Smallholder Sugarcane Farmers' Perception of the Effect of Micro Agricultural Finance Institution of South Africa on Livelihood Outcomes in Nkomazi Local Municipality, Mpumalanga Province

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Abstract

This paper examined smallholder sugarcane farmers' perception of the effect of Micro Agricultural Finance Institution of South Africa (MAFISA) on livelihood outcomes in Nkomazi local municipality of Ehlanzeni District, Mpumalanga province. A sample of 77 smallholder sugarcane farmers was selected randomly from a population of 95. A structured questionnaire was used to elicit data and analysed using Statistical Package for Social Science (SPSS) version 22. The results show that constraints faced by smallholder sugarcane farmers were high level of land scarcity, low level of being exposed to drought. higher level of poor producer prices, lower rate of lack of access to formal markets, lower level of incident on crop diseases, low level of lack water supply, low level of lack of financial assistance, moderate level of farmers' lack of incentives or motivation, low level of lack of access to available information, high level of lack of input resources, low level of lack of infrastructure, high level of input cost. Significant determinants of net income were age (t = -3.497, p < 0.10); marital status (t = -3.273, p < 0.10); type of training (t = -3.433, p < 0.10); farm expenses (t = 4.895, p < 0.01); loan for farming purposes (t = -2.959, p < 0.10) and frequency of meeting with extension personnel (t = 2.079, p < 0.05). Gender, marital status, MAFISA awareness, non-farming activities and adequate farm infrastructure significantly affect the perception of smallholder sugarcane farmers on the effect of MAFISA financial support services on livelihood outcomes.

1. Introduction

Smallholder farmers are defined in various ways depending on the context, country and even ecological zone. Often the term 'smallholder' is interchangeably used with 'small-scale', 'resource poor' and sometimes 'peasant farmer'. In general terms smallholder only refers to their limited resource endowment relative to other farmers in the sector. Smallholder farmers are also defined as those farmers owning small-based plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labour (DAFF, 2012).Microfinance is the provision of a broad range of financial services such as deposits, loans, savings, payment services, money transfers, and insurance to the poor and low-income households and their micro-enterprises who are excluded from the formal financial systems. When credit is accessed through micro finance it is returned in small agreed installments (Ledgerwood, 2002).

The term microcredit and microfinance are often used interchangeably, but it is important to highlight the difference between them. Sinha and Martin (1998) define microcredit as a small loans, whereas microfinance is appropriate where NGOs and microfinance institutions supplement the loans with other financial services (such as savings, insurance, pension, and payment services) therefore, microcredit is a component of microfinance. In this study, microfinance is the main concept used for measuring the impact on agricultural activities under the smallholder farmers. During the past decade and half, the South African agricultural sector underwent a number of policy reforms and put in place a legislative framework aimed at creating an enabling environment for empowering smallholder farmers and ensuring their participation in the mainstream economy of the agricultural sector. The Department of Agriculture, Forestry and Fisheries (DAFF) has in the past identified a support/services, Micro Agricultural Financial Institution of South Africa (MAFISA); this

support/services was established in 2004 in order to facilitate the provision of equitable and large-scale access to financial support/services by economically active rural poor communities or famers on an affordable, diversified and sustainable basis. The main intention of the MAFISA support/services is to provide capital in order to increase support/services to economic activities in the sector throughout the value chain with particular focus on communal land areas and other smallholder producers as well as the related value addition activities. MAFISA support/services provides short to medium term production loan, savings mobilization, micro-enterprise insurance (soon to be introduced with time) and capacity building for member based financial institutions to enhance agricultural, forestry, and fisheries activities. Its broad aim is to provide post-settlement support/services to both targeted beneficiaries of land and agrarian reform, and to other historically disadvantaged individuals or smallholder famers who have acquired land through private means and are engaged in primary and secondary agricultural production. The objective of MAFISA is to provide funding through accredited Retail Lending Entities (RLEs) to on-lend to targeted end-users within pre-determined target areas (DAFF, 2012).

According to Mahjabeen (2008) micro agriculture finance institution raise income and consumption levels of rural households, reduce income inequality and enhance welfare. This implies that micro agriculture finance is an effective development strategy and has important policy implications regarding poverty reduction, income distribution and achievement of millennium development goals (MDGs). Hanekom (1998) indicated that, in the past the South African Government established the Agricultural Credit Board (ACB) to cater for the resource and debt needs of the weaker commercial farmers. The ACB provided credit at well below market rates. It was funded by the Agricultural Credit Fund, which was replenished annually from the National Department of Agriculture's budget. In line with the recommendations of the Strauss Commission, however the ACB was closed in 1997. The Strauss Commission had previously proposed that the Land Bank to be the leading implementing institution with respect to agricultural finance. In the case of the Land Bank, its clients were found to be agricultural cooperatives, commodity organizations, marketing boards and private farmers. On the other hand the ACB and the Land Bank have historically served only white commercial farmers and the black emerging farmers have been served by Provincial Development Finance Corporations (PDFCs) such as the Kwa-Zulu Finance Corporation, Agri-wane, the Agricultural Development Banks of Ciskei and Transkei, and the Agri-bank of the North West Province. Van Schalwyk et al., (2013), indicated that rural financial systems help to promote economic growth through mobilization of resources. Providing financial and economically viable investments to further efficient resource allocation and also contribute to better income distribution and poverty reduction by enabling access to financial markets.

Agriculture is highly regarded as the livelihood for smallholder famers in South Africa; hence it is essential for every government to introduce some sort of agricultural support/service mechanisms to the smallholder famers in order to boost their level of participation in the main stream economy of the agricultural sector of the country. However, literature reveals that smallholder farmers in South Africa are faced with many production problems like lack of finance; market inaccessibility and information; lack of infrastructure (e.g. roads, building etc); lack of capital; inaccessibility to extension services; lack of resources (e.g. production inputs) and inadequate government supports. Due to these problems the government of South Africa through the national department of Agriculture, Forestry and Fisheries (DAFF) initiated MAFISA which is intended to mitigate the constraint faced by smallholder famers. MAFISA has been in operation since 2004. There is a need to carry out a study to access the impact made by MAFISA on the livelihood of the smallholder famers in the study area since they were supported in the year 2010. The main objective of the study was to determine smallholder sugarcane farmer perception of the effect of micro agricultural finance institution of South Africa (MAFISA) on livelihood outcomes in Nkomazi local municipality. Significant relationships between socio-economic factors, net farm income of the smallholder sugarcane were explored.

2. Methodology

The study was conducted in Ehlanzeni district, Nkomazi local municipality in the Mpumalanga province. Ehlanzeni District, Nkomazi local municipality is one of the three district municipalities that form part of the Mpumalanga province. It is comprised of five local municipalities: Mbombela, Umjindi, Bushbuckridge, Nkomazi and Thaba Chweu. It features three border gates to both Swaziland and Mozambique (Matsamo, Komatipoort and Mananga border gates) and therefore movement of people from neighbouring countries to the district, and from Gauteng to either Swaziland or Mozambique, creates a catalyst for the economic life of the area. The Nkomazi area is mainly dominated by agriculture, forestry and tourism as the main economic activities characterizing the land use pattern of the area. Nkomazi local municipality is characterized by a sub-tropical climate. According to Statistics South Africa's September 2005 labour force survey, agriculture was the fourth highest formal employer in the province. It features a humid subtropical climate with

ISSN 2039-2117 (online)
ISSN 2039-9340 (print)

Mediterranean Journal of Social Sciences
MCSER Publishing, Rome-Italy

Vol 5 No 27
December 2014

mild winters and warm summers. Due to the altitude, summers are not as hot as one might expect. Summers are warm and somewhat humid, complete with precipitation. Winters in the city are dry, with relatively warm temperatures during the day and chilly temperatures at night.

In this study, a quantitative survey design was employed. The population of the study were all smallholder sugarcane farmers under MAFISA financial support in Ehlanzeni district, Nkomazi local municipality of the Mpumalanga Province. The list of all smallholder sugarcane farmers was obtained from the Mpumalanga Department of Agriculture, Rural Development and Land Administration which indicated that there were 95 smallholder sugarcane farmers comprising male and female in the study area of Ehlanzeni district, Nkomazi local municipality. A simple random sampling procedure was used to draw a sample size of 77 smallholder sugarcane MAFISA smallholder sugarcane farmers from the target population. The sample size was determined by the use of Raosoft, which accounts for 81 percent of the target population. Primary data used in this study were collected using a well-structured questionnaire as a data collection tool. The questionnaire was designed to elicit data on the demographic and socio-economic characteristics of smallholder sugarcane farmers, smallholder sugarcane farmer perception of the effect of financial support services by MAFISA, constraints facing smallholder sugarcane farmers supported by MAFISA, and suggestions for government to improve support through MAFISA financial support services. The data were obtained by means of face to face interviews, hence smallholder sugarcane farmers gained the opportunity to ask questions which they did not understand. The questions in the questionnaire were both closed and open ended questions. The questionnaire captured information about household characteristics (e.g. age, gender, and marital status, level of education, employment and size of the family).

The data from questionnaires were coded and captured into Microsoft Excel and analyzed using Statistics Package for Social Sciences (SPSS) version 22. Descriptive statistics (frequencies and percentages) were used to observe all variable in the study. Multiple linear regression model was used to determine the effects of socio-economic factors on the monthly net farm incomes of the smallholder sugarcane farmers. The general multiple linear regression model was specified as shown below.

The assumptions of least square method regarding linearity, normality and homoscadisticity were ensured.

$$Y_i = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + ... + \beta_nX_n + \mu_i................................(1)$$

Where: Y_i = Monthly net farm income of the respondent in Rands,

α = the intercept

$\beta_1 - \beta_{19}$ = regression coefficients and

μ_i = error term

The specific multiple linear regression model for the effect of socio-economic factors/ characteristics on the monthly net farm incomes of the smallholder sugarcane farmers was specified as presented below:

$$Y_i = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + ... + \beta_nX_n + \mu_i................................(2)$$

Where: Y_i = Monthly net farm income of the smallholder sugarcane farmers in Rands (dependent variable); and the independent variables are:- X_1 = Gender; X_2 = Age; X_3 = Marital status; X_4 = Educational level; X_5 = Number of dependents; X_6 = Total farm size; X_7 = Period being on MAFISA; X_8 = Training received; X_9 = Type of training; X_{10} = Farm expenses; X_{11} = Mentorship intervention received; X_{12} = Received loan for farming purposes; X_{13} = Non-farming activities; X_{14} = Access to adequate on/off farm infrastructure; X_{15} = Access to extension services; X_{16} = Frequency on meeting extension personnel; X_{17} = Established market and μ_i = Error term

Binary logistic regression model was used to analyze the results of socio-economic determinants and perception of the smallholder sugarcane farmers of the effect of MAFISA financial support services. The following model was employed to estimate the probability that socio-economic variables are the determining factors for the perception of smallholder sugarcane farmers of the effect of MAFISA financial support services. The general logistic regression model for the perception of smallholder sugarcane farmers (PSSF) of the effect of MAFISA financial support services was specified as shown below:

$$\text{Logit} (P_i) = In (P_i / 1 - P_i) = \alpha + \beta_1X_1 + ... + \beta_nX_n .... (3)$$

Where: *log* $[(P_i / (1 - P_i)] $ = logit for perception of smallholder sugarcane farmers choice

P_i = Predicted probability that Y equals to one (Positive perception of smallholder the sugarcane farmers)

$1 - P_i$ = Predicted probability that Y equals to zero (Negative perception of the smallholder sugarcane farmers)

β = Estimated parameters

X = Estimated parameters

μ_i = the error term

The specific model for the perception of smallholder sugarcane farmers (PSSF) of the effect of MAFISA financial support services was specified as shown below:

$$\text{PSSF} = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + ... + \beta_nX_n + \mu_i ....(4)$$

ISSN 2039-2117 (online)
ISSN 2039-9340 (print)

Mediterranean Journal of Social Sciences
MCSER Publishing, Rome-Italy

Vol 5 No 27
December 2014

Where: PSSF = perception of smallholder sugarcane farmers (dependent variable); and the independent variables are:- X_1 = Gender; X_2 = Age; X_3 = Marital status; X_4 = Educational level; X_5 = Number of dependents; X_6 = Total farm size; X_7 = MAFISA awareness; X_8 = Sufficiency of MAFISA fund; X_9 = Period being on MAFISA; X_{10} = Farming experience; X_{11} = Mentorship received; X_{12} = Non-farm activity; X_{13} = Adequate on/off farm infrastructure; X_{14} = Extension services; X_{15} = Contract market; X_{16} = Training received; X_{17} = Type of training received; X_{18} = Monthly net farm income and μ_i = Error term

3. Results and Discussions

Table 1 presents the results of the demographic and socio-economic characteristics of the smallholder sugarcane farmers. The table indicates that the age distribution of the of the smallholder sugarcane farmers 3.9% fell on 26-35 age range, 6.5% on 36-45, 11.7% on 46-55, 50.7% on 56-65 and finally those who were aged 66 years or more were found to be 27.3%. The results confirm that the majority of the of the smallholder sugarcane farmers are between the age 56 and 65 years old which signifies that the farmers were old and their farming productivity may be declining. These results confirm Antwi and Seahlodi (2011) that a situation similar to this poses an immense challenge to the future of agriculture particularly concerning efficiency and the succession plan to these elderly farmers when they leave agriculture due to retirement. The results also revealed that most of the smallholder sugarcane farmers in the study area were found to have been female (54.5%) and the remaining 45.5% were male. This finding signifies that the area of study is female dominant in sugarcane production. This may be because male smallholder sugarcane farmers might have slightly moved away from agricultural into the mining sector.

Table 1 also shows that 45.5% of the smallholder sugarcane farmers were married whereas 39% were widowed and 15.6% single. Oladele (2011) suggested that the greater the percentage of married famers helps to provide additional family farm labour. The analysis of the study revealed that majority of the smallholder sugarcane farmers were 100% Africans, it further revealed that 26% of the educational level of the smallholder sugarcane farmers in the study area did not acquire formal education at all, whereas the majority (54.5%) of the farmers attended primary school, 11.7% secondary school and lastly 7.8% achieved tertiary education. This shows that the farmers dominating in the area of study are not educated, which indicates a serious challenge in-terms of enhancing agricultural growth. Hence, dissemination of innovations would not be understood and adopted. According to Botlhoko and Oladele (2013), illiterate farmers are not likely to accept new ways of farming than literate farmers, hence their productivity decreases and eventually led to a reduced amount of farms' returns. Hence education is regarded as a basic human need, essential for meeting other basic needs and acceleration of overall agricultural development through training skilled workers and enable farmers to make fruitful use of existing farm resources and accurate assessment of new ones (Bembridge, 1988).

Table 1 further illustrate that most of the farmers in the study area had less than or equal to five number of dependants which amount to 42.9% and 46.8% of the farmers were having a household size ranging from six to ten people. Balarane and Oladele (2012) indicated that a large household size might be an advantage to farm labour, however poses a negative effect on the farm income. The results also indicates that about 80.6% of the smallholder sugarcane farmers had a total farm size ranging between 6ha and 10ha, 13% had more than or equal to 11ha and 6.5% of the farmers had at least less than or equal to 5ha. Majority (45.5%) of the farmers in the study area had farming experience of more than or equal to twenty one years and this may be because farming was still dominated by older people.

Table 1 indicates that about 71.4% of the farmers confirmed that they have contact with government extension personnel and only 28.6% of the farmers did not have any contact with government extension personnel at all or they have received extension service occasionally. William et al (2008) stated that the ration of extension personnel to farmer was 1: 500 farmers which make it very difficult for extension personnel to meet with all farmers at a convenient time to provide them with required information and demonstration on how to use farm resources to reach optimal yields. The farmers range of annual farm income derived from the production and sales of sugarcane, 7.8% of the farmers fall in a range of less than or equal to R50 000, 27.3% between R50 001-R100 000, 13% between R100 001-150 000 and finally majority of 52% fall in a range above R150 001. This reveals that the majority of the farmers return from sugarcane sales is high looking at the average annual farm income of R150 000. The results further show that almost 97.4% of the farmers in the study area are not involved in non-farming activities and only 2.6% of the farmers are actively involved in non-farming activities. According to Botlhoko and Oladele (2013) most people make use of agriculture as an alternative employment and to ensure food security for their livelihood, hence farm income generation.

Table 1: Demographic and socio-economic characteristics of the smallholder farmers

Variables	Frequency	Percentage
Age		
26 – 35	3	3.9
36 – 45	5	6.5
46 – 55	9	11.7
56 – 65	39	50.7
≥ 66	21	27.3
Gender		
Male	35	45.5
Female	42	54.5
Marital Status		
Single	12	15.6
Married	35	45.5
Widow	30	39
Race		
African	77	100
Educational level		
None	20	26
Primary	42	54.5
Secondary	9	11.7
Tertiary	6	7.8
Number of dependant		
≤5	33	42.9
6 – 10	26	33.8
11 – 20	11	14.3
≥21	7	9.1
Total size of household		
≤5	20	26
6 – 10	36	46.8
11 – 20	14	18.2
≥21	7	9.1
Farm size (ha)		
≤5	5	6.5
6 -10	62	80.6
≥11	10	13
Years in farming/experience		
≤5	6	7.8
6 – 10	14	18.2
11 – 20	22	29.6
≥21	35	45.5
Extension services/contact		
Yes	55	71.4
No	22	28.6
Level of annual farm income (R)		
≤50 000	6	7.8
50 001 – 100 000	21	27.3
100 001 – 150 000	10	13
≥150 001	40	52
Non-farming activities		
Yes	2	2.6
No	75	97.4

Table 2 indicates that about 71.4% of the smallholder sugarcane farmers agreed that having access to MAFISA financial support did improve the level of food security and standard of living on the livelihood of the farmers. The results reveal that 92.2% agreed that MAFISA financial support have improved their level of education and 77.9% of the farmers disagree that more youth showed interest in farming as a result of the support received from MAFISA. approximately 57% of the smallholder sugarcane farmers agreed that unemployment rate has been reduced, about 100% of the smallholder

ISSN 2039-2117 (online)
ISSN 2039-9340 (print)

Mediterranean Journal of Social Sciences
MCSER Publishing, Rome-Italy

Vol 5 No 27
December 2014

sugarcane farmers have agreed that technical training and management skills has improved. In addition, 81.8% of the farmers agreed that the support has enhanced the quality of their lives.

The results further indicate that 96.1% of the farmers have agreed that support has improved the social environment of the farmers and about 94.8% also agreed that the support has improved the financial skills, health management skills and accessibility to formal markets. Furthermore, 67.5% of the farmers disagreed that the support has enhanced the level of diversification of the farmers' livelihood. About 46.8% of the farmers were undecided whether the support was bureaucratic or not and 100% of the farmers also agreed that the support has improved the level of leadership and technical knowledge skills. Finally the results reveal that 96.1% of the farmers agreed that the support received has improved their technical knowledge.

Table 2: Smallholder sugarcane farmers' perception of the effect of financial support services by MAFISA

Livelihood outcomes	A	U	D
Standard of living has improved	58 (75.3)	2 (2.6)	17 (22.1)
Food security has been enhanced	58 (75.3)	5 (6.5)	14 (18.2)
Support improved your educational level	71 (92.2)	0 (0)	6 (7.8)
More youth is involved on the Support	11 (14.3)	3 (3.9)	63 (81.8)
Unemployment has been reduced by the support on the surrounding area	74 (96.1)	0 (0)	3 (3.9)
Technical training has been given	77 (100)	0 (0)	0 (0)
Management skills has improved	77 (100)	0 (0)	0 (0)
Support has enhanced the quality of lives of smallholder sugarcane farmers	63 (81.8)	0 (0)	14 (18.2)
Support has improved the social environment	74 (96.1)	0 (0)	3 (3.9)
Support improved financial skills of smallholder sugarcane farmers such as book keeping, savings	77 (100)	0 (0)	0 (0)
Health management skills has been given	77 (100)	0 (0)	0 (0)
Strategic partner/mentor has improve accessibility to market	77 (100)	0 (0)	0 (0)
Diversification of livelihood has been enhanced	22 (28.6)	3 (3.9)	52 (67.5)
The support is bureaucratic	16 (20.8)	36 (46.8)	25 (32.5)
Leadership skills has improved	77 (100)	0 (0)	0 (0)
Technical knowledge has improved	77 (100)	0 (0)	0 (0)
communication with extension/enterprise officer has improved	77 (100)	0 (0)	0 (0)
The support has improved your Capacity building	77 (100)	0 (0)	0 (0)

A=Agree, U=Undecided, D=Disagree,

Table 3 presents the potential constraints facing MAFISA financial support upon the smallholder sugarcane farmers. The results show that 97.4% of the farmers had a high level of land scarcity, 100% of the farmers also have indicated a low level of being exposed to drought. The results also revealed higher (100%) level of poor producer prices and lower rate (100%) lack of access to formal markets. This may be because most of the farmers in the study area have established markets for their produce. About 96.1% of the farmers indicated a lower level of incident on crop diseases and 100% of the farmers revealed a low level of lack water supply.

The results further show that 77.9% of the farmers had a low level of lack of financial assistance. Approximately 61% of the farmers indicated a moderate level of farmers' lack of incentives or motivation and about 100% of the farmers had a low level of lack of access to available information. About 92.2% of the farmers revealed that they have experienced a high level of lack of input resources and 96.1% of the farmers had a low level of lack of infrastructure. Table 3 further indicates that 100% of the farmers were exposed to high level of input cost and 100% of the farmers were faced with low level of lack of leadership skills, technical knowledge and post-harvest management.

Table 3: Constraints facing smallholder sugarcane farmers supported by MAFISA

Possible constrains	High	Moderate	low
Arable activities	**Freq (%)**	**Freq (%)**	**Freq (%)**
Land scarcity	75 (97.4)	0 (0)	2 (2.6)
Drought	0 (0)	0 (0)	77 (100)
Poor producer prices	77 (100)	0 (0)	0 (0)
Lack of market	0 (0)	0 (0)	77 (100)
Crop diseases	0 (0)	3 (3.9)	74 (96.1)
Lack of water	0 (0)	0 (0)	77 (100)
General	**Freq (%)**	**Freq (%)**	**Freq (%)**
Lack of finance	9 (11.7)	8 (10.4)	60 (77.9)
Lack of incentives or motivation	23 (29.9)	47 (61.0)	7 (9.1)
Lack of information	0 (0)	0 (0)	77 (100)
Lack of input resources	71 (92.2)	0 (0)	6 (7.8)
Lack of infrastructure	3 (3.9)	0 (0)	74 (96.1)
High Inputs cost	77 (100)	0 (0)	0 (0)
Lack of leadership skills	0 (0)	0 (0)	77 (100)
Lack of technical knowledge	0 (0)	0 (0)	77 (100)
Post-harvest management	0 (0)	0 (0)	77 (100)

The results of the multiple linear regression analysis are presented in Table 4 below. A deterministic regression function was employed to the data and the regression estimates of the relationship between dependent variable (farmers' monthly net farm income) and independent variables (socio-economic characteristics) were determined. The independent variables were significantly related to the farmers' monthly net farm incomes with F value of 5.153 at $p < 0.001$. Also, R value of 0.795 shows that there was a strong correlation between independent variables and farmers' monthly net farm incomes (dependent variable).

The results further predicted 63.2 percent ($R^2 = 0.632$) of the dependent variable accounted for by the independent variables in change of farmers' monthly net farm incomes, while 36.8 percent was accounted for by other independent variables except those in the equation. Durbin-Watson value was 1.886, which indicated that there was no autocorrelation. Nineteen independent variables were used. However, six out of the nineteen independent variables that were used had statistically significant effect on the dependent variable (farmers' monthly net farm incomes). The significant independent variables were: age significant at 10 percent (t = -3.497); marital status significant at 10 percent (t = -3.273); type of training significant at10 percent (t = -3.433); farm expenses significant at 1 percent (t = 4.895); loan for farming purposes significant at 10 percent (t = -2.959) and the frequency of meeting extension personnel significant at 5 percent (t = 2.079).

From the results in table 4, it can be deduced that the age of the respondent had a negative impact on the farmers' monthly net farm income by a reduction of R0.357. This may be as a result that the older the farmers the lower their productivity in farming. Oyinbo *et al.,* (2012) stipulated that this could be mostly due to less interest of older farmers to innovation unlike young well-informed farmers who have high interest to new innovation. The results also show that marital status of the smallholder sugarcane farmers had a negative impact on the farmers' monthly net farm income by a reduction of R0.329. This may be due to that married smallholder sugarcane farmers could work together with their spouses unlike single or widowed smallholder sugarcane farmers. The results also revealed that farmers' monthly net farm income decreased by R0.323 as a result of the type of training received by the smallholder sugarcane farmers. This may be due the relevancy of the type of training received by the smallholder sugarcane farmers.

Farm expenses may increase farmers' monthly net farm income by R0.576. This could happen only if cost minimization variable way be taken into consideration, i.e. farm cost minimization and financial management training. Loan taken for farming purposes had a negative influence on the farmers' monthly net farm income by a reduction of R0.283. This may be because the smallholder sugarcane farmers may be experiencing loan arrears, high interest rate and high monthly loan repayment amount. This was confirmed by Makhura *et al.,* (2011) by stating that most of the farmers who made profits were not in arrears. The frequency of meeting extension personnel by the smallholder sugarcane farmers could have a positive impact by an increase of R0.228 on the farmers' monthly net farm income.

Table 4: Parameter estimates of the effects of socio-economic factors on monthly net farm incomes of the smallholder sugarcane farmers

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	117536.534	39745.667		2.957	.005
Gender	7083.279	6741.708	.102	1.051	.298
Age	-1032.066	295.154	-.357	-3.497	**.001***
Marital status	-22478.429	6868.770	-.329	-3.273	**.002***
Educational level	-58.065	6445.323	-.001	-.009	.993
Number dependents	-132.865	547.521	-.024	-.243	.809
Total Farm Size	-1309.080	1510.909	-.089	-.866	.390
Sufficiency of MAFISA fund	-4279.785	6693.216	-.063	-.639	.525
Period being on MAFISA	4664.428	3279.447	.138	1.422	.160
Training received	8529.534	6780.689	.116	1.258	.214
Type of training	-27157.977	7911.680	-.323	-3.433	**.001***
Farm expenses	.246	.050	.576	4.895	**.000*****
The type of strategic intervention received	-4575.615	7409.374	-.053	-.618	.539
Received loan for farming purposes	-60673.294	20503.850	-.283	-2.959	**.004***
Non-farming activities	-2192.436	10513.116	-.020	-.209	.836
Access to adequate infrastructure	3363.644	6191.983	.049	.543	.589
Access to extension services	1528.191	6774.474	.020	.226	.822
Frequency of meeting extension personnel	18400.127	8852.388	.228	2.079	**.042****
Established market	9535.910	7736.704	.111	1.233	.223
R			.795a		
R^2			.632		
Adjusted R Square			.509		
Durbin-Watson			1.886		
F			5.153		
P			.000***		

Significant at 1%*, 5%** and 10%*** probability level

The binary logistic regression specification was suited to models where the dependent variable was dichotomous, which in this case was MAFISA financial support improved and not improved the livelihood of the participants. MAFISA financial support livelihood outcome was measured using a value of one and zero, were 1 represents improved livelihood and zero represent unimproved livelihood. The binary logistic regression therefore provided a model of observing the probability of a MAFISA financial support becoming either livelihood improved or not improved. Table 5 below, shows the independent variable and their estimated coefficient (β values), standard error and significance values.

Table 5: Parameter estimates of the Binary logistic regression model on the effect of socio-economic variables on farmers perception

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	-3.054	.939	10.576	1	**.001*****	.047
Age	-.020	.048	.183	1	.668	.980
Marital status	1.580	.926	2.911	1	**.088***	4.855
Educational level	.123	.714	.029	1	.864	1.130
Number of dependants	.030	.057	.278	1	.598	1.031
Total farm size	-.074	.162	.208	1	.649	.929
MAFISA awareness	1.457	.753	3.749	1	**.053***	4.295
Sufficiency of MAFISA	.269	.743	.131	1	.717	1.308
Period being on MAFISA	.357	.350	1.041	1	.308	1.429
Farming experience	-.022	.034	.445	1	.504	.978
Mentorship intervention received	1.414	.886	2.549	1	.110	4.114
Non-farming activities	2.329	1.279	3.313	1	**.069***	10.263
Adequate on/off farm infrastructure	2.911	.969	9.026	1	**.003****	18.372
Extension services	-.048	.761	.004	1	.950	.953
Contract market	-.584	.788	.550	1	.459	.558
Training received	-.545	.796	.469	1	.493	.580
Type of training received	.383	.903	.180	1	.672	1.466
Monthly net farm income	.000	.000	1.175	1	.278	1.000
Constant	-1.597	3.240	.243	1	.622	.203
-2 Log likelihood			68.312[a]			
Cox & Snell R Square			.380			
Nagelkerke R Square			.511			

Significant at 1%***, 5%** and 10%* probability level

Two additional descriptive measures of goodness-of-fit presented in Table 5 are R indices, defined by Cox and Snell and Nagelkerke respectively. The Cox and Snell R square is **0.380** and the Nagelkerke R square is **0.511**. The R square value of both indices lies between 0 and 1, confirming the goodness of fit of the model. The results of the regression model on the factors affecting the perception of smallholder sugarcane farmers are shown in the Table 5. The results show that gender, marital status, MAFISA awareness, non-farming activities and adequate on/off farm infrastructure significantly affect the perception of smallholder sugarcane farmers in Nkomazi local municipality.

The results further reveals that marital status, MAFISA awareness, non-farming activities and adequate on/off farm infrastructure positively affect the perception of smallholder sugarcane farmers, whereas gender negatively influence the probability of the perception of smallholder sugarcane farmers. Adequate on/off farm infrastructure are associated with a positive probability of the perception of smallholder sugarcane farmers. The sign of the coefficient (B= 2.911) is positive and significant at 5%, this may be due to the lack of adequate on/off farm infrastructure faced by the smallholder sugarcane farmers, which intern restricts the productivity of the farming activities, hence low output and farm income.

On the other hand gender is associated with negative probability of the perception of smallholder sugarcane farmers with the sign of the coefficient (B= -3.054) is negative and significant at 1%, Household heads in the study area were mostly female (54.5%) and male (45.5%). This agrees with Ortmann and King (2005) who argued that there are fewer men in agriculture because they mostly part take in non-farming activities such as contraction, mining and motor industries. According to Ojogho (2010) rural women have historically played a crucial role in agriculture for food production and household food security. This is more evident in developing countries such as Nigeria, South Africa and Ghana, (Manuh, 1998). Karki (2009) accepts that rural women alone are responsible for up to 50 percent of the world's food production and they also contribute about 60 to 80 percent of the production in many developing countries.

4. Conclusion

In conclusion the analysis of the data and findings of the research study discovered that most of the smallholder sugarcane farmers were old age (56-65) and gender wise female dominant. Majority of the farmers were married, an educational level of primary school, household size range (6-10), total farm size ranging between 6ha and 10ha, have farming experience of more than or equal to twenty one years, having contacts to government extension personnel,

having annual farm income ranging above R150 001 and the study has also shown that most the farmers were not involved in non-farming activities other than farming. The results of the study highlighted that most of the smallholder sugarcane farmers agreed that having access to MAFISA financial support did improve the level of food security and standard of living on the livelihood of the farmers. All the farmers agreed that MAFISA financial support have improved their level of education and majority of the farmers disagree that more youth showed interest in farming as a result of the support received from MAFISA. Most of the farmers agreed that support has reduced unemployment rate, technical training and management skills has improved, enhanced the quality of their lives, improved the social environment, improved the financial skills, health management skills and accessibility to formal markets.

The farmers highlighted the following constraints facing MAFISA financial support and the smallholder farmers: high level of land scarcity, low level of being exposed to drought. higher level of poor producer prices, lower rate of lack of access to formal markets, lower level of incident on crop diseases, low level of lack water supply, low level of lack of financial assistance, moderate level of farmers' lack of incentives or motivation, low level of lack of access to available information, high level of lack of input resources, low level of lack of infrastructure, high level of input cost, low level of lack of leadership skills, technical knowledge and post-harvest management. The study further revealed that majority of the smallholder sugarcane farmers recommended that government should improve on the awareness of MAFISA financial support, assist farmers with the development of feasible farm business plans in order to improve the level of support through MAFISA financial services and increase the amount of MAFISA funding.

From the results of the multiple linear regression analysis, the significant independent variables of the farmers' monthly net farm income were: age, marital, type of training, farm expenses, loan for farming purposes and the frequency of meeting extension personnel. These were the most important determinants of increases in the monthly net farm income of the smallholder sugarcane farmers in the study area. Hence, a change in age, marital, type of training, farm expenses, loan for farming purposes and the frequency of meeting extension personnel would improve the farmers monthly net farm income. From the result of the binary logistic regression analysis, two additional descriptive measures of goodness-of-fit were R indices, defined by Cox and Snell and Nagelkerke respectively. The significant independent variables of the farmers that had an effect on the perception of smallholder sugarcane farmers in Nkomazi local municipality were: gender, marital status, MAFISA awareness, non-farming activities and adequate infrastructure. The results further revealed that marital status, MAFISA awareness, non-farming activities and adequate on/off farm infrastructure positively affected the perception of smallholder sugarcane farmers, whereas gender negatively influenced the probability of the perception of smallholder sugarcane farmers. The significant independent variables were: age significant at 10 percent ($t = -3.497$); marital status significant at 10 percent ($t = -3.273$); type of training significant at 10 percent ($t = -3.433$); farm expenses significant at 1 percent ($t = 4.895$); loan for farming purposes significant at 10 percent ($t = -2.959$) and the frequency of meeting extension personnel significant at 5 percent ($t = 2.079$).

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