Research article

Contracting and Negotiation Attributes: A Case of Sunflower Seed Crop in Central Tanzania

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Abstract In the most developing countries like Tanzania, poor farmers have limited access to agricultural inputs. One of the proposed solutions is to link farmers with the private sector through contract farming. In Tanzania, sunflower oil has been preferred as edible cooking oil for many households since it has a low cholesterol level for human consumption. Moreover, sunflower-contract farming was adopted as part of the new agricultural policy in 2009-2010 cropping season, majoring in providing triangular benefits to the stakeholders, including sunflower-farmers, private companies, and the Government of Tanzania. Despite the government of Tanzania's efforts to link the sunflower farmers with the private sector, contract farming has been facing some challenges in coordination such as pricing, production services and credit services. The purpose of this study is to investigate the impact of the contract farming program among sunflower farmers. Specifically, the study aims to: (i) determine the socio-economic characteristics of the sample farmers; (ii) identify private firms providing contract farming to the sunflower farmers; and (iii) evaluate the relationship of the negotiation attributes in income growth among sunflower farmers. The field survey was conducted in March 2020, targeting 40 contracted farmers and 40 non-contracted farmers in the two regions of Central Tanzania. In relationship of the negotiation attributes the paper points out the credit access and production services were significant with farmers' income. Besides, the results show that there was no statistically significant relationship between advance pricing and income growth among sunflower farmers. This was because in contract terms price is not set in advance.

Keywords contract farming, sunflower seed crop, Central Tanzania.

INTRODUCTION

Contract financing has been a promising linkage strategy between smallholders and agribusiness firms with vested interests in sharing the risks associated with producing of a specific crop. Consequently, the World Bank also recognizes contract financing as an avenue to create strategic partnerships between private capitals and smallholders leading to the transfer of modern agricultural technology, quality inputs, entrepreneurial development of smallholders and market growth (World Bank, 2008).

Contract farming is not a new phenomenon in Tanzania. It dates back during the colonial era, where contract farming arrangements were practiced in some of the major cash crops plantations of sugarcane and tea. Contract arrangements in the Tanzania farming industry fall under the four models as explained by Eaton and Shepherd (2001); centralized, multipartite, intermediary and the informal models. For sunflower sector, contract farming among sunflower farmers in Tanzania has been developed widely since 2010 in solving the problems faced by farm households such as poor access of modern seeds, in-adequate use of farming techniques and provides a secure purchaser for their production (SDC, 2018). Likewise, from the countryside the main motivation of introducing

sunflower contract farming was to reduce the shortage and burden of edible cooking oil importation from foreign countries (URT, 2009).

Due to its low cholesterol level, sunflower oil is highly preferred as an edible and safe cooking oil for many households in the country. The crop accounts for 40% of the total national cooking oil requirements (URT, 2014). For the countryside, contract farming policy attempted to reduce the burden of importing edible cooking oil from foreign countries by offering opportunities of high yield varieties together with aim of the income generation to farmers.

Despite the government's new agricultural policy, sunflower contract farming has faced some challenges in coordination such as pricing which leads to side-selling, production services such as delay of paying farmers-produce and credit services which is not provided as agreed in advance. Additionally, in contract terms, major negotiation attributes between the companies and contract farmers include pricing, credit access and production services such transport and inputs access.

OBJECTIVE

The study aims to investigate the impact of contract farming program among sunflower farmers. Specifically, the study aims to (i) determine the socio-economic characteristics of the sample farmers; (ii) identify private firms providing contract farming among the sunflower farmers; and (iii) evaluate the relationship of the negotiation attributes in income growth among contract sunflower farmers.

The following research hypotheses were formulated and tested: H01: Capital has no significant influence on income growth among sunflower farmers in Tanzania; H02: Advance pricing has no significant influence on income growth among sunflower farmers in Tanzania; and H03: Contractor credit services have no significant influence on income growth among sunflower farmers in Tanzania.

METHODOLOGY

The field study was conducted in Dodoma and Singida regions located in Central Tanzania in March 2020 (Fig. 1). These regions were selected because contract farming has been extended to sunflower farmers since 2020. Based on the observation, it was found that there were two types of sunflower seed producers: i) sunflower farmers with contract farming and ii) sunflower farmers without - contract farming. Data collected comprised mainly data from the 2018/2019 cropping season, therefore farmers had to recall on some aspects such as costs of production, yield of different crops and inputs use.

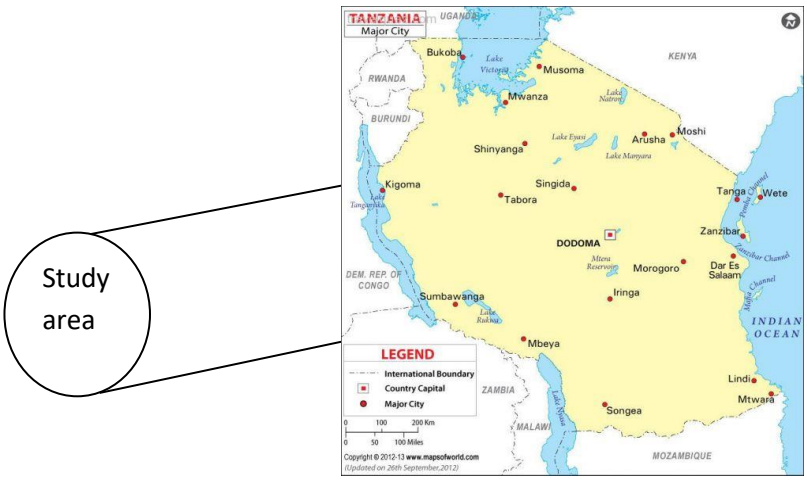

Fig. 1 Study area

Source: Available at https://www.google.com/united-republic-of-Tanzania-map-vector

Considering this observation, a total of 80 farmers from two types of category farmers were selected from two regions: Dodoma and Singida regions. Among them, 40 farmers were selected from each category of farmers. A two-stage sample design was used to collect the data. First, two villages were purposefully selected because of the presence of sunflower contract farming. Then, the contract farmers were randomly selected from the list of contracted farmers, and non-contract farmers were randomly selected from the village households list (after removing the contract farmers). The study adopted a semi-structured questionnaire as an instrument for data collection. Both qualitative and quantitative methods of data collection were collected. Major information collected includes socio-economic characteristics of the farmer-respondents such as age, farm size (ha), average cultivated area (ha), education of head of households, objectives of the contract farming among sunflower farmers, production characteristics such as cost and sales of produce and current problems and farmers suggestions on sunflower production.

This study employed data analysis techniques, and descriptive statistics, correlation analysis between variables was used to measure how well the variables are related. Descriptive statistics such as frequencies means, and cross-tabulation of some critical values were used to compare basic characteristics of farmers who participated in contract farming and farmers who did not participate.

RESULTS AND DISCUSSION

1) Socio-Economic Characteristics of the Sample Farmers

The the field study showed that the average age for both contract farmers and non-contract farmers was 48 years (Fig. 2). In terms of gender distribution, the sunflower is a men's crop where men constitute (95%) of the contract farmers and (74%) of the non-contract farmers respectively (Fig. 3). The very low proportion of women contract farmers may indicate contractual arrangements and tools that still discriminate against women participation and access. In most Nyanturu societies in Singida region and Rangi societies in Dodoma region, women still require the approval of men when borrowing money, which tends to limit women's participation and access to contract farming.

Considering the education background, the study shows that (82%) of the contract farmers had attained at least secondary education compared to (67%) of the non-contract farmers (Fig. 4). This clearly shows that most of the contract farmers had attained a good level of education to enable them to have a better understanding of how contractual arrangements work.

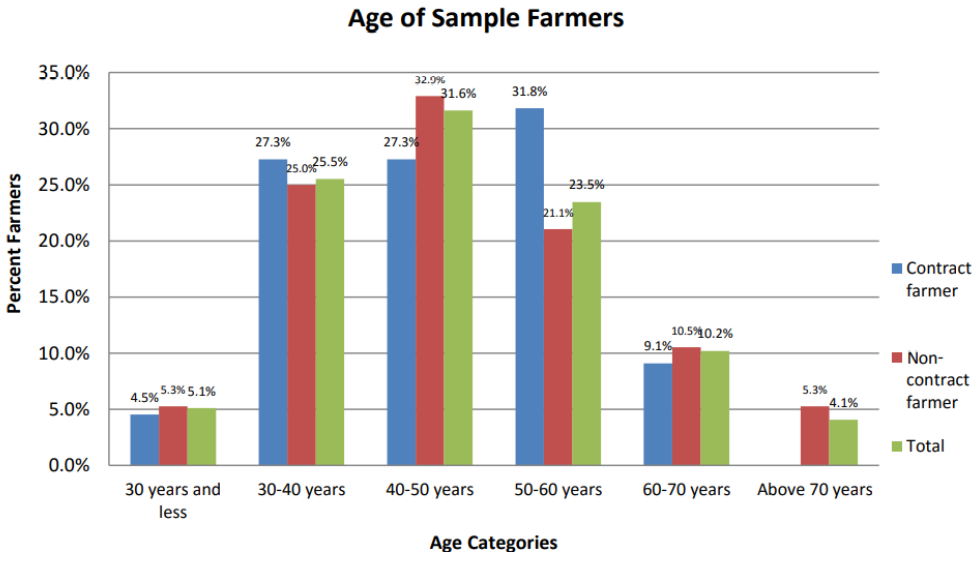

Fig. 2 Age distribution of sampled farmers

Source: Field survey, 2020

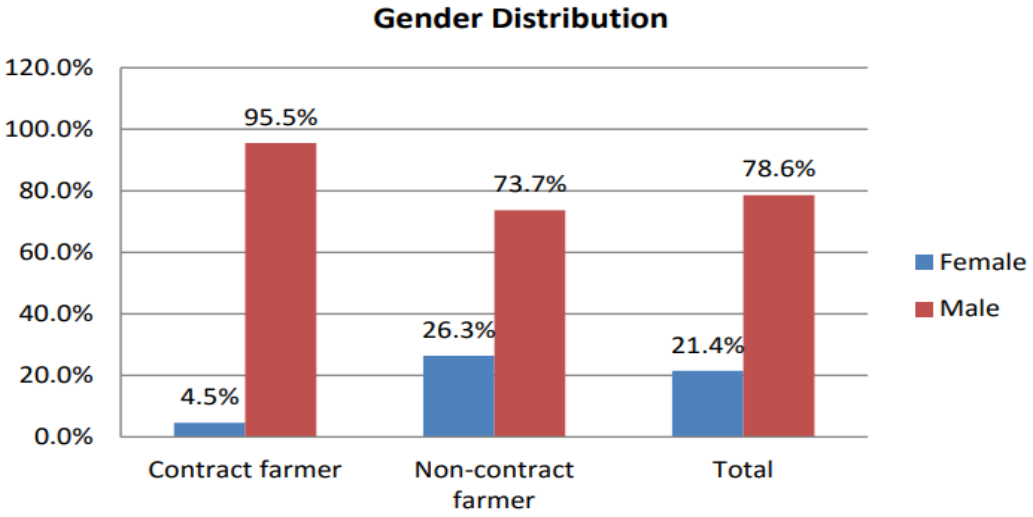

Fig. 3 Gender distribution of sampled farmers

Source: Field survey, 2020

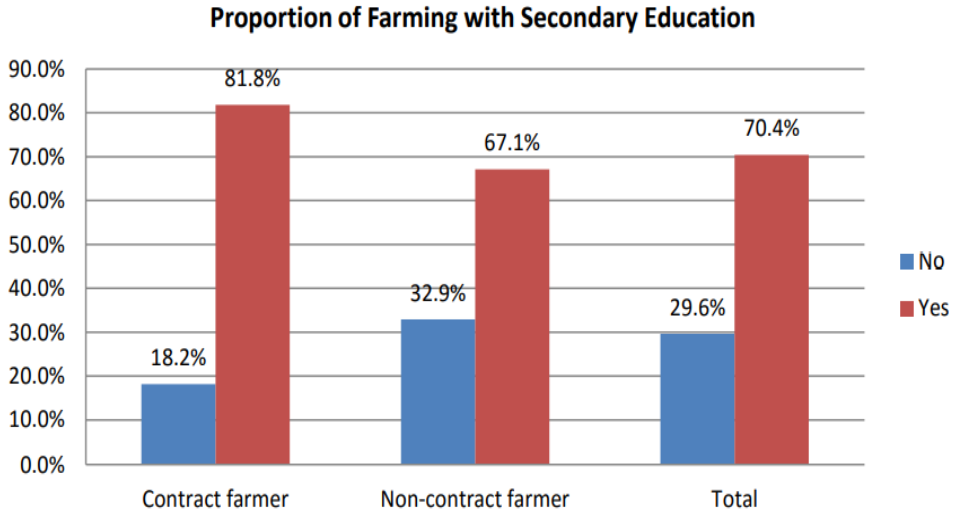

Fig. 4 Education level of sampled farmers

Source: Field survey, 2020

2) Private Firms Providing Contract Farming among Sunflower Farmers

Based on the observations, the major actors in sunflower contract farming were farmers; the company; and the Government of Tanzania who closely oversee the progress of the contract farming program. Initially, the contract farming among sunflower farmers was introduced by eight (8) private firms. However, major private firms still having contract farming among sunflower farmers include: Three Sisters Company Limited in Dodoma region and Ikungi Sunflower Edible Cooking Oil Company in Singida region (Table 1). Additionally, both Three sisters in Dodoma and Ikungi Sunflower Edible Cooking Oil provide a long-term contract for a period of eight (8) years. However, some farmers did not join the contract in the first instance as they wanted reassurance that the company would fulfil its obligations in terms of providing improved seeds and purchasing all produce before contracting. Farmers subsequently joined the program. Other contract companies did not continue providing contract farming because of some challenges such as side selling among the contract farmers, financial constraint, and their contract were short- term such as one-year, two-years, and three-years of contract (Table 1).

Table 1 Private firms providing contract farming among sunflower farmers in Tanzania

Private firm	Still having contract	Region, the company operates	Number of villages	Years of doing contract
Uncle Millo	No	Dodoma	20	3(2010-2013)
Ringo consolidated	No	Dodoma	25	2(2010-2012)
Furaha Dodoma	No	Dodoma	11	2(2010-2012)
Three Sisters	Yes	Dodoma	5	8(2011-to date)
Ikungi Edible Cooking Oil Ltd	Yes	Singida	3	8(2012-to date)
Nyemo Investment	No	Singida	28	3(2010-2013)
Ring Investment	No	Dodoma	10	2(2011-2013)
Kibaigwa Oil Suppliers	No	Dodoma	70	1(2010-2011)

Source: Field survey, 2020

3) Relationship of the Negotiation Attributes in Income among Contract Sunflowers Farmers

To understand the gross income of two category farmers, the economic return analysis was employed. Gross income was calculated as a gross revenue minus total production cost excluding family labor cost. The study shows that, contract farmers receive higher gross income (1228.9 TZS/ha) after joining the contract farming compared to the non-contract farming (602.1 TZS/ha) (Table 2). For the good aspect, this result imply that contract farming has a positive impact on household income.

Table 2 Income comparison of non-contract sunflower farmers and contract sunflower farmers (Unit of cost: `000TZS/ha)

Item	Non-contract farmers (a)	Contract farmers (b)	Difference (b)-(a)
Head of household	(n=40)	(n=40)	
Yield (tons/ha)	1.20	2.41	1.21
Seeds cost	10.6	12.2	1.6
Chemical fertilizer cost	22.7	37.9	15.2
Pesticide cost	1.20	10.8	9.60
Transport cost	40.00	55.5	55.5
Hired labor cost	23.4	27.9	4.5
Total variable cost	57.9	144.8	86.9
Total production cost	98.3	196.9	98.6
Gross Revenues	660.0	1373.7	713.7
Gross Income	602.1	1228.9	626.8
Gross Profit	561.5	1176.8	615.3
Price	550	570	

Additionally, the study adopted the correlation analysis to examine the negotiation attributes in income growth among the sunflower contract farmers. The correlation between variables was used to measure how well the variables are related. Table 3 presents the results of the correlation coefficient analysis, which shows a statistically insignificant weak positive relationship between capital and income growth among sunflower farmers ($r = 0.037$, $p > 0.05$). Surprisingly, the results show that there was no statistically significant relationship between pricing and income among sunflower farmers ($r = 0.23$, $p > 0.05$). This was because in contract terms price is not set in advance. However, contractor credit ($r = 0.71$) and production services ($r = 0.78$) among sunflower farmers show static significant relationship with income growth among sunflower farmers (Table 3)

Table 3 Relationship of the negotiation attributes in income growth among contract sunflower farmers

		Capital	Pricing	Contractor credit	Production services	Income
Capital	Pearson correlation	1				
	Sig (2 tailed)					
	N	40				
Pricing	Pearson correlation	0.32	1			
	Sig (2 tailed)	.818				
	N	40	40			
Contractor credit	Pearson correlation	.062	.255**	1		
	Sig (2 tailed)	.661	.000			
	N	40	40	40		
Production services	Pearson correlation	.022	.615**	.345		
	Sig (2 tailed)	.876	.000	.012		
	N	40	40	40		
Income	Pearson correlation	.037	.023	.741**	.779**	1
	Sig (2 tailed)	.791	.000	.000	.000	
	N	40	40	40	40	40

*Note: **Correlation is significant at the 0.05 level (2-tailed-test); N is the total number of the contract sunflower farmers; Production services means transport provision during harvesting and inputs provision such as seeds, pesticides and fertilizers. Source: Field survey, 2020.*

CONCLUSION

The study aimed to investigate the impact of contract farming program among sunflower farmers. In the sunflower sector, only two major private firms still provide contract farming among the sunflower farmers. Additionally, in relationship of the negotiation attributes the paper points out the credit access and production services were significant with farmers' income. Besides, the results show that there was no statistically significant relationship between advance pricing and income growth among sunflower farmers. This was because in contract terms price is not set in advance.

In relation to the findings and conclusion, the following were recommended to alleviate the existing challenges. First, fixed price should set in advance; this can work as an incentive if the sunflower-contract producers feel their work is rewarded. Secondly, there is a definite need for the Government of Tanzania to provide proper monitoring to ensure both contract parties adhere to the terms of contract. Finally, non-contract farmers need more education and training for more contract participation.

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