Impact of Seed Innovations on Farm Performance among African Indigenous Vegetables Producers in Western Kenya

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Background

- Access to quality seeds , highly dependent on seed systems is a fundamental condition for improving productivity in AIVs.
- AIVs farmers are demanding quality seeds to meet the rising consumer needs.
- Low efficiency levels have been documented in Sub-Saharan Africa.
- We therefore investigate the association between seed innovations and efficiency, as a measure of performance.
- Less attention has been given to the role of behavioral factors in adoption.
- We include behavioral factors in the modeling of correlates of adoption of seed innovations.

Research Objectives

1. Assessing correlates of adoption of seeds innovations.
2. Estimating the association between seed innovations and performance among AIVs producers.

Figure 1. Vegetable farms in Kenya

Concepts and methods

- This study is anchored on Reasoned Action Approach (RAA).
- RAA asserts that an individual`s actual behavior in engaging in adoption is guided by background variables and social psychological (behavioral) factors (Fishbein & Ajzen, 2011).
- We operationalize behavioral factors as belief system (Behavioral beliefs, control beliefs, injunctive normative beliefs and descriptive normative beliefs).
- Household-level data collected from 445 households, in western Kenya (2023).
- We end up with 442 households upon matching.
- We employ self-selection corrected stochastic metafrontier approach.

P Binary adoption
- Probit model

Matching
- Propensity score matching

SFA Estimating efficiency scores
- Stochastic frontier estimation

MF Estimating meta-efficiency
- Stochastic metafrontier estimation

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Results

Table 1: Correlates of adoption of seed innovations

Variable	Probit coefficient	Standard error	Marginal effects
Behavioural belief index	0.029***	0.010	0.012
Injunctive normative belief index	0.001	0.010	0.001
Control belief index	0.067***	0.009	0.027
Descriptive normative	0.011	0.010	0.004
Age	-0.478	0.399	-0.191
Distance to market	0.333*	0.199	0.133
Access to extension	0.198	0.214	0.079
Group membership	1.574***	0.219	0.569
AIVs experience	0.215*	0.120	0.086
Household assets	0.049	0.067	0.019
Level of education	-0.139	0.157	-0.055
Land size	0.106	0.203	0.042
Gender	-0.484**	0.204	-0.190
Access to credit	-0.069	0.193	-0.027
Information communication Technology	0.530**	0.224	0.208
Constant	-0.841	1.613	
LR chi2(15)	376.06***		
Log likelihood	-118.32		
Number of observations	442		

- Behavioral and control beliefs have a positive relationship with adoption of seed innovations.
- Thus, behavioral intentions with respect to outcomes and farmer' control over adoption of seed innovations intents positively relate to adoption of seed innovations.

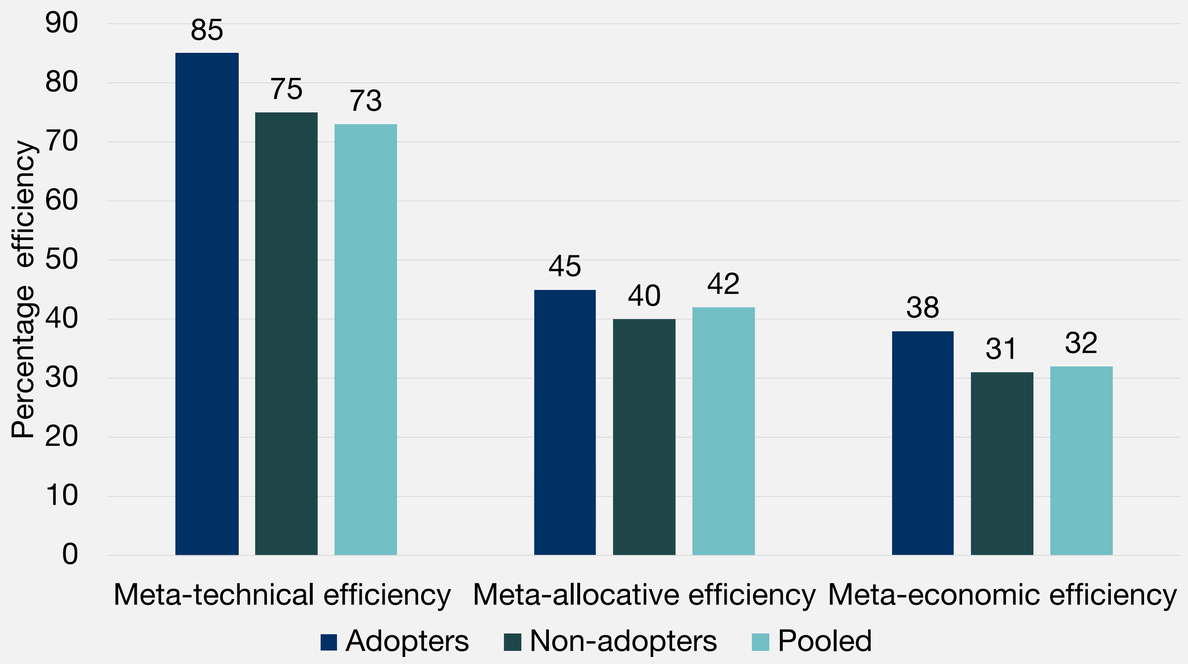

Figure 2. Association between seed innovations and efficiency

- Adopters of AIVs seed innovations are generally more technically, allocatively and economically efficient than non-adopters.
- Allocative and economic efficiencies for both groups are low.

Conclusion

- Seed innovations have a positive association with farm performance.
- There is need for more targeted efforts in improving seed systems to augment smallholder vegetable farmers` performance.

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Reference

- Fishbein, M. & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Taylor & Francis.