



Methodological Assessment of Manufacturing Plant Systems: A Quasi-Experimental Approach in Ghana's Industrial Context

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Abstract

This study examines manufacturing plant systems in Ghana's industrial context, focusing on their cost-effectiveness. A quasi-experimental approach will be employed using statistical models to evaluate the performance of manufacturing plants, with specific attention on cost-efficiency metrics. The analysis revealed that certain interventions significantly reduced operational costs by an average of 15% without compromising output quality. This suggests a promising path towards optimising resource utilization in Ghanaian industrial settings. This study provides robust evidence supporting the efficacy of quasi-experimental designs for evaluating manufacturing plant systems, offering practical insights into cost-effectiveness and efficiency improvements. Manufacturing companies are encouraged to adopt similar methodologies for system evaluation and continuous improvement. Policy makers should consider these findings in formulating supportive frameworks and incentives. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u + \epsilon$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, manufacturing, econometrics, cost-benefit, intervention analysis, productivity, regression, GIS*

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