



IMPACT ASSESSMENT OF AFRICA RISING INTERVENTIONS IN MALAWI AND TANZANIA

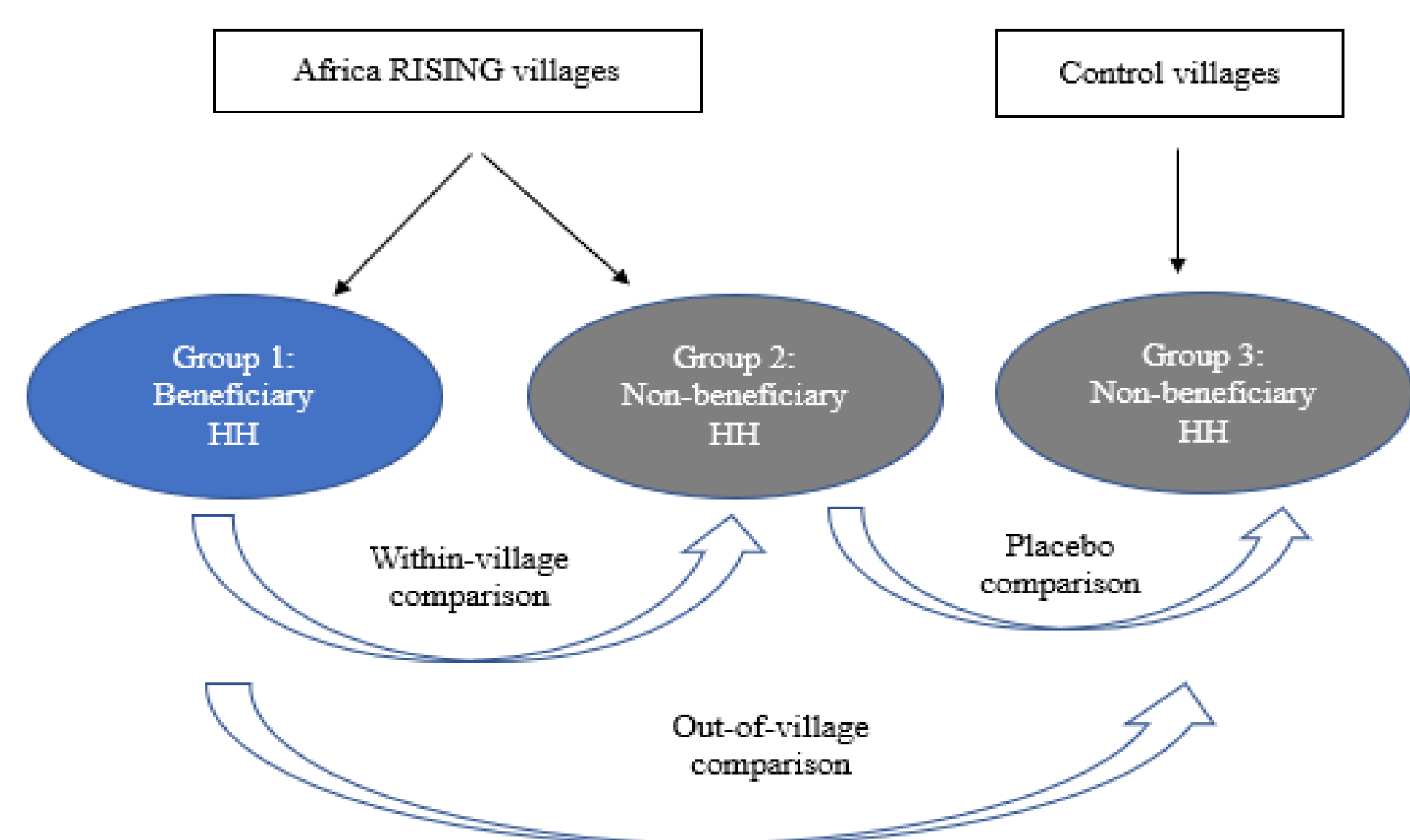
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A. IMPACT ASSESSMENT DESIGN

B. IDENTIFICATION STRATEGY



Note: HH stands for households

- Two rounds of surveys
 - Baseline (t0): 2013 (Malawi) & 2014 (Tanzania)
 - Follow-up (t1): 2019 (Malawi) & 2022 (Tanzania)
- Difference-in-Differences (DID) estimator
 - Impact estimation: Based on within- & out-of-village comparisons
 - Spillover/targeting: Based on placebo comparison of outcomes across two groups of non-beneficiaries (in program and non-program villages)
 - Sustainable Intensification Assessment Framework (SIAF) to guide indicator selection for impact assessment

C. RESULTS – MALAWI

	Mean values					
	AR @ t1 c1	AR @ t0 c2	Control @ t1 c3	Control @ t0 c4	Impact c5	Placebo c6
Panel A. Environment						
Received agricultural advice (%)	98.31	82.02	28.87	36.28	31.72***	16.02*
Applied manure (%)	78.65	73.03	57.19	55.41	-14.82***	-5.38
Maize-legume intercropping (%)	79.78	80.90	62.97	63.69	5.63	-6.20
Inorganic fertilizer used (kg/ha)	144.54	101.15	116.90	112.16	27.78**	-13.80
Panel B. Productivity						
Maize yield (t/ha)	1.38	2.31	1.48	1.67	-0.33	-0.42
Legume yield (t/ha)	1.24	0.70	0.94	0.83	0.23***	0.18*
Groundnut yield (t/ha)	1.75	1.38	1.53	1.43	0.04	0.02
Bean yield (t/ha)	0.58	0.56	0.54	0.55	0.13	0.12
Soybean yield (t/ha)	0.88	1.25	0.87	0.74	-0.60	0.42*
Cowpea yield (t/ha)	1.19	0.44	0.63	0.47	0.49**	0.04
Real value of total harvest ('000 MWK)	95.73	174.01	84.96	116.94	19.04	-23.79
Unique crops produced (#)	4.82	5.40	3.96	4.04	-0.83***	-0.45*
Unique livestock types owned (#)	1.78	1.60	1.16	1.19	0.15**	-0.18
Tropical livestock units (#)	0.49	0.44	0.24	0.26	0.06	-0.12*
Agricultural labor (person-days/ha)	151.61	316.33	212.09	251.90	18.56	20.47
Labor productivity (MWK/person-day)	869.18	758.04	638.53	748.86	456.27**	-206.49
Panel C. Economic						
Per capita daily expenditure (PPP)	2.12	1.82	1.71	1.77	0.38**	-0.38
Non-poor (>\$1.9 PPP) (%)	34.83	37.08	27.97	30.56	6.61	-7.70
Non-poor (agr. durable assets) (%)	48.31	46.63	26.63	29.40	9.33**	-0.45
Non-poor (non-agr. durable assets) (%)	41.01	34.27	31.46	32.08	6.96*	-0.05
Real value of crop and livestock sold ('000 MWK)	56.07	41.05	26.03	31.82	22.88**	2.34
Panel D. Human						
Household dietary diversity score (# of food groups)	9.11	7.01	7.34	7.04	0.74***	-0.35
Food secure households (%)	48.88	22.47	32.08	28.78	13.44**	-5.86
Months of food shortage (June-Sep)	0.24	0.17	0.42	0.36	-0.18**	0.21**
Child height-for-age z-score	-1.81	-1.89	-1.56	-1.62	0.11	0.14
Prevalence of child stunting (%)	45.45	45.00	36.16	38.17	4.10	-13.89
Child weight-for-height z-score	0.32	0.31	0.25	0.25	-0.07	-0.15
Prevalence of child wasting (%)	1.32	1.25	2.52	2.72	2.09	5.09
Child weight-for-age z-score	-0.91	-0.86	-0.74	-0.75	-0.14	0.03
Prevalence of child underweight (%)	16.25	10.98	10.84	11.45	8.30	-5.34
Women's Body Mass Index (BMI)	23.29	23.05	22.98	22.77	-0.57	0.40
Prevalence of women undernutrition (BMI<18.5)	1.82	2.80	6.32	6.99	3.32*	0.16
Panel E. Social						
Plots under female responsibility (%)	52.46	83.85	62.15	72.09	5.96	-9.36
Livestock under female responsibility (%)	41.15	5.67	22.45	17.69	5.11	-15.26***
Member of farmers' groups (%)	51.69	78.65	5.09	14.83	-6.07	17.40***

note: .01 - ***; .05 - **; .1 - *;

- Positive impact on several indicators (column c5):
 - access to agricultural information and inorganic fertilizer use
 - legume yield, livestock diversity
 - per capita consumption expenditure, asset-based wealth, agricultural sales
 - household dietary diversity score, food security based on caloric intake (7-day recall), and month of food insecurity
- No impact on child and maternal nutrition and social indicators
- Evidence of spillover/targeting for selected indicators (column c6)



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D. PRELIMINARY RESULTS

	Mean values					
	AR @ t1 c1	AR @ t0 c2	Control @ t1 c3	Control @ t0 c4	Impact c5	Placebo c6
Panel A. Environment						
Practices rotation (%)	48.12	23.65	30.12	22.55	6.21	-6.50
Real value of pesticides used ('000 TZS/ha)	167.48	10.27	68.03	10.42	55.27*	93.96**
Real value of fertilizers used ('000 TZS/ha)	168.73	6.24	55.44	13.05	69.26***	42.43
Real value of seeds purchased ('000 TZS/ha)	689.16	5.75	369.88	98.63	143.10*	239.61*
Agricultural labor (person-days/ha)	111.22	93.53	80.89	67.97	-14.42	3.23
Panel B. Productivity						
Maize yield (t/ha)	3.14	2.67	2.32	2.22	0.10	-0.39
Cereal yield (t/ha)	3.02	2.54	2.13	2.05	0.05	-0.56*
Bean yield (t/ha)	1.11	0.70	0.80	0.67	0.22**	0.20
Pigeon pea yield (t/ha)	1.17	0.80	0.87	0.85	0.21*	-0.38**
Legume yield (t/ha)	1.09	0.71	0.81	0.74	0.23*	-0.04
Labor productivity (TZS/person-day)	16.63	21.99	15.17	18.40	0.30	-6.39***
Panel C. Economic						
Real net crop income ('000 TZS)	1,335.30	1,609.55	1,113.99	1,022.45	-547.68*	-145.93
Real net livestock income ('000 TZS)	895.23	508.89	585.64	546.29	295.91***	-29.16
Real employment income ('000 TZS)	18.79	30.42	6.53	5.22	-16.69	-2.99
Real transfer income ('000 TZS)	123.38	10.85	30.19	18.24	77.84	-8.19
Real other income ('000 TZS)	20.08	7.44	3.46	1.59	8.54	3.00
Per capita daily expenditure (PPP)	2.31	1.68	1.75	1.56	-0.05	-0.27**
Non-poor (>\$1.9 PPP) (%)	74.48	48.13	47.05	38.10	-7.62**	-20.65***
Real value of harvest sold ('000 TZS)	0.81	1.06	0.72	0.59	-0.57**	0.05
Panel D. Human						
Household dietary diversity score (# of food groups)	7.91	7.25	6.74	6.54	-0.21	-0.82*
Food secure (%)	36.82	37.76	43.32	42.61	0.30	5.66
Food insecurity (self-reported) (%)	30.13	8.71	43.63	30.95	-12.26**	-13.90*
Child height-for-age z-score	-1.65	-1.58	-1.82	-1.90	-0.14	0.46
Prevalence of child stunting (%)	44.83	41.03	45.05	50.11	11.04**	-16.66*
Child weight-for-height z-score	-0.19	-0.08	-0.06	-0.16	-0.28*	0.07
Prevalence of child wasting (%)	6.25	5.29	5.00	7.33	4.84	-4.24
Child weight-for-age z-score	-0.98	-0.95	-1.06	-1.14	-0.17	0.19
Prevalence of child underweight (%)	14.58	17.44	21.11	24.73	4.62	-2.62
Women's Body Mass Index (BMI)	23.26	22.39	21.85	21.37	-0.53	-0.73
Prevalence of undernutrition (BMI<18.5)	16.46	15.71	19.73	21.70	6.51	2.09
Panel E. Social						
Plots under female partial responsibility (%)	55.73	61.00	60.24	64.20	6.96	6.63
Plots under female full responsibility (%)	19.53	15.05	23.22	22.35	5.24**	5.22
Livestock under female partial responsibility (%)	21.76	12.41	14.51	12.03	4.61*	1.38
Livestock under female full responsibility (%)	11.30	4.29	7.10	5.18	2.83	-0.14

note: .01 - ***; .05 - **; .1 - *;

- Positive impact on:
 - Input use (value of purchased seeds, inorganic fertilizers, and pesticides)
 - legume yield (beans and pigeon pea)
 - net livestock income
- Negative impact on net crop income, crop sales, and likelihood of being non-poor (based on \$1.9 PPP poverty line)
- No impact on food security based on caloric intake and household dietary diversity (7-day recall), lower incidence of self-reported months of food shortage (past 12 months); no improvement in child and maternal nutrition (increased child stunting)
- Positive impact on social indicators (higher incidence of women fully managing plots)
- Evidence of spillover/targeting for selected indicators (column c6)

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