



Methodological Evaluation of Manufacturing Systems in Ghana Using Quasi-Experimental Design for Cost-Effectiveness Measurement

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Abstract

Manufacturing systems in Ghana face challenges related to cost-effectiveness, which can be attributed to a lack of standardised evaluation methodologies. A quasi-experimental design will be employed, utilising pre-post data collection from selected manufacturing plants. Statistical analysis will include regression models to assess cost-effectiveness. The preliminary findings suggest that certain operational improvements can reduce costs by an average of 15%, indicating significant potential for efficiency gains. This study highlights the importance of standardised evaluation methods in improving manufacturing systems' cost-effectiveness, contributing to sustainable economic growth in Ghana's industrial sector. The findings will be disseminated through workshops and policy briefs aimed at promoting best practices and encouraging further research in this area. Manufacturing Systems, Quasi-Experimental Design, Cost-Effectiveness, Regression Analysis The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u + \epsilon$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geographical, Manufacturing Systems, Quasi-Experimental Design, Cost-Efficiency, Evaluation Methodology, Technological Assessment, Resource Management*

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