



Cost-Effectiveness Evaluation of Transport Maintenance Depots in Ugandan Urban Areas Using Multilevel Regression Analysis

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Published: 01 December 2006 | **Received:** 13 August 2006 | **Accepted:** 11 October 2006

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DOI: [10.5281/zenodo.18828913](https://doi.org/10.5281/zenodo.18828913)

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Abstract

Urban transport maintenance depots in Uganda are crucial for ensuring efficient public transit operations. However, their cost-effectiveness is not well understood. Multilevel regression analysis was employed to assess the impact of various variables on depot costs, with data collected from Ugandan cities between and . The multilevel model revealed that operational efficiency had a significant positive effect on cost reduction ($p < 0.05$). This study provides insights into the optimal configuration of transport maintenance depots in Ugandan cities, contributing to more sustainable urban mobility solutions. Transport authorities should prioritise depots with higher operational efficiency for future deployment and investment. Uganda, Urban Transport, Maintenance Depots, Cost-Effectiveness, Multilevel Regression 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: Sub-Saharan, African, Multilevel, Regression, Evaluation, Systems, Transport, Depots

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