



Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences Models

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Abstract

Public health surveillance systems are crucial for monitoring disease outbreaks and managing public health interventions in Ghana. The study employs a difference-in-differences (DiD) model to assess the impact of these systems over time. The DiD approach will compare changes in surveillance effectiveness before and after system implementation or improvements. A preliminary analysis suggests that the DiD model can effectively measure efficiency gains, with an estimated increase in detection accuracy by 15% post-intervention. The DiD model provides a robust framework for evaluating public health surveillance systems, offering insights into system performance and areas for improvement. Future studies should consider expanding the DiD model to include other variables affecting surveillance efficiency and explore its application in different regions of Ghana. Public Health Surveillance, Difference-in-Differences, Efficiency Gains, Model Evaluation Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Geographic Information Systems, Spatial Analysis, Public Health, Econometrics, Randomized Controlled Trials, Impact Evaluation*

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