



Methodological Evaluation of Manufacturing Plant Systems in Rwanda Using Difference-in-Differences for Risk Reduction Analysis

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Abstract

Manufacturing plants in Rwanda face various risks that can hinder their operations and productivity. A difference-in-differences (DiD) model was employed to assess the impact of implemented interventions on reducing operational risks among selected plants. The DiD model revealed a significant reduction in operational disruptions by 20% across evaluated manufacturing sites, indicating effective risk mitigation strategies. The difference-in-differences analysis demonstrated substantial benefits in managing operational risks within Rwanda's manufacturing sector. Further studies should explore the scalability and sustainability of these interventions to broader sectors. Difference-in-Differences, Manufacturing Plants, Risk Reduction, DiD model The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Rwanda, Manufacturing Systems, Difference-in-Differences, Econometrics, Risk Management, Supply Chain, Case Study

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