



# **Methodological Evaluation of Community Health Centre Systems in Ghana Using Panel Data for Efficiency Measurement**

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## **Abstract**

Community health centers (CHCs) play a crucial role in primary healthcare delivery in Ghana, yet their operational efficiency is often underutilized. This study aims to evaluate and measure the efficiency of CHCs through panel data analysis. The research will employ a stochastic frontier model to estimate technical inefficiency. Data from multiple CHCs over several years will be analysed to derive insights on system performance and identify factors affecting efficiency. Initial analysis suggests that the average efficiency score of CHCs is below the global benchmark, indicating potential for improvement through targeted interventions. The findings highlight a need for further research into specific inefficiencies within different regions, which could lead to more tailored policies and resource allocation strategies. Policy recommendations will include the implementation of training programmes for CHC staff and the introduction of technology solutions to enhance service delivery efficiency. Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, panel data, efficiency measurement, health economics, econometrics, productivity analysis, geographic information systems*

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