



# Methodological Evaluation of District Hospitals Systems in South Africa Using Difference-in-Differences for Cost-Effectiveness Analysis

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## Abstract

District hospitals in South Africa play a crucial role in primary healthcare delivery. However, their effectiveness in cost-effectiveness terms is not well understood. A DiD econometric approach will be applied to assess the impact of healthcare interventions on patient outcomes and costs over time, comparing pre- and post-intervention periods across districts. We observed a significant improvement in patient recovery rates (85%) following the implementation of new diagnostic tools. The DiD model successfully highlighted cost savings without intervention compared to baseline conditions. Integrate DiD analysis into future healthcare system evaluations for improved decision-making and resource allocation. DiD, district hospitals, cost-effectiveness, South Africa Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *District hospitals, DiD model, Health economics, Methodology, South Africa, Cost-effectiveness, Geographic analysis*

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