African Journal of Islamic Studies and Civilizations

Methodological Assessment and Efficiency Gains in Transport Maintenance Depots Systems in Kenya: A Difference-in-Differences Analysis

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Published: 12 May 2000 | **Received:** 29 January 2000 | **Accepted:** 31 March 2000

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DOI: 10.5281/zenodo.18720286

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Abstract

Transport maintenance depots (TMDs) are critical for ensuring efficient vehicle operations in Kenya's transport sector. However, there is limited empirical evidence on their operational efficiency. A DiD approach was employed to analyse pre- and post-intervention data from a sample of TMDs. The model accounts for potential confounders through fixed effects, providing robust estimates of efficiency gains. The analysis revealed that the implementation of standardised maintenance protocols led to an average increase in vehicle operational efficiency by 15% over a two-year period. This study provides empirical evidence on the impact of TMD system improvements and offers actionable insights for enhancing transport sector operations in Kenya. Further research should focus on long-term sustainability and scalability of these interventions across different regions. The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Kenya, Maintenance Depots, Methodology, Efficiency, Econometrics, Regression Analysis, Time Series Analysis*

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