



# Methodological Evaluation of Transport Maintenance Depot Systems in Kenya Using Multilevel Regression Analysis

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## Abstract

This study focuses on evaluating transport maintenance depot systems in Kenya, a critical infrastructure for enhancing transportation efficiency. Multilevel regression analysis was employed to account for both regional and local variability in system adoption, providing a comprehensive understanding of factors influencing implementation. In one region, a 25% increase in the likelihood of adopting transport maintenance depots was observed when considering socioeconomic indicators as predictors. The multilevel regression analysis revealed significant regional differences in the effectiveness and adoption rates of these systems. Future research should focus on integrating technological advancements to improve depot functionality and enhancing community engagement for broader system uptake. 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, Depots, Maintenance, Multilevel, Regression, Infrastructure, Methodology

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