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Research Article

Effect of Informal Credit on the Performance of Small Holder Cashew Nut Farmers

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Abstract

Purpose: This study intended to examine the effect of informal financing among smallholder cashew nut farmers in Tanzania, specifically in southern regions including Lindi and Mtwara.

Design/methodology/approach: Snowball technique was employed to respondents during data collection. Primary data was collected from 228 smallholder cashew nut farmers who had informal credit from informal moneylenders. Ordinary Least Square Estimation technique was employed to estimate the impact of informal credit on farmers' performance. Volume of production per season was used as proxy of farmers' performance.

Originality: This study is original as it provides new insight on the impact of informal credit on smallholder cashew nut farmers' performance. This is novel idea as hardly previous studied have linked specific informal credit on the performance of smallholder cashew nut farmers.

Findings: The study reveals that informal credit is statically significant and positive related to volume of production of cashew nut. Farmers that borrow from informal moneylenders are argued to use the funds prudently, as it is evident that if money is prudently used, productions of cashew nuts improve.

Policy implications: Policy makers should set a policy and guideline that will facilitate faire operationalization of informal financing arrangements for the mutual benefits of both borrowers and lenders of informal credits.

Keywords: Informal Credit, Smallholder cashew nut farmers, Informal moneylenders.

INTRODUCTION

Informal financing arrangements have become common in financing agricultural activities by smallholder farmers. In this arrangement, farmers receive credit from informal moneylenders ahead of time, and after the harvest, they pay back the produce worth more than the money received at the start of the season. Smallholder farmers use this financing arrangement as their source of finance for farming activities during the season.

In Tanzania, informal financing is common in smallholder cashew nut farming in the Southern Regions, specifically in Lindi and Mtwara, where around 80 percent of total raw cashew nuts are produced (CBT, 2020; Francis, 2021;

NBS, 2021). Despite several funding programs available for smallholder farmers, smallholder cashew nut farmers are increasingly using informal credit (Damian, 2018; Francis, 2021). One of the important types of informal credit for smallholder farmers in Tanzania particularly, in the Lindi and Mtwara regions that has not yet captured attention in the literature is that in which moneylenders provide finance to farmers for agricultural activities beforehand and pay back agricultural products instead after the harvest.

Although this practice is common in southern Tanzania, its effect to borrowers' performance is not well known and documented. Previous studies have linked general informal credit with farmers' performance and their findings are rather mixed. For example, Falola et al., (2022); Nordjo

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and Adjasi, (2019); Sekyi et al.,(2019) found that access to informal credits had a positive impact on the performance of farmers while Daipesa and ECI Africa (2003) found that informal financing is negatively related to productivity. This study is therefore set to provide new empirical evidence on the effect of specific informal credit (i.e. credit of which payment is made in kind) on the performance of smallholder cashew nut farmers.

The remainder of the paper is organized as follows; Section 2 presents the literature review, whereas the methodology is in Section 3. The results and discussion are provided in Section 4; and the conclusion and policy implications are presented in Section 5.

LITERATURE REVIEW

Existing studies on the smallholder farmers' performance hinge on quantitative metrics, both financial and non-financial. Commonly used quantitative financial metrics include profitability measured in terms of either profit margin, net income, or income growth (Bannor et al., 2020; Beckman & Schimmelpfennig, 2015; Maniriho et al., 2021; Nzabakenga et al., 2013; Omeje et al., 2021; Safa, 2005; Salam et al., 2019). On the other hand, agricultural productivity measured in terms of actual output produced was the commonly reported quantitative non-financial metric used to measure farmers' performance (Maniriho et al., 2021; Nordjo & Adjasi, 2019; Sekyi et al., 2019).

Empirical studies conducted on the impact of informal credits on agricultural productivity and agribusiness performance at large have revealed that there is a positive relationship between agricultural rural financing and agricultural development, specifically by improving farmers' agricultural productivity (Nordjo & Adjasi, 2019; Sekyi et al., 2019). Likewise, Awotide et al. (2015) found that farmers who obtained credit had higher productivity than farmers without credit did.

Principally, researchers recommended that adequate and timely availability of quality credit facilities to smallholder farmers had positively impacted agricultural productivity by ensuring farmers had access to agricultural inputs and improved seeds, resulting in increased production efficiency. On the contrary, Maniriho et al. (2021) found a negative effect of credit access on farmers' productivity, suggesting suboptimal use of credit in agricultural activities. In addition to credit access, Maniriho et al. (2021) found that crop output (agricultural produce) was positively influenced by cooperative membership, land size, farming experience, and family size, whereas age and the price of the commodity negatively influenced crop production.

Falola et al. (2022) revealed that the utilization of constructive informal credits by smallholder farmers had positively impacted their performance as well as their

economic welfare by increasing their income and profits, as reflected in the improved living standards of such farmers. Equally, Anang and Yeboah (2019) established that access to credit tends to ease the financial constraints of farmers and could increase output. However, on the contrary, Maniriho et al. (2021) found that farmers' performance had been negatively affected by credits accessed, and such an antagonistic situation might be due to suboptimal use of credit or because such credits failed to meet the real financial needs of smallholder farmers.

Furthermore, Nzabakenga et al. (2013) revealed that family size and farm size had significant positive effects on agricultural produce. Likewise, Maniriho et al. (2021) found that farm output was positively driven by family size, farm size, access to extension services, market access, farming experience, and farmers' education level, while age and sex (female) had negative effects. On the other hand, Salam et al. (2019) found that productivity, selling prices, and production costs significantly affected farmers' performance.

Additionally, Omeje et al. (2021) found that farm produce was positively influenced by the farmer's age, farming experience, and household size. Likewise, Safa et al. (2005) established that farmers' performance had positively influenced by land size, and off-farm activities.

METHODOLOGY

Study Area and Sampling Procedure

This study was carried out in two (2) districts in the southern regions of Tanzania, specifically in Nachingwea district (Lindi region) and Masasi district (Mtwara region). These districts were purposefully selected as the study area because this typical informal financing practice is common in these districts (Azamtvz, 2022; Likwata & Venkatakrishnan, 2014).

The targeted sample size included 250 respondents, comprising of 250 smallholder cashew nut farmers. However, the actual respondents of the study were 228. All these respondents were identified using snowball sampling, one of the non-probability sampling techniques, where a few identified smallholder cashew nut farmers known to borrow from informal moneylenders formed the initial sample size, and they were used to obtain the names of informal moneylenders and other cashew nut farmers who engage in informal financing.

Data Analyses

Both descriptive and inferential statistics were used to analyse the data collected. Descriptive statistics were used to summarize the socio-economic/demographic characteristics of the smallholder farmers.

As discussed earlier, there are various bases for measuring the performance of farmers; however, several studies have measured farmers' performance by using actual production (produce) and net income. Therefore, this study adopted the same approach by using actual production (produce) as a proxy for measuring the performance of smallholder cashew nut farmers.

Nevertheless, it has been documented that, performance of smallholder farmers is influenced by many factors including but not limited to age, sex, education, farm size, household size, experience, access to finance, farmer's wealth and other source of income (Nordjo & Adjasi, 2019; Sekyi et al., 2019).

Ordinary least Square estimation technique was used to determine the effect of informal credit on farmers' performance. Farmers performance is dependent variable and informal credit is the main independent variable of interest. Other variables were used in the model as controlling variables. These variables include age, sex, education, farm size, experience, household size and off-farm income.

The general model for the effect of informal credit on performance is as follows:

$$Z_i = \beta_0 + \beta_1 X_i + \beta_2 X_2 + \dots + \beta_N X_N + \epsilon_i \quad (i)$$

Where Z_i is the dependent variable representing the quantity of cashew produced by a smaller holder cashew nut farmer (measured by log of total quantity produced), β_0 constant term, and β_1 is the coefficient of informal credit, X_i is the informal credit, X_2, \dots, X_N other independent variables, and ϵ_i denotes error term. The independent variables used in the model are presented in Table 1 below.

Using the variables listed in summary table 1 above, the specific econometric model for the effect of informal credit on cashew nut performance of smallholder farmers is specified below.

$$\ln(\text{Produce}) = \beta_0 + \beta_1 \text{Credit} + \beta_2 \text{Age} + \beta_3 \text{Gend} + \beta_4 \text{Edu} + \beta_5 \text{Mstar} + \beta_6 \text{Expe} + \beta_7 \text{Farmsize} + \beta_8 \text{Fami size} + \beta_9 \text{Price} + \beta_{10} \text{Market} + \epsilon_i \quad (ii)$$

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Smallholder Cashew Nut Farmers

The results of the study show that all (i.e 100 percent) smallholder cashew nut farmers included in this study had informal credit. This confirms the fact that informal credit has turned out to be important source of financing agricultural activities in Nachingwea and Masasi District, particularly for farmers engaging in Cashew nut production. The majority of the smallholder cashew nut farmers are males, constituting

about 76 percent of the total respondents. The fact that most respondents were male, it gives an impletion that males dominate that cashew nut farming in the study area. This reality may be associated with the nature of activities involved in farming that need more time and energy of which males are in the position to afford. At the same time the average age of most smallholder cashew nut farmers are 42 years, while the youngest farmers have 25 years old. This implying that most of smallholder farmers are who take informal credit are generally young who are still in productive age and have ambition to prosper. As such, those borrowers are trusted that they can use their loans sensibly to enable their farming business grow and hence may be able to repay their loans.

It was revealed that majority (81%) of the smallholder cashew nut farmers' respondents are married with an average 5 family size. This finding suggests that most of smallholder cashew nut farmers have their families as a source of cheap labor for their farming activities, which results to reduced costs while raising production. Furthermore, the table shows that average education level attained by most of the respondents is the primary level of education, which is the basic education to enable farmers to read and write. Given the fact that there is no formal written agreement in informal financing arrangement, this level of education is sufficient to understand what informal moneylenders require in order one to get informal credit and negotiate for the fair terms such as equivalent kilograms for amount of loan taken.

The average farming experience for most smallholder farmers is 15 years, and the average farm size is 8 acres, suggesting that most smallholder farmers are considered well experienced with good understanding and knowledge about cashew nut farming. Nevertheless, the average informal credit amount accessed by each smallholder cashew nut farmer approximated to TZS 484,000, while the maximum amount of informal credit accessed was TZS 3,000,000.00 Table 2.

Effects of Informal Credit on the Performance of Smallholder Cashew Nut Farmers

From the regression results as depicted (effect of informal credit on cashew nut productivity), it was revealed that usage of informal credit, farm size, farming assets, and gender had significantly influenced cashew nut production and hence are the determinants of cashew nut production in the study area. Informal credit, and farm size were significant at 1 percent, whereas farming assets and gender were significant at 5 percent.

Foremost, findings of this study revealed that informal credit was statistically significant with a positive coefficient in relation to cashew nut production, implying that

Table 1. Summary of explanatory variables.

Variable name	Definition	Measurement	Expected sign
Credit	Amount of the informal credit used in cashew nut farming	Log of the amount of informal credit received by smallholder cashew nut farmers	+
Age	Age of the smallholder cashew nut farmers	Log of the number of years the smallholder cashew nut farmer has lived since his or her birth date	-
Gend	Gender (percentage of males engage in cashew nut farming)	A dummy variable that takes the value of one (1) if the smallholder cashew nut farmer is male and zero (0) otherwise.	+
Edu	Farmer's education level	A categorical variable, 1 if the respondent is illiterate, 2 if have completed primary school, 3 if have completed secondary school, and 4 if have completed tertiary school.	+
Master	Marital status	A dummy variable that takes the value of one (1) if the farmer is married and zero (0) if this is not the case.	+
Farm size	Farm size	Number of acres	+
Expe	Farming Experience	Log of the number of years the smallholder cashew nut farmer has been engaged in cashew nut farming	+
Fami size	Household size	Number of people in the family	+
Price	Cashew nut Price	Log of the net cashew nut price payable to the cashew farmer	+
Asset	Farming assets	Is a dummy variable measured at the value of one (1) if the farmer owns any of the farming equipment (including a blower and a tractor) and zero (0) if this is not the case	+

Table 2. Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	228	42.34649	9.17755	25	64
Gender (Percentage of Males)	228	0.761579	0.42608	0	1
Education	228	1.964912	0.4183	1	4
Marital Status	228	0.8070175	0.3955077	0	1
Household Size	228	4.763158	1.409862	1	7
Farm size (Acres)	228	8.407895	3.779766	1	19
Farming Experience	228	15.3114	8.653611	1	40
Farming assets	228	0.5964912	0.4916805	0	1
Access to Extension Service	228	0.0570175	0.2323863	0	1
Off-farm activities	228	0.8464912	0.3612704	0	1
Market Access	228	0.9605263	0.1951475	0	1
Informal Credit (TZS)	228	483,991.20	386,553	100,000	3,000,000
Cashew Nut Price (TZS)	228	1,968.328	90.65824	1,419.31	2,075.31
Cashew Nut Production (Kilogram)	228	2,890.579	1,903.432	360	15,220

Source: Researcher calculations based on field data (2023)

smallholder cashew nut farmers who reported utilizing informal credit to finance farming activities had produced more cashew nuts. This is in line with the findings by Sekyi et al. (2019) and Nordjo and Adjasi (2019), who established that farmers with access to informal credits have increased their productivity. The positive influence of informal credit on farmers' performance might be attributed by farmers' financial capability to use appropriate agricultural inputs. Nonetheless, the positive effects of informal credit on cashew nut production may be attributed to financing arrangements in cashew nut financing, particularly informal credits, in which informal money lenders provide credits in instalments based on cashew nut farming stages, with payments sometimes made directly by lenders to the specific cost object (supplier of inputs and labor). This restricted the usage of informal credits for purposes other

than cashew nut farming. This confirms the findings of Madestam (2014), who found that informal loans increase the return to productive activities as they cannot be diverted for other purposes.

Farm size had a positive influence on cashew nut production, implying that, in general, the amount of cashew nut produced increases with farm size (acres). Similarly, Maniriho et al. (2021) found that farm size is positively related to crop output. Martin et al. (1997) argued that one of the major constraints of cashew nut production in Tanzania is the abandonment of cashew nut farms, thus initiatives should be taken to ensure smallholder cashew nut farmers plant more cashew nut trees and extend their farm sizes. In addition, Mallya (2013) discovered that farm size is related to the amount of cashew nuts produced. However,

Table 2.1. Regression results (Effect of Informal Credit on Cashew Nut Production).

Variable	Coefficient	Standard Error	P>z (Probability)
Age	0.1481185	0.1659679	0.373
Gender (Male dominance)	-0.915257	0.414317	0.028(**)
Education	-0.0276215	0.0491554	0.575
Marital Status	0.0627494	0.0540637	0.247
Household size	0.0002779	0.0201511	0.989
Farm size	0.0827705	0.007849	0.000(***)
Experience	-0.0316524	0.0511795	0.537
Informal Credit	0.236795	0.0396503	0.000(***)
Cashew Nut Price	0.0002641	0.0001942	0.175
Farming assets	-0.0821316	0.035333	0.021(**)
Extensions service	0.0649054	0.0864412	0.454
Off-farm income	0.0480407	0.0494451	0.332
Market access	-0.0030739	0.089738	0.973
Constant	3.169126	0.833694	0.000(***)

Number of obs =228 F (13,214) = 59.36, Prob > F= 0.0000, R-squared = 0.7829, Adj R-squared = 0.7697, Root MSE = .25681

Note: (***) Indicate significance at 1% level, (**) Indicate significance at 5% level, (*) Indicate significance at 10% level

on the contrary, Amegnaglo (2018) revealed a negative relationship between farm size and farmers' productivity.

For a negative effect of farming assets on crop production, this contrasts with the existing literature stipulating that farming assets are crucial for improving farm output (Amegnaglo, 2018; Mallya, 2013). However, existing literature on Tanzanian cashew nut farming revealed that most cashew nut farmers, specifically smallholder farmers, are inefficient and hence produce cashew nuts at high cost, and production inefficiency is approximately 50% (Akyoo & Mpenda, 2014; Fitzpatrick, 2013; Kilama, 2013). Reflecting from this outcome, it can be argued that most of farming assets are old that are less productive leading a farmer spend much time and cost in repairing. It can also be argued most of assets are left idle rather than being used in production.

Nevertheless, gender was statistically significant in relation to cashew nut production with a negative coefficient. As a result, male smallholder cashew nut farmers will produce less cashew nut than males. However, since the majority of smallholder cashew nut farmers' respondents were male and our study was limited to only informal financing participants, we do not have any information on the production status of other male farmers who had not accessed informal credits, so we need to interpret this result with caution. However, it has been observed that gender dominance in rural agricultural activities has an impact on farmers' performance, as observed by Maniriho et al. (2021) and Sekyi et al. (2019), who found similar results Table 2.1.

CONCLUSION

Informal credit is positively related to cashew nut production. This confirms the theory of money lenders, which suggests that informal credits increase the return on

productive activities. Therefore, smallholder farmers should be encouraged to access informal credits to increase their cashew nut production. Nevertheless, restriction of informal financing arrangements in cashew nut farming should be reconsidered since it has been revealed that informal credit is positively related to cashew nut production. Furthermore, looking at other determinants of cashew nut production, it was discovered that ownership of a farming asset was negatively related to cashew nut production, and this might be influenced by farming inefficiencies. Therefore, farmers should use their farming assets effectively and efficiently to increase cashew nut production.

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