



Cost-Effectiveness Analysis of Community Health Centre Systems in Ghana Using Panel Data: An Evaluation Technique

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Abstract

Community health centres in Ghana are vital for delivering healthcare services to rural and underserved areas. However, their efficiency and cost-effectiveness require rigorous evaluation. Panel data techniques were employed to assess the economic performance and resource allocation within these centres over a five-year period. A random-effects model was used with robust standard errors to account for potential unobserved heterogeneity. The study revealed that community health centre systems in Ghana spent approximately 60% of their budget on personnel costs, indicating a significant portion dedicated to human resources management. Our analysis suggests that further optimization could be achieved by reallocating funds towards preventive healthcare measures and telemedicine integration, which are cost-effective alternatives. Investment in technology infrastructure and training for staff should be prioritised to enhance service delivery and patient outcomes. Community Health Centres, Cost-Effectiveness Analysis, Panel Data, Ghana, Random Effects Model Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Health, Econometrics, Randomized, Panel, ResourceAllocation*

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