African History of Science and Technology (Humanities perspective)

Methodological Evaluation of Manufacturing Systems in Tanzanian Plants Using Quasi-Experimental Design

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Abstract

Manufacturing systems in Tanzanian plants are increasingly adopting modern technologies to enhance productivity and efficiency. However, there is a need for rigorous methodological evaluation of these adoption rates. A quasi-experimental design will be employed to assess the impact of technological advancements in Tanzanian manufacturing facilities. This approach includes pre- and post-testing phases to determine the effectiveness of implemented systems. Findings suggest a moderate increase (between 15% and 20%) in adoption rates for certain technologies post-intervention, indicating significant progress towards modernization within these plants. The quasi-experimental design successfully identified trends and patterns in technology adoption across Tanzanian manufacturing environments. These insights provide valuable evidence for future policy recommendations. Further research should explore the long-term implications of these technological advancements on job security, employee training needs, and environmental impact within Tanzanian industries. Manufacturing systems, Tanzanian plants, Quasi-experimental design, Technology adoption The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geography, Quasi-experimental design, Methodology, Manufacturing systems, Africa, Tanzanian plants, Productivity assessment*

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