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Methodological Assessment of Transport Maintenance Depot Systems in Rwanda: A Quasi-Experimental Study on Efficiency Gains

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Abstract

Transport maintenance depots in Rwanda are critical for ensuring efficient logistics operations across various sectors. However, their effectiveness varies significantly, necessitating a methodological assessment to identify best practices and potential improvements. A mixed-method approach was employed, combining quantitative data analysis with qualitative interviews. The study utilised regression analysis to model the impact of various operational factors on depot efficiency. Robust standard errors were applied to account for potential measurement uncertainties. The findings indicate that depots operating under a decentralized management structure experienced a 15% improvement in service delivery times compared to those with centralized control, highlighting the importance of decentralization in enhancing efficiency. This study provides empirical evidence on the effectiveness of different operational models for transport maintenance depots in Rwanda. The results suggest that decentralized management can lead to significant gains in depot performance. Based on these findings, it is recommended that Rwanda's Ministry of Transport and Public Works consider implementing a decentralized management model within its transport maintenance depots to maximise efficiency and productivity. The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

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Methodological *Terms:*
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