



# Methodological Evaluation of District Hospitals Systems in Kenya: Panel Data Estimation for Adoption Rates

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## Abstract

District hospitals in Kenya play a critical role in rural healthcare delivery, yet their operational effectiveness varies widely. A systematic review was conducted to analyse existing studies on district hospitals in Kenya. Panel-data methods were employed to assess the impact of various healthcare initiatives over time. The estimated adoption rate for essential surgical procedures across selected districts ranged from 20% to 45%, indicating significant variability and room for improvement. While panel data analysis revealed substantial heterogeneity in hospital system performance, it provided insights into factors influencing adoption of medical interventions. Further longitudinal studies are recommended to understand long-term trends and identify sustainable strategies for improving healthcare delivery. Panel Data Analysis, District Hospitals, Healthcare Adoption, Surgical Procedures, Kenya Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, healthcare systems, panel data, econometrics, resource allocation, quality of care, governance structures*

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