African Transport Economics (Economics/Engineering crossover)

Quasi-Experimental Methodological Assessment of Manufacturing Plant Systems in Ghana: An Efficiency Gain Analysis

Kofi Asare[1,2], **Yaw Asante**[3,4], **Adzico Kwasi**[3]

[1] Department of Electrical Engineering, Water Research Institute (WRI)

[2] Ghana Institute of Management and Public Administration (GIMPA)

[3] Food Research Institute (FRI)

[4] Water Research Institute (WRI)

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Correspondence: kasare@hotmail.com

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Author notes

Kofi Asare is affiliated with Department of Electrical Engineering, Water Research Institute (WRI) and focuses on Engineering research in Africa.

Yaw Asante is affiliated with Food Research Institute (FRI) and focuses on Engineering research in Africa.

Adzico Kwasi is affiliated with Food Research Institute (FRI) and focuses on Engineering research in Africa.

Abstract

The efficiency of manufacturing plants in Ghana has been a subject of interest for policymakers aiming to enhance productivity and competitiveness. A quasi-experimental approach was employed to assess the impact of various interventions on the efficiency metrics of manufacturing plants. Data from a representative sample of plants were analysed using econometric techniques. The analysis revealed that specific technological upgrades led to an average efficiency gain of 15% in targeted sectors, with notable improvements in energy usage and production output. The findings suggest significant potential for further enhancing the operational efficiency of Ghana's manufacturing sector through targeted interventions based on the identified gains. Policymakers should consider implementing a phased approach to introduce new technologies in manufacturing plants, focusing initially on those with higher barriers to entry and lower risk profiles. Manufacturing Efficiency Quasi-Experimental Design Ghana The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, econometric, productivity, randomized, stochastic frontier, intervention, assessment*

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