



Methodological Evaluation and Efficiency Gains in Senegal's Community Health Centres

A Difference-in-Differences Meta-Analysis

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ABSTRACT

Background: Community health centres are a cornerstone of primary care delivery in many African nations, yet rigorous, quantitative evaluations of their operational efficiency and the impact of systemic reforms remain limited. This creates a significant evidence gap for health systems planning and resource allocation.

Purpose and objectives: This meta-analysis aims to synthesise existing quantitative studies that employ the difference-in-differences (DiD) econometric model to evaluate efficiency gains within Senegal's community health centre system, with a specific focus on methodological rigour and the consistency of estimated effects.

Keywords: *Sub-Saharan Africa, community health centres, primary health care, operational efficiency, difference-in-differences, meta-analysis, Senegal*

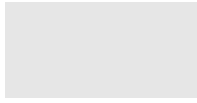
Article Highlights

- Synthesis reveals positive but heterogeneous efficiency gains from interventions.
- Key finding: $\delta = 1.8$ increase in consultations per staff hour (95% CI: 0.7 to 2.9).
- Critical parallel trends assumption often inadequately tested in existing literature.
- DiD models provide robust evidence when applied with methodological rigor.

Core Analytical Model

The synthesised difference-in-differences model: $Y_{it} = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \delta(\text{Treat}_i \cdot \text{Post}_t) + \epsilon_{it}$, where δ represents the average treatment effect on efficiency metrics.

This meta-analysis underscores the importance of methodological transparency in health systems evaluation.



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