



Methodological Assessment and Panel Data Estimation of Public Health Surveillance Systems in Ethiopia for Clinical Outcomes Analysis

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Abstract

Public health surveillance systems in Ethiopia are crucial for monitoring clinical outcomes to inform public health policies. A mixed-method approach was employed, including quantitative data analysis of longitudinal surveillance records. Panel data techniques were used to account for temporal dependencies in the data. The panel-data estimation revealed significant annual increases ($p < 0.05$) in reported infectious disease cases over a five-year period. Public health surveillance systems in Ethiopia have shown robust performance in capturing clinical trends, with particular emphasis on infectious diseases. Continued investment and refinement of these systems are recommended to ensure they remain effective for future surveillance needs. public health surveillance, panel data analysis, clinical outcomes, Ethiopia Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems, Spatial Analysis, Time Series, Longitudinal Studies, Stochastic Models, Clinical Outcomes Analysis*

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