



Methodological Evaluation of Manufacturing Systems in Rwanda: A Randomized Field Trial for Risk Reduction Assessment

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Abstract

This Data Descriptor focuses on a methodological evaluation of manufacturing systems in Rwanda, with an emphasis on reducing operational risks within these plants. A randomized controlled trial (RCT) design was employed, with a sample of 50 manufacturing plants randomly selected from the total 200 registered factories in Rwanda. Data collection involved surveys, operational audits, and expert interviews to gather comprehensive information on risk management practices and outcomes. The analysis revealed that 45% of identified risks were related to supply chain disruptions, with a median estimated cost per incident at 1,200 USD. Other significant themes included labour disputes (28%) and regulatory compliance issues (32%). The regression model is $Y_{it} = \beta_0 + \beta_1 X_{it} + \epsilon_{it}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Rwanda, Manufacturing Systems, Methodology, Risk Management, Randomized Control Trial, Supply Chain, Quality Assurance

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