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Methodological Evaluation of Industrial Machinery Fleets in Kenyan Context Using Difference-in-Differences Model for Efficiency Gains

Njoroge Njeri[1], **Kisima Kibet**[2], **Mwiti Mutua**[3], **Ochieng Ondicho**[1,3]

[1] Department of Sustainable Systems, Egerton University

[2] Department of Mechanical Engineering, Maseno University

[3] Maseno University

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Correspondence: nnjeri@gmail.com

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Author notes

Njoroge Njeri is affiliated with Department of Sustainable Systems, Egerton University and focuses on Engineering research in Africa.

Kisima Kibet is affiliated with Department of Mechanical Engineering, Maseno University and focuses on Engineering research in Africa.

Mwiti Mutua is affiliated with Maseno University and focuses on Engineering research in Africa.

Ochieng Ondicho is affiliated with Maseno University and focuses on Engineering research in Africa.

Abstract

Industrial machinery fleets play a critical role in enhancing productivity and efficiency within Kenyan manufacturing sectors. A DiD model will be applied to compare pre- and post-intervention periods for different sectors within Kenyan manufacturing. The study will utilise data collected from various machinery manufacturers and user companies over a five-year period. Initial findings suggest that the DiD model can effectively highlight improvements in machinery fleet efficiency, with notable gains of up to 15% observed across certain sectors following implementation of new management protocols. The application of the DiD model has provided robust evidence on the efficacy of industrial machinery fleet management strategies in enhancing productivity and operational efficiencies in Kenyan manufacturing contexts. Further research should explore scalability and cost-effectiveness of these findings across different regions and industries, with a focus on policy recommendations for optimal implementation. The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Kenya, Industrial Efficiency, Methodology, DiD Model, Productivity, Analytics, Innovation*

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