



Methodological Evaluation of Public Health Surveillance Systems in Ethiopia Using Panel Data Analysis

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Abstract

Public health surveillance systems are crucial for monitoring disease outbreaks and implementing effective prevention measures in Ethiopia. A meta-analysis approach will be employed to synthesize existing studies on public health surveillance systems. Panel data models will be used to estimate adoption rates over time and across regions. Panel data analysis indicates that the adoption rate of electronic reporting systems in rural areas is significantly higher than in urban settings, with a proportion of 75% in favour of rural regions. The meta-analysis highlights geographical disparities in the adoption of public health surveillance technologies and suggests targeted interventions to improve coverage in underserved areas. Public health authorities should prioritise the roll-out of electronic reporting systems in urban settings, aiming for a minimum adoption rate of at least 70% within two years. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Public Health Surveillance, Meta-Analysis, Panel Data, Methodology, Epidemiology, Regression Analysis*

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