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Methodological Assessment and Efficiency Evaluation of Public Health Surveillance Systems in Rwanda Using Difference-in-Differences Approach

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Abstract

Public health surveillance systems are critical for monitoring and controlling diseases in Rwanda. However, their effectiveness varies across different regions. A meta-analysis will be conducted with data from various districts and time periods. The difference-in-differences model will be applied to assess changes in surveillance system performance over time, controlling for potential confounders. The analysis revealed a statistically significant increase ($p < 0.05$) in the efficiency of public health surveillance systems in certain regions compared to others, with proportions varying between districts. The difference-in-differences model effectively highlights disparities in system performance and provides insights into factors influencing their efficiency. Future research should consider implementing additional monitoring indicators and improving data collection methods to enhance the accuracy of surveillance systems. Public health, Surveillance systems, Efficiency gains, Difference-in-Differences (DID), Meta-analysis Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, intervention, econometrics, impact assessment, clustering, randomized*

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