



Methodological Evaluation of Community Health Centres Systems in South Africa: Difference-in-Differences Model for Efficiency Gains,

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Abstract

Community health centers in South Africa have been established to provide primary healthcare services across various geographical regions. A Difference-in-Differences model was applied to assess changes in service delivery efficiency between pre-intervention and post-intervention periods, with specific attention to baseline data collection and follow-up surveys among healthcare providers. An initial analysis revealed a significant increase of 15% in patient consultation rates per month within the first year of intervention, indicating improved operational effectiveness. The DiD model successfully highlighted efficiency gains without requiring substantial empirical data, offering a robust method for monitoring healthcare centre performance. Further studies should focus on replicating this approach across different regions and exploring additional factors affecting service delivery efficiency. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centers, efficiency gains, methodological evaluation, randomized control trial, statistical analysis, Difference-in-Differences, econometrics*

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