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Mixed method evaluation of improved cassava varieties in Ghana: implications for policy and extension activities

**K. Kondo, E. Fleming, O. Cacho,
R. Villano**

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1. Background



Employment



Why Cassava ?

Food Security



National economy



1. Background

High-yielding, disease & pest resistant ICVs released and disseminated in local communities using



2. Research Objective and Questions

Research Objective

Identify drivers and impediments to ICV adoption and intensity of adoption

Research Questions

1. What is the current rate of ICVs' adoption ?
2. What are the factors affecting farmers' decision to adopt ICVs and to grow them on more lands?
3. What is the dissemination mechanism with highest impact on adoption ?



3. Methods

3.1 Data

Sequential mixed-method
April to August 2014

Qualitative

- Desk review
- 5 key informant interviews
- 2 Focus group discussions



Adobe Acrobat
Document



Quantitative

2 regions, 6 districts
14 communities (8 treated)
608 cassava households



Data entry -> SPSS 20
Data mgnt & analyses -> Stata 14
Triangulation



3.2 Summary Statistics

Main buye

Traders & fufu bars 92.43%

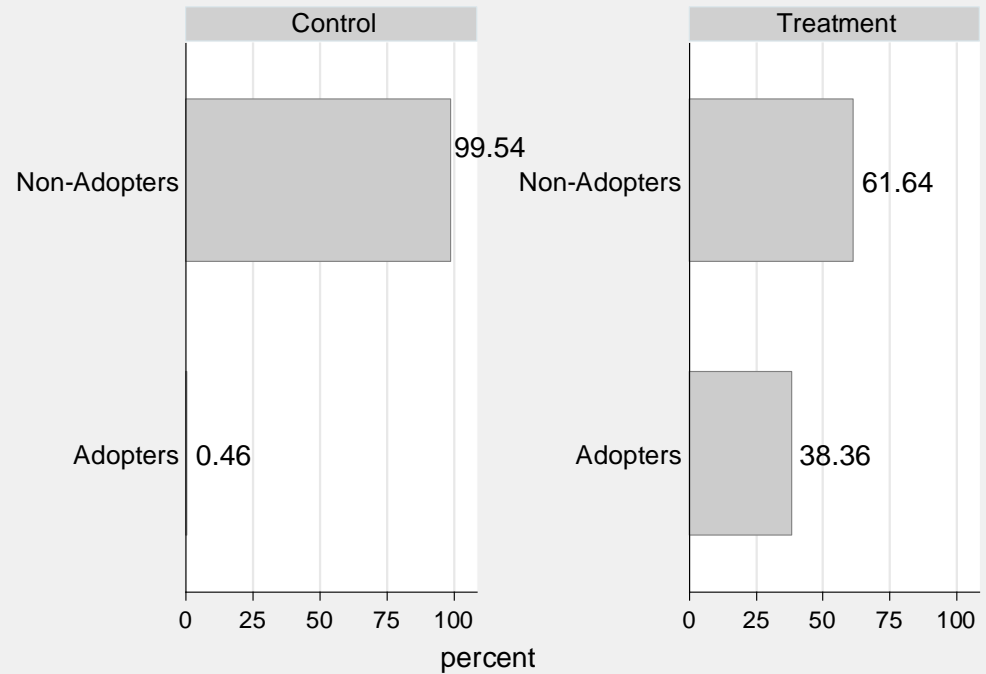
Gari processors 45.72%

Community members 41.28%

Industrial firms 3.62%

Schools 0.33%

Adoption rates



Treatment =1 if community had a demonstration, 0 otherwise

3. Methods

3.2 Empirical models

Decision process

Joint

Separate

1st stage

2nd stage

Models

Tobit (Tobin, 1958)

Two-part /Double hurdle model (Cragg, 1971)

- logit/probit

- OLS / truncated reg.

Heckman sample selection (1979)



4. Results

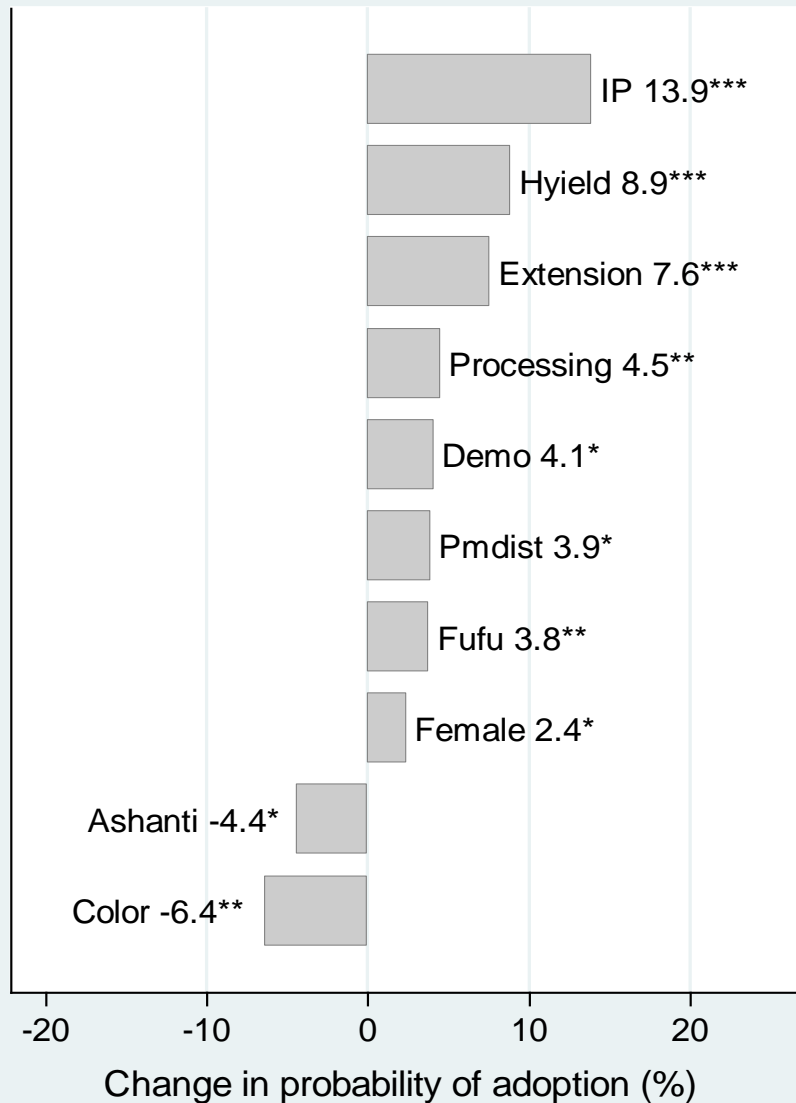
	probit		lntruncreg	
1.female	0.466* ✓	(0.253)	-0.027	(0.054)
1.region	-0.763* ✗	(0.416)	-0.125* ✗	(0.075)
1.small	0.322	(0.294)	-0.027	(0.056)
age	-0.012	(0.011)	0.002	(0.002)
educ	0.010	(0.023)	0.005	(0.005)
hhsiz	-0.097* ✗	(0.057)	-0.022** ✗	(0.011)
nvar	6.500*** ✓	(0.769)	-1.591*** ✗	(0.259)
c.nvar#c.n~r	-1.043*** ✗	(0.157)	0.287*** ✓	(0.050)
flabha	0.528** ✓	(0.163)	0.080	(0.055)
1.hlab	0.076	(0.305)	0.003	(0.052)
herds	0.024*** ✓	(0.005)	0.001	(0.002)
1.treatment	1.415** ✓	(0.693)	0.022	(0.390)
1.fbo	0.309	(0.280)	0.093* ✓	(0.052)
1.credit	-0.059	(0.542)	-0.074	(0.072)
1.trainum	0.573	(0.451)	0.073	(0.100)
troad	-0.106** ✗	(0.045)	0.003	(0.012)
distlm	-0.055	(0.045)	-0.022** ✗	(0.011)
1.hyield	1.222*** ✓	(0.298)	-0.073	(0.073)
1.fufu	0.757** ✓	(0.333)	-0.049	(0.077)
1.processing	0.787** ✓	(0.340)	-0.002	(0.067)
1.canopy	0.658* ✓	(0.394)	-0.097	(0.072)
1.colour	-1.113** ✗	(0.453)	0.113	(0.081)
1.ext	1.112*** ✓	(0.312)	-0.176** ✗	(0.084)
1.demo	0.692* ✓	(0.360)	0.034	(0.061)
1.ftf	0.219	(0.256)	0.064	(0.057)
1.pmdist	0.703* ✓	(0.396)	-0.059	(0.062)
1.ip	2.327*** ✓	(0.727)	0.178	(0.244)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

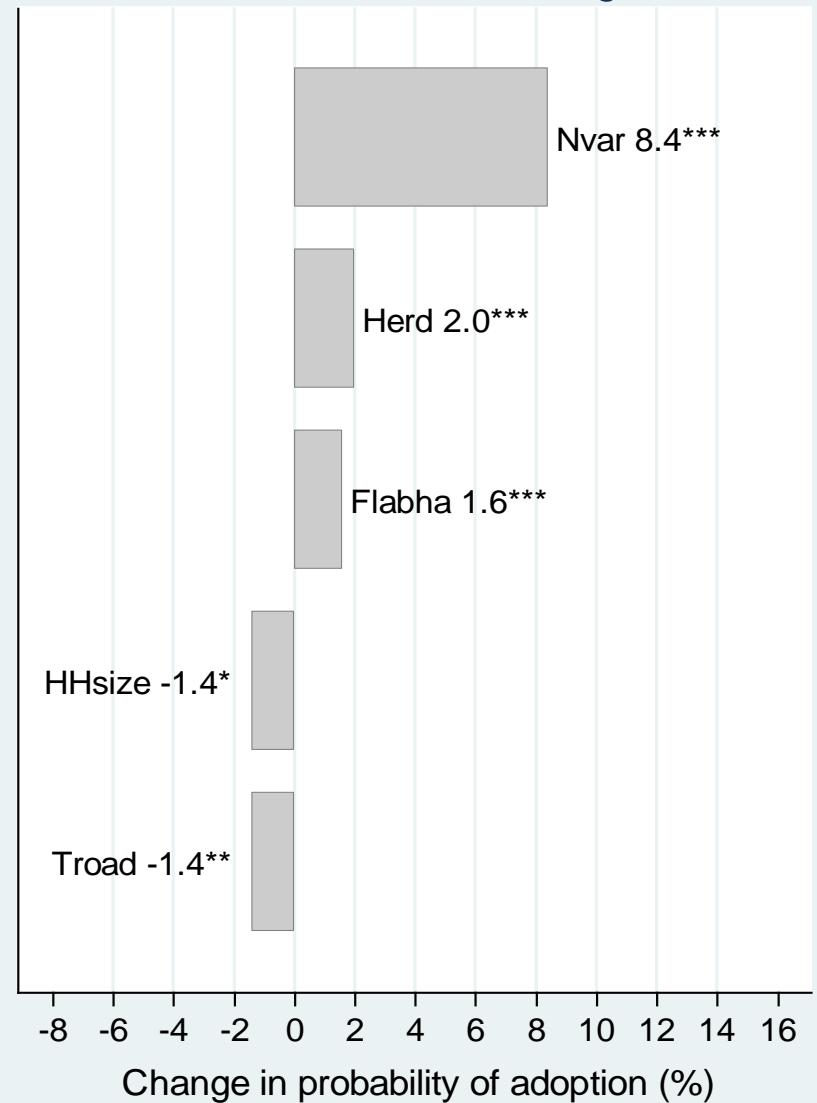
4. Results

Marginal effects on the probability of IVC adoption

Dummies : 1 vs 0



Continuous : SD change



5. Implications for policy and future research

Strategies to enhance probabilities and intensity of ICV adoption should:

1. Seek more role for female headed-households;
2. Foster establishment of innovation platforms and distribution of planting materials from demonstrations plots
3. Integrate cassava production to livestock farming
4. Rehabilitate road infrastructures and develop secured industrial market for ICVs and collection points near local communities.

Future research are needed to investigate into:

The negative impact of information through extension agents on the intensity of adoption

6. Way forward

1. Assess the impact of ICV adoption on farm specific and livelihood indicators using quasi-experimental impact evaluation methods
2. Investigate the impact of ICV adoption on technological change and farmers' managerial performance using stochastic production and stochastic output distance functions as well as metafrontier analysis with correction of bias stemming from both observed and unobserved characteristics.

Thank you

kkondo3@myune.edu.au
kodjo33@gmail.com

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