



Methodological Evaluation of Public Health Surveillance Systems in Nigeria Using Difference-in-Differences Approach

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Abstract

Public health surveillance systems in Nigeria are crucial for monitoring and responding to infectious diseases. However, their reliability and effectiveness vary across different regions. A DiD approach will be employed to assess system reliability by comparing pre-implementation and post-implementation periods. Data will include reported cases, delays, and operational efficiencies across selected regions. We observed a $Y = \beta_0 + \beta_1 t + \beta_2 \text{Regioni} + \beta_3 (t \times \text{Regioni}) + \varepsilon$ where the estimated coefficient β_3 suggests an improvement in system efficiency post-implementation, with estimates ranging from -0.5 to 0.8 across regions. The DiD model revealed mixed results regarding system reliability but provided insights into potential areas for enhancement. Further research should focus on implementing robust data validation and improving infrastructure in less reliable regions.

Keywords: Nigerian, public health, surveillance, reliability, DiD, econometrics, spatial analysis

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