



Panel Data Estimation for Evaluating Public Health Surveillance System Efficiency in Nigeria,

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Abstract

Public health surveillance systems in Nigeria have been established to monitor disease outbreaks and ensure timely responses. However, their efficiency remains under scrutiny. A panel data econometric model will be utilised to estimate the efficiency of the Nigerian public health surveillance system across different regions and years. The model will account for both fixed and random effects. The preliminary analysis suggests significant variations in system performance, with some regions demonstrating efficiencies above the average. This study contributes by providing a detailed evaluation framework that can be used to improve public health surveillance systems in Nigeria. Policy recommendations will focus on enhancing resource allocation and improving coordination among surveillance centers. Public Health Surveillance, Efficiency Analysis, Panel Data Estimation, Nigeria Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_p$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, public health surveillance, panel data analysis, econometrics, efficiency measurement, time series, spatial econometrics*

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