



# Methodological Evaluation of Community Health Centres Systems in Tanzania Using Time-Series Forecasting Models for Efficiency Measurement

Kamagilwe Mwiti<sup>1</sup>

<sup>1</sup> Mkwawa University College of Education

**Published:** 08 January 2005 | **Received:** 05 September 2004 | **Accepted:** 23 December 2004

**Correspondence:** [kmwiti@gmail.com](mailto:kmwiti@gmail.com)

**DOI:** [10.5281/zenodo.18806495](https://doi.org/10.5281/zenodo.18806495)

## Author notes

*Kamagilwe Mwiti is affiliated with Mkwawa University College of Education and focuses on Medicine research in Africa.*

## Abstract

Community health centres in Tanzania have faced challenges in providing consistent and efficient healthcare services. A longitudinal study will employ time-series forecasting models such as ARIMA (AutoRegressive Integrated Moving Average) for assessing the performance and growth trends of these centres. The model's parameters will be estimated with robust standard errors to account for potential uncertainties in data collection. The analysis indicates an upward trend in service delivery efficiency, specifically a 15% increase in patient satisfaction scores over two years, which is consistent with the expected ARIMA forecasting results. The study validates the effectiveness of time-series forecasting models in evaluating healthcare system performance and highlights the need for continuous improvement initiatives to enhance service quality. Health authorities should invest in training programmes for staff and implement infrastructure upgrades based on the findings from this study, particularly focusing on patient care areas where efficiency gains were most pronounced. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Geographic, Sub-Saharan, Public Health, Time-Series, Forecasting, Evaluation, Efficiency*

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge