African Advertising Research

Methodological Evaluation of District Hospitals Systems in Uganda Using Time-Series Forecasting Model for Adoption Rate Measurement

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Abstract

District hospitals in Uganda face challenges in maintaining optimal service levels due to varying resource availability and patient demand patterns. A time-series forecasting model was applied to analyse monthly patient volume and resource allocation data from district hospitals over three years. Robust standard errors were used for inference. Monthly patient volumes showed a stable growth trend with an average increase of 5% per month, indicating consistent demand. Resource allocation patterns exhibited seasonal variations, affecting service delivery efficiency. The time-series forecasting model accurately predicted adoption rates based on historical data and resource trends, providing insights for policy-makers to optimise health system performance. Implementing targeted interventions during low-demand periods can enhance overall hospital capacity and patient care quality. Continuous monitoring of demand patterns is essential for sustainable service provision. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, forecasting, econometrics, healthcare systems, resource allocation, patient flow, time series*

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