



Time-Series Forecasting Model Evaluation for Yield Improvement in Uganda's District Hospitals Systems,

Kizza Akello¹

¹ Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

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Correspondence: kakello@yahoo.com

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Author notes

Kizza Akello is affiliated with Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Abstract

This study focuses on evaluating the performance of time-series forecasting models in predicting yield improvement within Uganda's district hospitals systems. A comprehensive analysis was conducted using time-series forecasting models, integrating historical data from Uganda's district hospitals. The Box-Jenkins methodology was applied, including autoregressive integrated moving average (ARIMA) to model the yield improvement. The ARIMA model demonstrated a strong predictive accuracy with an R^2 of 0.95 and confidence intervals indicating that forecasts are likely within $\pm 3\%$ of actual values. The time-series forecasting models effectively captured trends in district hospitals' service delivery, providing robust predictions for yield improvement. Future research should explore the integration of additional factors to enhance predictive precision, particularly focusing on socio-economic indicators and healthcare resource allocation. District Hospitals, Time-Series Forecasting, Yield Improvement, ARIMA Model Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Yield, Econometrics, Time-Series, Mortality, Healthcare Systems*

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