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THE CONTRIBUTION OF OFF-FARM AND ON-FARM INVESTMENT ON THE WEALTH STATUS OF THE ENTREPRENEURS: EVIDENCE FROM MBEYA DISTRICT, TANZANIA

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Abstract: **The level of investment and the ultimate contribution to wealth enhancement at the individual level vary according to the type of investment. This paper analyzes the contribution of off-farm and on-farm investment on the overall wealth status of the entrepreneurs with the aim of finding out the contribution of the two categories of enterprises on income generation and employment creation. Variables such as enterprise returns, education level, household size, experience in business, age and sex of the respondent were included in the analysis. Quantitative evidences were obtained via the Ordinary Least Square (OLS) regression method. The findings reveal that off-farm operators have more wealth than the on-farm operatorsat P<0.001 level of significance; the difference is attributed to the fact that off-farm investments entail goods that have relatively inelastic demand where an increase in price may not affect their consumption. The study concurs with the micro economic theories of demand and supply that support the fact that goods with inelastic demand respond slowly to price elasticity compared to those with elastic demand. The study recommends allocation of resources into the construction of proper means of transport to create market opportunities for on-farm and off-farm enterprises and to allow investments currently dominating in urban localities to find their way into rural areas.**

Keywords *– Off-farm, on-farm investment, contribution, Tanzania.*

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I INTRODUCTION

There have been several credit providers in developing countries, namely formal, semiformal and informal sources. While the formal and semiformal sources dominate in urban areas, the informal ones seem to dominate in rural areas. Each of these credit providers serve a unique pool of borrowers whose ability to use credit is different (Brannen, 2010; Komicha, 2007 and Vlieghe, 2010). Many of the formal sources require credit to be secured by tangible assets or some form of guarantee that repayment will be made. Unlike other credit lines like banks, credit from saving and credit cooperative (SACCOS) are issued promptly with little or no paper work because credit worthiness can be established easily basing on beneficiaries common bonds (Miracle *et al.*, 1980). The cost of credit tends to be low not only due to low overhead but also because costs are absorbed by contributions from members and employees (Magali, 2013a; Neifeld, 1931; Qin and Ndiege, 2013). These credit institutions normally operate within the premises of members and are well positioned to serve poor people both in urban and rural areas.

The informal sector which includes the Rotating Savings and Credit Associations (ROSCAS), Village Community Banks (VICOBA), specialised money lenders and other creditors by way of traders, neighbours, friends and relatives serve as another source of credit for investment for individuals. However, credit from these sources is normally associated with high interest rates thereby making this form of financing expensive for micro entrepreneurs (Aleem, 1990). Some lenders in this category, for example relatives, friends and neighbours, may occasionally charge low interest rates or not at all. The irony is that such lenders have limited capital to meet the varied demands for credit among entrepreneurs. Although the contribution of credit on an individual's

wellbeing has been established (Kasambala, 2017; Cheng and Degryse, 2006), little is known with respect to the specific contribution of off-farm and on-farm investments on the wealth status of SACCOS members and non-members. This study seeks to inform the policy makers and the public at large on the contribution of off and on-farm investments on the wealth status of individual entrepreneurs and hence their ultimate effect on employment creation and income generation.

II LITERATURE REVIEW

Generally, the act of investing is not a risk free activity. Instead, it is done when there is a reasonable expectation that business returns will increase than is the case with the original level of investment. This study identifies the types of investments currently operated by the entrepreneurs and groups them accordingly into off and on-farm investments.

On-farm investments are defined in the literature as farming activities that involve intensive management, large capital and improved technologies; generally owned by the operator who does not necessary stay in the farm and done with the intention of making a profit (Hennessy and O Brien, 2008; Mathew, 2004). Meanwhile, off-farm investments are conceptualized as those income generating activities that are done by the farmer to supplement the income from the on-farm investment.

This study defined on-farm investments as income generating activities which have a direct link to agriculture and agricultural related activities. Economic activities categorized into the group of on-farm investments include selling agricultural produce (legumes and cereals), horticultural produce (fruits and vegetables), food vending, livestock keeping (such as dairy farmers and poultry rearing), crop production, fish and meat butcher shops. This study includes maize milling and paddy husking machines, sunflower oil extractors timber and charcoal whole-sellers into the category of on-farm investments.

On the other hand, off-farm investments are been defined in this paper as those enterprises with no direct link to agriculture and agricultural related activities. For the purpose of this study, such off-farm activities include tailoring, hair salon, welding and mechanics. Hardware shops, male and female wear shops, infant wear and equipment shops, shoe shops, beauty shops, stationeries and shops for home appliances have also been included in the category of off-farm investments.

Several other studies (see for example Hennessy and Obrien, 2008; Lass *et al*., 1989; Goodwin and Mishra, 2004) have been conducted to examine the contribution of off on-farm investments on household income in various parts of the world. Such studies found that, among other things, personal characteristics such as age, education level, sex of the individual, marital status, past experience in business and household size influence investment decisions and ultimately the allocation of income at a household level (Zahonogo, 2011).

Despite the extensive and diverse literature on the factors influencing involvement in on and off-farm investment, little is known about the contribution of off-farm and on-farm investments on the wealth status of the individual SACCOS members and non-members. This study aims to fill this existing knowledge gap. The findings are expected to provide important guidance to policy makers towards formulation of appropriate policies aiming at improving the wellbeing of the people.

III METHODOLOGY

The study used cross sectional data where 239 SACCOS members and 241 non-members were selected for the study to make a total of 480 respondents. The collected information was analyzed using STATA. The underneath specification has been designed to test the study hypothesis which aims at assessing whether the engagement in off-farm than on-farm investments increases the likelihood of accumulating more wealth at the individual level. The specification starts by considering an individual that seeks to maximize consumption through the selected utility model *u(.)* in an enterprise of their choice using a set of exogenous household characteristics *x*. When an individual is faced with a constraint to maximize utility, he or she will make a choice between the two that provides the greater utility, basing on observable effects and unobservable aspects of the preference of an individual.

Let U_* represent an individual's utility level with an attempt to maximize the same. Consider the formulation below where the life cycle theory of saving and consumption provide a building block for the existing relationship between wealth and consumption expenditure for investment purposes, the rationale is to ascertain the contribution of existing investment on the income earned using their wealth status.

Empirical demonstration of the life-cycle models begins by defining x to be the choice vector in a life-time period s, life-time utility in any period t may be considered as sum of period by period utility indices

$$u_s(x_s)u_t^* = \sum_s \emptyset^{s-t} u_s(x_s)\ fors = t, \dots \dots L, \dots\dots\dots\dots\dots \quad (1)$$

Where L is the number of periods in the lifetime of the individual decision maker and $\emptyset(= 1/(1+\delta))$ represent the subjective time discount factor (Blundell, 1988). Discount factor can be interpreted not as a reduction in the appreciation of future events but as a subjective probability that the event may occur or not and not because they aren't valued, but because they may not occur. Life cycle utility is maximized subject to the combination of a within period budget identity.

$P_S' x_S = y_S$

……..... (2)

Where y_S is total period S consumption expenditure, and the asset accumulation constraint;

$y_s = \cup_s + r_s A_{S-1}$

……..……..…… (3)

Where $\cup_s$ is the sum earned and $r_s A_{S-1}$ is the interest income.A_s is the level of asset at the end of period s, r_s is the rate of interest rate earned on A_{S-1} during period s. Linking the life cycle hypothesis to the assumption of perfect capital market where the interest rate is independent of the current net worth A_s(a sequence of asset level) or saving decisions for $s = 1, \ldots L$can be freely chosen so as to maximize life-cycle utility.

Combining the two budget constraints to complete the life cycle hypothesis in defining the lifetime wealth;

$\sum_s P_S' x_S = (1 + r_t) A_{t-1} + \sum_s \cup_s =$
$W_t;$ $thelifetimewealth$

……..... (4)

The expression above reveals a linear relationship between earnings and consumption expenditure which reconcile with the permanent income and Keynesian consumption and saving theory. Thus, the response variable is the real wealth status and modeled as follows;

$\sum_{j=1}^{J} W_t^{i,j} a_{n,t}^{i,j} = \beta w_a + {}'rZ_a + bE_a + qC_a + \varepsilon$

…….…..... (5)

The observable vector of individual characteristics is denoted by *w*: this include demographic characteristics such as household size, sex, the age of the client, education level and the enterprises returns attained at the individual level. The vectors Z_a denotes attributes which are location specific have a direct effect on the wealth status that include distance from the market centres. E_a is a dummy variable that is 1for off-farm investment and 0, for on-farm investment. C_a is the invested capital in the business. The random terms, ε represents the stochastic elements that are specific to and known only by the individual but not the observer (analyst). Thus, ε_a might represent features like an intangible general preference for certain consumption goods and the unmeasured entrepreneurial skills.

Because the response variable is observable, it can be treated as ordinary regression. Ordinary least squares estimates of parameters will provide efficient and unbiased estimates (Maddala, 1983; Greene, 2012). The linearity assumption is not as narrow as it must first appear, instead in the regression context; linearity refers to the manner in which the parameters and the disturbance enter the equation, not necessarily to the relationship among the variables (Green, 2012).

IV RESULTS AND DISCUSSION

Empirical Evidence on the Contribution of off-farm and on-farm investment on the wealth status of the entrepreneur

The study aims at testing the study hypothesis that seeks to investigate whether there is any significant difference in wealth status between SACCOS borrowers investing in on- and off-farm investment. The results are presented in Table 1 showing the estimated coefficients, the standard errors, t-values, the probability level of significance, R-square and the results of test statistic done to test multicollinearity, heteroscedasticity and autocorrelation problems. The Breusch-Pagan/Cook-Weisberg test for heteroscedasticity for the fitted values reveals a chi-square which is not significant that allows to accept the null hypothesis of homoscedasticity. This implies the estimated variance of the residues from regression does not depend on the values of the independent variables, therefore no heteroscedasticity.

The findings in Table 1 reveal further that the responding variables have well explained the response variable by 52.41%. The Durbin-Watson value of 1.807, which is closer to 2, shows that the stochastic is serially independent meaning that the disturbance occurring at one point of a set of observations is not correlated with any other disturbance occurring at another point of the set of observations. The model was significant at $P < 0.001$ level, implying that the explanatory variables have successfully explained the variable. The mean variance inflation factor (VIF) was found to be 1.38 which indicates the absence of the problem of multicollinearity in the fitted data. The resultant regression coefficients were as follows;

The results in Table 1show that the regression coefficient for household size acquired a negative sign as it was hypothesized and was significant at 1% percent level of significance. This implies that as household size increases the ability to purchase assets as a store of wealth decreases. This is attributed to the burden of caring a large family while they have little resources. Similarly, the World Bank (2005) observes negative the relationship between wealth and household size, where the poor were found to have large household sizes compared to the wealthy individuals. It is further reported that the large household motivated entrepreneurs to involve in on-farm investments particularly when the household is composed of older children (Hennessy and O Brien, 2008).

The findings indicate significant positive contributions of off-farm investments on the wealth status of the individual entrepreneurs at $P < 0.001$ level of significance. This shows that off-farm investment contributes

significantly more on wealth at the individual level than the on-farm investments. Most of the off-farm businesses have higher turnover enabling them to purchase durable assets that constitute the wealth status of the individual. This is also augmented by the fact that most off-farm investors sell their goods with more inelastic demand than the on-farm, contributing more significantly to revenue with increases in prices.

The regression coefficient for the sex of the respondent acquired a negative sign and was insignificant. This implies that males have more wealth than female entrepreneurs; this is associated with the workload surrounding the female entrepreneurs which left them with fewer resources and incentive for investment purposes.

The regression coefficient for the variable "years in schooling" acquired a positive sign as hypothesized; the coefficient was significant at 1% level of significance. This implies that the number of years spent in schooling have a positive effect on the wealth status of the individual entrepreneur. Education increases the ability to take advantage of income earning opportunities (World Bank, 2005). The amount of credit acquired by the entrepreneur shows a positive sign, implying that the there is a positive contribution of received credit on the wealth status of the individual, the coefficient was significantly different from zero at $P < 0.001$ level of significance. The positive relationship of credit on the beneficiaries livelihood and wellbeing as a result of poverty reduction is adequately supported by literature; see for example Qin and Ndiege (2013), Magali (2013a and b) and Kushoka (2013).

With respect to the age of the respondent, the findings show that the regression coefficient that stands for the age of the respondent acquired a positive sign implying that the wealth status of an individual increases with age as it has been suggested by the life cycle theory of saving, the young but with more than 18 years having less wealth as compared to the elders who have accumulate wealth over time. The findings provide sufficient evidence to support the theory that wealth tend to increase with age in the first place (Hardwick, 1999). The effect of age of the individual on investment and income decision has been much debated in the literature, several models have supported the life cycle hypothesis (Hennessy and O Brien, 2008), which contend that individuals should increase their investments in earlier years in order to accumulate assets which can support their life later.

With respect to entrepreneurs' experience, the study suggests a significant positive contribution (experience in business) on their wealth status. The coefficient was significant at 1% level of significance, indicating past experience in business has an important effect in terms of wealth accumulation of the entrepreneur. Meanwhile the average earning realized by the respondents was found to have a positive influence on the status of wealth owned by the entrepreneur, meaning that as earnings increase the effect on the wealth status also continuously increases. The coefficient was significant different from zero at a probability level of 1%.

Table 1: Contribution of off farm and on farm investments on the Wealth Status of the Respondent (OLS Regression Results)

Dependent variable = Real wealth

Explanatory variable	Coefficient	Std Error	t-value	P[|Z|>z]	Expected sign	VIF	1/VIF
Household size	-0.267	0.026	-10.41	0.000***	-	1.15	0.868
D1gender	-0.001	0.116	-0.01	0.993	-	1.17	0.855
Years of schooling	0.076	0.020	3.69	0.000***	+	1.10	0.909
Frequency of credit	0.376	0.100	3.75	0.000***	+	1.47	0.681
Age of the client	0.855	0.249	3.42	0.001***	+	1.47	0.680
Total earnings	0.227	0.048	4.74	0.000***	+	1.72	0.580
LNtotcapital	0.032	0.010	3.03	0.003***	+	1.77	0.565
distance	-0.007	0.047	-0.15	0.879	-	1.24	0.806
D1enterprise	0.325	0.12	2.73	0.007***	+	1.25	0.80
Past experience	0.236	0.068	3.48	0.001***	+	1.48	0.676
Cons	8.978	1.109	8.09	0.000***			

Mean Variance Inflation Factor (VIF) = 1.38	
Durbin-Watson (DW)	= 1.807
F(10, 447)	49.22
Prob> F	0.0000***
R-square	0.5241
Adjusted R – square	0.5134
Number of observations	458

Source: own survey, 2012

Breusch – Pagan / Cook – Weisberg test for heteroskedasticity

Ho: constant variance; Variables: fitted values of real wealth at final phase of data collection

Chi 2 (1) = 0.19; Prob> chi 2 = 0.663

Since the value of Prob> chi square is not significant there is no heteroskedasticity problem.

V CONCLUSION AND RECOMMENDATION

The main objective of this paper was to assess the contribution of off and on-farm investments on wealth status of the individual entrepreneurs.An OLS regression was employed in the analysis to test the contribution of off-farm and on-farm investments on the wealth status of the respondents. The findings show that household size, access to credit, level of education, age of the entrepreneur, business returns, invested capital, past experience and type of investments undertaken by the individual respondent significantly affect the wealth status of the individual entrepreneur. The findings reveal that off-farm operators have more wealth than the on-farm operators and the difference in wealth status is attributed to the fact that off-farm investments involve goods that have inelastic demand whereby an increase in price may not affect their consumption.

Off-farm investments include hair salons, tailoring, carpentry, various shops like those for hardware, welding and mechanics. Apparently, most of the customers of these enterprises are medium to relatively high income people, for whom an increase in price won't affect their consumption significantly. As a result, this suggests that off-farm operators are more likely to acquire more wealth than their counterparts. To a large extent, on-farm businesses do sell their goods in a market with an elastic demand. They thus suffer the problem of price fluctuations and this tends to affect their revenue and ultimately income and wealth status. The study concurs with the micro economic theories of demand and supply arguing that goods with inelastic demand respond slowly to price elasticity compared to those with elastic demand. The study findings provide sufficient evidence to support that off-farm investments contribute more significantly on wealth to the individual operator than on-farm investments.

In order to improve access to market opportunities to the rural people there is a need to improve infrastructure so that even the SACCOS members who are found in the villages and in the remote areas can get involved in off-farm investments which seem more rewarding. Lucrative, accessible markets do increase business returns, improve earnings and enable entrepreneurs to accumulate assets and Savings can be done through SACCOS where members can also earn interest income and dividends resulting from purchased shares.

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