African Livestock Production Science (Health focus)

Methodological Evaluation of Public Health Surveillance Systems in Ethiopia Using Panel Data for Adoption Rate Measurement

Zerihun Mekonnen[1], **Mulugeta Tadesse**[2,3]

[1] Department of Epidemiology, Bahir Dar University

[2] Bahir Dar University

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

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Correspondence: zmekonnen@outlook.com

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Author notes

Zerihun Mekonnen is affiliated with Department of Epidemiology, Bahir Dar University and focuses on Medicine research in Africa.

Mulugeta Tadesse is affiliated with Bahir Dar University and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are essential for monitoring infectious diseases in Ethiopia, where they play a critical role in disease detection and control. We employed a fixed effects model (FE) for estimating the impact of various variables on the adoption rate of surveillance systems, accounting for potential heterogeneity across regions. The panel data analysis revealed that facility investment in IT infrastructure significantly increased the adoption rates of public health surveillance systems by 25% compared to those without such investments. Furthermore, a higher proportion (30%) of facilities reported improved disease detection and response times as a result of adopting these systems. Our findings suggest that targeted interventions aimed at enhancing IT capabilities can substantially boost the adoption rates of public health surveillance systems in Ethiopia. To further improve the effectiveness of surveillance systems, it is recommended to provide additional training for healthcare workers and allocate sufficient funding for upgrades to existing infrastructure. Treatment effect was estimated with $text{logit}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Public Health Surveillance, Panel Data, Fixed Effects Model, Spatial Econometrics, Stochastic Frontier Analysis, Adoption Rate Measurement*

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