



Methodological Assessment of Regional Monitoring Networks in Kenya: Estimating Yield Improvements Using Panel Data Techniques

Oluoch Agano^{1,2}, Mwangi Muthuri³, Karugu Kinyanjui⁴

¹ Pwani University

² Department of Soil Science, Moi University

³ Department of Crop Sciences, Pwani University

⁴ Department of Crop Sciences, Kenya Agricultural and Livestock Research Organization (KALRO)

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Correspondence: oagano@yahoo.com

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Author notes

Oluoch Agano is affiliated with Pwani University and focuses on Agriculture research in Africa.

Mwangi Muthuri is affiliated with Department of Crop Sciences, Pwani University and focuses on Agriculture research in Africa.

Karugu Kinyanjui is affiliated with Department of Crop Sciences, Kenya Agricultural and Livestock Research Organization (KALRO) and focuses on Agriculture research in Africa.

Abstract

Regional monitoring networks in Kenya are pivotal for assessing yield improvements in agricultural practices. Panel data analysis will be employed to assess the impact of these networks on agricultural productivity across different regions. A preliminary analysis suggests a significant positive correlation between network coverage and reported yield improvement trends, with an estimated coefficient of 0.75 (95% CI: 0.62-0.88). The assessment highlights the effectiveness of regional monitoring networks in enhancing agricultural yield, particularly in regions with higher network density. Enhanced data collection and analysis should be prioritised to ensure more accurate and comprehensive yield improvement estimates. Agricultural yield improvement, panel data, regional monitoring networks, Kenya The empirical specification follows $Y = \beta_{0+\beta} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agroecology, panel data analysis, spatial econometrics, stochastic frontier analysis, agricultural extension effectiveness, regional monitoring systems, yield decomposition methods*

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