Forecasting Yield Improvement in Ethiopian Community Health Centres Using Time-Series Models: A Methodological Evaluation

Mikaela Assefa[1]

[1] Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa

Correspondence: massefa@gmail.com

Author notes

Mikaela Assefa is affiliated with Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa and focuses on Medicine research in Africa.

Abstract

Community health centers (CHCs) in Ethiopia play a pivotal role in delivering healthcare services to underserved populations. However, their performance and efficiency are often underreported. A time-series analysis was conducted using ARIMA (AutoRegressive Integrated Moving Average) model to forecast yield improvement metrics over a five-year period. Robust standard errors were calculated for uncertainty quantification. The ARIMA model demonstrated an R^2 value of 0.85 and a confidence interval of ±10% for the forecasted yield improvements, indicating moderate accuracy in future projections. This study confirms the utility of time-series models in evaluating CHC performance and provides a methodological framework that can be applied to other healthcare systems. Further research should explore multi-model comparisons and incorporate additional contextual variables for enhanced predictive power. Community Health Centers, Time-Series Models, Forecasting Yield Improvement, ARIMA Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^\rightarrow\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge