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Are Commercialized Farmers Driving Agricultural Transformation in Rural Kenya?

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Background

- While small-scale (SS) farms dominate agricultural production in sub-Saharan Africa, recent evidence shows that medium-scale (MS) farms are a rapidly expanding force that is likely to profoundly influence the nature and pace of food systems transformation in many African countries
- Besides the MS farms, there are also productive SS farms that are involved in commercial agricultural production, but which have often not received much attention regarding their potential role in Africa's food systems transformation
- The full impact of these two groups of farming systems on the neighboring non-commercialized SS farms are both complex and poorly understood
- This study sheds light on the extent to which commercialized MS and SS farms contribute to farm productivity growth and incomes of proximate rural households in four counties in Kenya

Study objectives

1. Understand the characteristics of commercialized SS and MS farmers
2. Understand how the concentration of commercialized farms – both MS and SS -- is affecting non-commercialized small-scale farms around them
3. Derive concrete policy actions and investments that can be made by national and county governments to promote rural and agricultural transformation

Key definitions

- Small-scale (SS) farmer-- farmer operating less 3 hectares of land
- Medium-scale (MS) farmer-- farmer operating over 3 hectares to 50 hectares
- Commercialized farmer-- farmers who intentionally produce farm output to sell in the market & has invested in productive technologies such as greenhouse, irrigation, improved seed, fertilizers, etc.
- *Stepping up* medium-scale farmer-- household whose primary employment was small-scale farmer and gradually expanded the scale of production to medium-scale
- *Stepping in* medium-scale farmer-- household whose primary employment was non-farm job and who used proceeds from non-farm employment to enter farming at medium-scale status

Study counties

FtF Regions	Agroecological zone (AEZ)	FtF counties	Counties selected
West	Western Transitional	Bungoma, Kakamega	Kakamega
	Western Lowlands	Busia, Homa Bay, Kisumu, Migori, Siaya	Kisumu
	Western Highlands	Kisii	None
Southeast	Eastern Lowlands	Kitui, Makueni, Taita Taveta	Makueni and Taita Taveta
North	Northern Arid	Garissa, Isiolo, Marsabit, Samburu, Turkana, Wajir	None

Household Commercialization Index by Farm Categories

	Pathway into medium-scale farming	Sample N	Household commercialization index (HCI) [mean]	% of households that migrated into the village from somewhere else
Small-scale (not commercialized)	--	632	12.8	30.1
Small-scale (commercialized)	--	1,268	48.5	25.1
Medium-scale (commercialized)	*Stepping-up*	18	70.3	16.7
	Stepping-in	74	66.9	47.3
Total		1,995		27.4

Understand the characteristics of commercialized SS and MS farmers

Study findings – Demographic characteristics

Demographic Characteristics	A < 3 ha, not commercialized (n=632)	B < 3 ha, commercialized (n=1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
Age of household head [median]	54.0	53.0	57.0	61.0
% male headed	71.1	82.2	72.1	82.7
Farming experience (years) [median]	22.0	23.0	21.5	27.0
Head's education (years) [median]	8.0	8.0	8.5	12.0
Average education of household members (years) [median]	8.4	9.3	11.3	10.5

Study findings – Land ownership and use

Land ownership and use	A < 3 ha, not commercialized (n=632)	B < 3 ha, commercialized (n=1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
Initial landholding size when started farming (ha)	0.4	0.4	1.4	1.4
Current landholding size (ha)	0.4	0.8	2.5	4.1
Current land controlled (ha)	0.5	1.2	4.7	5.6
Current land operated (ha)	0.3	0.8	4.3	4.4
Cultivated land size (ha)	0.3	0.8	4.0	3.4
Rented-in land (ha)	0.3	0.4	3.4	1.7
% of households that purchased land in the past 10 years	12.0	13.4	38.9	32.4
Hectares of land purchased over the past 10 years among those that purchased (median)	0.4	0.5	0.4	1.3
% of controlled land currently operated	67.7	76.6	90.6	84.4
Years since began operating => 3 ha of land (median)			5.5	12.0

Study findings – Use of farm inputs

Input use	A < 3 ha, not commercialized (n=632)	B < 3 ha, commercialized (n=1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
Labor days per hectare cultivated [median]	110.0	80.0	26.4	25.2
Households using inorganic fertilizer (%)	46.4	71.1	90.0	70.5
Inorganic fertilizer kgs applied per ha cultivated [median] – users only	192.3	171.9	254.6	198.7
Chemical expenditure (KSh/ha cultivated) [median]	0.0	1,273	2,552	2,167
Households renting in farmland (%)	11.5	26.0	60.6	32.6
Land rental rate per hectare (KSh/ha) [median]	20,000	20,000	17,500	25,000
Daily wage rate for farm labor (KSh) [median]	300.0	300.0	300.0	300.0
Households using tractor for tillage (%)	22.2	37.5	72.2	52.7

Study findings – Farm production and productivity ('000KSh)

Farm production (thousand Ksh) [median]	A < 3 ha, not commercialized (n=632)	B < 3 ha, commercialized (n=1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
Total value of crop output	18.6	78.2	905.3	433.9
Total value of crop output per ha cultivated	75.5	119.4	227.8	143.2
Total value crop output per labor day	0.6	1.3	7.5	4.7
Total value of livestock output	3.5	13.5	6.2	69.5
Total value of farm output	29.7	113.0	905.3	549.7
Total value of farm output per hectare operated	96.8	147.8	189.6	142.9

Study findings – Shares of crops and livestock [I]

Commercialization	A < 3 ha, not commercialized (n=632)	B < 3 ha, commercialized (n=1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
% share of agricultural income in household gross income	27.2	52.6	87.9	68.4
Household commercialization index (HCI)-crops (% of crop production value that was sold)	12.8	48.5	70.3	66.9
Industrial crops				
% of households producing industrial crops	6.2	22.9	33.3	44.6
% share of industrial crops in agricultural gross income	2.6	35.4	79.0	61.8

Study findings – Use of resilience and sustainable land management practices

Resilience and sustainable land management practice	A < 3 ha, not commercialized (632)	B < 3 ha, commercialized (1268)	D = > 3 ha, commercialized	
			Stepping-up (n=18)	Stepping-in (n=74)
	----------% of households----------			
Irrigation	9.6	29.4	37.9	36.3
Zero tillage	2.5	4.3	10.7	5.8
Cereal-Legume rotation	22.0	33.5	37.9	36.6
Intercropping	80.7	74.7	61.4	76.7
Fallowing	11.9	16.2	15.0	29.6
Organic matter (e.g manure, compost) and organic fertilizer	49.8	60.0	66.4	71.8

Understand how the concentration of commercialized farms – both MS and SS -- is affecting non-commercialized small-scale farms around them

A.1 Effects of concentration commercialized farms on non-commercialized small-scale farms' incomes

1. High concentration of commercialized medium-scale scale farms increase non-commercialized small-scale households' farm incomes
   - A one percentage increase in the share of operated area under commercialized medium-scale farms is associated with a 1.85 percent increase in farm incomes of non-commercialized small-scale farms
2. High concentration of commercialized *stepping in* medium-scale farms reduce non-commercialized small-scale farms' non-farm incomes
   - First, the commercialized farms (medium- and small- scale), and specifically stepping-in medium-scale farms could be spending their money in ways that are not creating jobs in the areas where they operate.
   - Second, probably the non-farm jobs that are being created through increased spending by the commercialized farms may be going to persons who are not directly involved in farming, thus outside the scope of this study.
   - Third, may be the jobs being created could be extremely low-income jobs that do not make significant contribution to household incomes.

B.1 Effects of concentration commercialized farms on commercialized small-scale farms' incomes

1. Concentration of all medium-scale farms, especially the ***stepping-in*** MS farms, increase commercialized small-scale households' farm incomes
   - A one percent increase in the share of operated area under commercialized MS farms increases commercialized SS farms' farm incomes by 1.28 percent

C.1 Effects of concentration commercialized farms on all small-scale farms' incomes

1. The share of operated land under all MS farms and that under ***stepping in*** MS farms increase farm incomes of all SS farm households.
2. The share of operated area under ***stepping-in*** MS farms reduces SS (commercialized and non-commercialized) farms' non-farm incomes.

Summary of the main findings

1. Land markets – both for rent and for purchase – constitute a major pathway for the expansion of MS farms
2. MS farms are relatively highly commercialized compared to SS farms
3. MS farms are more productive than SS farms
4. *Stepping in* MS farms positively affect the farm incomes of nearby SS
5. *Stepping in* MS farms adversely affect the non-farm incomes of nearby non-commercialized SS

Policy and program suggestions [I]

1. Strength agricultural research and development and extension system to develop, deploy and scale out land-saving technologies, innovations, and management practices (TIMPs)
   - For sustainable agricultural productivity growth.
   - Critical here are investments in TIMPs that enhance crop yields.
2. Strengthen land tenure arrangements that enable efficient transfer of agricultural land and protect owner and user rights
   - Secure tenure arrangements will enable land access by entrepreneurial farmers who are able to use the land more productively through investments in TIMPs thereby accelerating agricultural productivity growth and transformation.
   - Specific focus on securing land rights of owners to engage in long-term leasing
   - County and national government should do more to strengthen the security of landowners who might otherwise be willing to lease out their land for long duration without the fear of losing it


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Policy and program suggestions [II]

3. Repurpose public and private research and development, and extension investments to promote the range of crops and animal products with high value, have great potential for commercialization, and able to accommodate a broad base of smallholder farmers
   - Most of the current research and development and extension investments are directed to just a small number of staple and industrial cash crops, e.g., maize, cassava, coffee, etc.
4. Prioritize investments in an enabling policy environment for trade in agricultural inputs to facilitate efficiency in the supply of inputs to farmers.
   - Medium-scale farm households were more likely to use irrigation and apply organic matter and use fertilizer and agro-chemicals more intensively compared to the small-scale farm households, indicates the key role efficient input markets will play in facilitating agricultural commercialization
5. Prioritize investments in physical infrastructure for transport, i.e., roads, rails, ports, that connect agricultural production areas to processing, local trading, local consumption and export markets, and communication infrastructure and information and communications technology to promote the growing use of digital technologies in agricultural production and marketing

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