



Methodological Evaluation of District Hospitals Systems in Senegal: Difference-in-Differences Approach for System Reliability Measurement

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Abstract

District hospitals in Senegal play a crucial role in providing healthcare services across various regions of the country. However, their reliability and efficiency vary significantly, necessitating a methodical evaluation to improve service delivery. A Difference-in-Differences approach was employed, leveraging pre- and post-reform data from a sample of district hospitals across Senegal. The DID model accounts for potential confounders by comparing changes within treated groups (hospitals) to those in control groups (non-treated hospitals). The analysis revealed a significant improvement in system reliability, with an estimated effect size of 15% in favour of the reform period compared to pre-reform levels. This suggests that recent reforms have positively influenced hospital operations and patient outcomes. This study provides evidence supporting the effectiveness of the implemented reforms, but further long-term evaluations are needed to confirm these findings and ensure sustained improvements in district hospitals' reliability. District health authorities should continue monitoring system performance and consider scaling up successful interventions identified through this research. Additionally, regular data collection and analysis can help track progress over time. 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 systems, reliability assessment, difference-in-differences, econometric methods, district health centers, predictive analytics*

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