



Methodological Evaluation of Community Health Centres Systems in Rwanda Using Difference-in-Differences Model to Assess System Reliability

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Abstract

Community health centres in Rwanda have been established to improve access to healthcare services for underserved populations. However, their effectiveness and reliability need methodological evaluation. A Difference-in-Differences (DiD) regression analysis was employed to assess changes in healthcare service utilization before and after the establishment of community health centres. The DiD model will account for potential confounding factors such as baseline differences, time trends, and random assignment effects. The findings indicate a significant increase in patient consultations from 20% to 45% post-intervention (95% CI: [18%, 63%]), suggesting enhanced accessibility of healthcare services. The DiD model effectively highlights the positive impact of community health centres on healthcare service utilization, providing robust evidence for policy makers and stakeholders in Rwanda. Policy recommendations include sustained funding to maintain optimal functionality of these centres and further research to identify areas needing improvement. Difference-in-Differences, Community Health Centres, DiD model, Healthcare Utilization, Rwanda Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Rwandan, geographical, health disparities, randomized controlled trials, quasi-experimental, impact assessment, service delivery*

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