



Methodological Assessment of Rural Clinics Systems in Senegal Using Panel Data for Clinical Outcomes Measurement,

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Abstract

This study focuses on evaluating the rural clinics in Senegal, a country with limited healthcare resources. Panel data from 20 rural clinics in Senegal were analysed using a fixed effects model, accounting for clinic-specific and temporal variations. Clinics with higher patient volumes had better patient satisfaction scores (75%) but also experienced increased medication errors by 15% compared to those with lower volumes. The study highlights the trade-offs between resource intensity and clinical quality in rural Senegalese healthcare settings. Investment should be prioritised in training staff for clinics handling higher patient loads, while ensuring adequate medication supplies. 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, Rural Health Systems, Panel Data Analysis, Fixed Effects Model, Longitudinal Studies, Methodological Evaluation, Clinical Outcomes Measurement*

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