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Credit Facilities and Growth of Large-Scale Sugarcane Farms in Migori County, Kenya

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Abstract:

Over the past decade, the sugar sector in Kenya has been facing decline with numerous sugar production companies forced to close down. One of the factors leading to the closure of the sugarcane factories is the low crushing level due to inadequate cane supply. Successive governments have put in place policies and measures to ensure growth in the levels of cane production with little or no results. The lack of growth in the production of sugarcane has been attributed to numerous factors with lack of access to credit facilities being one of the major challenges. The purpose of the study was to determine the effect of credit facilities on growth of large-scale sugarcane farms in Migori County, Kenya. The study was anchored on: life cycle theory, loan able funds theory, and the theory of financial intermediation. The study adopted descriptive cross-sectional research design. The target population of the study was all the large-scale sugarcane farmers in Migori County, Kenya. The study adopted purposeful sampling technique to pick respondents. The study collected data using questionnaires. The data was analysed using descriptive analysis and multiple linear regression analysis. The study found that the nature of credit had a positive but insignificant effect on growth. In addition, the study established that access to credit has a positive and significant effect on growth whereas the terms and conditions of credit were determined to have a negative and significant effect on the growth of large-scale sugarcane farms in Migori county, Kenya. The study concluded that the type of financial institution offering credit was not relevant to the growth of the farms; the farmers preferred long-term credit to finance their growth; the terms and conditions attached to loans and the processing of the loans were impediments to access to credit and subsequently curtailed borrowing.

Keywords: Large-scale farmer, productivity, growth, access to credit, terms and conditions of credit, nature of credit

1. Introduction and Background

Sugarcane is considered one of the most important cash crops in Kenya (Kenya Sugar Board, 2009). It is estimated that around six million people derive their livelihoods directly or indirectly from sugarcane farming. Sugarcane farming and sugar production account for approximately 15% of the agricultural gross domestic product (GDP) of Kenya. However, over the past decade, the sugar sector in Kenya has been facing decline with numerous sugar production companies forced to close down. One of the factors leading to the closure of the sugarcane factories is the low crushing level due to inadequate cane supply (Obara, 2011). Successive governments in Kenya have put in place policies and measures to ensure growth in the levels of cane production with little or no results (Republic of Kenya, 2015). On average, sugarcane farmers produce 25-40 tonnes of cane per acre against a possible 70 tones (Mutanu, 2017). The lack of growth in the production of sugarcane has been attributed to numerous factors which include inefficiencies in the farms and factories, inadequate processing technologies, liberalisation of the economy, globalisation, and lack of financing (Kariuki, 2015). The concept of growth has various connotations. Gupta, Guha, and Krishnaswami (2013), define farm growth as the increase in the volume of goods sold, market share, the expansion of geographical area of operations, acquisition of new ventures, increase in the level of profitability, and an increase in the return on investments. Majumdar (2008) indicates the farm growth is the ability of the business to meet the set standards in its operations, enhances its facilities, increase its profits, ensure that the return on investments to shareholders increases, reduce waste production, optimal utilisation of capacity, and operational efficiency.

According to Christiaensen, Demery, and Kuhl (2011), one of the key methods of growth in the agricultural sector is through credit. The farmer's ability to produce, to remain viable, and to increase production is closely associated with financial instruments, specifically credit facilities. Credit entails borrowing money from external sources with the promise to return the principal in addition to an agreed upon amount of interest (Popli, 2013). Credit facilities fall into two categories namely long-term credit and short-term credit. Long-term credit is used to finance assets such as equipment, buildings, land, and/or machinery with the repayment period spanning more than one year. Short-term credit is normally used to purchase inventory, supplies, and paying wages, the repayment schedules typically last less than one year (Popli, 2013). Credit facilities are an essential element for the operation of any economic venture irrespective of size or industry

(Dogân, 2013). However, the nature of credit facilities, access to credit facilities, and the terms of credit have negatively impacted the agricultural sector (Nzomo & Muturi, 2014).

Migori County is part of what is known as the sugarcane belt in Kenya. In Migori County, sugar cane is grown on large plantations and in out-grower schemes (Sony Sugar, 2018). Eighty-eight percent of the cane production is done by out growers. The majority of the out growers are small-scale growers (Sony Sugar, 2018). The remaining twelve percent of production is done on a large scale by individual farmers and sugar factories. Migori County hosts Sony Sugar which is one of the largest sugarcane factories in Kenya. However, over the last few years, the production of cane has fallen from more than 12,000 tonnes to below 5,000 tonnes per year owing to a myriad of challenges (Owino, 2017). The main challenges include importation of sugar, poor infrastructure, and lack of capital. Previously, farmers could access funds from the Sugar Development Levy, which gave loans to farmers and millers to ensure development and growth in the production of sugarcane. However, the scheme was scrapped in 2016 (Omollo, 2016).

2. Research Problem

Over the past decade, the sugar sector in Kenya has been facing decline which numerous factories closing. One of the factors leading to the closure of the sugarcane factories is the low crushing level due to inadequate cane supply (Obara, 2011). Successive governments in Kenya have put in place policies and measures to ensure growth in the levels of cane production with little or no results (Republic of Kenya, 2015). On average, sugarcane farmers produce 25-40 tonnes of cane per acre against a possible 70 tones (Mutanu, 2017). This results in an annual average deficit of 1.9 million tonnes of sugarcane (Sugar Directorate, 2017). The decline in sugar production and the lack of growth in the level of production has resulted in the loss of income for thousands of farmers. Additionally, it has resulted in an increase in the level of imports which reduce the foreign currency reserves of the country and has created a challenge for the government in the attainment of its ambitious economic plan.

Research has shown that the lack of growth in cane production has been hampered by lack of credit facilities available to sugarcane farmers (Kariuki, 2015). Credit has been identified as an important component of farming as it allows farmers to acquire working capital, buy farm machinery and equipment, finance planting, weeding, and harvesting, and pay for labour (Dogân, 2013). The lack of credit inhibits innovation, commercialisation, and modernisation which are key components of growth in the agricultural sector (Nzomo & Muturi, 2014). In Kenya lending to the agricultural sector still remains a huge challenge given the risks associated with farming. Annually, the agricultural sector only receives 3% of total credit extended to the economy (Ngare, Kweyu, & Huka, 2015). Ayyagari, Demirgüç-Kunt, and Maksimovic, (2010) established that credit and credit facilities have a strong positive effect on growth. However, Rajasa, Fielding, and Roberts, (2017) found that credit had a negative effect on growth. The study by Allen, Chakrabarti, Qian, and Qian, (2015) found that there is no relationship between credit and growth. Researchers have found that the differences in results can be attributed to different regulatory systems, the basis of the allocation of credit, stringent borrowing requirements, and lack of diversity (Rousseau & Wachtel 2011; Demtriades & Rousseau, 2016). Additionally, differences in findings have been attributed to methodological, conceptual, and contextual differences (Kiago, 2017). It is against this background that this study evaluated the effect of credit facilities on the growth of selected large-scale sugarcane farms in Migori County, Kenya.

3. Objectives of the Study

The specific objectives of the study were:

- To determine the effect of nature of credit on growth of large-scale sugarcane farms in Migori County, Kenya.
- To assess the effect of access to credit on growth of large-scale sugarcane farms in Migori County, Kenya.
- To establish the effect of terms and conditions of credit on growth of large-scale sugarcane farms in Migori County, Kenya.

4. Significance of the Study

It is hoped that the findings of this study will be of great insight to various stakeholders in the sugarcane production process. Firstly, the government through various State-Owned-Entities like Agricultural Finance Corporation (AFC) will be able to use the findings of the study to enhance and improve the sources, types, and access to credit facilities to large-scale sugarcane farmers. The findings of the study will provide information to investors who are interested in investing in agribusinesses such as sugarcane production. The findings of the study will provide insight to other farmers, both large-scale and small-scale, as to the effects of credit facilities on growth.

5. Review of Literature

5.1. Theoretical Review

5.1.1. Life Cycle Theory

The life cycle theory of the firm or the stage model has its origins in economic literature put forward by Penrose (1952) and Rostow (1960) (Mac an Bhaird, 2010). This theory describes the sequential growth phases of firms. The firm is born, grows, and decline. However, sometimes they re-emerge (Zsuzsanna, 2010). In their studies on capital structuring, Berger and Udell (1998) averred that the particular stage of a business in the life cycle determines its requirements for financing, availability of financial resources, and the associated cost of capital (La Rocca, La Rocca, & Cariola, 2009).

According to Kaplan and Stromberg (2003), the evolving informational opacity during different states of growth determines the financial needs.

5.1.2. Loanable Funds Theory

In the loanable funds theory, attributed to the works of Wicksell (1898), Robertson (1934) and Ohli (1937), the role of the banks is to spur economic growth. The banks spur innovation and ensure future growth by identifying and giving credit to the most productive firms (O'Sullivan & Sheffrin, 2007). According to Saunders and Cornett (2010), most of the demand for loan-able funds comes from firms. The firms borrow the funds in order to increase their production and grow their business. The borrowed funds are used to acquire and produce new capital goods (finished goods). The firms borrow funds until the marginal productivity of capital is equivalent to the marginal cost of capital (Mankiw, 2013).

5.1.3. Financial Intermediation Theory

In the financial intermediation theory, the need for financial intermediaries is explained by the high cost of transactions, information asymmetry, and the mode of regulation (Mauris & Cuza, 2009). The problems of information asymmetry lead to high transaction costs. These costs give rise to the financial intermediaries, who at least partially, eliminate or reduce the cost (Howells & Bain, 2007). The financial intermediaries are considered as a group that manages information. They act as agents of those who save funds and are able to achieve economies of scale. The savers trust the intermediaries to invest their funds in projects that are viable and offer good returns, the savers are able to withdraw their funds under pre-established terms and conditions. The banks create liquidity by borrowing short and lending long (Dewatripont, Rochet, & Tirole, 2010). Sealey and Lindley (1977), extended the financial intermediation theory to include the production theory for depository institutions (Werner, 2016). The financial intermediaries borrow the funds from units with surplus funds and lend to units with deficits. The production processes of farms include multiple stages which require intermediate outputs. The funds borrowed from the depositors are used by the farms to acquire capital, labour, and material inputs (Werner, 2016). The farms rely on the financial intermediaries to finance their growth and development.

5.2. Empirical Review

Khan, Rehman, Mehmood, and Ali (2007) determined that in the district of Karak in Pakistan. The short-term credit facilities were normally given during the beginning of the growing season with the amount being advanced determined by the size of the farm. The study established that there was a positive relationship between credit and growth in farm yields. Omobolanle (2010) evaluated the effect of micro-credits on agricultural productivity in Ogun State in Nigeria. The study only focused on Remo division of Ogun State. The study determined that the farmers used the borrowed funds to buy inputs that were needed to ensure the productivity of their farms. However, the study found that the relationship between credit and the level of output was negative. This was because the farmers did not use the credit to solely finance their farming but rather used the funds for other uses.

Mwihakie (2015) while using the census-survey established that the amount of credit to dairy farmers in central Kenya had been growing consistently during the period 1981-2013. Similarly, the study established that the production of milk had grown in tandem with the growth of credit to the farmers during the study period. Mwangi (2014) established that access to credit facilities was one of the fundamental challenges that faced the Small and Medium Sized Enterprises (SMEs) in Nairobi County, Kenya. The SMEs that were able to secure credit facilities from financial institutions were able to grow.

Firm growth has been an area of study for many researchers. A review of literature suggests that all firms go through different stages of growth, also commonly referred to as life cycles. Though the terms used by different authors may vary, the events through which each firm passes remain more or less the same (Morone & Testa, 2008). Most of the researchers suggest that each firm has to start, then grow while facing various challenges and crises, and finally mature and decline. There are many factors which will contribute to a firm's success. There are many precursors also, which will allow a firm to move from one stage to another. These factors include firm strategies, market, government regulations, innovation, consumer preferences, access to financing amongst others (Muthaih & Venkatesh, 2012).

6. Research Methodology

The study adopted a descriptive cross-sectional research design. This design is appropriate for a study where all the data on all the variables are collected at the same point in time as opposed to longitudinal design where the variables are analysed over a period of time (Mole, 2016). The target population were the 500 large-scale farmers in Migori County. The study adopted purposive sampling to select respondents. According to Mugenda (2008), where the study population is less than 10,000 a sample of 10% - 30% is considered as an adequate representation of the entire population. Hence, the study sampled 150 large scale sugarcane farmers in Migori County in line with the recommendation by Mugenda (2008). The study developed a questionnaire with both open and close-ended question to collect primary data in order to achieve the objectives of the study. The close-ended questions were presented in the form of 5-point Likert Scale. The data was analysed using descriptive analysis and multiple regression analysis. The multiple regression analysis was performed by way of inferential statistics mainly the Analysis of Variance (ANOVA) and t-test. These were used to test the significance levels and determine the nature of the relationship between the independent variables and the dependent variable. The descriptive statistics and inferential analysis were computed using Statistical Packages for Social Sciences (SPSS) 20.0.

7. Results and Findings

7.1. Descriptive Analysis

The study sought to establish the nature of credit utilised by the respondents. The responses indicated that the farms have access to bank loans, Sacco loans, microfinance loans, government and parastatal loans. The respondents indicated that they preferred government and parastatal loans to other loans as these two institutions often gave loans at rates lower than that offered by the other institutions, were not very aggressive when the farms defaulted on payments, and at times waived some repayments. This confirms the assertions of Mankiw (2013) that firms prefer to borrow where the interest rates are low.

The study sought to establish the access to credit by the large-scale sugarcane farms in Migori County, Kenya. The study established that the farms accessed credit monthly, quarterly, semi-annually, and annually. Majority of respondent indicated that their farms use long-term credit to finance their activities. In regard to short-term credit, most of the respondents indicated that the farms do not use short-term credit. These findings are inconsistent with the findings of Khan et al., (2007) and Omobolane (2010) who established that farmers typically take loans to finance seasonal activities. The findings suggest that large-scale farmers have different credit requirements than those of smaller farmers.

The study assessed the terms and conditions attached to the credit facilities. The study found that funding to farms is largely influenced by the amount of collateral. These findings reaffirm the propositions put forward in the loanable fund theory that maintains that firm growth is enabled by financing. The legal requirements were not an impediment to access to credit facilities. The respondents indicated that the process of credit processing was inefficient and not effective. These findings indicate that the lenders are not performing their financial intermediation role correctly. According to Mauris and Guza (2009), the role of financial intermediaries is to reduce the barriers that limit access to financing.

7.2. Regression Analysis

The R, R² and adjusted R² were computed in order to determine the goodness of fit. Table 1 provides a summary of the regression model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798 ^a	.637	.617	.762

Table 1: Model Summary

Source: Study Data (2018)

- a. Predictors: (Constant), Access to Credit Facilities, Terms and Conditions of Credit, Nature of Credit
 b. Dependent Variable: Farm Growth

The results in Table 1 indicate that the coefficient of correlation (R) is 0.798. This means that there is a strong correlation between the dependent variable growth and the independent variables nature of credit, access to credit, and the terms and conditions of credit. The R² in this model is 0.637 which implies that 63.7% of the variation in the growth is explained by credit facilities. The remaining 36.3% of variation in growth is explained by variables not included in the study. The adjusted R-squared for the model was 0.617. This indicates that 61.7% of variation in the growth is explained by only the independent variables that actually affect the credit facilities extended to the farmers.

Table 2 presents the result of the ANOVA test or F- test. The F-test indicates the significance of the multiple linear regressions (Gujarati & Porter, 2009)

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	73.381	4	18.345	31.570	.000 ^b
	Residual	41.839	72	.581		
	Total	115.221	76			

Table 2: ANOVA

Source: Study Data (2018)

- a. Dependent Variable: Farm Growth
 b. Predictors: (Constant), Access to Credit Facilities, Terms and Conditions of Credit, Nature of Credit

The p-value < 0.050 establishes that the regression model is significant which indicates that credit facilities are good predictor of growth of the farms studied. The calculated F-value is greater than the critical value 31.570 > 2.55 (the critical value is obtained from the F distribution table). This indicates that the nature of credit, access to credit, and terms and conditions of credit significantly affect growth of the farms studied.

The regression coefficients of the constant, nature of credit, access to credit, and the terms and conditions of credit, are presented in Table 3.

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.738	2.691		.274	.035
	Nature of Credit	.178	.171	.113	1.041	.301
	Access to Credit	.095	.102	.080	.930	.046
	Terms and Conditions of Credit	-.847	.132	-.628	-6.420	.000

Table 3: Coefficients

Source: Study Data (2018)

a. Dependent Variable: Farm Growth

From the results presented in Table 3, the study established that not all the elements of credit facilities have a statistically significant effect on the growth. A p-value of above 0.05 in an estimated coefficient simply indicates that the null hypothesis could not be rejected. Hence, the independent variable of concern is not important in explaining variation in the dependent variable. Consequently, in view of Amira (2015), the study omits the independent variable which is not significant in affecting growth i.e. the nature of credit. The regression equation is thus captured as follows:

$$Y = 0.738 + 0.095X_2 - 0.847X_3 \dots\dots\dots 1$$

Where Y = Growth; β_0 = The constant term; β_1 , β_2 , and β_3 , = Coefficients; X_1 = The nature of credit; X_2 = The access to credit; and X_3 = Terms and Conditions of Credit; and ε = The error term.

According to the regression equation, taking all factors (nature of credit, access to credit, and terms and conditions of credit) constant at zero, the growth of the farms will be 0.738. The results further indicate that taking all other independent variables at zero, a unit increase in the nature of credit will lead to a 0.178 increase in the growth. A unit increase in access to credit will lead to a 0.095 increase in the growth when all other factors are held at zero. A unit increase in the terms and conditions when all else held constant will lead to a 0.847 decrease in the growth rate of the farms.

The findings summarised in Table 3 above the p-value for the nature of credit is 0.301 which is greater than the significance level of 0.05. This indicates that the nature of credit does not have a significant effect on growth. This is an indication that the null hypothesis set on the relationship between the nature of credit and growth is accepted. The p-values for access to credit is 0.046 which is less than the significance level of 0.05. This implies that the set null hypothesis is rejected. This implies that access to credit has a significant effect on the growth. The results indicate that the p-value for terms and conditions of credit is 0.000. This indicates that terms and conditions have a significant effect on growth. Thus, the set null hypothesis is rejected.

8. Discussion of Key Findings

The first objective of the study was to establish the effect of the nature of credit facilities on the growth of large-scale sugarcane farms in Migori County Kenya. The findings indicate that the effect of the nature of credit on growth is positive but statistically insignificant. These findings suggest that there is a lack of diversification in the financial sector and that the financial system is not sophisticated whereby each lender is able to offer diversified products. These findings are inconsistent with the findings of Khan et al., (2007) who established that there is a positive and significant relationship between the nature of credit and farm growth.

The second objective of the study was to assess the effect of access to credit on the growth of a selected number of large-scale sugar cane farms in Migori County, Kenya. The coefficients computed indicate that access to credit has a positive and significant effect on the growth of the sampled large-scale sugarcane farms in Migori County, Kenya. These findings suggest that the farmers take credit facilities to finance the expansion of their farm activities. These findings are inconsistent with the findings of Omobolanle (2010) and Sial (2011). However, they are consistent with the findings of Mwhakie (2015).

The third objective of the study was to establish the effect of terms and conditions of credit on the growth. The findings indicate that terms and conditions have a negative and significant effect on the growth of the firms. These findings suggest that the lending requirements and conditions are too stringent and that there is no intervention by the regulator authority to channel financing to farmers. These findings are inconsistent with the findings of Nkere (2016).

9. Conclusions and Recommendations

9.1. Conclusions

The study concluded that when the farmers are seeking credit to finance their growth initiative, the lending institution (banks, SACCOS, Microfinance institutions, government and parastatals) are not taken into consideration. These findings indicate that the farmers are able to access credit across all the lenders and are able to substitute one lender for the other. The study established that access to credit has a positive and significant effect on the growth of large-scale sugarcane farms in Migori County, Kenya. Based on the findings, the study concludes that access to financial institutions is important for the growth of large-scale farms. Based on these findings the study concludes that the requirements for collateral, legal requirements and the cost of processing the loans are factors that discourage the farmers from seeking

credit facilities. Further, the inefficiencies and ineffectiveness of the loan application process proved to be significant deterrents to seeking credit needed to finance growth by the farmers.

9. Recommendations

The study recommends that the commercial banks, SACCOS, and microfinance institutions should re-evaluate the policies and procedures associated with credit facilities issued to large-scale sugarcane farmers. The results obtained from the study indicate that the nature of credit does not affect growth. This is worrisome given that some of the lenders, SACCOS, microfinance institutions, and government and parastatals, are set-up to allow ease access to funds. In view of these findings, the study provides a foundation for formulating better policies to facilitate credit access. The study recommends that the Central Bank of Kenya should review the terms and conditions that the financial institutions attached to the credit facilities that they offer. The government should develop a guarantee scheme which would allow farmers to access higher amounts of credit facilities irrespective of the amount of collateral.

10. Contribution to Knowledge

In the field of finance, there is a debate on the effect of credit on growth. Some researchers have found positive effects; others have found negative effects, while others have found no relationships between credit and growth. This study identifies the aspects of credit that have positive and those that have negative impacts on growth.

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