



# Methodological Evaluation of District Hospitals Systems in South Africa Using Time-Series Forecasting Models for Efficiency Measurement

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## Abstract

District hospitals in South Africa face challenges related to resource allocation and operational efficiency. A comprehensive review of existing literature will be conducted, focusing on methodologies employed in efficiency measurement within South African district hospitals. The analysis will include a critical examination of published works using time-series forecasting models and other relevant statistical techniques. The findings indicate that while various methods have been applied, there is potential for enhanced accuracy through the integration of advanced time-series forecasting models. This review underscores the importance of adopting robust methodologies to improve efficiency assessments in district hospitals. The proposed model offers a promising approach for future research and policy development. Researchers should consider incorporating time-series forecasting models into their evaluation frameworks, particularly those involving long-term data series analysis. 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:** African geography, district hospitals, efficiency measurement, time-series analysis, forecasting models, econometrics, resource allocation



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