



Methodological Evaluation of Power-Distribution Equipment Systems in Kenya Using Multilevel Regression Analysis to Measure Adoption Rates

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Abstract

Power-distribution equipment systems play a critical role in ensuring reliable electricity supply in Kenya. However, their adoption rates vary significantly across different regions and stakeholders. A multilevel regression model was employed to analyse data from various sources including interviews, surveys, and administrative records. The model accounts for both regional differences and individual stakeholder characteristics. The multilevel regression analysis revealed that socioeconomic factors such as education level significantly influence the adoption rates of power-distribution equipment in rural areas compared to urban settings. This study provides a robust methodological framework for measuring adoption rates, which can inform policy and investment decisions in Kenya's electricity sector. Future research should consider integrating additional variables like infrastructure quality and government incentives into the multilevel regression model to enhance its predictive power. Power Distribution Equipment, Multilevel Regression, Adoption Rates, Stakeholder Analysis, Electricity Sector The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Kenya, Multilevel Regression Analysis, Power-Distribution Systems, Adoption Rates, Geographic Differentiation, Methodological Evaluation, Stakeholder Analysis

ABSTRACT-ONLY PUBLICATION

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