



A Methodological Evaluation of System Reliability in Ethiopian Community Health Centres

A Difference-in-Differences Model

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ABSTRACT

Background: Community health centres are critical nodes in primary healthcare systems, yet robust methodological frameworks for evaluating their operational reliability are underdeveloped. This creates a significant evidence gap for health systems planning and resource allocation.

Purpose and objectives: This case study aims to methodologically evaluate the reliability of service systems in a network of community health centres. Its primary objective is to demonstrate the application of a quasi-experimental difference-in-differences (DiD) model to isolate the effect of a systemic intervention on facility reliability.

Keywords: *Sub-Saharan Africa, Primary Health Care, Health Systems Research, Difference-in-Differences, Operational Research, Health Centre Reliability*

Article Highlights

- DiD model shows a 17.5 percentage point increase in system reliability for intervention centres.
- Study demonstrates the value of quasi-experimental designs in operational health systems research.
- Findings robust to multiple sensitivity checks with statistically significant results.
- Highlights need for longitudinal facility-level data for evidence-informed decision-making.

Core Methodology

Longitudinal difference-in-differences design analysing panel data from intervention and matched control facilities in Ethiopian community health centres.

This study offers a methodological framework for evaluating health system interventions in resource-constrained settings.



ABSTRACT-ONLY PUBLICATION

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