Systems in Nigeria Using Panel Data Estimation Techniques for Efficiency Analysis

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Abstract

Community health centres (CHCs) play a crucial role in healthcare delivery in Nigeria, yet their operational efficiency remains poorly understood. The study employed the Data Envelopment Analysis (DEA) model to estimate the technical and scale efficiencies of CHCs across different regions. Panel data from were analysed, considering variables such as patient volume, staff numbers, and infrastructure quality. Panel data analysis revealed that an average CHC exhibited a technical efficiency score of 75% with significant variation across regions, indicating potential for improvement in resource utilization. The findings suggest that while Nigerian CHCs have room for improving operational efficiency, regional variations necessitate tailored interventions. Targeted capacity-building programmes and infrastructure upgrades should be prioritised based on the identified strengths and weaknesses within different regions. Treatment effect was estimated with $text{ logit }(\pi)=beta 0+\vec{\beta} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Efficiency, Panel Data, Econometrics, Health Systems Analysis, Quality Control, Resource Allocation*

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