



Efficiency Gains in Rwanda's District Hospitals: A Panel Data Estimation of System Performance Evaluation

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Abstract

This study examines the efficiency of district hospitals in Rwanda by applying panel data estimation techniques. Panel data from Rwanda's district hospitals were analysed using a stochastic frontier model (SSM) with robust standard errors estimated through bootstrapping methods. Efficiency gains varied between districts, with some showing substantial improvements in service delivery and patient outcomes, indicating potential for targeted interventions. The findings suggest that by addressing identified inefficiencies, district hospitals can enhance their performance and improve clinical services. District health authorities should prioritise training programmes and resource allocation to support the most efficient districts and address broader systemic issues. Rwanda, panel data, efficiency gains, district hospitals, healthcare system Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Rwandan, District Hospitals, Stochastic Frontier, Panel Data, Methodological Evaluation, Efficiency Measurement, Econometric Techniques*

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