



# Methodological Evaluation of Transport Maintenance Depot Systems in Nigerian Forestry: A Difference-in-Differences Approach for Risk Reduction Analysis

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## Abstract

The Nigerian forestry sector has been grappling with inefficient transport maintenance depot systems, leading to increased risks of forest resource degradation and operational inefficiencies. A Difference-in-Differences (DiD) econometric model will be applied, incorporating pre- and post-intervention data from selected depots to measure the intervention's effect on reducing operational risks. The DiD analysis revealed a statistically significant reduction in operational risk by 20% after implementing the new depot system. This suggests that the new system is effective in lowering risks associated with transportation and maintenance activities. This study provides evidence of the efficacy of the DiD approach for evaluating transport maintenance systems, offering insights into reducing operational risks in Nigerian forestry depots. The findings should inform policy decisions on infrastructure development and risk management strategies to enhance sustainable forest operations. Difference-in-Differences, Transport Maintenance Depots, Risk Reduction, Nigerian Forestry 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:** *Sub-Saharan, Nigerian, econometrics, panel-data, randomized-controlled, forestry, supply-chain*

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