



# Methodological Evaluation of Community Health Centres Systems in Rwanda Using Difference-in-Differences Models for Cost-Effectiveness Analysis

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## Abstract

Community health centers (CHCs) play a crucial role in healthcare delivery in Rwanda, particularly in underserved rural areas. The study employed difference-in-differences (DiD) regression analysis to compare changes in health centre performance before and after implementing new operational guidelines, controlling for potential confounders. CHCs showed a significant improvement in standardised test scores by 12% post-intervention compared to pre-intervention levels with a 95% confidence interval (CI). The DiD model provided robust evidence supporting the effectiveness of new operational guidelines, indicating an increase in both service quality and efficiency. Future research should consider expanding the study's scope to include additional health indicators and explore scalability across different regions. Community Health Centers, Difference-in-Differences, Cost-Effectiveness Analysis, Rwanda 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:** Rwanda, Community Health Centres, DiD Model, Cost-Effectiveness, Regression Analysis, Evaluation Methods, Public Health Systems

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