



Methodological Assessment of Transport Maintenance Depot Systems in Tanzania: A Quasi-Experimental Study on System Reliability

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Abstract

The study examines transport maintenance depots in Tanzania to evaluate their reliability under a quasi-experimental design. A quasi-experimental design was employed, including surveys, observational studies, and performance metrics analysis to measure the systems' reliability. Statistical models were used to estimate and quantify the findings with robust standard errors. The system's mean repair time was found to be 45 minutes (95% CI: 30-60 minutes), indicating a need for further optimization in maintenance procedures. This study highlights the importance of systematic evaluation methods and suggests specific areas for improvement in Tanzanian transport maintenance systems. Implementing targeted training programmes and upgrading equipment can enhance system reliability, leading to improved service delivery and reduced downtime. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Tanzania, Quasi-experimental, Maintenance, Reliability, Logistics, Methodology, Systems Analysis

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