



Methodological Evaluation of Process-Control Systems Adoption in Ethiopian Enterprises: A Difference-in-Differences Approach

Muluqet Worku¹

¹ Department of Sustainable Systems, Addis Ababa University

Published: 27 July 2012 | Received: 18 March 2012 | Accepted: 06 July 2012

Correspondence: mworku@hotmail.com

DOI: [10.5281/zenodo.18962964](https://doi.org/10.5281/zenodo.18962964)

Author notes

Muluqet Worku is affiliated with Department of Sustainable Systems, Addis Ababa University and focuses on Engineering research in Africa.

Abstract

This study examines the adoption of process-control systems in Ethiopian enterprises and evaluates their effectiveness. A difference-in-differences model will be employed to measure adoption rates. The DiD approach will compare changes over time between control and treatment groups, with a focus on identifying causal effects of process-control system implementation. The analysis revealed a significant increase in the adoption rate of process-control systems by enterprises that received training compared to those who did not, demonstrating an effective intervention strategy for promoting their use. This study provides empirical evidence supporting the efficacy of DiD methodology in evaluating the impact of process-control system adoptions within Ethiopian enterprises. Policy recommendations include integrating DiD models into future studies and using them to inform sector-specific interventions aimed at improving enterprise performance through better control systems implementation. process-control systems, adoption rates, difference-in-differences, Ethiopia, engineering The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \text{varepsilon}_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: Ethiopia, Geographic Information Systems, Process Control, Adoption Rate, Time-Series Analysis, Econometrics, Supply Chain Management

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