

Methodological Evaluation and Adoption Rates of Manufacturing Plant Systems

A Randomised Field Trial in Tanzania

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ABSTRACT

Background: The adoption of advanced manufacturing systems in industrialising economies is critical for productivity gains, yet reliable measurement of adoption rates remains methodologically challenging. Prior studies in sub-Saharan Africa have often relied on self-reported survey data, which can be subject to significant bias.

Purpose and objectives: This short report presents a methodological evaluation of a novel field trial approach designed to generate robust, empirically grounded estimates of technology adoption rates within manufacturing plants.

Keywords: *Manufacturing systems, Adoption rates, Randomised field trial, Sub-Saharan Africa, Industrialising economies, Methodological evaluation*

Article Highlights

- A randomised field trial measured manufacturing system adoption via direct technical audit.
- The intervention produced a significant 32% increase in verified adoption rates.
- Audit-based verification revealed that self-reported rates may substantially overstate implementation.
- The methodological framework is recommended for replication in similar industrialising contexts.

Methodological Contribution

This study demonstrates a novel audit-based randomised trial design, moving beyond self-reported survey data to generate robust, empirically grounded estimates of technology adoption.

This report presents a methodological evaluation with implications for research and policy in industrialising 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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