



Methodological Evaluation of District Hospitals Systems in Ethiopia Using Difference-in-Differences Approach for Risk Reduction Assessment

Fekadu Gebreab¹, Wondaferihun Assefa¹, Muluken Alemayehu^{2,3}, Seresignew Tekalign⁴

¹ Adama Science and Technology University (ASTU)

² Department of Internal Medicine, Adama Science and Technology University (ASTU)

³ Department of Public Health, Debre Markos University

⁴ Addis Ababa University

Published: 07 December 2011 | **Received:** 02 September 2011 | **Accepted:** 03 November 2011

Correspondence: fgebream@yahoo.com

DOI: [10.5281/zenodo.18929998](https://doi.org/10.5281/zenodo.18929998)

Author notes

Fekadu Gebreab is affiliated with Adama Science and Technology University (ASTU) and focuses on Medicine research in Africa.

Wondaferihun Assefa is affiliated with Adama Science and Technology University (ASTU) and focuses on Medicine research in Africa.

Muluken Alemayehu is affiliated with Department of Internal Medicine, Adama Science and Technology University (ASTU) and focuses on Medicine research in Africa.

Seresignew Tekalign is affiliated with Addis Ababa University 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 Ethiopia: difference-in-differences model for measuring risk reduction in Ethiopia. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. 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 Ethiopia: difference-in-differences model for measuring risk reduction, Ethiopia, Africa, Medicine, intervention study This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Geographic Variation, Public Health, Risk Assessment, Quasi-experimental Design, Randomised Controlled Trials, Difference-in-Differences

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