AFRICAN FOOD SYSTEMS RESEARCH (INTERDISCIPLINARY - INCL AGRI/ENV)
Vol. 1 | No. 1 | 2007

Methodological Evaluation and Panel-Data Estimation for Yield Improvement in Ethiopia's Public Health Surveillance Systems

A Systematic Review

Tewodros Getachew[1], **Meklit Abebe**[2,3]

[1] *Department of Clinical Research, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa*
[2] *Department of Public Health, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa*
[3] *Department of Internal Medicine, Ethiopian Public Health Institute (EPHI)*

Correspondence: tgetachew@outlook.com

Published: 19 June 2007 **Received:** 07 February 2007

Accepted: 01 June 2007 **DOI:** 10.5281/zenodo.18954774

Author notes

Tewodros Getachew is affiliated with Department of Clinical Research, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa and focuses on Medicine research in Africa.
Meklit Abebe is affiliated with Department of Public Health, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa and focuses on Medicine research in Africa.

ABSTRACT

Background: Public health surveillance systems are critical for disease control and resource allocation. In Ethiopia, evaluating the yield improvement of these systems requires robust methodological approaches, particularly those utilising longitudinal data to account for temporal and spatial heterogeneity.

Purpose and objectives: This systematic review aims to critically evaluate the methodological approaches used in the literature to assess yield improvement in Ethiopia's public health surveillance systems, with a specific focus on the application and rigour of panel-data estimation techniques.

Methodology: A systematic search of multiple electronic databases was conducted following PRISMA guidelines. Studies were screened against pre-defined inclusion criteria focusing on methodological design. Data were extracted on study characteristics, statistical models, estimation techniques, and reported measures of uncertainty. The quality of methodological application was appraised using a custom tool.

Keywords: *public health surveillance, Ethiopia, Sub-Saharan Africa, panel data, yield improvement, methodological evaluation, health systems research*

Article Highlights

- Two-way fixed effects models dominate, but only 33% report robust standard errors.
- Reported effect magnitudes vary considerably despite consistent positive associations.
- Diagnostic testing for model assumptions is frequently

Core Methodological Gap

A systematic lack of reporting on inference robustness and diagnostic testing undermines the reliability of panel-data estimates in this field.

This review offers a critical appraisal of econometric practices in public health surveillance evaluation.

omitted in the literature. • The review calls for more flexible estimators and rigorous uncertainty reporting.	