Methodological Evaluation of Field Research Stations in Ghana: Panel Data Estimation for Adoption Rates

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Abstract

Field research stations in Ghana play a crucial role in climate change studies, particularly in energy sector interventions aimed at promoting renewable and sustainable technologies. This study employs a mixed-methods approach, combining qualitative interviews with quantitative analysis using panel data from three major energy sector interventions across five research stations in Ghana. A logistic regression model is used to estimate the probability of technology adoption based on station performance metrics. Panel-data estimation reveals that stations with higher levels of institutional support and technological innovation have significantly higher rates of renewable energy adoption (OR = 1.5, CI: 1.2-1.8). The study highlights the importance of robust infrastructure and supportive policies for enhancing technology adoption in Ghana's energy sector. Policy recommendations include increasing funding for research stations to improve their technological capabilities and fostering stronger partnerships between stations and local communities.

Keywords: *Sub-Saharan, African, Ghanaian, Socioeconomic, Qualitative, Panel, Case-Study*

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