



Time-Series Forecasting Model for Cost-Effectiveness Evaluation of Community Health Centres in Kenya

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Abstract

Community health centers (CHCs) play a crucial role in healthcare delivery in Kenya, but their cost-effectiveness over time remains underexplored. A mixed-methods approach was employed, integrating quantitative data from financial records with qualitative feedback to forecast future trends in CHC operations. The study utilised a linear regression model for cost-effectiveness analysis. The time-series forecasting revealed an increasing trend in the operational costs of CHCs over the five-year period (-), with a proportion increase of 15% compared to previous years. The study concludes that while there is a need for sustained investment and policy support, proactive cost management strategies can mitigate these increasing operational costs. Stakeholders are recommended to implement evidence-based intervention programmes and to engage in continuous quality improvement initiatives to enhance the efficiency of CHCs. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Kenyan, geospatial, econometrics, longitudinal, forecasting, intervention, evaluation

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