



Methodological Evaluation of Community Health Centre Systems in Ghana: Panel Data Estimation for Efficiency Gains

Kofi Agyei¹, Agnes Afentso¹, Ernestina Mensah²

¹ Ashesi University

² Kwame Nkrumah University of Science and Technology (KNUST), Kumasi

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Correspondence: kagyei@outlook.com

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Author notes

Kofi Agyei is affiliated with Ashesi University and focuses on Medicine research in Africa.

Agnes Afentso is affiliated with Ashesi University and focuses on Medicine research in Africa.

Ernestina Mensah is affiliated with Kwame Nkrumah University of Science and Technology (KNUST), Kumasi and focuses on Medicine research in Africa.

Abstract

Community health centres (CHCs) in Ghana play a crucial role in providing primary healthcare services to underserved populations. Despite their importance, there is limited empirical evidence on the efficiency of CHC systems. The study will employ a Panel Data Estimation model (e.g., Two-Stage Least Squares, or 2SLS) to analyse the impact of various inputs on outputs within CHCs. Robust standard errors will be used to account for potential endogeneity issues in the data. Initial findings suggest that factors such as staff training and community engagement significantly influence service efficiency, with a notable improvement observed in patient satisfaction scores after interventions. The empirical analysis indicates substantial room for improving operational efficiencies within CHCs through targeted policy recommendations aimed at enhancing resource allocation and service quality. Based on the findings, specific recommendations will be provided to policymakers regarding funding allocations, training programmes, and community outreach strategies to maximise health outcomes in Ghanaian communities. Treatment effect was estimated with $text\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centres, econometrics, panel data analysis, efficiency measurement, healthcare systems, resource allocation*

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