



Methodological Evaluation of District Hospitals Systems in Ethiopia Using Time-Series Forecasting Models

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Abstract

District hospitals in Ethiopia face challenges in managing patient flow and resource allocation effectively. A comprehensive search strategy was employed across multiple databases to identify relevant literature. Studies selected used time-series forecasting techniques such as ARIMA for yield analysis. The application of ARIMA models revealed an average annual yield improvement rate of 5% in district hospitals over a five-year period, with significant variability among regions. Time-series forecasting models provide valuable insights into the performance and potential improvements in Ethiopian district hospital systems. Further research should investigate regional-specific factors influencing yield and explore integration of predictive analytics for resource management. 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, healthcare management, forecasting, econometrics, resource allocation, performance measurement, geographic information systems*

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