



# APRA Policy Brief

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## Medium-scale farming as a policy tool for agricultural commercialisation and small-scale farms transformation in Nigeria

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### Key messages

1. Medium-scale farms (MSFs) of 5–50ha are growing in importance, accounting for 25.1 per cent of Nigeria's cultivated land in 2015.
2. There are two main, and equally important, entry pathways into MSF in Nigeria: (a) small-scale farmers (SSFs) 'stepping up' by being able to expand into MSFs, and (b) investor farmers, who were previously engaged primarily in non-farm jobs 'stepping into' MSFs directly.
3. Relatively few SSFs headed by women or young adults *step up* to MSFs due to their relatively lower levels of wealth, incomes and finance required to productively farm more than 5ha.
4. Measures of land and labour productivity are U-shaped with respect to farm size. Categorising farms into 5ha increments, we find that farms under 5ha and those over 30ha have the highest levels of land productivity, on average. However, land productivity differences across farm size categories are, on average, relatively modest, whereas the variations in productivity measures within farm size categories are much larger. Therefore, there is great scope to improve the average level of productivity and commercialisation across all farm size categories. Most of the available policy levers and public investments to promote on-farm technical innovation and productivity growth can benefit farms of all sizes and increase the potential for SSFs to expand and *step up* into MSFs and/or diversify and *step out* into remunerative off-farm businesses.
5. MSFs are the most rapidly growing segment of farms in Nigeria because of their generally superior access to finance, entrée, and entrepreneurial ability that allows them to more effectively exploit available policies incentives and public investments.
6. Because MSFs tend to purchase more farm inputs and services, sell more farm commodities, engage in value addition, and spend more on consumer goods, they tend to encourage greater growth and employment in the broader agri-food system and in the local non-farm economy – all of which benefit SSF households and contribute to economic transformation. Consequently, policy interventions that improve access to finance, land, hired labour, extension services, all-weather roads, agro-input services, and crop buyers can indirectly yet substantially improve agricultural commercialisation and its associated farm household livelihood outcomes, even for SSF households.
7. Consequently, supporting the growth of MSFs could provide an important pathway to increased agricultural commercialisation, leading to significant positive welfare outcomes for most SSFs. However, the growth of MSFs may also create challenges as well. For example, a rapid rise of investor farms could lead to escalating land prices, which could contribute to a sell-off of land by poor rural households and restrict the potential for area expansion in densely populated areas.

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## Introduction

Recent evidence suggests that the changing structure of land ownership in sub-Saharan Africa (SSA) is one of the major new trends affecting African agri-food systems. Research in several African countries shows a rapid rise of medium-scale farms (MSFs) of 5–50ha, also known as ‘emergent’ or ‘investor farmers’ (Jayne et al., 2014; Jayne et al., 2019). MSFs have become an important force for increasing agricultural production, particularly in countries with significant unutilised arable land and potential for area expansion, such as Ghana, Nigeria, Tanzania and Zambia.

Most African countries’ national agricultural investment plans and policy strategies officially regard the smallholder farming sector as the main vehicle for achieving agricultural growth, food security, and poverty reduction objectives. However, many governments have adopted land and financial policies that implicitly encourage the rise of emergent MSFs. Given the documented rise in MSFs in many African countries (Jayne et al., 2014; Jayne et al., 2016), the APRA Nigeria Work Stream 1 (WS1) team developed a research agenda focused on understanding the potentially complex ways in which these farms affect the productivity and commercialisation potential of small-scale farms (SSFs). We investigated the characteristics of MSFs, the processes that produces them, their relative importance in the agricultural commercialisation process, the relationship between farm scale and productivity, and whether MSFs influence the behaviour and welfare of the millions of SSF households around them. Our findings are based on two years of survey data on MSFs and nearby SSFs in 2019 and 2021 in Ogun and Kaduna states.



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This policy brief summarises our main findings, drawing upon several APRA-supported reports (Jayne et al., 2019; Muyanga et al., 2019; Adelaja et al., 2020a; Adelaja et al., 2020b; Aromolaran et al., 2020a; Aromolaran et al., 2020b; Liverpool-Tasie et al., 2020; Jayne et al., 2021; Omotilewa et al., 2021). Four findings are highlighted:

1. Roughly half of the randomly selected MSFs started out as SSFs who were able to expand and *step up* to a medium-scale operation; a roughly equal number of MSFs were primarily engaged in off-farm employment before investing in land and starting a MSF.
2. There are important differences in farm productivity for these two groups of MSFs.
3. The relationship between farm size and productivity in these two states of Nigeria is U-shaped, with the highest productivity measures recorded for farms under 3ha and those over 25ha, especially among those who *stepped up* from SSFs.
4. MSF investment appear to inject important sources of capital and expertise into underperforming farming systems which increase the productivity of SSFs and the employment of nearby households.

We summarise the evidence behind these key findings after first describing the data and methods on which they are based.

## Data sources

Most available nationally-representative farm households survey datasets contain too few MSFs to form accurate conclusions about them. This is because these surveys use population-based sampling and tend not to have sample sizes that are large enough to contain meaningful numbers of MSFs and SSFs. Comparisons of nationally representative household surveys such as the ‘Livings Standards Monitoring Surveys’, with much larger farm censuses, invariably show that MSFs are more numerous and account for a considerably larger share of national farmland in the censuses (Jayne et al., 2019).

Addressing data limitations required a new kind of sampling method. In the first stage, Kaduna and Ogun states were purposely selected based on the impressive strides they have made in providing the necessary policy environment for the development of commercial agriculture. In the second stage, all local government areas (LGAs) in each state were clustered into three senatorial districts. Then, one LGA was selected randomly from each senatorial district. This resulted in the selection of Kachia, Chikun and Soba LGAs from Kaduna South, Kaduna Central, Kaduna North senatorial district, respectively, in Kaduna State. In Ogun State, it was Ijebu East, Imeko Afon and Obafemi Owode LGAs from Ogun East, Ogun West, and Ogun Central senatorial districts, respectively. In the third stage, three wards in each LGA in Kaduna State and four wards from each LGA in Ogun State were selected using a combination of cluster and random sampling. This was followed by a complete listing of all SSF and MSF households in selected LGAs. Proportionate random sampling was then used to select a total of 1,008 MSFs and 1,099 SSFs from the sampled LGAs. For more details on the sampling and data collection, see Muyanga et al. (2019).



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## Key findings

**There are two equally important mode of entry into medium-scale crop farming:** Among the MSFs randomly selected in our survey, about 47 per cent of them *stepped up* or grew from SSFs (Muyanga et al., 2019). The rest (53 per cent) were investor farmers who entered MSF directly or *stepped in* using incomes generated outside farming. Study results, however, further show that only a small percentage of the population of SSFs transitioned into MSFs in the past three decades. As shown in Table 1, the percentage of all SSFs in our sample that *stepped up* to MSF in the past 3 decades is only 5.8 per cent, leaving about 94 per cent of SSFs continuing to cultivate less than 5ha. About 82 per cent of farm households that transitioned from SSFs to MSFs reported that land accessibility was the most important factor that enabled their transition. Land purchases were an important source of land among MSFs, especially those who started as SSFs and graduated to MSFs (Muyanga et al., 2019). This indicates that land markets play an important role in the establishment of MSFs. We also detect a *stepping down* process as well. Of the total number of MSFs surveyed in 2019, we found that

28.2 per cent of them had downsized to operate less than 5ha of land in 2021.

**The impact of conflict:** Adelaja et al. (2020a) found that armed conflicts occurring within a 20km radii of the farm significantly held back the ability of SSFs to transition to MSFs, while more distant conflicts did not. This is attributed to the impacts of human casualties, injuries and disabilities on labour supply, to land idling due to forced displacement, to the fall in land rental prices, to the switch to cropping patterns centred on risk management rather than high productivity agriculture, and to unfavourable conditions faced by farmers when they return home after being displaced by a conflict. The incidence of climate-related shocks, especially droughts, were also found to hinder expansion possibilities for SSFs. Furthermore, Adelaja et al. (2020b) identified important resilience-building factors in conflict zones, which would mitigate the negative impacts on farmers' abilities to transition to larger scales. Assets, educational attainment, and off-farm income diversification are some of the factors that were identified as being fundamental to cushioning the negative impacts of conflict and climate shocks. Thus, off-farm income diversification or *stepping out* can also aid SSFs to *step up* into MSFs.

**Table 1: Modes of entry into MSF in Nigeria**

Current farm scale	Farm scale when household started farming				
		Small scale		Medium scale	
		N	%	N	%
	Small scale	66,793	97.40%	1,800	2.60%
	%	94.2%		28.2%	
	Medium scale	4,117	47.30%	4,586	52.70%
	%	5.8%		71.8%	

Source: Muyanga et al. (2019)

**There is evidence of a positive relationship between productivity and farm size among MSFs:**

Using four measures of land productivity (gross value of crop output per hectare cultivated, gross value of total farm output per hectare operated, the net value of crop output per hectare cultivated, and net value of total farm output per hectare operated), empirical estimates by Omotilewa et al. (2021) reveal a U-shaped relationship between farm size and productivity, where the inverse relationship widely documented in the literature holds only for SSFs with farm sizes of 0–5ha, MSFs who stepped up and have 5–11ha, and MSFs who stepped in and have 5–22ha, turning positive afterwards (Figure 1). The study also finds that for farm sizes ranging between 5–25ha, MSFs with prior farming experience as MSFs were more productive than their counterparts who stepped in to MSF with little or no prior farming activities. There is also some evidence that investor farmers who stepped directly into MSFs without prior SSF experience show relatively high level of productivity at farm sizes above 35ha, while MSFs with prior SSF experience rarely operate farm sizes above 25ha.

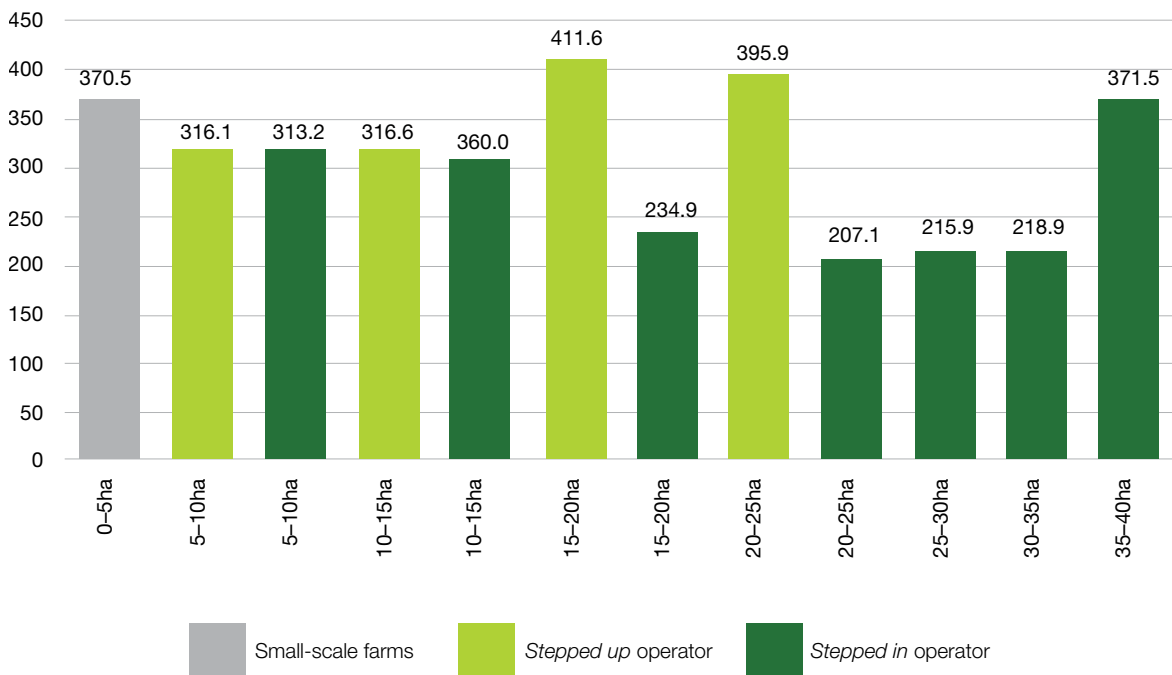
**Beneficial interactions exist between MSFs and SSFs:** Beneficial interactions exist between MSFs and SSFs that could potentially improve commercialisation and livelihood outcomes of SSF households in Nigeria. Liverpool-Tasie et al. (2020) found evidence of knowledge and cost spillover effects of MSFs on SSFs input use behaviour, output off-take, and productivity. Specifically, the activities of MSFs help improve SSF household productivity and welfare through improved management practices and opportunities to sell their output at more competitive prices. Due to the substantial marketed surpluses grown by MSFs, areas possessing a high concentration of them attract new private investment in crop buyers, which improves market access conditions for SSFs. These interactions reduce SSFs’ probability of being poor, as well as the extent and severity of poverty they experience. Muyanga et al. (2019) show that MSFs interact with SSFs in the following ways,



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in order of importance: provision of extension guide/services, sales of farm inputs to smallholders, joint purchase of farms inputs, and rentals of tractor and farm machinery services. Extension services provided by MSFs to SSFs were mainly in the areas of use of improved seeds, better planting techniques, use of tractor for land preparation, and better timing of farming activities. This finding

**Figure 1: Mean distribution of gross farm output/ha ('000) by farm size and emergence pathway (stepped up or stepped in) into MSFs**



Source: Omotilewa et al., 2021

is evidence that MSFs can have a positive influence on inclusive agricultural commercialisation in Nigeria.

**Market orientation is enhanced by access to markets, extension services, and physical infrastructure, which all increase agricultural commercialisation:**

Market orientation is defined as the proportion of land that a farm household allocates to crops primarily produced for the market. Aromolaran et al. (2020b) finds that access to land markets, hired labour, agro-input markets, extension services, established product markets, and physical infrastructure, such as all-weather roads are major drivers of market orientation. These effects were found to be stronger among MSFs compared with SSFs.

**MSFs are more likely to allocate farmland to commercial tree crops:**

Commercial tree crops are important for farm household welfare because they smoothen household incomes and are less risky to produce compared with arable crops. Expanding land area under commercial tree crop production is also an important pathway to enhancing agricultural commercialisation. Aromolaran et al. (2020a) finds that tree crop cultivation is more popular with MSFs relative to SSFs. Further, women and youth (less than 36 years old) are less likely to allocate a larger proportion of their farmland to long gestation commercial tree crops relative to short gestation arable food crops. For youths, the long-term nature of the investment required is a major reason, while for women, it is more a problem of low land ownership rights. Thus, efforts to make agricultural commercialisation more inclusive should include the following: strategies for breaking cultural barriers to women's ownership of land, and policies that would increase the access of youth to larger expanses of cultivable land and longer-term investment loan facilities.

## Conclusion and policy suggestions

Our findings have two major implications. First, while SSFs constitute the vast majority of farms in Nigeria, account for the majority of Nigeria's rural poor, and must be the target of poverty reduction programmes, the role of MSFs in promoting these outcomes has been under-appreciated. The exclusive focus of agricultural development strategies on SSFs neglects the complex ways in which the growth of MSFs may contribute to poverty reduction of SSF households and rural transformation more generally. Our results suggest that a dual-pronged strategy that maximises the spillover benefits from interactions between SSFs and MSFs, for all farmers, may improve agricultural productivity and commercialisation in Nigeria and perhaps SSA more widely.

Second, policies facilitating small-scale farmers' ability to expand the scale of their operations beyond SSFs could contribute substantially to growth in farm productivity, agricultural commercialisation, rural employment, and increased food security. Because rural population growth may be challenging for agricultural land consolidation, the growth of MSFs would need to be accompanied by effective strategies for creating off-farm jobs to absorb a greater share of the labour force into the non-farm economy, which in fact has been occurring in Nigeria for several decades. Certain policy actions could enhance agricultural commercialisation and livelihood outcomes among SSF households in Nigeria. These include the following:

1. Changes to land tenure rights, which increase access to land and enhance security, can increase *stepping up* and *stepping in*. For example, a land leasing policy, which is not yet common in Nigeria, could ease the land constraint on *stepping in* and *stepping up* to MSF.

2. Development of digital technologies for accessing agro-inputs, mechanisation, and value chain financing services, could help to motivate more investors to *step in* to MSF especially at farm sizes above 35ha, where evidence suggests relatively higher levels of productivity is possible for MSFs who *stepped in*.
3. Develop policies to avoid, prevent and mitigate shocks and stressors that can throw farmers off-track should be explored at state and local levels as part of an overall strategy to support agricultural transformation. For example, policies may be needed to improve the protection of farms from conflict, violence, terrorism and other shocks and stresses, especially in areas with a high concentration of productive farms, and those which are important to food and agricultural supply chains. This may include local surveillance and early warning systems.
4. Encourage farmers' cooperatives and cooperation among SSFs in a way that increases access to markets and improves post-harvest management practices, could enhance the ability of SSFs to *step up*.
5. Supporting SSF households to diversify off-farm (*stepping out*) could help them *step up* by providing additional resources needed to expand their scale of operation.
6. Policies that support the development and use of interactions that link SSFs and MSFs through training in best management practices, supply of quality inputs, provision of mechanisation services, enhanced extension service delivery and increased output off-take. MSFs could be supported to serve as demonstration hubs for SSFs in their areas, to provide training and demonstrations on technology and innovation needed for small farms to increase farm productivity, marketable surplus, and sales income, as evidenced by this study.
7. Promoting the use of simple labour-saving and productivity enhancing farm machinery and digital technology could encourage more youths to *step up* into farming. This could build on prototypes already designed by the National Centre for Agricultural Mechanization in Ilorin, Kwara State.



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