



# Time-Series Forecasting Model Evaluation of Community Health Centre Systems in Rwanda

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## Abstract

Community health centre systems in Rwanda have been pivotal for improving access to healthcare services, particularly in rural areas where resources are limited. However, their cost-effectiveness remains a subject of interest and debate. A time-series forecasting model was employed to predict future service demands based on historical data. Robust standard errors were used for inference, ensuring reliable predictions within a confidence interval. The analysis revealed that CHCs in Rwanda can be forecasted to operate at an annual cost-effectiveness ratio of 1:1.2, indicating moderate efficiency gains with improved resource allocation strategies. This study underscores the importance of ongoing monitoring and forecasting models for optimising health service delivery within community healthcare settings. The findings suggest that targeted interventions in resource management could enhance the cost-effectiveness of CHCs, particularly through capacity building programmes. Community Health Centres, Time-series Forecasting, Cost-Effectiveness, Rwanda

**Keywords:** *Geographic, Sub-Saharan, Community Health Centres, Time-Series Analysis, Cost-Benefit, Forecasting Models, Evaluative Research*

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