African Nanotechnology Applications (Technology)

Process-Control Systems Adoption Rates in Ethiopia Reevaluated Using Difference-in-Differences Methodology

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Abstract

Process-control systems (PCS) have been implemented in various sectors to enhance efficiency and productivity. In Ethiopia, their adoption has shown varying outcomes, necessitating a reevaluation with robust methodologies. The DiD approach will be employed to analyse data from before and after PCS implementation. A parallel group design will ensure that any observed differences are attributable solely to the intervention's effect. Initial analysis suggests a moderate increase in PCS adoption rates post-intervention, with approximately 20% of monitored industries showing significant improvements. The DiD methodology provides a clearer understanding of PCS impact on Ethiopian industry compared to earlier studies. Future research should consider broader sector impacts and long-term sustainability. Further studies could explore the specific factors influencing PCS adoption and examine the economic benefits and challenges associated with PCS integration in different sectors. Process-Control Systems, Adoption Rates, Difference-in-Differences, Ethiopia, Engineering The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Ethiopia, Process-Control Systems, Adoption Rates, Difference-In-Differences, Methodology, Evaluation, Control Systems*

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