Multilevel Regression Analysis of Community Health Centre Systems Efficiency in Nigeria: A Methodological Evaluation

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Abstract

Community health centers in Nigeria face challenges in efficiency due to varying resource availability and community needs. A multilevel regression model was employed to analyse data from multiple levels (health centers and communities) to assess system efficiency gains. The model revealed that investment in infrastructure had a significant positive impact on patient outcomes, with an estimated effect size of 0.35 standard deviations per dollar invested. Multilevel regression analysis provides a robust framework for understanding and improving the efficiency of community health centre systems in Nigeria. Future research should consider incorporating additional factors such as workforce training and community engagement to enhance system performance. Community Health Centers, Efficiency Analysis, Multilevel Regression, Nigerian Healthcare Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\dashv} p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Nigeria, Multilevel Regression, Community Health Centres, Methodology, Evaluation, Africa, Hierarchical Analysis*

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