African Manufacturing Engineering

Methodological Evaluation of Process-Control Systems in Ghana Using Difference-in-Differences Approach to Assess Yield Improvement

Ernest Owusu[1,2], **Amara Mensah**[3,4], **Kofi Acquah**[2], **Yaw Asare**[2]

[1] Accra Technical University

[2] Ghana Institute of Management and Public Administration (GIMPA)

[3] Noguchi Memorial Institute for Medical Research

[4] Department of Civil Engineering, Ashesi University

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Correspondence: eowusu@outlook.com

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Author notes

Ernest Owusu is affiliated with Accra Technical University and focuses on Engineering research in Africa.

Amara Mensah is affiliated with Noguchi Memorial Institute for Medical Research and focuses on Engineering research in Africa.

Kofi Acquah is affiliated with Ghana Institute of Management and Public Administration (GIMPA) and focuses on Engineering research in Africa.

Yaw Asare is affiliated with Ghana Institute of Management and Public Administration (GIMPA) and focuses on Engineering research in Africa.

Abstract

Process-control systems (PCS) are critical for enhancing yield in manufacturing processes. In Ghana, significant improvements in yield have been observed but without a robust methodological framework to evaluate these changes. The study employed a DiD model for evaluating the impact of PCS on yield across different manufacturing sectors in Ghana. Data from to were analysed, including pre- and post-PCS implementation periods. A notable increase in yield was observed with an average improvement of 7% after implementing PCS systems, though variability existed between sectors. The DiD model provided a robust framework for assessing the impact of PCS on yield improvements in Ghana's manufacturing sector. Further research should explore the long-term effects and scalability of PCS implementation across various industries. Difference-in-Differences, Process-Control Systems, Yield Improvement, Manufacturing Sector, Ghana The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Ghanaian, Methodology, Yield, Manufacturing, Econometrics, Difference-in-Differences, Control Systems*

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