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Quasi-Experimental Evaluation of Community Health Centre Systems in South Africa: Methodological Assessment and Efficiency Gains Analysis

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Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of community health centres systems in South Africa: quasi-experimental design for measuring efficiency gains in South Africa. 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 community health centres systems in South Africa: quasi-experimental design for measuring efficiency gains, South Africa, Africa, Medicine, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Quasi-experimental, Evaluation, Community Health Centres, Efficiency, Methodology, Performance Measurement*