



# Methodological Evaluation of District Hospitals Systems in Ethiopia Using a Difference-in-Differences Approach for Cost-Effectiveness Analysis

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## Abstract

District hospitals in Ethiopia face challenges in cost-effectiveness, necessitating a methodological evaluation to improve their systems. A DID approach was employed to analyse data from baseline and follow-up periods, with control districts used as comparators. Uncertainty in estimates is quantified through robust standard errors. District hospitals showed a significant improvement in patient outcomes ( $p < 0.05$ ) after the intervention period compared to non-intervention districts. The DID model effectively measured cost-effectiveness, providing actionable insights for resource allocation and system improvements. Implementing identified interventions could enhance service delivery efficiency and improve health outcomes in district hospitals. Difference-in-Differences, Cost-Effectiveness, District Hospitals, Ethiopia Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Ethiopia, District Hospitals, Cost-Effectiveness, Methodology, Quasi-Experimental Designs, Hierarchical Linear Models, Randomization Techniques

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