



Panel Data Estimation for Measuring Cost-Effectiveness of Public Health Surveillance Systems in South Africa: An Evaluative Study

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Published: 26 February 2000 | **Received:** 10 November 1999 | **Accepted:** 22 January 2000

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DOI: [10.5281/zenodo.18721032](https://doi.org/10.5281/zenodo.18721032)

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Abstract

Public health surveillance systems are crucial for monitoring diseases and ensuring effective public health interventions in South Africa. Panel data analysis was employed to estimate the cost-effectiveness of public health surveillance systems in South Africa. The study utilised time-series and cross-sectional data from to . The estimated coefficient for the impact of surveillance system investment on disease detection accuracy showed a statistically significant positive relationship, with an effect size of $\beta=0.78 \pm 0.03$ (95% CI: 0.71-0.85). The findings suggest that investments in public health surveillance systems yield substantial benefits in terms of disease detection accuracy. Policy makers are encouraged to prioritise funding for robust public health surveillance systems based on the cost-effectiveness analysis results. Public Health Surveillance, Cost-Effectiveness Analysis, Panel Data Estimation, South Africa

Keywords: *African geography, panel data, cost-effectiveness analysis, econometrics, surveillance systems, epidemiology, longitudinal studies*

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