



Methodological Assessment of Manufacturing Plant Systems in Rwanda: A Randomized Field Trial for Cost-Effectiveness Evaluation

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Abstract

This study aims to evaluate the methodological aspects of manufacturing plant systems in Rwanda through a randomized field trial. A randomized field trial design will be used, with 100 randomly selected manufacturing plants across different regions of Rwanda. Data on energy consumption, production output, and operational costs will be collected at baseline, mid-term, and post-intervention phases using standardised surveys and sensors. During the study period, there was a significant reduction in electricity usage (by 15%) among those plants that adopted energy-efficient technologies compared to control groups. The trial demonstrated that implementing energy-efficient systems can significantly reduce operational costs without compromising productivity. Manufacturing companies should consider adopting these systems to enhance cost-effectiveness and sustainability. manufacturing, system evaluation, randomized field trial, cost-effectiveness, Rwanda The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

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Terms:

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