



# Methodological Evaluation of District Hospital Systems in Uganda Using Panel-Data Estimation for System Reliability Assessment

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## Abstract

District hospitals in Uganda face challenges in providing reliable healthcare services due to varying levels of infrastructure, staffing, and funding. A mixed-method approach was employed, combining quantitative data from hospital records with qualitative interviews for a comprehensive assessment. Panel data analysis revealed that the average monthly patient turnover rate varied significantly across districts (ranging from 20% to 50%), highlighting disparities in service provision. The study underscores the need for targeted interventions to enhance system reliability and improve healthcare outcomes in district hospitals in Uganda. Policy recommendations include increased investment in infrastructure, regular staff training, and improved referral systems to address identified gaps. district hospitals, panel-data estimation, system reliability, Uganda, mixed-methods 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:** *Sub-Saharan, healthcare financing, panel-data analysis, system reliability, governance structures, qualitative research, triangulation techniques*

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