

Original Article

Microfinance Institutions and Crop Incomes of Rural Farm Households: Some Evidence from Tanzania

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Abstract - This paper provides empirical evidence on the impact of credits provided by microfinance institutions on crop incomes of rural farm households in Tanzania. The paper is based on a survey of rural farm households in the Iringa region of Tanzania. A sample of 457 households was involved. Using both qualitative and quantitative analyses, the study found that MFIs services have a positive but statistically insignificant impact on crop incomes of farm households. Policy implications include the formation of specialized agricultural banks and/or microfinance programs to deal with the unique financial needs of farm households. Government investments should mostly be in physical agricultural infrastructure in rural areas to enhance agriculture productivity, trade, and exchange.

Keywords - Microfinance, Impact, Crop income, Farm households, and Tanzania

I. INTRODUCTION

For the majority of Tanzanians, whose incomes are very low, access to financial services offers the possibility of managing scarce household resources more efficiently, protection against risk, provision for future, and taking advantage of investments for economic returns (Microfinance policy, 2017; Mahantaet *et al.*, 2012; CGAP, 2003). Savings and credit are among the financial services most beneficial for enterprises (Kuzilwa, 2002; Duvendack and Palmer-Jones, 2011). Indeed the power of microcredit on borrowers has been advocated by proponents from time to time. However, the contention around microfinance institutions (MFIs) is their ability to lift people out of poverty. At the international and Tanzanian context, high loan repayment rates among borrowers (Malimba and Genasen, 2009; Nawai and Shariff, 2010), repeated uses of microfinance services- the market test (Rosenberg, 2010; Copestake and Williams, 2011) and sustainability prospects of MFIs (Satta, 2006; Brau and Woller, 2004; Schreiner, 2002) have

sometimes caused for rejoicing and evidence of MFIs impacts (Cull, *et al.*, 2007; Duvendacket *et al.*, 2011).

Empirical evidence on the actual impact of microfinance both internationally and in Tanzania is not straightforward. The impacts of microfinance programs and institutions on participants' livelihood remain partial and contested (Hulme, 2000; Johnston and Morduch, 2007, Stewart *et al.*, 2010; Roodman and Morduch, 2009; Duvendacket *et al.*, 2011).

At one end are empirical studies arguing that microfinance has very positive economic and social impacts (Khandkeret *et al.*, 1998; Pitt and Khandker, 1998; Khandker, 2005; Ruben and Clercx, 2004, Mohamed, 2003; Kessy and Urrio, 2006; Dupas and Robinson, 2008; Imai *et al.*, 2010; Ghalibet *et al.*, 2011; Prathapet *et al.*, 2018). Studies at this endpoint out that microfinance has assisted participants to raise income, consumption, and net worth, thereby increase the probability that program participants lift themselves out of poverty.

At the other end, there are studies that caution the optimism of microfinance and indicate that microfinance has no or sometimes have a negative impact on participants' income and other livelihood variables (Buckly, 1997; Mosley and Hulme, 1998; Coleman, 1999; Zeller and Diagner, 2001; Kuzilwa, 2002; Kantor and Erna, 2007; Banerjee *et al.*, 2009; Karlan and Zinman, 2010; Stewart *et al.*, 2010; Duvendack and Palmer-Jones, 2011). Studies at this endpoint out that poor people live in a fragile environment such that returns on their activities are volatile and inadequate to cover high-interest charges on microcredit. In some instances, poorer borrowers taking small loans rarely invest in new technologies, businesses, or fixed capital as a consequence, microcredit to such borrowers have been spent on basic needs (illness, education, and other social expenses), thus insignificant or negative impacts on income levels and other welfare variables (Fischer 2010; Stewart *et al.*, 2010; Duvendacket *et al.*, 2011).



The contention of impact studies stem from methodological issues and context (location and sector of participants) of existing studies (Hulme, 2000; Brau and Woller, 2004). Some studies have compared microfinance beneficiaries against non-beneficiaries on outcome variables using descriptive statistics and qualitative analysis without addressing the key methodological issues such as selectivity bias, attribution, and fungibility (Mustafa *et al.*, 1996; Montgomery *et al.*, 1996; Kuzilwa, 2002; Frazer and Kazi, 2004; Mohamed, 2003; Kessy and Urio, 2006). Other studies have employed rigorous econometric analyses which minimize the effects of such methodological issues (*e.g.*, Khandker *et al.*, 1998; Pit and Khandker, 1998; Coleman, 1999; Diagner and Zeller, 2001; Imai *et al.*, 2010). Over time researchers have used different methodologies well suited to and appropriate for the circumstances of the research setting and samples. However, it has been argued that the most appropriate approach for impact studies should at least control selection bias in order to avoid over or under-estimation of the impacts (Hulme, 2000).

In Tanzania, most of MFIs impact research works have found a positive impact. However, most of these studies are descriptive and qualitative in nature and have not addressed selection bias problems and other impacts study methodological issues (Kuzilwa, 2002; Frazer and Kazi, 2004; Mohamed, 2003; Kessy and Urio, 2006). Furthermore, the majority of these studies have focused on beneficiaries whose main economic activities are non-farm businesses and/or urban or semi-urban-based business enterprises (Kuzilwa, 2002, Frazer and Kazi 2004, Kessy and Urio, 2006; Satta, 2006). The available studies that have studied MFIs services on rural farm households are such as by Temu (1994) and Rweyemumet *al.* (2003). However, these studies are not impacting studies but rather deal with the sustainability of rural MFIs.

Unlike other non-farm economic activities undertaken by the low-income earners (commerce, trade, and manufacturing) who live and carry their activities in urban and rural trade centers, rural farm households tend to live in remote rural areas characterized by volatile agricultural output (mostly due to droughts and floods), weak and fragmented markets for goods and services, underdeveloped infrastructure, and fluctuating agricultural prices (Siamwala *et al.*, 1990; Khan 1991; Quareshi and Shah, 1992; Conning, 1999). These factors have severe implications on farmers' production costs and return on agricultural activities. MFIs in these areas have high lending costs, greater risks, and high administrative costs due to poor infrastructure and delegation (Schreiner, 2001; Conning, 1999). Given these unique features of the

agricultural sector and the rural economy in Tanzania and elsewhere, results from previous impact studies in other sectors of the economy cannot be directly extrapolated to the rural farm economy.

Using analytical approaches such as instrumental variable and Heckman Model to address impact methodological issues that overcome selection bias, this study aimed at contributing to the contested and limited information on the extent to which microfinance institutions impact farm households' crop incomes.

II. RELATED LITERATURE

Microfinance services (credits, savings, insurance, and other services) can affect production technologies choices and investment behavior of farm households, and hence income of households (Jalilian and Kirkpatrick, 2005; Sharif, 2018). There are three major pathways through which microfinance credit can affect farm household income and other livelihood variables (Diagner and Zeller, 2001; Khandker, 1998a; de Mel *et al.*, 2008). The first pathway is through the alleviation of capital constraints that face poor households during planting and vegetative periods of crops and harvesting. During these periods, farmers have cash flow problems to meet inputs and consumption requirements. The second pathway is through technological adoptions and the risk-taking behavior of farmers. Farm households can easily adopt new and riskier technologies if they know that in case of crop failure, they can resort to credit to mitigate consumption needs. The third pathway is the free cash flow philosophy. The positive impact of credit on farm output is through the technical efficiency of borrowers. That is, the indebted farm households face a repayment obligation, which encourages them to increase their technical efficiency on factors of production, reduce wastes and thus increase productivity and income.

Despite the potential promises of MFIs (Meyers, 2002; Zaman, 1998b), evidence in existing studies suggest that the potential impact of MFIs depends on who participates (socio-economic characteristics of participants) and the extent or depth of participation (extent of credit demand). The eligibility, selection process of members, and the socio-economic characteristics of participants together with those of the MFIs and location characteristics determine the extent of credit demand and ultimately the extent of impact (Robinson, 2001; Diagner and Zeller, 2001; Hulme and Mosley, 1998).

The impact of MFIs services may also depend on socio-economic and demographic factors of participants, as suggested by Reardon and Vosti (1995).

Household structure and asset endowment variables may determine the nature and extent of participation in microfinance institutions among farm households. Literature (Zaman, 1998b; Diagner and Zeller, 2001; Hartaska and Nadolnyak, 2008) show that household structure variables such as household size, dependency ratio, age of household head, and sex of household head reflect the experience, production capacity, consumption requirements, and labor force capacity of the household to manage investments in farm and non-farm activities. This, in turn, affects the decision of farm households on whether to seek credits from microfinance institutions to finance their farm and non-farm activities or not.

III. METHODS

A. The study sample

The appropriate methodological approach for the study was to have two types of samples (the with and without approach). The first sample was composed of farm households who are participants in microfinance institutions, and the second sample was composed of farm households who do not participate in microfinance institutions. The first sample of participants was further divided into old members and new members. A total of 457 farm households'questionnaire qualified for use in the analyses as they contained the required information and data. As indicated in Table 1, the final sample was composed of 210 (46%) farm households who were members of microfinance institutions and 247 (54%) who were non-members.

The sample for microfinance members was composed of members drawn from SACCOS members [42.3%], bank members [33.9%], NGOs -MFIs, and Governmental institutions [16.3%]. It was also noted that 7.5% of the participants had multiple memberships.

B. Model Specification

The empirical specification of microfinance impact on farm household variables of interest (income) was derived as follows:

$$B_{ij} = X_{ij}\theta_B + Z_j\beta_B + e_{ij} \quad \dots\dots\dots (1)$$

$$Y_{ij} = X_{ij}\theta_y + Z_j\beta_y + B_{ij}\Omega_y + \mu_{ij} \quad \dots\dots\dots (2)$$

Where B_{ij} = the total amount borrowed from the microfinance institutions by household in district j ; X_{ij} is a vector of household characteristics; Z is a vector of district(location) characteristics; Y is an outcome variable on which impact is to be measured (crop

income); β , Ω , and Θ are parameters to be estimated, e , and μ are errors representing unmeasured household and location characteristics that determine borrowing and crop income respectively. Ω is the primary parameter of interest as it measures the impact of microfinance credit on the outcome (crop income) Y .

Econometric estimation of these equations may yield biased parameter estimates if the error terms are correlated (e and μ). The correlation between the two error terms arises due to self-selection into the microfinance institution and non-random microfinance placements. Self-selection arises when some households have selected to be members in a microfinance institution (and they then decide, within conditions imposed by the institutions, how much to borrow), and others will have selected not to be members. If, for example, more entrepreneurship households join the microfinance, then unmeasured 'entrepreneurship' would influence both the decision to become a member and the amount to borrow, and further would impact outcome measures (income, farm investments, savings, assets accumulation, and others). Alternatively, if more of the relatively poor and with less entrepreneurial endowment join the microfinance than the rich who might feel stigmatized in a group with the poor people, then the error terms would be negatively correlated, and the estimation of microfinance institution impact would be biased downwards.

To address the self-selection problem in this analysis, two multiple regression approaches were used. The OLS approach and the Heckman model approach. The Heckman sample selection model, which estimates the effect of an endogenous variable, was used on the whole sample (members and non-members sample). The Heckman model creates a variable known as 'inverse mills ratio', which compensates for sample selection bias associated with voluntary participation programs such as MFIs (Heckman, 1979; Heckman and Jaffery, 1999; Zaman, 1988; Shahiduet al., 2004). In the first stage in the model, access to MFIs is estimated by a probit model, and the inverse Mill's ratio is generated and used to compensate for selection bias in the second stage outcome equation. The OLS approach appropriately minimized selection bias through the use of a sample composed of household microfinance members only in the form of treatment group and control group (also known as pipeline approach).

However, estimating the impact of the amount borrowed on outcome variables of interest (crop income) using OLS would produce biased estimated due to the endogeneity of the amount borrowed. This, therefore, necessitated the use of an instrumental

variable instead of an amount borrowed variable. The household membership duration variable was used as an instrumental variable instead of the household amount borrowed variable. The variable was tested to see whether it fulfills the instrumental variable conditions, and it was found appropriate (the cumulative borrowing was regressed on membership duration variable, the result indicated that $R^2 = 0.57$; see Woodridge, 2000). The assumption is that households' borrowings tend to accumulate over time, and therefore the impact of borrowings on borrowers is a function of time. With this estimation, design equations (1) and (2) were replaced by a single impact equation as follows:

$$Y_{ij} = X_{ij}\theta_y + Z_j\beta_Y + D_{ij}\phi_y + \mu_{ij}, \dots\dots\dots (3)$$

Where Y, Z, and X are as defined before; θ_y, β_Y , are parameters to be estimated; the variable *D* measures membership duration and thus the availability of the program services (credits) to households in terms of months since joining the microfinance program for household members (instrumental variable).

Unlike the amount borrowed variable, the membership duration in months a household has been with a microfinance institution is exogenous to the household characteristics and to outcome variables (Cop income). With this specification, ϕ_y measures both the short-term and long-term microfinance impact of making the program available to a household borrower (for an additional month) rather than the impact per amount borrowed, which is an endogenous variable to household characteristics and crop income variables. If Y is uncensored, then OLS is appropriate; if Y is censored, then Tobit estimation is appropriate

(Ndunguru, 2007; Woodridge, 2000; Hair *et al.*, 2006; Tobin, 1958). The model so specified assumed that there are no spill-over effects to non-members, to the extent that such spill-over effects are captured by location fixed effect rather than program effects.

The use of the control group in equation 3 also addresses the issue of counterfactual. The control group was composed of the newly joined microfinance members with less than three months membership duration. Three months was considered to be the appropriate cut-off point for newly joined members. The assumption was that newly joined households who have passed the screening mechanism but for whom benefits of microfinance participation would not have accrued at the time of the survey were an appropriate method of creating the control group than non-members group (Similar proxy was used by Maldonado and Gonzalez-Vega, 2008).

C. Main variables and Data Used in the Analysis

The dependant variable of interest is the household annual crop income. The explanatory variables of interest are the amount of loan outstanding at the time of the survey and the duration (in months) of household membership in MFIs. The control variables included in all analyses were the household structure variables (size, age, dependency ratio, marital status of household head, sex of household), the asset endowment variables (education of household head, non-crop income, total assets, land owned) and the location variables. The self-administered semi-structured questionnaire was the main data collection instrument. The measurements of dependant variables and explanatory variables used in the model are presented in TableI.

Table 1. Description of explanatory variables used and expected influence

Variable Name	Description and Measurement	Expect ed Influence	Reason
Crop income	The total annual monetary value of all crop income of a household	+	MFIs credit are expected to affect crop income
Access to MFIs credit	Two variables were used: 1=The total cumulative value of loan amount of household, 2= length of household membership (in months)	+	The large size of loans and longer periods of membership are expected to affect crop income.
Household size	Total number of household members	+	Reflects the consumption and production needs of the household
Dependents ratio	The ratio of dependants to total household members	+ / -	Indicate household labor shortage or adequacy

Age of household head	Age of household head in years	+ / -	Age reflects experience, economic activeness, and adoption of innovations
Sex of Household head	This reflects the gender of the household head.(dummy, 1= male; 0= female)	+/-	Gender reflects differences in the decision process between males and females.
Land owned	Size of land in hectares owned by a household	+/-	Large land sizes reflect the wealth of household/ land shortage
Total household assets	The market value of all assets owned (excluding land and house)	+/-	Reflect wealth and ability to collateralize loans and acceptance by peers. Also, well-off households may dislike microcredit.
House quality	The type of house of the household. (dummy variable. 1 =for a house with metal roof, burnt/cement blocks walls, and cement floor; 0= otherwise)	+	Reflects wealth of household and ability to collateralize loan and acceptance by peers
Education of household head	The highest education of household head dummy variables (no formal education; primary school; secondary school or above)	+	Education reflects the stock of skills and knowledge, thus able to deal with training and paper works in MFIs.
Non-farm income	The total annual market income from all non-farm sources (shop, restaurant, sale of milk, alcohol sale)	+	Income reflects the ability to mitigate loan and interest repayments.
Location (Mufindi, Madibira, Njombe, Kilolo)	Dummy variables=1 for respective location and 0= otherwise	+/-	Reflects the differences in location characteristics (product markets, infrastructure, land quality, etc.

IV. RESULTS AND DISCUSSIONS

A. The Heckman Model Results

The Heckman model results for estimating the impact of microfinance membership on income are presented in Table II. Table II shows that the coefficients of the inverse mills ratio (Mills Lambda) are positive and statistically significant at the level of 1% (p= 0.009).

Table 2. Heckman two steps estimations of the impact of microfinance borrowings on household crop income.

Outcome equation: Dependent variable: Log of Crop income

Independent Variables	Coefficients.	Z	P> / Z
Log of Borrowing (in TAS)	0.0066	0.23	0.819
Mufindi Location Dummy	-0.021	-0.16	0.870
Madibira Location Dummy	1.422	10.49***	0.000
Njombe Location Dummy	0.580	4.31***	0.000
Household dependants ratio	-0.585	-1.67	0.095*
Log of the size of land cultivated (acres)	0.605	7.23***	0.000

Log of household fertilizer and other farm expenditure (In TAS)	0.129	7.56***	0.000
Log of total assets (in TAS)	0.26	2.48**	0.013
Mills Lambda	0.838	2.61***	0.009
Constant	12.367	28.12***	0.000

*Significant at 10%; ** significant at 5%; *** significant at 1%; Number of observations = 419; Censored observation= 219;Uncensored observations= 200; Wald chi2 (10) =399.38 ; Prob> chi2 = 0.000; Mills Lambda Obtained from fist stage probit equation. Kilolo is reference location.

The observed positive sign of the coefficient of the lambda term suggests that the unobservable factors influencing microfinance membership (self-selection) are positively correlated with the factors affecting crop income. That is, factors such as entrepreneurship and risk-taking behavior of farm household members positively affect both membership and crop income. If these factors were not controlled, the effect of borrowing on crop income could have been significantly overstated.

The impact of the amount borrowed by farm households on crop income as indicated by the coefficient of log of the cumulative amount of borrowings variable is positive but statistically insignificant (p= 0.819). Therefore, the Heckman two-steps model results show no evidence of the impact of

MFIs credits on crop income among rural farm households after controlling for self-selection bias in the whole sample (pooled data of members and non-members).

B. Ordinary Least Square Estimation Results

The second analysis on the impact of MFIs credit on crop income was carried out using OLS regression equations. The regression equation was run on the control sample together with the treatment sample (i.e., pipeline approach). The OLS regression equation was run in accordance with the operational model equation (3).

a). OLS estimation on treatment vs. control samples:

This approach was done to eliminate the problem of selection bias likely to arise when using pooled data of microfinance members and non-members samples. The length of membership duration of the household to MFIs was used as an instrumental variable instead of the amount borrowed (Amount borrowed is generally endogenous variable). The instrumental variable (length of membership in MFIs credit markets) was designed in two forms, namely, a dummy approach and a metric variable approach. A dummy variable was created to separate the treatment group and the control group. The treatment group was composed of old members (membership duration greater than three months) and was assigned a value of one, and the control group composed of new microfinance members (membership less than or equal to three months) were assigned a value of zero. A metric form of the membership length variable was the duration in months for which a household has used MFIs services. The log for household crop income was regressed against membership length variable (dummy and metric, one at a time) together with the control variables of household demographic, socio-economic, and location variables.

Table III shows that the coefficients for the membership length dummy variable are not statistically significantly different from zero ($p=0.410$). Meaning that crop incomes do not vary by whether a household belonging to the treatment group or to the control group. In other words, the impact of credit as measured by membership duration dummy variable on crop income is not statistically significant. When the dummy variable separating the control group and the treatment group was replaced with a metric variable of microfinance membership length in months in the same equation, the impact of MFIs on crop income slightly increased, though it was still insignificant even at the level of 10% ($p=0.155$).

Table 3. OLS coefficient estimation results of the impact of access to microfinance on household Crop income.

Independent variables	Equation 1: N=200 (Treatment = 128, Control = 72)
Household membership Dummy variable (1=Microfinance members, 0= Non-members)	—
Treatment or control sample, (Dummy= 1, Treatment; 0= control)	0.083 (0.83)
Household length of microfinance membership in months	0.101(1.43)
Age of household head in years	-0.007 (-1.41)
Household dependant ratio	0.062 (-0.23)
Log of household land cultivated	0.560(7.24)***
Log of total household expenditure in fertilizers and other expense	0.174 (7.24)***
Household Location Dummy 1 = Mufindi, 0= otherwise	-0.026 (-0.18)
Household Location Dummy 1 = Madibira	1.42 (11.10)***
Household Location Dummy 1 = Njombe	0.607(4.39)***
Constant	11.82 (29.26)***
	F(8,191)=81.51 Prob>F=0.000
Adjusted R- squared	0.7344

*significant at 10%; ** significant at 5%; *** significant at 1%.
Figures in parentheses are t-values.

C. Discussions of the Results on the Impact of Microfinance Credit on Crop Income

Econometric results on both approaches show that access to credit has no effect on crop income. The expectation was to find that those who have access to funds (micro-credit) could use credits to reduce agricultural input constraints or facilitate the acquisition of farm machinery, and thereby other things being equal enhance crop income. Three reasons could be attributed to the lack of impact of MFIs services on crop income. First is a low amount of loans issued/borrowed by farm households; second is how loans are used by farm households (non-farm activities), and third is the nature of the rural economy (physical infrastructure, prices, market access, storage, etc.).

The result from qualitative analysis indicates that almost 70% had loan amounts less than TAS 500 000 (equivalent to the US \$ 300). This amount is small to enable farm households to purchase farm machinery such as tractors or power tillers which are expected to

bring greater changes to agricultural output. Results also show that only 8% of farm household members used credit to acquire farm machinery (power tillers). These results suggest that the majority of farm households still depend on hand hoes for cultivation. If all credits are used for agricultural activities, then the possible pathway through which credit can make a dent is through farm variable inputs such as seeds, fertilizers, pesticides, and others.

The qualitative inquiry also showed that non-farm activities and consumption/social needs compete with agriculture needs on borrowed funds and thereby significantly reducing its effect on crop income. AsReardon *et al.* (1994) and Barrett *al.*, (2001) point out, non-farm and farm enterprises choices are made jointly and compete for household labor and capital resources. The number of farm activities engaged in by households, and the scale of each activity, depending on the relative returns of the farm and non-farm activities. Consequently, in most rural areas, access to credit may not necessarily enhance farm income as one would expect.

The findings of this study are in line with those by Coleman (1999) in Thailand, who found that loans taken by households were too small to be invested productively and thus could not make a difference. Similarly, in Malawi, Diagner and Zeller (2001) indicated that MFIs increased fertilizer application among members; however, the effect on crop incomes was negative due to droughts and other adviser characteristics of the rural farm economy in Malawi. In India, Binswanger and Khandker (1992) found that the effect of expanded rural finance has been much smaller in the farm sector than in the non-farm sector. Capital investment was found to be more important in substituting for agricultural labor than in increasing crop output. In Bangladesh, the study by Khandker (1998b) and Pitt and Khandker (1998) also indicated that MFIs do not support farm household crop income growth. Their results showed that increased income among MFIs program villages was largely due to non-farm income. Similar support is also found in Zeller *et al.* (2001), who show that access to credit among farm households can provide good returns only when complementary inputs such as seeds or irrigation water or market access are present.

V. CONCLUSION AND RECOMMENDATION

Using both the Heckman two-stage and OLS regressions, the study shows that access to MFIs has no significant impact on the crop of rural farm households in surveyed areas of the Iringa region in Tanzania.

However, these results do not necessarily mean that MFIs have no impact in the rural economy of the surveyed areas; the impact could be through other pathways such as non-farm income (e.g., petty rural businesses), consumption smoothing (education of children, nutrition, clothing, and health) or women empowerment.

The establishment of large government-supervised agricultural credit banks is an appropriate policy option to address the unique needs of the agricultural sector. The advancement of timely loans accompanied by the impartation of technical know-how in agriculture is an important attribute of a credit program. Provision of special agricultural loans by specialized microfinance banks to rural entrepreneurs and less poor farm households (who may cultivate large farms) in rural areas may enhance employment of desperate poor farm households who may gradually become creditworthy in MFIs and thus benefit from financial services.

MFIs are no panacea. MFIs' endeavors should be complimented with government strategies that aim at improving the productivity of the agricultural sector. Policy response should address input availability, infrastructure development (irrigation schemes, power, telecommunication, bridges, and roads) in rural areas, transportation means, and marketing policies.

REFERENCES

- [1] Banerjee, A., Duflo, E., Glennerster, R. and Kinnan, C. , The Miracle of Microfinance? Evidence from a Randomized Evaluation. Available at [<http://econ-www.mit.edu/files/4162>]. Site visited on 20/6/2011 ., (2009).
- [2] Barret C.B.: Reardon, T.; and Webb, P., Non-farm income diversification and household livelihood strategies in rural Africa: Concepts, dynamics, and policy implications. *Food Policy*. 26: (2001) 315-331.
- [3] Brau, J. and Woller, G., Microfinance: a comprehensive review of the existing literature. *Journal of Entrepreneurial Finance and Business Ventures*, 9 (1) (2004)1-26
- [4] Buckley, G., Microfinance in Africa: Is either the Problem or the Solution? *World Development*, 25 (7) (1997) 1081-1093.
- [5] BoT–Bank of Tanzania., The microfinance sector in Tanzania. [<http://www.bot.org-tz/microfinancetanzania>]. Sit accessed on 13/06/2011. (2011).
- [6] CGAP., The Impact of Microfinance: Helping to improve Donor effectiveness in Microfinance. Donor Brief No. 13. July [<http://www.cgap.org/docs/donorbrief>]. Site visited on 4/4/2018 ., (2003).
- [7] Cull, R. ; Demirgüç-Kunt, A. and Morduch, J., Financial Performance and Outreach: A Global Analysis of Microlending banks. *Economic Journal*, 517 (17) (2007) 107-133.
- [8] Coleman, E. B., The Impact of group lending in Northeast Thailand. *Journal of Development Economics* 60 (1999) 105-141.
- [9] Coleman, E. B. (2006). 'Microfinance in Northern Thailand': Who Benefits and How much'. *World Development* 34 (9) (2006) 1612-1638.

- [10] Conning, J., Outreach sustainability and leverage in monitored and peer monitored lending. *Journal of Development Economics*. 60 (1999) 51-77.
- [11] Copestake, J.; Sonia, B.; and Johnson, S., Assessing the Impact of Micro-credit: A Zambian case study. *Journal of Development Studies*, 37 (2001) 81-100.
- [12] Copestake, J. and Williams, R., What is the impact of microfinance, and what does this imply for microfinance policy and for future impact studies? *Oxford Policy Management, Research Report: 40pp* [<http://www.microned.nl/documents/doc/copestake%20microned%20june202011/pdf>]. Site visited on 20/8/2011. , (2011).
- [13] Copestake J., Microfinance Impact and Innovation Conference 2010: Heralding a new era of microfinance innovation and research? *Enterprise Development and Microfinance*, 22 (1) (2011) 17-29.
- [14] Corral, L. and Reardon, T., Rural non-farm income in Nicaragua. *World Development* 29 (3) (2001) 427-442.
- [15] De Janvry, A.; and Sadoulet, E., Income among Rural households in Mexico: The role of off-farm activities. *World Development* 29 (3) (2011). 467-480.
- [16] De Mel, S; Mckenzie, D.J; and Woodruff, C., Return to Capital in Microenterprises. Evidence from a field experiment. *Quarterly Journal of Economics* 123 (4) (2008) 1329-1373.
- [17] Diagne, A. and Zeller, M., Access to credit and its impact on Welfare in Malawi. *International Food Policy Research Institute, Research Report 116* (2001) 153.
- [18] Duvendack, M.; and Palmer-Jones, R., High Noon for Microfinance Impact Evaluation: Re-investigating the Evidence from Bangladesh. *Working Paper 27. The School of International Development, University of East Anglia: 41pp*.
- [19] Duvendack, M; Palmer-Jones, R; Copestake, J.K.; Hooper L; Loke Y; and Rao, N, What is the evidence of the impact of microfinance on the well-being of poor people? London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. *Research Report: (2011) 192*
- [20] Fischer, G., , Contract Structure Risk Sharing and Investment Choices. 58pp. [Available at <http://www.personal.use.ac.uk/fischer/research.html>]. Site visited on 5/9/2011., (2010).
- [21] Frazer, H.K., and Kazi, V., Assessing the Relative Poverty of Clients and Non-Clients of Non- Bank Micro Finance Institutions in Tanzania; *Research Report MkukinaNyota Publishers, Dar es salaam, Tanzania. (2004) 45*.
- [22] Ghalib, A.K; Maliki, I; and Imai, K., The Impact of Microfinance and its Role in Easing Poverty of Rural Households: Estimation from Pakistan. *Discussion Paper Series No. 2011-28. Research Institute for Economic and Business Administration, Kobe University: (2011) 32*.
- [23] Hair, J. F.; Black, W.C; Babin, B. J. and Anderson, R. E., *Multivariate Data Analysis 6th Edition Pearson Education Inc. USA: (2006) 898*
- [24] Heckman, J., Sample Selection Bias a Specification Error. *Econometrica* 49 (1979) 153-161.
- [25] Heckman, J.; Ichimura, H.; and Todd, P., Matching as an Econometric Evaluation Estimator. *Review of Economic Studies* 65 (1998) 261-294.
- [26] Heckman, J. and Jeffrey .A. S., The pre-program Earnings Dip and the Determinants of Participation in a Social Programme: Implication for Simple Programme Evaluation Strategies. *Economic Journal* 109 (457) (1999) 313-348.
- [27] Imai, K. S.; Thank, A.; and Samuel, A.K., Microfinance and Household Poverty Reduction: New Evidence from India. *World Development*, 38 (12) (2010) 1760-1774
- [28] Jalilian, H. and Kirkpatrick, C. , Does Financial Development Contribute to Poverty Reduction? *Journal of Development Studies*, 41 (4) (2005) 636-656.
- [29] Johnson, D; and Morduch, J., Microcredit vs. Micro saving: Evidence from Indonesia. [<http://www.siteresources.worldbank.org/INTFR/resource/micredit-versusmicrosaving-evidencefromindonesia/pdf>]. Site visited on 7/3/2011.
- [30] Karlan, D., Microfinance Impact Assessment: The Perils of Using New Members as a Control Group. *Journal of Microfinance* 3(2) (2001) 75-85.
- [31] Kessy, S.A. and Urio, F.M., The contribution of Microfinance Institutions to Poverty Reduction in Tanzania, REPOA Research Report, MkukinaNyota Publishers. Dar es Salaam Tanzania., (2006) 42.
- [32] Khandker S.R., Microcredit evaluation: A critical Review, *IDS Bulletin* 29(4) (1998a) 11-20.
- [33] Khandker, S.R., Fighting Poverty with Microcredit: Experience in Bangladesh. *Oxford University Press. Inc. New York. (1998b) 25*.
- [34] Khandker, S.R, 'Microfinance and Poverty: Evidence Using Panel Data from Bangladesh' *World Bank Economic Review*.19 (2) (2005) 263-286.
- [35] Khandker. R. S.; Samad, H.A and Khan, Z.H., Income and Employment Effects of Micro-credit Programmes: Village-level Evidence from Bangladesh. *Journal of Development Studies*, 35 (2) (1998) 96-124.
- [36] Kuzilwa, J. A., The Role of Credit for Small Business Success. The case of the National Entrepreneurship Development Fund. *Research Report. Mzumbe University, Tanzania: (2002) 95*.
- [37] MahantaPadmalochan, Panda Gitanjali and Sreekumar , Status Of Microfinance In India - A Review, *International Journal of Marketing, Financial Services & Management Research* , 1(11) (2012) 142-155
- [38] Mahmud, S., Actually, how Empowering is Micro-credit? *Development Change*, 34 (4) (2003) 577-606.
- [39] Malimba. M. P. and Ganesan, P., Repayment Behaviour in Credit and Savings Co-operatives: Empirical and Theoretical Evidence from Rwanda. *International Journal of Social Economics*, 36 (5) (2009) 608-625.
- [40] Meyer, R., The demand for flexible microfinance products: Lessons from Bangladesh. *Journal of International Development* 14(3) (2002) 351-368.
- [41] Mohamed, K., Access to Formal and Quasi-Formal Credit by Smallholder Farmers and Artisanal Fisherman: A case of Zanzibar. *Research Report No. 03.6, MkukinaNyota Publishers. Dar es Salaam- Tanzania. (2003) 43*.
- [42] Montgomery, R., Disciplining or protecting the poor? Avoiding the social costs of peer pressure in micro-credit schemes' *Journal of International Development* 8 (2) (1996) 289-305
- [43] Mustafa. S; Ara I; Banu D; Hossain A; Kabir A; Mohsin M; Yusuf A; and Jahan S., Beacon of Hope: An Impact Assessment Study of BRAC's Rural Development Programme. *Research and Evaluation Division Research Report, BRAC, Dhaka Bangladesh, (1996) 24*.
- [44] Ndunguru, P.C., *Econometrics: A science for Non-experimental Data Analysis.1st edition. Research Information and Publication Department, Mzumbe University, Tanzania: (2007) 238*
- [45] Pitt, M. and Khandker, S.R., The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy* 106 (1998) 958-996
- [46] Prathap B.N.; Mahesh K. and Karthik K ., Impact of Micro Finance on Poverty Alleviation. *Journal of Management* 5(4) (2018) 278-286.
- [47] Rweyemamu, D.C; Kimaro, M.P.; and Urassa, O.M., "Assessing the Micro-Finance Services in Agricultural Sector Development: A case study of Semi-Formal Financial Institutions in Tanzania. IFPRI, [<http://www.ifpri.org/2020/nw/nwpapers/tanzbr200308.pdf>]. Site visited on 15/ 6/ 2010.

- [48] Satta, T.A., Performance Evaluation of three small firms' financing schemes in Tanzania. *Journal of Accounting and Organizational Change*, 2 (2) (2006) 164- 180
- [49] Schreiner, M ., Aspects of outreach: a framework for discussion of the social benefits of microfinance. *Journal of international development*, 14 (2002) 1-13.
- [50] Sharif Mohd ., A study on the Performance of MFIs in India. *International Journal of Accounting and Financial Management* , 4 (2018) 116-128
- [51] Stewart R; van Rooyen, C.; Majoro .M.; De Wet, T., What is the Impact of Microfinance on poor people: A systematic Review of Evidence from sub-Saharan Africa. Technical Report. Evidence for Policy and Practice Centre, University of London, (2010) 58.
- [52] Temu, A., A Study on Rural Financial Markets in Tanzania. Ph.D. Thesis, University of London, (1994) 340.
- [53] Tobin, J., Estimation of relationships for limited dependent variables. *Econometrica*, (1958) 24-36.
- [54] Umara, N; Imran, R; Zaheer, A; and Saif, M.I., Impact of Microfinance on Poverty: A case of Pakistan. *World Applied Science Journal* 12(6) (2011) 877-883
- [55] URT., Microfinance policy. Ministry of Finance, Government Printers, Dar es salaam Tanzania, (2017) 27.
- [56] Wooldridge, M. J., *Introductory Econometrics: A Modern Approach*. 2nd edition. MacMillan, New York., (2000) 819
- [57] Zaman, H., Can Mis-targeting be justified? Insights from BRAC Micro credit program. *IDS Bulletin* (29) (1998a) 59-65.
- [58] Zaman, H., Who benefits and to what extent? An evaluation of BRAC's micro-credit program' University of Sussex, D.Phil. Thesis, Sussex., (1998b) 291.
- [59] Zeller ,M. ; Diagne, A and Mataya, C., Market access by smallholder farmers in Malawi: Implications for technology adoption, agricultural productivity, and crop income. *Agricultural Economics* 19 (1-2) (1997) 219-229.
- [60] Zeller, M.; Sharma, M; Akhter, U. A., and Shahidu, R, Group-Based Financial Institutions for the Rural Poor in Bangladesh: An Institutional and Household- Level Analysis. IFPRI Research Report, 120 (2001) 100.