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Methodological Evaluation of Manufacturing Plant Systems Adoption in Ghana: A Randomized Field Trial

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Abstract

Manufacturing plant systems adoption in Ghana has been a subject of interest due to its potential to enhance productivity and competitiveness in local industries. A randomized field trial was conducted across 20 randomly selected manufacturing plants. A binary logistic regression model was employed to analyse the data collected, accounting for both fixed effects (plant characteristics) and random effects (temporal variation). The estimated adoption rate of systems was calculated with a robust standard error. In the field trial, 65% of participating plants showed significant improvement in operational efficiency post-adoption of manufacturing plant systems. This finding suggests that targeted interventions can effectively boost system adoptions. The randomized field trial methodology provided valuable insights into the adoption dynamics of manufacturing plant systems in Ghana, highlighting the importance of tailored strategies for successful implementation. Manufacturing companies and policy makers should prioritise understanding local context factors to enhance the effectiveness of future interventions aimed at promoting system adoptions. manufacturing plant systems, adoption rates, randomized field trial, binary logistic regression The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, econometrics, randomized controlled trial, industrial organisation, supply chain management, performance measurement, qualitative assessment*

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