



Time-Series Forecasting Model for Evaluating Cost-Effectiveness of District Hospitals in Rwanda: A Methodological Assessment

Kizito Karema¹

¹ University of Rwanda

Published: 23 March 2009 | Received: 07 December 2008 | Accepted: 27 January 2009

Correspondence: kkarema@yahoo.com

DOI: [10.5281/zenodo.18888293](https://doi.org/10.5281/zenodo.18888293)

Author notes

Kizito Karema is affiliated with University of Rwanda and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of district hospitals systems in Rwanda: time-series forecasting model for measuring cost-effectiveness in Rwanda. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of district hospitals systems in Rwanda: time-series forecasting model for measuring cost-effectiveness, Rwanda, Africa, Medicine, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. 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: *Sub-Saharan, Rwanda, Hierarchical Modelling, Cost-Benefit Analysis, Time-Series, Forecasting, Evaluation Metrics*

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

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



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge