



# Methodological Assessment and Efficiency Gains in District Hospitals System in Kenya Using Difference-in-Differences Models

Odhiambo Ochanda<sup>1</sup>

<sup>1</sup> Technical University of Kenya

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**Correspondence:** [oochanda@gmail.com](mailto:oochanda@gmail.com)

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## Author notes

*Odhiambo Ochanda is affiliated with Technical University of Kenya and focuses on Medicine research in Africa.*

## Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of district hospitals systems in Kenya: difference-in-differences model for measuring efficiency gains in Kenya. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured review of relevant literature was conducted, with thematic synthesis of key findings. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of district hospitals systems in Kenya: difference-in-differences model for measuring efficiency gains, Kenya, Africa, Medicine, systematic review This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta^{-1} p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Kenya, District Hospitals, Methodological Evaluation, Difference-in-Differences, Efficiency Gains, Health Systems, Econometrics*

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