



Methodological Evaluation of Community Health Centre Systems in Uganda: Panel Data Estimation for Measuring Adoption Rates

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Abstract

Community health centres in Uganda are critical for primary healthcare delivery. However, their effectiveness varies significantly across different regions and over time. Panel data from 10 randomly selected districts were analysed over a five-year period. A fixed effects model was applied to estimate the adoption rate, accounting for potential confounding variables such as population density and economic status. The estimated adoption rate of community health centres was found to be 75% with a robust standard error of $\pm 3\%$, indicating significant variability in implementation across different districts. Panel data analysis revealed substantial differences in the uptake of community health centre services, highlighting the need for targeted interventions in underserved areas. Policy makers should focus on improving access to healthcare facilities and training for local health workers in regions with lower adoption rates. Community Health Centres, Panel Data Estimation, Adoption Rate, Fixed Effects Model Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African health systems, community healthcare, econometrics, panel analysis, quantitative methods, randomized trials, service delivery enhancement*

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