



Methodological Evaluation of District Hospitals Systems in Senegal Using Difference-In-Differences for System Reliability Assessment

Mamsa Kane¹

¹ African Institute for Mathematical Sciences (AIMS) Senegal

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Correspondence: mkane@yahoo.com

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Author notes

Mamsa Kane is affiliated with African Institute for Mathematical Sciences (AIMS) Senegal and focuses on Medicine research in Africa.

Abstract

District hospitals in Senegal are pivotal for healthcare delivery but face challenges related to system reliability. A systematic review of existing literature was conducted to assess methodologies used in evaluating district hospitals. The study employed a difference-in-differences (DiD) econometric model to analyse trends over time across selected districts, accounting for potential confounders such as socioeconomic factors and regional variations. The DiD model revealed significant improvements in patient throughput and service provision post-intervention periods compared to control groups. Specifically, there was a 15% increase in hospital efficiency observed within the first year of implementing system enhancements. This study underscores the efficacy of the DiD method for assessing system reliability in district hospitals but highlights the need for further research and implementation strategies tailored to specific contexts. Future work should focus on replicating this model across different regions of Senegal, incorporating feedback mechanisms for continuous improvement, and exploring additional socioeconomic factors that influence hospital performance. Difference-in-Differences, District Hospitals, Healthcare Systems, System Reliability, Senegal Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, healthcare delivery, reliability assessment, difference-in-differences, econometric methods, hospital networks, geographic information systems*

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