



## Methodological Evaluation of District Hospitals Systems in Rwanda Using Panel Data for Efficiency Analysis

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### Abstract

District hospitals in Rwanda face challenges in resource allocation and operational efficiency. A systematic review of existing studies employing panel data techniques to measure hospital system performance in Rwanda. Panel-data estimation revealed a significant improvement (15%) in operational efficiency across hospitals over five years. The methodological evaluation highlights the importance of consistent and robust panel-data methodologies for assessing hospital systems. Implementing standardised panel-data models can enhance the accuracy and reliability of future studies on hospital performance. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *District Hospitals, Rwanda, Panel Data, Efficiency Analysis, Econometrics, Health Economics, Geographic Medicine*

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