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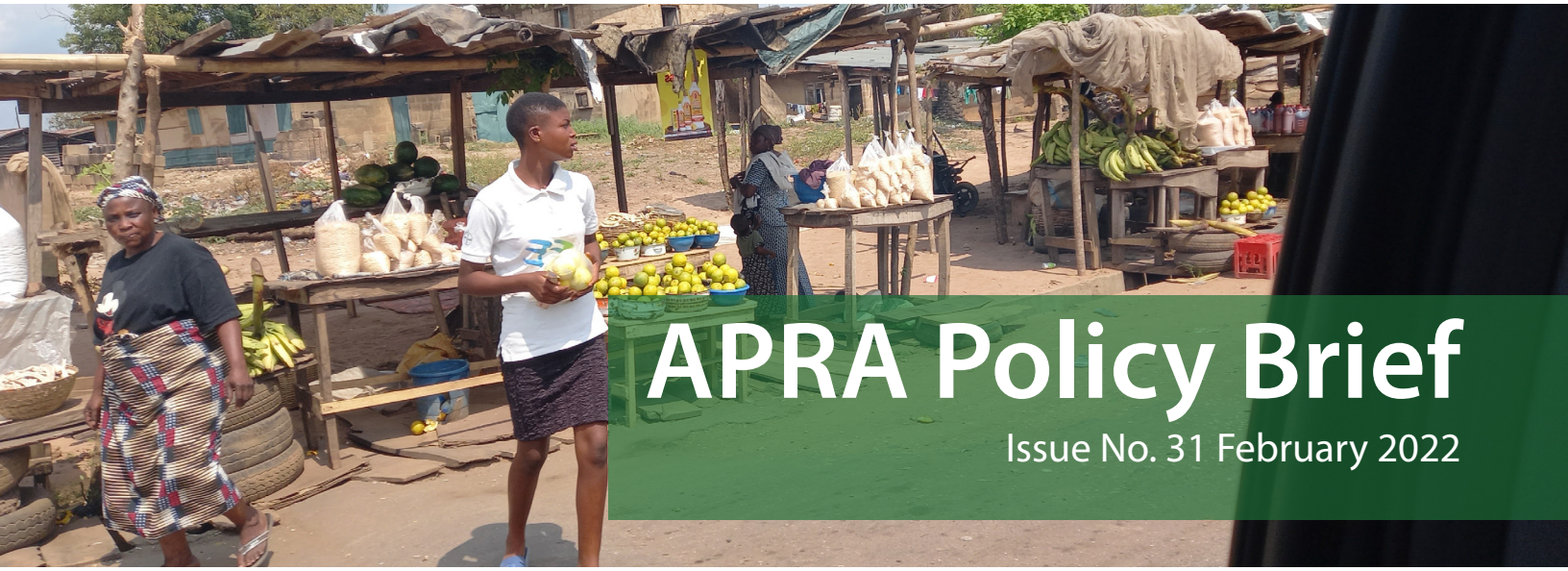

APRA Policy Brief

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Spillover effects of medium-scale farms on smallholder behaviour and welfare: Evidence from Nigeria

Key messages

- Many small-scale farmers (SSFs) in Nigeria interact with the medium-scale farmers (MSFs) around them. About 30 per cent of SSFs either received training from, sold output to, or purchased inputs from a local MSF.
- Receiving training and purchasing inputs from a MSF is associated with higher yields and improved welfare, via increased incomes and lower poverty incidence and severity.
- MSF tend to provide a suite of complementary services to SSFs. Over 40 per cent of SSFs who interacted with an MSF had at least two interactions with an MSF.
- Government and donor programmes for input delivery, training and output market provision could incorporate MSFs local to targeted SSFs.

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Introduction

Many countries across Africa are seeing an increasing share of farmland being classified as medium-scale farms (MSFs). MSFs are defined as farms operating between 5–100ha (Jayne et al., 2016). MSFs co-exist with small-scale farms (SSFs, defined as farms below 5ha), who still constitute the majority of households in rural areas of Africa. While there is growing literature documenting the drivers of the rise of MSFs (Anseeuw et al., 2016; Jayne et al., 2016) and their characteristics (Jayne et al., 2019; Muyanga et al., 2019; Muyanga and Jayne, 2019) empirical evidence on how this rise in MSFs impacts neighbouring SSFs is still thin.

Compared to large-scale farms (LSFs, over 100ha that are often externally owned and manager-operated farms), MSFs (more likely to be owner managed) tend to be more socio-culturally similar to SSFs in the communities where they are located (Houssou, Chapoto and Asante-Addo, 2016; Wineman et al., 2020). Due to their relatively smaller size compared to LSFs, they are also more likely (than LSFs) to be interested in coordinating input purchase or output sales with SSFs. Despite increasing recognition of these potentially stronger spillover effects of MSFs, the majority of the existing empirical literature has focused on spillover effects of LSFs (Herrmann, 2017; Lay, Nolte and Sipangule, 2018; Ali, Deininger and Harris, 2019; Burke, Jayne and Sitko, 2019; Glover and Jones, 2019; Xia and Deininger, 2019).

Very few studies such as Burke, Jayne and Sitko (2019) and Wineman et al. (2020) examine the spillover effects of MSFs between 5ha and 50ha. In these studies (as in most of the literature on large farms), identification of spillover effects relies on changes in SSF behaviour due to

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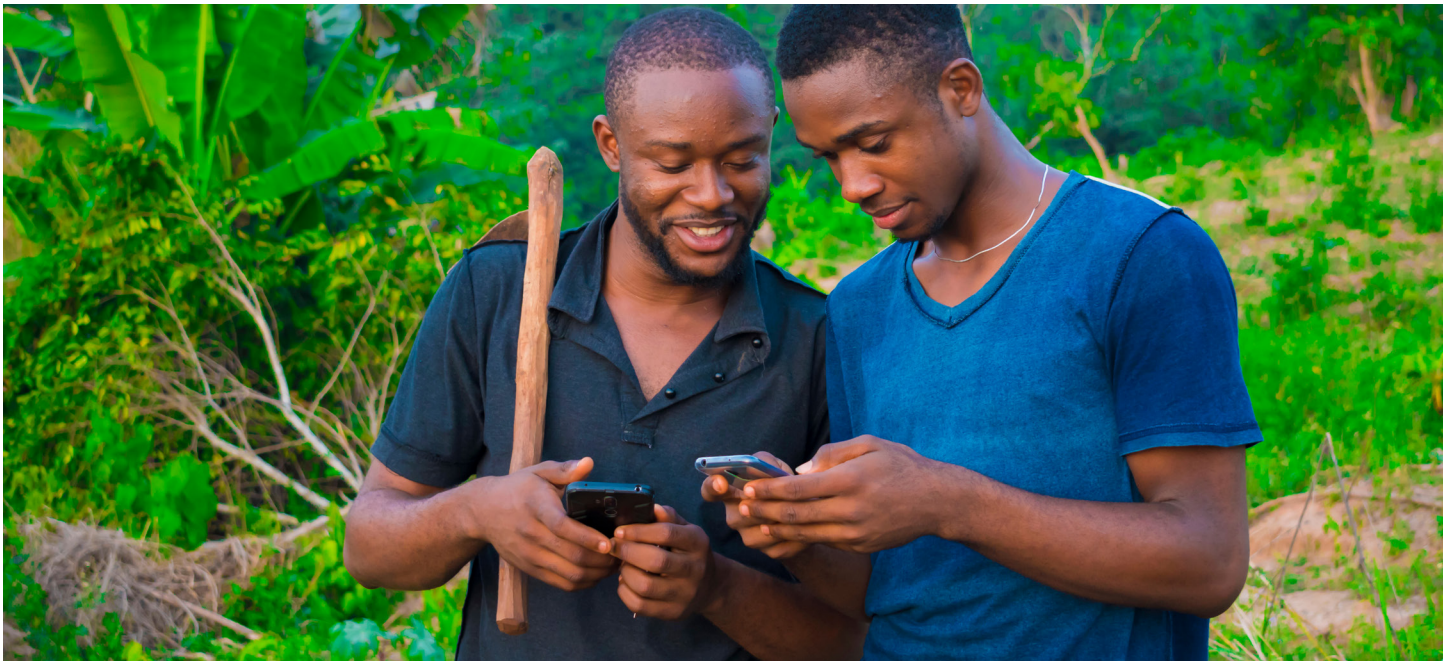

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their proximity to larger farms, conditional on adequate controls for location decisions of MSFs and LSFs. While the current studies are able to speculate on reasons for identified relationships between SSFs behaviour and the presence of MSFs, they are unable to identify the actual mechanisms that generate these spillover effects. The research is also unable to determine if certain potential mechanisms (e.g., improved access to input or output markets versus sales coordination or knowledge transfers) are more important for particular SSF outcomes, such as input use or productivity. Finally, no studies the authors are aware of have explored the actual welfare effects of the rise in MSFs on neighbouring SSFs.

This study addresses these observed gaps in the literature. We developed a theoretical model to explain some mechanisms through which spillovers on SSFs can be generated from the existence of MSFs around them. We empirically tested for evidence of these spillovers with data from Nigeria, Africa's largest economy and most populous nation. By exploring the spillover effects of MSFs on a broader set of SSF outcomes, including input use, productivity, commercialisation and welfare (captured via several measures of household income and poverty status), this paper provides a more comprehensive view of spillover effects.

Data and empirical analysis

This study used data from the Agricultural Policy Research in Africa (APRA) 2018 survey for Nigeria. This dataset includes farms from two Nigerian states, Kaduna in the north-west and Ogun in the south-west. These states were purposively selected because of the significant steps they have taken in providing the necessary policy environment for the development of commercial agriculture. The dataset is a cross-section and contains detailed information on household socioeconomic characteristics including demographics, land holdings, assets, and agricultural production and sales over the previous main agricultural season.

Interactions between SSFs and MSFs occur for a reason. MSFs may locate in communities with better market access and agro-ecological conditions, which are also likely to affect SSF behaviour (e.g. incentives for technology adoption) and outcomes (productivity and welfare). In addition, more progressive SSFs may self-select into having beneficial relationships with MSFs, which potentially confounds identification of the effect of SSF interaction with MSFs on SSF behaviour and outcomes. Thus, this study controls for a rich set of location, farmer and plot characteristics to identify the correlates of SSF interactions with MSF.[2]

Key findings

First, we found that many SSFs interacted with the MSFs around them. About 30% of all SSFs stated that they had received training from, sold outputs to, or purchased inputs from an MSF (Table 1). While the percentage of SSFs receiving training from or selling output to an MSF was similar for farmers growing cereal crops compared to those growing root and tubers (between 24% and

Table 1: SSF interactions with medium-scale farms

SSF:	All crops	Cereals	Roots and tubers
Purchased inputs from an MSF	27%	30%	18%
Received training on farm activities from an MSF	28%	25%	30%
Sold farm output to an MSF	28%	30%	24%

Source: Authors' own

2 For full details about the empirical analysis, see Liverpool-Tasie et al. (2020).

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30%), the share of SSFs purchasing inputs from MSFs was higher among cereal farmers (30%) compared to those growing roots and tubers (18%).

Second, receiving training and purchasing inputs from a MSF is associated with higher yields and improved welfare (via increased incomes and lower poverty incidence and severity). Our results reveal that the benefits of receiving training and purchasing inputs from MSFs are particularly important for SSFs operating less than 1ha of land, who experienced positive outcomes (higher yields, commercialisation levels and incomes, as well as lower poverty gaps, poverty severity, and probabilities of being in extreme poverty [earning less than US$1.90 a day]).

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Third, we found that MSFs tended to provide a suite of complementary services to SSFs. That is, many SSFs had multiple interactions with MSFs. Over 40 per cent of SSFs who interacted with an MSF had at least two interactions (i.e., either receiving training and purchasing inputs from an MSF, receiving training from and selling outputs to an MSF, or purchasing inputs from and selling outputs to an MSF). This is consistent with Liverpool-Tasie et al. (2020) who found that market outlets (e.g., agro-processors and wholesale traders) in the midstream of food value chains in developing countries are increasingly offering SSFs complementary services such as training and other inputs to ensure that they can get the quantity and quality of products to meet their needs. We found that the provision of these multiple complementary services and opportunities by MSFs is positively associated with SSF productivity and welfare.

Conclusions and policy implications

The findings have important implications for policymakers in Nigeria (and across Africa more broadly) as they strive to improve SSF welfare, while creating an environment for expanded food production to meet the demands of rapidly growing populations and changing dietary patterns. Our evidence highlights the importance of supporting policies that encourage the beneficial co-existence of MSFs and SSFs. MSFs in our study sample are already promoting SSF productivity and welfare, via improved management practices and the opportunity to sell their outputs for more competitive prices. This study also demonstrates that MSFs often provide SSFs around them with multiple complementary services (such as market access, alongside training and access to inputs) which are important for positive productivity and welfare effects. Thus, the role that MSFs can play in the provision of these multiple complementary services should be encouraged. For example, government programmes for input delivery, training and output marketing could incorporate, or work with, MSFs local to target smallholder farmers.

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