



Forecasting Adoption Rates in Rwanda's District Hospitals Using Time-Series Models: A Methodological Evaluation

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Abstract

This study examines the adoption rates of new surgical procedures in Rwanda's district hospitals by applying time-series forecasting models. A time-series forecasting model was employed to analyse historical data of surgical procedure adoptions across Rwanda's district hospitals. Robust standard errors were used for uncertainty quantification. The analysis revealed a trend towards steady adoption rates in the studied period, with an estimated forecast error within $\pm 5\%$ confidence intervals. Time-series forecasting models provide valuable insights into surgical procedure adoptions and can facilitate better resource allocation and policy planning in Rwandan healthcare systems. The findings suggest that regular data collection and model re-evaluation are essential for maintaining the accuracy of adoption rate predictions. time-series analysis, forecast error, confidence intervals, Rwanda, district hospitals Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^* p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Rwanda, Geographic Information Systems, GIS, Methodology, Forecasting, Epidemiology, Time-series analysis

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