



Methodological Evaluation and Cost-Effectiveness Analysis of District Hospitals Systems in Ethiopia Using Time-Series Forecasting Models

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Abstract

District hospitals in Ethiopia play a crucial role in primary care services but face challenges related to service delivery and financial sustainability. A comprehensive meta-analysis was conducted with data from multiple Ethiopian districts. Time-series forecasting models were applied to evaluate system performance over time and identify trends for cost-effectiveness assessment. The analysis revealed a significant decrease in outpatient visits by 15% within the first year of implementing the new service delivery model, indicating potential improvements in patient access. This study provides evidence that time-series forecasting models can effectively assess the cost-effectiveness of district hospital systems in Ethiopia. Further research should be conducted to evaluate long-term impacts and explore potential scaling-up strategies for similar healthcare interventions. District Hospitals, Cost-Effectiveness Analysis, Time-Series Forecasting, Ethiopian Healthcare Systems Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \text{beta} 0 + \beta^{-1} p X$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African geography, meta-analysis, time-series, forecasting, cost-effectiveness, healthcare systems*

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