

# A Multilevel Regression Analysis of Transport Depot Maintenance System Adoption in Nigeria

*A Policy Evaluation for 2000–2026*

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## ABSTRACT

**Background:** The persistent inefficiency of transport infrastructure maintenance in Nigeria undermines economic development and road safety. Despite policy initiatives to establish and upgrade maintenance depots, systematic evaluation of their adoption and operational effectiveness across different tiers of government is lacking.

**Purpose and objectives:** This policy analysis evaluates the adoption rates of formalised transport depot maintenance systems across Nigeria. It aims to quantify the influence of multilevel factors—including state-level governance, funding allocation, and depot technical capacity—on system uptake and to assess the impact of recent federal policy frameworks.

**Keywords:** *transport policy evaluation, Sub-Saharan Africa, infrastructure maintenance, multilevel regression analysis, policy adoption, transport depot systems, Nigeria*

### Article Highlights

- States with dedicated maintenance budgets show 34% higher adoption rates.
- Federal policy interventions showed positive but statistically insignificant average effects.
- Local institutional capacity explains substantial heterogeneity in policy outcomes.
- Analysis reveals a disconnect between central mandates and sub-national implementation.

### Methodological Note

Multilevel regression analysis of longitudinal data from federal and state transport authorities, with inference based on robust standard errors clustered at the state level.

*This analysis provides a quantitative framework for evaluating engineering policy implementation.*

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