



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

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Abstract

This study examines the reliability of community health centers in Rwanda, focusing on their ability to deliver healthcare services effectively. The study employs the difference-in-differences (DiD) econometric model to analyse pre- and post-intervention data from community health centers in Rwanda, ensuring robust comparisons between treatment groups and controls. Community health centers showed a statistically significant $[0.5+0.3]=0.8$ increase in service reliability with the intervention (95% CI: [0.4, 1.2]), indicating improved system performance. The DiD model effectively highlights improvements and areas needing attention for sustainable healthcare delivery. Implementing continuous quality improvement programmes is recommended to maintain and enhance service reliability in community health centers.

Keywords: Rwanda, Geographic Information Systems (GIS), Spatial Analysis, Difference-in-Differences (DiD), Randomized Controlled Trials (RCTs), Quantitative Methods, Health System Strengthening

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