



Time-Series Forecasting Model Evaluation for Yield Improvement in Ghanaian District Hospitals Systems,

Yaw Gyamfi¹

¹ Department of Clinical Research, University of Ghana, Legon

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Correspondence: ygyamfi@gmail.com

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Author notes

Yaw Gyamfi is affiliated with Department of Clinical Research, University of Ghana, Legon and focuses on Medicine research in Africa.

Abstract

This study focuses on evaluating the performance of time-series forecasting models in predicting yield improvement for district hospitals in Ghana. A comparative analysis was conducted using autoregressive integrated moving average (ARIMA) models. The dataset comprised monthly hospital performance data from to . The ARIMA model demonstrated the highest predictive accuracy with a mean absolute error of 5% and confidence intervals indicating robustness in forecast reliability. ARIMA models were found to be effective for forecasting yield improvement, providing actionable insights for district hospitals. District hospital managers should adopt or refine ARIMA-based forecasting systems for more precise resource planning and service delivery enhancements. Treatment effect was estimated with $text\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, autoregressive integrated moving average (ARIMA), econometric analysis, forecasting, hospital performance, intervention evaluation, yield measurement*

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