



Forecasting Efficiency Gains in Nigerian District Hospitals Systems: A Time-Series Model Approach over

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Abstract

The study aims to evaluate the efficiency of Nigerian district hospitals' systems over a decade. A longitudinal study using time-series analysis with an ARIMA model. The study employs robust standard errors to account for the uncertainty in forecasting future efficiency levels. Over a decade, there was a discernible trend indicating that the average efficiency score of district hospitals improved by approximately 15%. The findings suggest that time-series models can effectively predict and analyse trends in hospital system performance over extended periods. Policy makers should consider implementing these forecasting tools to monitor and improve healthcare service delivery in Nigerian districts. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, ARIMA, econometrics, efficiency, forecasting, healthcare, longitudinal, time-series

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