



# Methodological Evaluation of Public Health Surveillance Systems in Senegal: A Difference-in-Differences Approach to Assess Efficiency Gains

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## Abstract

Public health surveillance systems in Senegal have been established to monitor infectious diseases and other public health issues. However, their efficiency and effectiveness remain under scrutiny. A DiD approach was employed to compare pre- and post-intervention performance metrics. The study utilised data from two consecutive annual surveillance reports, applying robust standard errors for inference. The analysis revealed a significant increase in reporting accuracy ( $p < 0.05$ ) after the implementation of new surveillance protocols, suggesting efficiency gains attributed to improved system functionality. This methodological evaluation supports the hypothesis that DiD models can effectively measure efficiency improvements in public health surveillance systems. Further research should focus on longitudinal data collection and broader application of DiD across different regions to validate these findings. Public Health Surveillance, Efficiency Gains, Difference-in-Differences (DiD), Senegal Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, Africa, Senegal, Public-Health, Surveillance, Systems, Econometrics, Difference-In-Differences*

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