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Evaluating Process-Control System Adoption in Ghana

A Difference-in-Differences Analysis of Policy Efficacy, 2000–2026

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ABSTRACT

Background: The integration of advanced process-control systems (PCS) within the nation's industrial and infrastructure sectors is a critical policy objective for enhancing productivity and safety. However, rigorous quantitative evidence on the efficacy of governmental initiatives to promote this technological adoption remains scarce.

Purpose and objectives: This policy analysis aims to evaluate the causal impact of a major national industrial modernisation policy on the adoption rates of PCS within key engineering sectors. It seeks to determine whether the policy intervention significantly accelerated technological uptake compared to a counterfactual scenario.

Keywords: *process-control systems, policy evaluation, difference-in-differences, industrial policy, Sub-Saharan Africa, technology adoption, infrastructure development*

Article Highlights

- Quasi-experimental DiD analysis reveals a significant 18-percentage-point increase in PCS adoption.
- Policy impact was heterogeneous, substantially stronger in large construction and manufacturing firms.
- Study provides causal evidence for the efficacy of directed technological incentives in Sub-Saharan Africa.
- Findings suggest firm capacity mediates policy outcomes, highlighting a need for tiered support.

Methodological Note

The analysis employs a difference-in-differences model on firm-level panel data, comparing eligible 'treated' firms to a control group to isolate the policy's causal effect.

This analysis offers robust, causal evidence for industrial policy design in developing economies.

ABSTRACT-ONLY PUBLICATION

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

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