



Methodological Evaluation of Community Health Centre Systems in Uganda Using Difference-in-Differences Models for System Reliability Assessment

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Abstract

Community health centres (CHCs) play a crucial role in healthcare delivery in Uganda, particularly for underserved populations. A difference-in-differences model was employed to analyse changes in access to healthcare services before and after the implementation of new policies, with a focus on comparing pre-intervention and post-intervention periods across CHCs. The analysis revealed an average improvement of 15% in patient visits per month at participating CHCs compared to baseline levels, suggesting enhanced system reliability. The difference-in-differences model effectively quantifies the impact of policy changes on CHC systems and highlights areas for further improvements. Enhanced training programmes for healthcare providers and regular maintenance checks are recommended to sustain system reliability. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Accrual Bias, Difference-in-Differences, Healthcare Delivery, System Reliability, Methodological Evaluation, Quantitative Research*

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