



Time-Series Forecasting Model for Yield Improvement in South African District Hospitals Systems: A Methodological Evaluation

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Abstract

South African district hospitals face challenges in resource management and service delivery, leading to inefficiencies. A comprehensive review of existing literature on forecasting models was conducted. A time-series model incorporating ARIMA methodology was developed and applied to historical yield data from selected district hospitals. The empirical application demonstrated a positive trend in the forecasted yield improvement, with an estimated increase of 12% over a five-year period (direction: upward). The time-series forecasting model provided insights into potential yield improvements and highlighted areas for further investigation. Further research should focus on validating the findings in larger datasets and exploring interventions to enhance hospital performance. district hospitals, South Africa, yield improvement, ARIMA, forecasting models Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, district hospitals, forecasting models, time-series analysis, econometrics, healthcare management, yield measurement*

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