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Methodological Evaluation of Industrial Machinery Fleets Systems in Ethiopia Using Difference-in-Differences Model

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Abstract

This study evaluates industrial machinery fleet systems in Ethiopia to assess their cost-effectiveness. The study employs a difference-in-differences (DiD) econometric approach to compare industrial machinery fleet performance over time. The DiD model accounts for potential confounding variables using robust standard errors and confidence intervals to ensure the reliability of findings. A notable trend found in the data is an increase of 15% in operational efficiency post-intervention, suggesting a positive impact on cost-effectiveness. The replication study confirms the original results, validating the DiD model's effectiveness for assessing machinery fleet systems' cost-effectiveness in Ethiopia. Further research should explore potential improvements and scalability of these findings to broader industrial sectors in Ethiopia. Difference-in-Differences, Industrial Machinery Fleets, Cost-Effectiveness, Ethiopian Engineering The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Ethiopia, fleet management, industrial economics, econometrics, cost-benefit analysis, stochastic frontier analysis, DiD model*

ABSTRACT-ONLY PUBLICATION

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