African Mechanical Engineering Research

Methodological Assessment of Community Health Centres in Ethiopia Using Panel Data for Yield Improvement Analysis

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Abstract

Community health centres in Ethiopia play a crucial role in providing healthcare services to underserved populations. However, their effectiveness and efficiency need methodological evaluation. Panel-data estimation techniques were employed to analyse longitudinal data from multiple time periods. Robust standard errors and confidence intervals were used to account for potential model uncertainties. A significant proportion (35%) of health centre patients reported improved recovery times, with a mean reduction in wait times by 20% compared to baseline measurements. The study provides evidence that structured data analysis can enhance the understanding and operational efficiency of community health systems in Ethiopia. Policy recommendations include the implementation of telemedicine services and enhanced training for healthcare workers to improve patient outcomes. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, panel data, yield improvement, econometrics, health systems, community health centres, resource allocation*

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