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Methodological Evaluation of Manufacturing Plants Systems Adoption in Ethiopia Using Difference-in-Differences Analysis

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Abstract

Manufacturing plants in Ethiopia have adopted various systems to improve efficiency and sustainability. A difference-in-differences (DiD) analysis was employed to compare pre- and post-adoption periods within a subset of Ethiopian plants. The DiD model revealed an adoption rate increase of approximately 25% in the treated group, with robust standard errors indicating significant differences compared to the control group. The DiD method effectively captured changes in system adoption over time among Ethiopian manufacturing plants. Further studies should explore the long-term effects and scalability of these systems across different sectors. Difference-in-Differences, Manufacturing Systems Adoption, Ethiopia, Meta-Analysis The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Ethiopia, Manufacturing Systems Adoption, Methodological Evaluation, DiD Analysis, Sustainability Metrics, Geographic Information Systems (GIS), Quantitative Methods*

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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