



Methodological Assessment of Transport Maintenance Depot Systems in Kenya: A Randomized Field Trial for Cost-Efficiency Evaluation

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Abstract

The efficiency of transport maintenance depots in Kenya is critical for ensuring the reliability and safety of vehicles used in various sectors such as transportation, construction, and military. A randomized field trial was conducted among five depots across Kenya. Depots were randomly assigned to treatment (intervention) or control groups, with performance metrics including vehicle downtime, technician productivity, and service delivery time being measured. Vehicle downtime in the intervention group decreased by an average of 12% compared to the control group, indicating a potential reduction in operational costs. The randomized field trial provided insights into the effectiveness of different maintenance strategies and highlighted cost savings through optimised resource allocation. Further studies should be conducted to validate these findings across various geographical regions and sectors. Additionally, continuous monitoring and periodic reviews are recommended for ongoing optimization. The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Kenyan, Maintenance, Depot, Methodology, Evaluation, Cost-Effectiveness, Logistics

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