



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

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Abstract

The adoption of industrial machinery fleets in Ethiopia has been limited due to various infrastructural challenges and financial constraints. A DID model was employed to assess the impact of policy interventions designed to facilitate the adoption of industrial machinery fleets systems. The study utilised pre- and post-intervention data from randomly selected regions. The analysis revealed that in two out of three tested regions, there was a significant increase ($p < 0.05$) in the adoption rate of industrial machinery fleets systems following the policy interventions. The difference-in-differences approach proved to be effective in measuring the impact of policy changes on industrial machinery fleet adoption rates in Ethiopia. Further research should explore longer-term effects and broader regional impacts, as well as potential scalability of the findings across different sectors. Industrial Machinery Fleets, Adoption Rates, Difference-in-Differences (DID), Policy Interventions, Ethiopia The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \text{varepsilon}_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Ethiopia, Industrial Machinery Fleets, Methodology, Adoption Rates, Difference-in-Differences, Quantitative Methods, Geographic Information Systems

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