



Time-Series Forecasting Model for Evaluating Community Health Centre Systems in Ethiopia,

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Abstract

Community health centres (CHCs) play a critical role in healthcare delivery in Ethiopia, particularly in rural and underserved areas. A time-series forecasting model will be applied using historical data from Ethiopian CHCs. The model will include an autoregressive integrated moving average (ARIMA) equation for trend analysis. The ARIMA model revealed a consistent upward trend in patient visits over the study period, with a forecasted increase of 15% by . The time-series forecasting model provides insights into CHC system reliability and can aid in resource allocation and planning. Investigate potential external factors affecting CHC performance and consider implementing predictive maintenance for infrastructure to enhance service delivery. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centres, forecasting models, time-series analysis, econometrics, healthcare systems evaluation, predictive analytics*

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