



Methodological Evaluation of Manufacturing Systems Yield Improvement in Ghanaic Plants: A Randomized Field Trial

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Abstract

Manufacturing systems in Ghana are crucial for economic development but often face challenges related to yield inefficiencies. A randomized field trial was conducted across multiple Ghanaian plants. Key performance indicators (KPIs) such as production output, quality control metrics, and resource utilization were monitored to assess yield improvements. Significant improvements in yield were observed with a mean increase of 15% in product output compared to baseline conditions. Variance analysis indicated that these gains were statistically significant at the $p < 0.05$ level. The randomized field trial methodology provided robust evidence for enhancing manufacturing system yields, which could be replicated across other Ghanaian plants. Further research should explore scalability and cost-effectiveness of the identified yield improvement strategies. Manufacturing Systems Yield Improvement, Randomized Field Trial, Ghana The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, African, SpatialStatistics, GMM Estimation, SystematicReview, Mixed-Methods, QualitativeAnalysis*

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