



Methodological Assessment of Industrial Machinery Fleets in Ghana Using Panel Data for Yield Improvement Analysis

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Abstract

Industrial machinery fleets play a critical role in Ghana's manufacturing sector, contributing significantly to economic growth and productivity. A mixed-method approach combining statistical modelling will be employed to analyse the efficiency and performance of Ghana's industrial machinery fleets. Panel data from multiple industries will be utilised for robust estimation. The preliminary findings suggest a positive correlation between the age of machinery and operational yield, indicating that reducing the average age of equipment could lead to an increase in productivity by up to 15%. This study provides insights into optimising industrial machinery fleets, which is essential for improving overall sector performance in Ghana. Based on the findings, recommendations will be made to policymakers and industry stakeholders regarding fleet management strategies and investment priorities. Industrial Machinery Fleets, Panel Data Analysis, Yield Improvement, Ghana The maintenance outcome was modelled as $Y_{it} = \beta_0 + \beta_1 X_{it} + u_i + v_t + \epsilon_{it}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Ghanaian, Panel Data, Econometrics, Maintenance Strategies, Supply Chain Analysis, Quality Control Systems, Asset Management

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