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Does rice commercialisation enhance or impair household food security among rice producing households in Mngeta Division, Kilombero District, Tanzania?

Ntengua Mdoe¹, Gilead Mlay, Aida Isinika, Gideon Boniface, Christopher Magomba, John Jeckonia and Devotha Moshia

Key messages

- The rice value chain in Kilombero is increasingly becoming commercial. Very few rice farmers are currently operating at a low level of rice commercialisation while the majority are operating at a medium commercialisation level.
- The proportion of households that are food secure increases with the level of rice commercialisation. Farmers in the high rice commercialisation level record a large proportion of households with a high household food security status.
- The proportion of households that meet the minimum dietary diversity for women increases with the level of commercialisation, with the highest proportion being recorded by farmers in the medium rice commercialisation level. Farmers in the high rice commercialisation level record a low proportion of households that meet the minimum dietary diversity for women.

Introduction

Rice is the second most important food grain crop after maize, and is largely produced by small-scale farmers (SSFs) across Tanzania. About 30% of the rice produced in the country is consumed by rice-producing households, and the remainder is sold in local and regional markets. Consumption of rice is highest in larger urban areas (Wilson and Lewis 2015). Because of its importance, the government has identified rice as a priority crop and has been implementing the National Rice Development Strategy (NRDS) since 2009 to commercialise rice farming (United Republic of Tanzania 2019). The implementation of the NRDS is expected to ensure food security and improve incomes of rice producers and other actors in the value chain.

Agricultural commercialisation is widely pursued by development projects to improve farm income, food security and the general welfare of farmers. However, some empirical evidence shows that it may lead to negative impacts at household and community levels, such as a failure to improve household nutrition and livelihoods of the poor, and reduce food security (Mutabazi *et al.* 2016, Isinika *et al.* 2020). This policy brief examines the impact of rice commercialisation on the food security status of rice producing households in Mngeta Division of Kilombero District, Tanzania.

Data and analyses

Data for this analysis were extracted from Agricultural Policy Research for Africa's (APRA) first round data set of a two-round panel survey, which was collected from 537 rice producing households selected randomly from 10 villages in Mngeta Division in Kilombero District; Kilombero District, located in central-southern Tanzania, is one

¹ Sokoine University of Agriculture and APRA Tanzania team adviser

Email: nsymdoe@yahoo.com

of the major rice producing districts in Tanzania. Table 1 shows the distribution of the sample households by farmer category.

Table 1: Distribution of sample households by farmer category

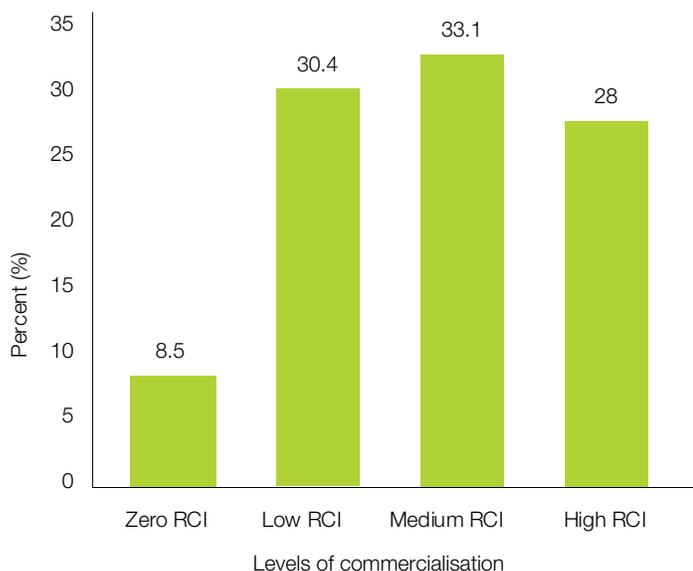
Farmer category	Number	Percent
Farm size:		
Small-scale farmer (SSF)	463	86.2
Medium-scale farmer (MSF)	74	13.8
Sex of household head:		
Female-headed household	66	12.3
Male-headed household	471	87.7

The extent of rice commercialisation was measured using a rice commercialisation index (RCI), calculated as the percentage of rice that was marketed out of what was produced in the 2016/17 farming season. The sample households which sold rice in the 2016/17 farming season were divided into commercialisation terciles (three equal parts, each containing a third of the total number of farmers who sold rice) according to their level of commercialisation.

Two indicators of household food security were used:

1. Household food security status (HFSS) measured using nine food insecurity situations including: worries about not having enough to eat; being unable to eat healthy and nutritious food; eating only a few kinds of foods; skipping a meal; and running out of food because of a lack of money. Households facing five or more food insecurity situations were classified as food insecure households and those facing less than five situations were classified as food secure households.
2. Minimum dietary diversity for women (MDD-W) measured using 20 food groups considered to provide nutrients that women require, including: cereals; roots, tubers and plantains; pulses; nuts and seeds; milk and milk products;

Figure 1: Proportion (%) of sample households by rice commercialisation level



meat and poultry; fish and seafood; eggs; and vegetables and fruits. Households with women eating at least five food groups were classified as meeting the MDD-W and those eating less than five groups were classified as not meeting the MDD-W.

Key findings

Rice commercialisation

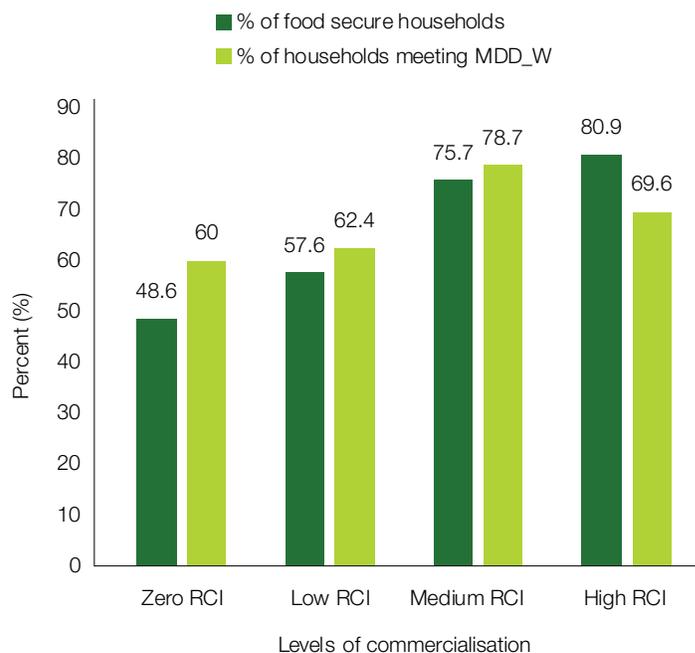
Figure 1 shows the distribution of the sample households by their level of rice commercialisation. About 33% of farmers were in the middle rice commercialisation tercile. Only 8.5% of the sample farmers did not sell rice at all in the 2016/17 farming season.

Differences were found in the level of commercialisation between different categories of farmers. The mean RCI for SSFs of 55.5% was significantly lower than the mean RCI of 63.5% for MSFs ($p < 0.01$). The mean RCI of 53.1% for female farmers was significantly lower than the mean RCI of 60% for male farmers ($p < 0.1$). For the whole sample, the mean RCI was 59.2%.

Household food security

Household food security was measured using HFSS and MDD-W. Figure 2 shows the distribution of food secure households and households meeting the MDD-W by rice commercialisation level. The data shows that the proportion of food secure households increases as the level of rice commercialisation increases, while the proportion of households meeting MDD-W increases as the level of rice commercialisation increases, but only up to the medium commercialisation level, and then it declines.

Figure 2: Proportion (%) of food secure households and households meeting MDD-W by RCI



The proportion of food secure households, and households meeting MDD-W, were found to differ between farmer categories (Figure 3). The data reveals that MSFs are more food secure than SSFs, while households headed by men are more food secure than those headed by women. The proportion of MSF households meeting MDD-W is also higher than that of SSF households, while

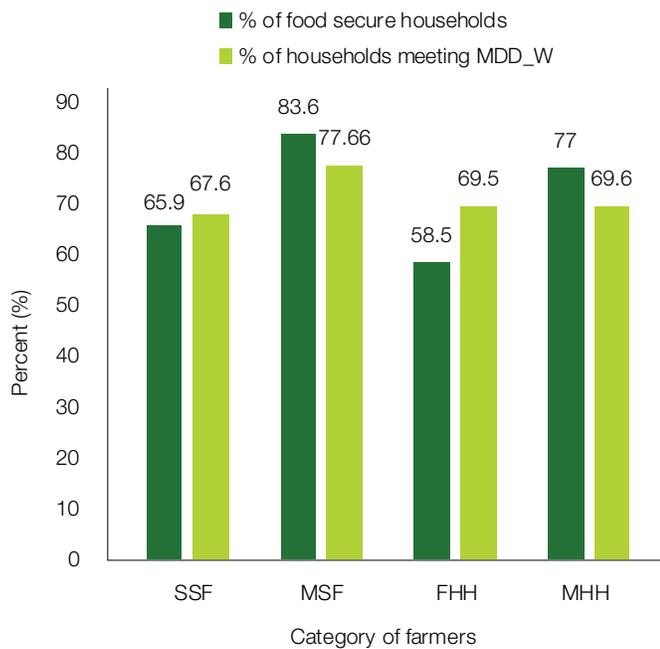


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Field officer giving advice to a farmer

there is almost no difference between households headed by men or women.

Figure 3: Proportion (%) of food secure households and households meeting MDD-W by farmer category



Conclusion

The data shows that there were fewer rice farmers operating at a low level of rice commercialisation compared to those operating at a medium commercialisation level, and that household food security improves as the rice commercialisation level increases. Most of the households operating at a low level of rice commercialisation, and who were also food insecure, were SSFs and households headed by women.



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Farmers taking break from ploughing

Although farmers operating at the highest levels of commercialisation have attained a high food security status, they also had the highest proportion of households that could not meet the minimum dietary diversity for women, suggesting that 'preferred' food groups were probably purchased without considering the nutrient balance women in the household required. In general, the findings suggest that rice commercialisation enhances food security rather than impairs it, but there are other impediments to increasing rice commercialisation and improving food security that need to be addressed.

What needs to be done?

The findings provide evidence that Tanzania's efforts to promote rice commercialisation are in line with the country's commitment to address the food and nutrition security issues as reflected in the Long Term Perspective Plan (2011/12–2025/26) and the Tanzania Agriculture Food Security Investment Plan (2011/12 to 2020/21). However, the following interventions are needed:

- Interventions or strategies geared towards improving rice commercialisation levels, especially for disadvantaged groups, such as female-headed households and resource-poor SSFs. The interventions should include improving access to agricultural productivity-enhancing inputs, such as quality seeds, fertilisers and pesticides, as well as improving access to rice markets. This should be implemented by local government authorities in

collaboration with development partners and farmer groups.

- Nutrition education by local government community development workers is needed to create awareness among farmers of the importance of dietary diversity, especially for women. This will address the decline in minimum dietary diversity among farmers at the high rice commercialisation level.

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