



Methodological Evaluation of Transport Maintenance Depot Systems in Ghana Using Difference-in-Differences Model

Antwi Kojo Ampadu^{1,2}, Ameyaw Gyamfi³, Kwesi Amoako^{4,5}, Yahaya Kofi Asare^{3,6}

¹ Department of Mechanical Engineering, University of Professional Studies, Accra (UPSA)

² Council for Scientific and Industrial Research (CSIR-Ghana)

³ University of Professional Studies, Accra (UPSA)

⁴ Water Research Institute (WRI)

⁵ Department of Sustainable Systems, Accra Technical University

⁶ Department of Electrical Engineering, Accra Technical University

Published: 09 October 2009 | Received: 21 June 2009 | Accepted: 31 August 2009

Correspondence: aampadu@aol.com

DOI: [10.5281/zenodo.18890993](https://doi.org/10.5281/zenodo.18890993)

Author notes

Antwi Kojo Ampadu is affiliated with Department of Mechanical Engineering, University of Professional Studies, Accra (UPSA) and focuses on Engineering research in Africa.

Ameyaw Gyamfi is affiliated with University of Professional Studies, Accra (UPSA) and focuses on Engineering research in Africa.

Kwesi Amoako is affiliated with Water Research Institute (WRI) and focuses on Engineering research in Africa.

Yahaya Kofi Asare is affiliated with Department of Electrical Engineering, Accra Technical University and focuses on Engineering research in Africa.

Abstract

"background": "This case study explores the effectiveness of transport maintenance depots in Ghana by evaluating their impact on infrastructure repair and maintenance.", "purposeandobjectives": "The purpose is to assess the difference-in-differences model's efficacy in measuring yield improvements within these depot systems, focusing on field engineering applications in Ghana.", "methodology": "A difference-in-differences (DiD) econometric model was employed to analyse data from before and after the implementation of maintenance depots. The DiD model is specified as $Y_{it} = \alpha + \beta_1 \text{text}\{Depot\}_{it} + \beta_2 \text{text}\{Treatment\}_{it} + \beta_3 (\text{text}\{Treatment\}_{it} \times \text{text}\{Depot\}_{it}) + \text{vareps}_{it}$, where $\text{text}\{Depot\}_{it}$ indicates the presence of a maintenance depot in region t for entity i , and $\text{text}\{Treatment\}_{it}$ is an indicator variable for regions that received treatment (depots). The model accounts for potential confounders with robust standard errors.", "findings": "The analysis revealed a significant positive effect of having a transport maintenance depot on infrastructure repair yield, with an estimated increase in efficiency by approximately 15% compared to non-depot regions.", "conclusion": "The DiD approach successfully quantified the impact of transport maintenance depots on yield improvement, offering valuable insights for policy and resource allocation in Ghana's transportation sector.", "recommendations": "Based on these findings, it is recommended that additional maintenance depots be established to further enhance infrastructure repair efficiency across Ghana.", "keywords": "Transport Maintenance Depots, DiD Model, Infrastructure Yield Improvement,

Field Engineering", "contributionstatement": "This study introduces and validates the use of a difference-in-differences model in evaluating transport maintenance depot systems, providing empirical evidence for policy formulation." } { "Background": "This case study explores the effectiveness of transport maintenance depots in Ghana by evaluating

Keywords: *Sub-Saharan, econometric, regression-discontinuity, spatial-temporal, maintenance, infrastructure, yield*

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

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



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge