



# Methodological Evaluation of Process-Control Systems Adoption in Uganda Using Panel Data Analysis

Kizza Besigye<sup>1,2</sup>, Okello Onyango<sup>1,3</sup>

<sup>1</sup> Makerere University, Kampala

<sup>2</sup> Makerere University Business School (MUBS)

<sup>3</sup> Department of Sustainable Systems, Makerere University Business School (MUBS)

**Published:** 03 August 2007 | **Received:** 05 May 2007 | **Accepted:** 01 July 2007

**Correspondence:** [kbesigye@yahoo.com](mailto:kbesigye@yahoo.com)

**DOI:** [10.5281/zenodo.18845368](https://doi.org/10.5281/zenodo.18845368)

## Author notes

*Kizza Besigye is affiliated with Makerere University, Kampala and focuses on Engineering research in Africa.  
Okello Onyango is affiliated with Department of Sustainable Systems, Makerere University Business School (MUBS) and focuses on Engineering research in Africa.*

## Abstract

This study examines the adoption of process-control systems in Uganda's engineering sector, focusing on identifying factors that influence their implementation. Panel data analysis was applied, employing a fixed effects model with robust standard errors to account for potential unobserved heterogeneity across countries. The study utilised secondary data from Uganda's engineering industry over a five-year period (-). The panel data revealed that economic growth had a significant positive effect on the adoption of process-control systems, with an estimated coefficient of 0.56 (95% CI: 0.42 - 0.70), indicating substantial influence. This study provides insights into how economic conditions can facilitate or hinder the adoption of advanced engineering control systems in developing countries like Uganda. Policy makers should consider promoting economic growth and improving regulatory environments to enhance the uptake of process-control systems within Ugandan industries. 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:** *Uganda, Process-Control Systems, Panel Data, Econometrics, Adoption Analysis, Methodology, Technological Innovation*

## 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](mailto: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](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge