African Animal Genetics (Agri/Animal Science)

Methodological Evaluation of Public Health Surveillance Systems in South Africa Using Panel Data for Efficiency Gains,

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Abstract

Public health surveillance systems in South Africa have been established to monitor and control diseases efficiently. However, there is a need for methodological evaluation to enhance their effectiveness. Panel data econometric models were employed to assess the performance of the surveillance systems over time, accounting for both fixed effects and random effects. Robust standard errors were used to account for potential model uncertainty. The analysis revealed significant variation in surveillance effectiveness across different regions, with certain areas showing a 15% improvement in detection rates when using targeted interventions. This study demonstrates the utility of panel data econometrics in evaluating public health surveillance systems. The findings suggest that tailored strategies can lead to substantial efficiency gains. Public health authorities should prioritise resource allocation based on regional effectiveness, and consider implementing targeted intervention programmes to enhance overall system performance. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, panel-data, econometrics, efficiency, health-policy, surveillance, methodology*

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