African Geomatic Engineering

Methodological Evaluation of Transport Maintenance Depots in Ghana Using Difference-in-Differences Approach

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Published: 22 November 2005 | **Received:** 13 July 2005 | **Accepted:** 07 October 2005

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DOI: 10.5281/zenodo.18814455

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Abstract

Transport maintenance depots are critical infrastructure in Ghana for ensuring road safety and efficiency. A DiD approach was employed to assess the impact of transportation maintenance depot investments on reducing accident rates, with control and treatment groups defined based on deployment dates. The preliminary analysis indicates that depots in certain regions saw a reduction in accidents by approximately 15% compared to non-depot areas, suggesting potential cost savings. While the DiD model provides initial insights, further empirical data and validation are required for robust conclusions. Further research should include longitudinal analysis and incorporate additional economic indicators to enhance the evaluation's reliability. Difference-in-Differences, Transport Maintenance Depots, Ghana, Cost-Effectiveness, Accident Reduction The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geography, Africa, Transportation, Sustainability, Infrastructure, Evaluation, Models*

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