



# Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Panel Data Analysis

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## Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding intervention strategies in Rwanda. A systematic literature review was conducted to evaluate the methodologies used in studies examining public health surveillance systems in Rwanda. Panel-data estimation techniques were employed to analyse the impact of these systems on yield improvement, with robust standard errors accounting for potential model misspecification. Panel data analysis revealed a positive correlation between enhanced surveillance system implementation and significant yield improvements in healthcare outcomes across Rwanda's districts. The panel-data estimation method provided insights into the efficacy of public health surveillance systems in Rwanda, highlighting their role in improving healthcare yield. Continued investment in robust surveillance infrastructure is recommended to sustain and enhance yield improvement in Rwanda's healthcare sector. public health surveillance, yield improvement, panel data analysis, Rwanda 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:** *Public health, Rwanda, surveillance systems, panel data, econometrics, methodology, evaluation, metrics*

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