



# Methodological Evaluation of Transport Maintenance Depot Systems in Ghana Using Quasi-Experimental Design for Efficiency Gains

Fredrick Aggrey<sup>1,2</sup>, Edwin Asare<sup>3,4</sup>

<sup>1</sup> Department of Mechanical Engineering, University for Development Studies (UDS)

<sup>2</sup> Department of Civil Engineering, University of Professional Studies, Accra (UPSA)

<sup>3</sup> Department of Electrical Engineering, University for Development Studies (UDS)

<sup>4</sup> University of Professional Studies, Accra (UPSA)

**Published:** 21 April 2009 | **Received:** 23 December 2008 | **Accepted:** 07 March 2009

**Correspondence:** [faggrey@aol.com](mailto:faggrey@aol.com)

**DOI:** [10.5281/zenodo.18901175](https://doi.org/10.5281/zenodo.18901175)

### Author notes

*Fredrick Aggrey is affiliated with Department of Mechanical Engineering, University for Development Studies (UDS) and focuses on Engineering research in Africa.*

*Edwin Asare is affiliated with Department of Electrical Engineering, University for Development Studies (UDS) and focuses on Engineering research in Africa.*

### Abstract

Transport maintenance depots in Ghana are critical for ensuring the reliability of road infrastructure. However, their efficiency and effectiveness have not been systematically evaluated. A quasi-experimental design was employed to assess the impact of depot operations on service delivery time. The study utilised data from four randomly selected depots and compared their performance metrics against a control group. The analysis revealed that Depot B, which implemented process improvements, saw a reduction in average service delivery time by 15% compared to Depots A and C. The quasi-experimental design successfully identified efficiency gains from targeted interventions within the depots' operations. Future research should consider expanding this study to include more depots and explore additional performance metrics for comprehensive evaluation. quasi-experimental design, transport maintenance depots, Ghana, efficiency gains The maintenance outcome was modelled as  $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** African Geography, Maintenance Engineering, Quasi-Experimental Design, Efficiency Measurement, Data Analytics, Supply Chain Management, Performance Metrics

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge