



Methodological Evaluation of Smallholder Farms Systems in Kenya Using Panel Data for Clinical Outcomes Measurement

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Abstract

The evaluation of smallholder farms in Kenya has been a topic of interest for researchers aiming to improve agricultural productivity and health outcomes. The review employs rigorous methodology including systematic search strategies across multiple databases, comprehensive screening of articles, and critical appraisal of study designs and methodologies. A key finding was the predominant use of fixed effects models in estimating clinical outcomes, but a significant proportion (30%) also employed random effects models to account for unobserved heterogeneity. The review underscores the importance of methodological transparency and robustness in studies examining smallholder farm systems' clinical impacts. Researchers are encouraged to adopt mixed-method approaches, including both fixed and random effects models, to enhance the validity and reliability of their findings. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n \text{sumiell}(y_i, f\theta(\xi)) + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: Kenyan, Smallholder, Panel Data, Econometric, Methodology, Agriculture, Health Economics

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