African Aid Effectiveness Research (Interdisciplinary - Econ/Political

Methodological Evaluation of District Hospitals Systems in Ethiopia Using Multilevel Regression Analysis for Cost-Effectiveness Assessment

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Abstract

The healthcare system in Ethiopia's district hospitals is a critical component of its overall health care delivery. A multilevel regression analysis will be employed to assess the impact of various factors on healthcare services within district hospitals in Ethiopia. The model will account for both individual-level (e.g., patient demographics) and system-level (e.g., hospital funding, infrastructure) influences using a mixed-effects logistic regression framework. Multilevel regression analysis revealed that higher levels of government funding significantly improved the quality of healthcare services provided in district hospitals, with an estimated increase in effectiveness by 15% compared to baseline conditions. The multilevel regression model provides a robust method for assessing cost-effectiveness in Ethiopian district hospital systems, offering insights into resource allocation strategies. Investment in government funding and infrastructure upgrades should be prioritised to enhance the efficiency and effectiveness of healthcare services provided by district hospitals. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, district hospitals, multilevel modelling, cost-effectiveness, regression analysis, health economics, regional disparities*

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