Methodological Evaluation of Regional Monitoring Networks in Ghana: Panel Data Estimation for Efficiency Gains

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Abstract

Regional monitoring networks have been established in Ghana to enhance agricultural productivity through targeted interventions. These networks aim to improve efficiency by collecting and analysing data on various aspects of agriculture. Panel data analysis will be employed to estimate efficiency gains from the regional monitoring networks. This approach will involve multiple time periods and cross-sectional comparisons within regions over time. Initial findings suggest that while some regions show significant improvements, others exhibit no substantial changes in efficiency despite consistent network operation. The panel-data estimation methodology reveals varying levels of efficiency gains across different regions, necessitating targeted interventions to address inefficiencies and optimise resource allocation. Based on the findings, recommendations include enhancing monitoring frequency for less effective regions and promoting collaborative efforts among stakeholders to leverage data more effectively. Agriculture, Monitoring Networks, Efficiency Gains, Panel Data Analysis The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African, GIS, econometrics, panel data, stochastic frontier, productivity, spatial analysis*

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