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Changing Farm Structure and Agricultural Commercialisation in Nigeria

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Key messages

- With the recent wave of rise in medium scale farms (MSFs) across Africa and its implication for agricultural commercialisation, there is a need to explore the nature of the process that produce them, their characteristics and the type of interactions that exists with small scale farms (SSFs).
- This study identified two major pathways into commercialised MSF in Nigeria: *farm-led* or *stepping up* and *non-farm income led* or *stepping in*.
- Land availability, road infrastructure, and market access conditions seems to play a very important role in facilitating transition of SSFs to MSFs.
- Insecure land tenure systems could reduce incentives for long-term investments in land development which, in-turn, could hinder the process of agricultural commercialisation.
- Labour productivity is approximately three times as high in MSFs compared with SSFs.
- A number of spillover interactions from MSFs exist, which would immensely benefit SSFs.

Cover photo: Emmanuel Dzarma

Introduction

Evidence is emerging showing a changing structure of land ownership in Africa, a major trend that is likely to affect agri-food systems in sub-Saharan Africa in general. Africa has witnessed a rise in the number of commercialised medium-scale farmers (MSF). This refers to farmers operating between 5 and 100 hectares of land. These changes in the distribution of farm sizes are creating important and wide-ranging impacts at all stages of agricultural value chains, which have potentially diverse and complex impacts on the likelihood of rural smallholder communities. However, these effects remain poorly understood and only examined in a small number of countries to date. A better understanding of the effects of changing farm size distributions are urgently needed to guide policies aimed at achieving agricultural commercialisation and broader economic transformation objectives, such as improvements food security and welfare among smallholder communities. The main objectives of the APRA work stream #1 in Nigeria is to study the potential opportunities and challenges associated with medium-scale (investor) farms as a pathway into agricultural commercialisation. This report presents a summary of preliminary findings from the first round of data analysis with particular emphasis on the characteristics of these emergent medium-scale farms, the nature of the structural changes that produce them, and how they potentially influence the welfare of small-scale farms (SSF)[1].

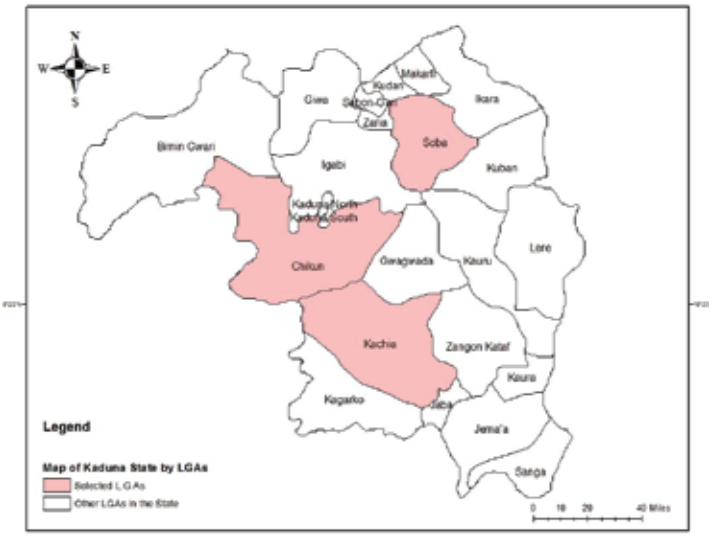
Data sources

Most of the available nationally representative farm households survey datasets in sub-Saharan Africa, such as the LSMS, contain too few medium-scale and large-scale farms to form accurate conclusions about them. The surveys tend to obtain too few sampled observations of medium- and large-scale farms because these farms

1 Muyanga, M. et al (2019) Changing Farm Structure and Agricultural Commercialisation in Nigeria APRA working paper 26, Future Agricultures Consortium https://www.future-agricultures.org/apra/#apra-publications

Figure 1: Map of Kaduna and Ogun states showing selected Local Government Areas

(a) Kaduna State



(b) Ogun State

Source: APRA-Nigeria WS1 Research Team, August 2018

constitute only a small fraction of the total farm population. These surveys generate small sample sizes and imprecise estimates of the total numbers of such farms. The surveys also tends not to prompt urban households about farmland they may cultivate or own away from their main urban residences. Because urban-based households appear to constitute a sizeable proportion of new investment in commercialised medium-scale and large-scale farms, there is mounting evidence that existing farm surveys increasingly miss a major and dynamically growing segment of the farm population - medium-scale farms (Jayne et al., 2016).

Correcting this informational blind spot required new kind of sampling method. This involved the compilation of lists of the full population of households controlling and/or operating 5 hectares of land and above in six local government authorities, three in Kaduna State (Northern Nigeria) and three in Ogun State (Southern Nigeria). Once the full lists of medium-scale farms in the study sites were compiled, a multistage sampling procedure that involved a combination of purposive, cluster and proportionate random sampling techniques was followed to identify households to be interviewed. The sample size was limited to 1000 respondents, 500 respondents from each state.

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Among the primary objectives of this study is to understand how the medium/large-scale farms compare with the thousands of smallholder farms (farmers operating and controlling less than five hectares of land) around them in terms of agricultural productivity and profitability. To achieve this objective, smallholder farmers at close proximity to the sampled medium-scale farms were included in this study. This involved a complete listing of all the smallholder farmers in the sampled medium-scale study sites. Then a proportional random sampling of small-scale farms to include in the study followed. Figure 1 shows APRA-Nigeria study sites. In the full APRA working paper, we present descriptive tables and figures that provide basic information on medium-scale farms and how they differ from small-scale farms in the same local governance areas (LGAs).

Results

Pathways into medium-scale farming commercialisation

The study identified two major pathways into commercialised medium-scale farming. The first group is the transitioned medium-scale farms; these are farms that were previously small-scale but have ***stepped up*** into medium-scale. We refer to this pathway into medium-scale farming commercialisation as ***farm-led*** or the ***stepping up*** group, which accounts for as much 47.3 percent of medium-scale farms. The second group is the consistently medium-scale farms, which started off as medium-scale farms. These investor farmers entered into commercialised medium-scale farming laterally. We refer to this pathway into commercialised medium-scale group as ***non-farm income led*** or the ***stepping in*** group.

The results showed that, within the past decade (between 2010 and 2018), ***stepping up*** into medium-scale farming is more predominant than ***stepping in***. Specifically, we observe that about 40 percent of the ***stepping up*** group in the sample actually did so within the last decade; only about 25 percent ***stepped in*** during the same period.

During our survey, we elicited information on the factors that facilitated the growth of farms from small-scale to medium-scale farming. According to results, 82 percent of respondent farmers indicated that land availability and accessibility were the most important factors that enabled them to transition from small- to medium-scale farming. More specifically, 47 percent expanded farms sizes using land they already owned, while 24 percent expanded operated land through additional land acquisition, whilst around 11 percent of farmers had to rent or borrow land in order to expand their operation.

Observed differences in the years of schooling between the small- and medium-scale household heads suggest that education may also be an important factor in driving the process of agricultural commercialisation in the study area. Heads of small-scale farms have relatively low education levels compared to their medium-scale farms counterparts.

While it is widely believed that getting more youths and young adults into farming could catalyse agricultural commercialisation in Africa, the results show that less than one percent of youths (persons aged between 15 and 24 years) are in medium-scale farming. Also less than 14 percent of young adults, persons aged between 25-34 years, are engaged in medium-scale farming. This finding could be attributed to lack of access to land by youth and young adults.

Land access and use

The average land holdings controlled by the MSF households is 12.58 hectares compared to 3.18 hectares for small-scale farm households. The MSF households own over 85 percent of the land that they controlled. The rest is either leased or borrowed. While the size of the land owned and operated among small-scale families remained almost constant from the time households started farming to the time of the survey, land sizes among the medium-scale farms had increased by over 30 percent. It is important to note farms that grew organically from small-scale into medium-scale farming status were not typical smallholder farms. The average initial (when the household started farming) landholding sizes among transitioned MSFs was 4.15 hectares, out of which 56 percent was operated. Initial landholding among the typical smallholder farms stood at 2.67 hectares, out of which 82 percent is in use.

Land inheritance is the most important source of land in both small- and medium- scale farm households. It is important to note that land purchases is the second most important source of land among the medium-scale farms, especially those who started farming at a small-scale and stepped up to medium-scale farms. This is probably a pointer that land markets play an important role in the establishment of medium-scale farms.

From the survey, we sought to know landholding tenure systems by farming scales. The results show that the majority of households own their land without title deeds; less than 10 percent owned land with a title deed. Lack of secure tenure systems could be stifling land market operations and, by extension, emergence of medium-scale farms. This could also reduce incentives for long-term investments in land development which, in-turn, could hinder the process of agricultural commercialisation.

Farm production and assets

In terms of cropping pattern, cereals, pulses and condiments/spices in that order are the three most widely cultivated crops by MSFs in Kaduna state, while starch/sugars, cereals and beverages

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are the three most important crops in Ogun state. We also find that market-oriented crops such as beverages, fruits, nuts, pulses, oil seeds, condiments/spices are more commonly found on MSFs, while staples such as cereals and starch/sugars are more common with small-scale farms.

Mixed farming (including livestock) was found to be more predominant on MSFs relative to SSFs. The results show that 1.7-3.1 percent of land operated by MSFs is used for mixed farming, while that by SSFs is 0.35-1.28 percent. These percentages, though small, might suggest that expansion in scale of operation is also accompanied by expansion in livestock production. Thus, apart from increasing cultivated crop land, MSFs seem to be better than SSFs in combining livestock farming with crop farming.

Furthermore, MSFs are much more invested in assets and durables compared with SSFs, and this is evidence of a potentially higher degree of commercialisation relative to SSFs. Thus, investment in assets and durables could potentially be an important driver of agricultural commercialisation in the study population.

The study found very little differences between SSFs and MSFs in terms of access to infrastructure, as well as markets. While farmers are, on average, within less than 1 km from an all-weather road, they typically have to travel up to 2.5 km to access motorable roads and 5-6 km to access input and livestock markets. Extension services and livestock centres were found to be the most difficult services to access. Extension services are approximately 15 km away, while livestock centres are at least 6 km away, on average.

The study also finds that labour productivity is approximately three times as high in MSFs compared with SSFs. Crop income per labour days on the farm is 36,000 Naira for SSFs and 92,000 Naira for MSFs. We also find that SSFS devote almost twice as many labour days per hectare compared to MSFs.

Interaction between MSFs and small-scale farms SSFs

One of the major objectives of this study is to investigate potential spillover effects from medium to small-scale farmers in order to understand how the rise of MSFs influence the behaviours and welfare of the millions of neighbouring SSF households. Results

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reveal that a number of spillover interactions from MSFs exist, which would immensely benefit SSFs. Prominent among these are, in order of importance, the provision of extension guide/services to smallholders, sales of farm inputs to smallholders, purchase of farms inputs together with smallholders, rentals of tractor and farm machinery services out to smallholders.

Specifically, about 43-49 percent of the MSFs reported to have been contacted by smallholders for extension advice; about 41-49 percent actually provides extension services to smallholders. Between 29-32 percent of MSFs engaged in sale of inputs to SSFs, while between 20-27 percent worked together to purchase farm inputs. Furthermore, 4-11 percent of MSFs rented out farm machinery to SSFs, while 2-6 percent of MSF rented out tractors to SSFs.

Further investigation reveals that extension service provision from MSFs to SSFs were mostly to do with use of improved seeds (40%), better planting techniques (16.4%), use of tractor for land preparation (13.3%) and (11.7%). These services are particularly strategic and important given that the distance to the nearest extension service agent which, on average, is about 15 km on very rough roads and with poor transportation. We observe that MSFs who transitioned from SSF status actually interact more with SSFs than MSFs who started initially as an MSF, in terms of provision of extension services and rentals of machinery. On the other hand, MSFs interacted more with SSFs in terms of purchase/sales of farm inputs and tractor rentals.

Agricultural commercialisation

The study computed two major indices of agricultural commercialisation by farm scales. These are household commercialisation index (HCI), which is computed as a share of total output that is sold; and the household input market commercialisation index (HIMCI), which is computed as share of total farm input that is purchased from the market. The results presented in Table 1 show HCI levels of about 75 percent in contrast to HIMCI levels of 12 percent for MSFs. This is an indication that input market commercialisation is extremely low compared with output market commercialisation among MSF households. The result is similar for SSFs, which may be an indication of poorly developed input market.

Conclusions

The objective of the study was to test the hypothesis that the growth of MSFs promotes agricultural commercialisation in SSA. Changes in farm size distributions have potentially diverse and complex impacts on rural livelihoods, and hence the need to explore how the rise of MSFs affects a range of outcomes. The study therefore sets to provide answers to the following major research questions:

1. What are the characteristics of these emerging MSFs?
2. What is the nature of the changing farm structure that produces them?
3. How do these medium scale farmers influence the behaviour and welfare of the millions of SSF households around them?
4. Are there productivity differences between SSF and MSFs?
5. On the policy front, should medium-scale investor farms be promoted as a policy tool to promote agricultural commercialisation and transformation?

This report presents the preliminary results of the first round of analysis of the quantitative data collected through the survey. The technique for analysis in this report is descriptive with extensive use of averages, percentage and tables to organise the preliminary set of findings from this exercise. It is important to mention that the bivariate analysis reported in this paper is a precursor to the more rigorous econometric analysis that will delve into addressing policy issues requiring more advanced methods to understand causal relationships. Examples are the impact of MSFs on the livelihoods and productivity of nearby small-scale farm households, the relationship between farm size, farm productivity and farm commercialisation, and policy options for improving outcomes for women, youth and other vulnerable groups in this era of rapid rural transformation in Nigeria.

Image captions:

Cover - Oxen drawn local plough in Kaduna

Page 2 - Farmers in Baale community in Imeko Afon LGA of Ogun State on their cashew/cassava intercrop plot

Page 3 - Harvesting of cassava in Kanlapi village in Chikun LGA, Kaduna

Page 4 - Cleaning of newly harvested ginger in Gumel community of Kachia LGA Kaduna State

Citation: Muyanga. M., Aromolaran. A., Jayne. T., Liverpool-Tasie. S., Awokuse. T., Adelaja. A. (2019). *Changing Farm Structure and Agricultural Commercialisation in Nigeria* APRA Brief 21, Future Agricultures Consortium.

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