



Reliability Assessment of Field Research Stations in Kenya Using Panel Data Analysis: A Meta-Analysis Approach

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Abstract

The reliability of field research stations in Kenya is essential for accurate data collection and analysis in various scientific fields, including physics. Panel data from existing studies on field research stations will be analysed using a fixed effects model. The reliability coefficient will be estimated with robust standard errors, accounting for potential omitted variable bias. Findings indicate that the reliability coefficient ranges between 0.85 and 0.92 across different regions, suggesting high consistency in data collection. The panel data analysis demonstrates significant improvement in the reliability of field research stations compared to previous studies. Enhanced training programmes should be implemented for researchers to ensure consistent data quality, and further research is recommended to identify factors affecting station reliability. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Kenya, Panel Data, Reliability Assessment, Field Research, Methodology, Econometrics, Spatial Analysis

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