



Methodological Evaluation of Manufacturing Plants Systems in Nigeria Using Multilevel Regression Analysis to Measure Risk Reduction

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Published: 17 July 2009 | **Received:** 11 March 2009 | **Accepted:** 09 June 2009

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DOI: [10.5281/zenodo.18887248](https://doi.org/10.5281/zenodo.18887248)

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Abstract

Manufacturing plants in Nigeria face significant environmental risks due to inadequate systems management. A systematic literature review was conducted using databases such as Web of Science and Scopus. Studies were screened based on inclusion criteria focused on methodology and outcomes related to environmental risks in manufacturing systems. The analysis revealed a trend towards the use of multilevel regression models for risk assessment, with a notable proportion (35%) indicating positive impact on reducing environmental hazards compared to traditional methods. Multilevel regression analysis shows promise in enhancing understanding and management of environmental risks in Nigerian manufacturing plants. Manufacturers should adopt multilevel regression models for comprehensive risk assessment, integrating systematic methodologies into their operations. Nigeria, Manufacturing Plants, Environmental Risks, Multilevel Regression Analysis The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Sub-Saharan, regression, multilevel, sustainability, innovation, environmental, assessment

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