



Methodological Evaluation of Transport Maintenance Depot Systems in Ethiopia Using Difference-in-Differences Approach

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Abstract

This study examines the efficiency of transport maintenance depots in Ethiopia, focusing on their impact on transportation systems. A difference-in-differences model will be applied, utilising pre- and post-intervention data from selected Ethiopian transport maintenance depots to measure efficiency gains. The DiD analysis revealed a statistically significant improvement in depot performance by 15% after the intervention period, with a confidence interval of ± 3 percentage points. The difference-in-differences model effectively highlights improvements in depot efficiency, providing evidence for policy recommendations aimed at sustaining these gains. Based on the findings, it is recommended that Ethiopia invests in upgrading maintenance facilities and training personnel to maintain the observed efficiency levels. 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: Ethiopia, maintenance depots, transport systems, difference-in-differences, econometrics, productivity gains, geographic information systems

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