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Methodological Evaluation and Efficiency Gains in Nigerian Community Health Centres

A Multilevel Regression Analysis

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ABSTRACT

Background: Community health centres are critical nodes in Nigeria's primary healthcare system, yet persistent inefficiencies in resource allocation and service delivery constrain their performance. A robust methodological framework for quantifying operational efficiency and identifying determinants of improvement is lacking.

Purpose and objectives: This case study aims to methodologically evaluate the operational systems of community health centres and measure efficiency gains using a multilevel modelling approach. The objective is to identify facility- and community-level factors that significantly influence technical efficiency.

Keywords: *Community health centres, Nigeria, Multilevel modelling, Health systems evaluation, Sub-Saharan Africa, Efficiency measurement, Primary healthcare*

Article Highlights

- Drug supply chain integrity and staff skill-mix are key facility-level efficiency drivers.
- A multilevel modelling approach isolates facility and district-level effects on performance.
- District-level health funding showed no statistically significant impact on centre efficiency.

Core Analytical Model

A two-stage design: 1) Data Envelopment Analysis for efficiency scores (127 centres), 2) Multilevel linear regression to identify determinants, clustering errors at district level.

This study offers a methodological framework for pinpointing actionable efficiency levers in primary healthcare.

• The methodology provides a replicable framework for targeted health systems evaluation.	