



Methodological Assessment of Regional Monitoring Networks in Nigeria: Estimating Risk Reduction Through Panel Data Analysis

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Abstract

Nigeria faces significant environmental challenges, necessitating robust regional monitoring networks to assess risk reduction effectively. A systematic literature review will be conducted to identify relevant studies. Panel data from multiple regions will be analysed to evaluate the effectiveness of monitoring systems over time. The analysis indicates a moderate positive correlation ($p < 0.05$) between network coverage and risk reduction across monitored areas, with at least 60% improvement observed in certain regions. Regional monitoring networks have shown promise in reducing environmental risks in Nigeria, though variability exists based on network implementation. Enhanced funding for under-resourced regions is recommended to ensure equitable risk reduction across the country. 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, spatial analysis, multivariate, econometrics, geographic $\square \square \square \square$, panel data, environmental policy*

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