

A Difference-in-Differences Evaluation of Cost-Effectiveness in Ugandan District Hospital Systems

A Methodological Appraisal

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ABSTRACT

Background: Evaluating the cost-effectiveness of health system interventions in low-resource settings is critical for policy, but robust quasi-experimental methods are underutilised. District hospital systems in sub-Saharan Africa present a complex environment for such analysis.

Purpose and objectives: This study provides a methodological appraisal of applying the difference-in-differences (DiD) model to measure cost-effectiveness within Ugandan district hospital systems, assessing its validity and practical implementation challenges.

Keywords: *cost-effectiveness, difference-in-differences, health systems research, sub-Saharan Africa, district hospitals, quasi-experimental design, Uganda*

Article Highlights

- DiD application revealed violations of the parallel trends assumption in routine data.
- Wide confidence intervals around cost-effectiveness estimates indicate substantial uncertainty.
- Methodological prerequisites are often unmet in standard health system administrative records.
- Recommends integrating DiD with complementary quasi-experimental methods.

Core Methodological Challenge

The difference-in-differences model requires a parallel trends assumption that was frequently violated when applied to Ugandan district hospital administrative data.

A critical examination of quasi-experimental methods for health economics in low-resource settings.

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