African Journal of Islamic Studies and Civilizations

Quasi-Experimental Design Assessment of Transport Maintenance Depot Systems in Nigerian Context

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Published: 21 February 2012 | **Received:** 05 October 2011 | **Accepted:** 26 December 2011

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DOI: 10.5281/zenodo.18972505

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Abstract

Transport maintenance depots play a critical role in ensuring vehicles are operational within Nigerian road networks. However, their effectiveness varies significantly across different regions and contexts. A quasi-experimental design was employed to evaluate the impact of transport maintenance depots on vehicle service yield improvements. Data from six randomly selected regions were analysed using linear regression models to account for potential confounders such as regional economic conditions and climate variability. The analysis revealed a statistically significant improvement in vehicle service yields by about 15% when depots are strategically placed within urban areas compared to rural settings, with a 95% confidence interval. This study provides empirical evidence on the effectiveness of transport maintenance depots and suggests optimal deployment strategies for future deployments. Transport authorities should prioritise the establishment of depots in densely populated urban centers to maximise service yield improvements. The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, econometrics, stratified sampling, regression analysis, randomized controlled, geographic information systems, performance indicators*

ABSTRACT-ONLY PUBLICATION

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