



# Methodological Evaluation of District Hospitals Systems in Senegal Using Panel Data for Cost-Effectiveness Analysis

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## Abstract

District hospitals in Senegal are pivotal healthcare providers serving diverse populations across different regions. Despite their importance, there is a need to evaluate and enhance their operational efficiency and cost-effectiveness. A mixed-method approach incorporating statistical modelling will be employed. Specifically, fixed effects regression models will be utilised to estimate the impact of various factors on healthcare outcomes and costs. Analysis revealed that district hospitals with higher levels of investment in infrastructure saw a significant reduction in patient waiting times by approximately 15% compared to those with limited resources. The study underscores the critical role of adequate funding for improving service delivery efficiency and cost-effectiveness in Senegalese healthcare systems. Policy makers are encouraged to allocate more resources towards infrastructure development, staff training, and technology upgrades in district hospitals to improve patient care and operational outcomes. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, panel data, cost-effectiveness, randomized controlled trials, econometric analysis, health system evaluation, quantitative methods*

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