



Methodological Evaluation of Industrial Machinery Fleets Systems in Rwanda Using Quasi-Experimental Design for Adoption Rate Measurement

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Abstract

The adoption of industrial machinery fleets systems in Rwanda's manufacturing sector is a topic of interest due to its potential impact on productivity and efficiency. A mixed-method approach was employed, including surveys and interviews to gather data from machinery fleet operators. Statistical analysis will employ regression models to assess the impact factors. The preliminary findings suggest that sector-specific challenges significantly influence the rate of adoption, with manufacturing plants in urban areas adopting systems more rapidly than rural ones. Quasi-experimental design has proven effective in measuring the adoption rates of industrial machinery fleets systems in Rwanda's manufacturing industry, highlighting the importance of context-specific strategies for successful implementation. Future research should explore tailored intervention strategies based on sector and regional characteristics to maximise the benefits of these systems. The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Rwandan, industrialization, adoption, experimental, econometrics, sustainability, logistics

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