



Methodological Evaluation of Process-Control Systems in Ghana: A Quasi-Experimental Design for Yield Improvement Assessment

Kwasi Afriyie¹, Oduoza Asare^{2,3}, Yaw Agyei^{2,4}, Ebo Mensah⁵

¹ University of Ghana, Legon

² Noguchi Memorial Institute for Medical Research

³ University of Cape Coast

⁴ Department of Mechanical Engineering, University of Cape Coast

⁵ Department of Electrical Engineering, Noguchi Memorial Institute for Medical Research

Published: 16 August 2001 | **Received:** 03 April 2001 | **Accepted:** 26 July 2001

Correspondence: kafriyie@gmail.com

DOI: [10.5281/zenodo.18730709](https://doi.org/10.5281/zenodo.18730709)

Author notes

Kwasi Afriyie is affiliated with University of Ghana, Legon and focuses on Engineering research in Africa.
Oduoza Asare is affiliated with Noguchi Memorial Institute for Medical Research and focuses on Engineering research in Africa.
Yaw Agyei is affiliated with Noguchi Memorial Institute for Medical Research and focuses on Engineering research in Africa.
Ebo Mensah is affiliated with Department of Electrical Engineering, Noguchi Memorial Institute for Medical Research and focuses on Engineering research in Africa.

Abstract

This study addresses a current research gap in Engineering concerning Methodological evaluation of process-control systems systems in Ghana: quasi-experimental design for measuring yield improvement in Ghana. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of process-control systems systems in Ghana: quasi-experimental design for measuring yield improvement, Ghana, Africa, Engineering, methodology paper This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The maintenance outcome was modelled as $Y \{ \} = \beta_0 + \beta_1 X \{ \} + u_i + v \epsilon \{ \}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Sub-Saharan, Ghanaian, Experimental, Control Systems, Evaluation, Quasi-Experimental, Methodology

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge