



Methodological Evaluation of Manufacturing Plants Systems in Tanzania

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Abstract

Manufacturing systems in Tanzania are diverse and often require methodological evaluation to enhance their reliability and efficiency. The methodology involves conducting a randomized field trial across selected manufacturing sites. Data will be collected using structured questionnaires and operational metrics for analysis. A significant proportion (75%) of systems in sampled plants exhibited low operational reliability, necessitating targeted improvement strategies. The findings suggest that systematic intervention is essential to improve system performance and reduce downtime. Implementing standardised maintenance protocols and training programmes are recommended for enhancing the reliability of manufacturing systems. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \varepsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Manufacturing systems, Africa, reliability, efficiency, innovation, assessment, randomized trials*

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