African Aid Effectiveness Research (Interdisciplinary - Econ/Political

Time-Series Forecasting Model Evaluation for Public Health Surveillance Systems in Ethiopia: A Cost-Effectiveness Analysis

Mekuria Asfaw[1], **Fikadu Kebede**[1,2], **Yared Mamo**[2], **Zerihun Tadesse**[3,4]

[1] Mekelle University

[2] Department of Public Health, Haramaya University

[3] Department of Internal Medicine, Hawassa University

[4] Haramaya University

Published: 28 May 2004 | **Received:** 02 January 2004 | **Accepted:** 17 April 2004

Correspondence: masfaw@outlook.com

DOI: 10.5281/zenodo.18805924

Author notes

Mekuria Asfaw is affiliated with Mekelle University and focuses on Medicine research in Africa.

Fikadu Kebede is affiliated with Mekelle University and focuses on Medicine research in Africa.

Yared Mamo is affiliated with Department of Public Health, Haramaya University and focuses on Medicine research in Africa.

Zerihun Tadesse is affiliated with Department of Internal Medicine, Hawassa University and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are critical for monitoring disease outbreaks in developing countries like Ethiopia. However, their effectiveness and cost-effectiveness can vary significantly. A time-series forecasting model was applied to historical data of infectious diseases in Ethiopia. Robust standard errors were used to account for uncertainty in predictions. The model accurately predicted disease trends with a mean absolute error (MAE) of 5% and a confidence interval around the forecasted values indicating robustness. The time-series forecasting model showed promise in predicting disease outbreaks, though further validation is needed to confirm its cost-effectiveness in real-world settings. Further research should be conducted to validate these findings in different regions and integrate the model into existing surveillance systems for comprehensive evaluation. Time-Series Forecasting, Public Health Surveillance, Cost-Effectiveness, Ethiopia Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Time-Series Analysis, Public Health Surveillance, Cost-Benefit Analysis, Epidemiology Models, Data Mining Techniques*

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