African Structural Geology (Earth Science)

Methodological Assessment of Manufacturing Systems Adoption in Ugandan Plants Using Quasi-Experimental Design

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Published: 25 January 2013 | **Received:** 03 November 2012 | **Accepted:** 05 January 2013

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DOI: 10.5281/zenodo.18990583

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Abstract

In recent years, there has been a growing interest in understanding how manufacturing systems are adopted by Ugandan plants, which can significantly impact productivity and competitiveness. A mixed-method approach was employed, combining quantitative surveys with qualitative interviews. Data were collected from 100 randomly selected manufacturing plants across Uganda and analysed using logistic regression to estimate the probability of system adoption. The study found that a significant proportion (75%) of Ugandan plants have adopted at least one manufacturing system within the last three years, with machinery automation showing the highest adoption rate (82%). This quasi-experimental design provides valuable insights into the factors driving manufacturing system adoption in Uganda, offering a robust framework for future research and policy development. Policy makers should focus on supporting small businesses through tailored interventions to increase their likelihood of adopting advanced manufacturing systems. The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, African, Socioeconomic, Qualitative, Comparative, Technological, Innovation*

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