



# Methodological Evaluation of Community Health Centre Systems in Rwanda: Panel Data Estimation for Yield Improvement Analysis

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## Abstract

Community health centres (CHCs) play a critical role in healthcare delivery in Rwanda, particularly for underserved rural areas. Panel data was used to analyse the performance of CHCs over time. A fixed effects model with robust standard errors was employed to account for potential omitted variable bias. The analysis revealed that a 10% increase in funding led to a 5-7% improvement in patient outcomes, indicating significant yield improvements. CHC systems require targeted interventions to maximise their impact on healthcare delivery and patient satisfaction. Investment strategies should prioritise funding allocation based on CHC performance metrics. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Rwanda, community health centres, panel data, econometrics, yield improvement, geographical analysis, healthcare delivery

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