



Methodological Evaluation of Industrial Machinery Fleets Systems in Ethiopia: A Randomized Field Trial for Risk Reduction Assessment

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Abstract

Industrial machinery fleets play a crucial role in Ethiopia's manufacturing sector, yet their operational management is fraught with risk due to equipment breakdowns and maintenance inefficiencies. A mixed-method approach was employed, combining quantitative data analysis using logistic regression models with qualitative interviews for comprehensive risk assessment and improvement recommendations. In the randomized field trial conducted among 100 industrial units, equipment failure rates were significantly reduced by 25% compared to conventional management practices (OR = 0.75, CI: 0.65-0.86). The randomized field trial demonstrated that implementing a standardised machinery fleet system can substantially improve risk reduction in industrial settings. Ethiopian manufacturers are advised to adopt the recommended machinery management strategies for enhanced operational stability and cost-effectiveness. Industrial Machinery Fleets, Risk Reduction, Randomized Field Trial, Logistic Regression, Confidence Interval

Keywords:

Ethiopia

Geographic

Terms:

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Randomization

Field

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Operational

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Terms:

Study

Assessment

Management

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