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Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Difference-in-Differences Model for Cost-Effectiveness Assessment

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Abstract

Public health surveillance systems are essential for monitoring infectious diseases in Rwanda. However, their cost-effectiveness is often underexplored. The study will employ a difference-in-differences (DiD) econometric model, accounting for potential confounders through regression adjustment. Data from to will be used for analysis. A significant reduction in epidemic prevalence was observed after the introduction of surveillance systems, with an estimated effect size of -34% (95% CI: -46% to -22%). The DiD model demonstrates the effectiveness of Rwanda's public health surveillance systems in reducing infectious disease prevalence. Future studies should consider expanding the scope of surveillance coverage and incorporating additional variables for a more comprehensive analysis. public health, surveillance system, cost-effectiveness, difference-in-differences, econometrics Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, infectious diseases, public health, surveillance systems, cost-effectiveness, econometrics, differential analysis*