



Analysis into the Factors influencing the Level of Small Scale Household Farmers' Off-Farm Income amongst the Grape Farmers in Dodoma Tanzania

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Abstract

The grant aim of this study was to assess the various factors that determinethe level of small scale household farmers' off-farm income amongst grape farmers in Dodoma. The study appliedthe Tobit econometric technique in investigating the factors that may explain the households' decision on whether or not to participate in various off-farm income generating activities, using household data collected from grape farmers in Dodoma. Due to its failure in specification tests, the study employed the use of Censored Least Absolute Deviation estimator (CLAD) which is robust to heteroskedasticity and non-normality specification problems facing the normal maximum likelihood estimations such as that of Tobit. The results indicated that the level of income amongst small scale households' farmers from various off-farm income generating activities is significantly influenced by asset endowments where by financial assets, human capital assets and physical assets are the main assets influencing the decision where byhuman capital assetswere the main determinants. The study went further into proposing policy interventions which includesawareness campaign for off-farm work, revisiting land ownership policies, provision of loans to farmers, availability of sustainable markets, effective implementation of Kilimo Kwanza policy and improved rural infrastructure.

Keywords: Small-scale, household, off-farm, level of income, grape farmers and dodoma.

Introduction

As we progress in economic development, the custom reflection of a farming household has transformed to consist a number of activities other than agriculture. A number of indications have shown that the portion of rural household income earned from various off-farm activities has been increasing substantively. Earlier studies established that, income from off-farm activities in rural areas on average accounted for about 40 per cent of total income for countries in Latin American¹.

Similar tendency was also pragmatic in Africa south of the Sahara, where income from off-farm activities ranged between 30 and 42 percent of total household income whereas in Asian countries however significant the shares were lower around 29 to 32 percent².

As far as Tanzanian economy is concerned, the agriculture sector has an important role and possesses the prospective chance to progress the nation's objective for poverty reduction and growth. The overall performance of the economy in Tanzania has been determined by the performance of the agriculture sector, due to its enormous share in the economy. It employs the majority of the poor, and has strong consumption connections with other sectors. It contributed about 51 percent of foreign exchange assets, employs 75 percent of total employment, and shares 47 percent of the Gross Domestic

Product (GDP) in 2004. Small scale agricultural dominates production whereas its great percentage is for sustenance. Subsequently poverty is a rural behavior, and farming is the main economic activity for rural residents, it is evident that attainment of poverty reduction depends on the performance of the agriculture sector³.

Despite measures taken by the government to raise the income of the rural small scale farmers through various polices for example "KILIMO KWANZA", there are still problems.

Bright, Davis, Janowski, Low and Pearce benchmark this situation by excerpting that, despite the fact that income from agriculture still institutes the mainstay of the economy in the rural areas in emerging countries, wage labor income and other off-farm activities have gradually become substantial⁴.

The role and advantages of these off-farm income generating activities depends upon a particular household. If farmers are involved in rural-based off-farm activities, they are expected to increase efforts in production and agricultural productivity so as to provide the resources indispensable for investment in the rural-based off-farm activities. Off-farm activities have helped to a great extentto lessen the income insecurity in rural areas. Divergence of occupation has helped to smoothen income by spreading risk across various activities⁵.

By reducing income insecurity, farming households have a chance to capitalize in more innovative agricultural technologies. The implementation of improved technology is likely to be more profitable and hence encourage the change from customary to contemporary agriculture. Off-farm employment is critical to the rural poor, they provide not only a considerable share of the total rural household income, but also increase the fraction of the labour force in rural areas. It has been broadly accepted that off-farm income generating activities plays a vital role in supplementing small farmers' income in countries with emerging economies. In 1979 for example, it was found out that, income from off-farm activities have contributed more than three times of the annual net income from paddy in paddy households in Malaysia⁶. Therefore, stimulating off-farm employment is projected as a strategy for augmenting income of farmers.

In Dodoma, agriculture is the main activity carried out in the Region. The region has a total land area of about 4,131,000 hector in which the arable land that is suitable for Livestock and crop production is about 3,193,910 hector (77.3%), the suitable area for production of crops is about 1,816,910 hector (43.9%) of the total land area. Currently, the area cultivated amounts to about 790,000 hector, which is about 19% of the total land area or 43.5% of the suitable area for production of crops in the region. Hence, 56.5% of the area appropriate for farming is available for agricultural investments, which is equal to 1,026,910 hector⁷.

Crop production is conducted in virtually all potential areas in the region as far as the agro-ecological zones are concerned. The main crops that are grown include millets, sorghum, maize, cassava, beans, paddy, and oil-seeds (Simsim, Groundnuts, Sunflower, and Castor) and grapes. Also, there is potential to produce new oil seed crop called "Mlonge" and a significant production of onions, tomatoes, and other fruits and vegetables⁷.

Farmers in Dodoma have been involving themselves in several off-farm income generating activities which are the result of lower income from farming activities and prevalence of poverty.

This suggests that, participation of the small-scale farmers in various off-farm income generating activities is not a matter of choice since they will need that income to supplement income from the farming activities. Therefore, concrete objective of this study is to assess the various factors affecting the level of small-scale household farmers' income from various off-farm income generating activities.

Review of Literature: Theoretical Framework: Meaning and definition of off-farm income generating activities: Off-farm activities principally refers to those activities that are undertaken aside from the household's own farm. For example Ellis defined off-farm activities by referring them solely to agricultural laboring on someone else's land⁸.

Furthermore the off-farm activities, may be defined as the involvement of remunerative works by individuals apart from a "home plot" of land⁹. Thus; there is no single definition of off-farm activities.

In the same manner, off-farm income has been defined inversely amongst the available literature. What may seem to be a mutual definition however, is income from all off-farm activities including agricultural wage labor. With regard to this definition, off-farm income consists of agricultural and non-agricultural wages, self-employed income, remittances, as well as other sources of income such as capital earnings and pensions¹⁰.

Livelihood Assets Framework: Livelihoods' refers to way of people's life of which it covers peoples' activities for their survival and how they execute them in fulfilling these needs. This involves endeavoring to make a living, bidding to meet a number of economic provisions and consumption, managing risks and uncertainties, working upon new opportunities and making a choice between various value positions¹¹.

Furthermore to meeting different basic needs, livelihood is all about management of relationships, the assertion of personal worthiness and the interrelation of each of those tasks to the other and group identity. Therefore, livelihoods is all about the kind of reflection the society would like to project themselves, as well as the value of the system conforming to this apparent character¹².

Barret and Reardon have defined assets as stocks that yield cash or in-kind returns. These assets centers the household's ability to participate in income generating activities for they signify the basic stage of which one may build the household livelihood upon¹³.

Some of livelihood literature such as Ellis¹⁴ and the Department for International Development (DFID)¹⁵ propose five ways by which assets may be classified. These includes physical capital such as production tools and land; human capital like experience, education and skills; social capital which includes organizations and networks; natural capital which constitute natural resources and communal properties; and financial capital. These assets are presented in the following discussion.

Human capital (H): As excerpted in Ellis¹⁴, human capital climaxes the significance of employment, health condition, education attainment, and the skills as assets to attaining livelihood. As such, labor is an important asset for households, but alone it cannot endure livelihoods, but when improved through training, education, and other important skills, it developsto exceptionally effective contrivance for poor households to achieve desired livelihoods.

Among other things, human capital comprises the knowledge, skills, ability to labour and good health that when put together

enable the society to pursue livelihoods. The quantity and quality of labour available is a function of health and nutrition status, the household size, composition and skill levels of which are vital to the ability of the household to pursue various livelihood strategies¹⁶.

Human capital, as embodied in education and experience i.e. number of years one has participated in agriculture, is crucial in increasing off-farm returns and the time allocated to it by rural families as well as to diversify the rural economy away from agriculture.

Physical capital (P): Physical capital includes the rudimentary infrastructure and manufacture goods that are needed by the household to support their livelihoods. The basic Infrastructure may refer to the physical environment that assists the society in meeting their basic needs and to be more creative in livelihoods for example shelter, transport, energy, water, as well as communication network and the production equipments without forgetting the methods that enable the society to pursue livelihoods, however on the other hand manufacture goods refers to industrious capital that boosts income and personal consumption¹⁶.

Indeed, this asset can be transformed through a production process into other assets and safeguard poor households livelihoods. Amongst the physical assets the most important ones includes, roads, electricity, and water supply. Roads reduce distances and enable market access to poor households. Also electricity plays a major role in rural areas, for its availability determines where the manufacturing industries are to be located as they provide labor and income to the poor¹⁴.

Social capital (S): Social capital is a communal relationship within and amongst households and societies. The relationship may be based upon trust and a chance for mutual benefit. Further to that, social capital considers more family networks, kinship, and close friends that the household will depend on given there is crisis. Therefore, these relationships are seen as investment in future livelihoods^{14,17}.

The societal resources includes linkages, association of groups, affiliations of trust, and contact to broader bodies of society of which people draw in the quest for livelihoods. They are established through societal networks or connectedness, involvement or more formal groups, affiliations of trust and exchange and political assets as a form of social structural capital. Example of indicators amongst others include the degree and accessibility of families that are extended or networks to societal support base, for example remittances, the extent of social marginalization and the like; affiliation to cooperatives, religious groups, political parties in power and so on.; Peace, civil security, democracy, rule of law, delinquency; Violation of human rights and discrimination¹⁶.

Financial capital (F): In a basic way, financial capital simply refers to money and financial assets like as loan, shares, deposits, etc., and household properties, which can be transformed into other assets. Assets alone cannot reveal the whole picture of the rural poverty. The economic relationship between livelihood and assets produces different results, in terms of refining or worsening the wellbeing of individuals. The financial asset may however not be useful for the households unless it has been transformed into other assets or into consumption. Nevertheless, the existence of financial markets determines household capability and willingness to save this asset. For example, in rural Africa South of the Sahara, livestock keeping often plays an important role as a store of wealth and cushion against bad time¹⁴.

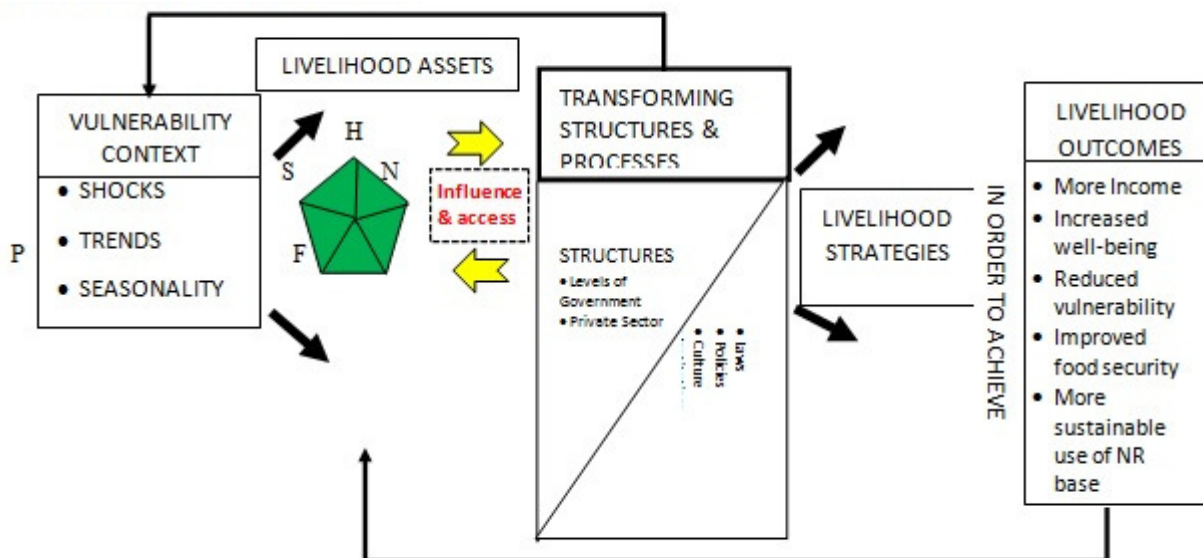
Natural capital (N): This asset holds that land, water, and environmental resources (sometimes refer to as environmental asset) is an indispensable asset to poor households whose survival depends on them¹⁴.

The natural resources are the stocks from which resource flows useful for livelihoods are derived for example water, land, wildlife, environmental resources and biodiversity. They can either be physical natural capital such as land, pasture, trees, water, etc.; public, collective or privately owned; or imperceptible natural resource, public goods like the atmosphere and biodiversity¹⁶.

Conceptual Framework: Figure 2 presents a conceptualization of the way facilitating factors, household assets and household structure have an influence on small scale household farmers, resulting to their level of income from various off-farm income generating activities. Various studies have identified and analyzed various factors which can be conceptualized as follows.

From figure 2, it is discernible that small scale household farmers' participation in various off-farm income generating activities is strongly influenced by assets endowments. As shown in figure 2, the access to various forms of assets is influenced by the structure of the household which comprises the age of members in a particular household, size and the structure within the household. The structure of the household influence is in the form of determination of work force existing, gender of the household head, demand for consumption and investments preference patterns. Thus, each households might have its own and unique labor units and consumption. These diversities may lead to varied participation decision in various off-farm income generating activities among different households.

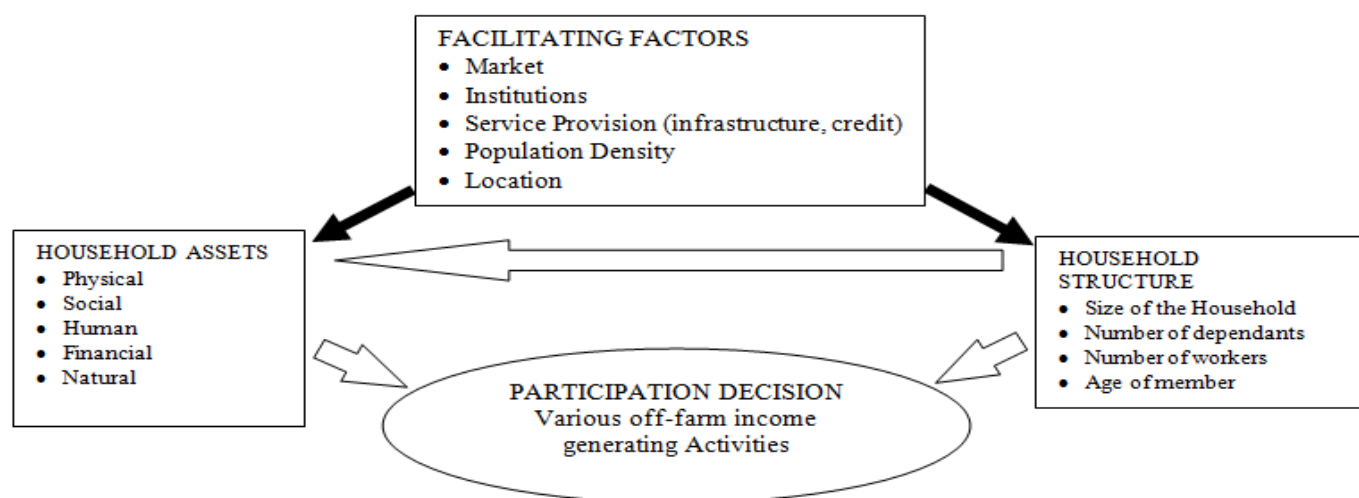
Additionally, the expediting factors, that consists of factors like market establishments, provision of services as well as political situation, may as well affect households' assets access. They may as well influence endowment of assets and demographic household, of which as a result may affect household decision to participate in a particular activity and the income level acquired.



Source: Carney *et al.*,¹⁵.

Source: Carney *et al.*,¹⁸.

Figure-1
Livelihood Assets Framework



Source: Adopted from Reardon and Vosti¹⁹.

Figure-2
Conceptual Framework

Further to that, the income level affects also the demographic structure of the household through migration of members of household and fertility increase. Therefore, this framework point out the households' assets role and other contributing factors on participation decision by the small scale farm household in various off-farm income generating activities.

Methodology

Sources of Data and Study Area: This study was done in Dodoma whereby total number of 212 households

were randomly selected. Primary data were collected from the questionnaire and interview results. The source of primary data comprised of both the administered interview and questionnaire of which the researcher distributed to the selected samples. The secondary data were obtained from district councils, wards office records and wine processing plants in Dodoma. Also data collected involved research reports, journals newspapers, and information from the internet.

During the study several data collection methods were employed which included questionnaire, interview, observation and documentary review.

Research Model: This study used the Tobit model since the dependent variable in this study i.e. the level of income received from various off-farm activities involved a number of zero values and thus Tobit model was used to avoid bias.

Tobit model was initially developed by the Nobel laureate economist, James Tobin in 1958. A sample from which the information about the dependent variable is available only for a number of observations is called the censored sample. Thus, the Tobit model used in this study is also commonly known as the censored regression model. Other authors call models such as this one the limited dependent variable regression models due to the restriction imposed on the values that are taken by the dependent variable²⁰.

The difference between Tobit and Probit is that; the theoretical variable of interest in a probit model, y_i^* is not observed; the observed one is a dummy variable, y_i , which takes the value of 1 if y_i^* is greater than 0, and 0 otherwise. On contrary, Tobin's Probit (Tobit) or the censored normal regression model was devised for conditions whereby y_i is observed for values greater than 0 but is not observed (i.e. censored) for values of zero or less.

The typical Tobit model may be defined as:

$$\begin{aligned} y_i^* &= x_i\beta + \varepsilon_i & (1) \\ y_i &= y_i^* \text{ if } y_i^* > 0 & (2) \\ y_i &= 0 \text{ if } y_i^* \leq 0 & (3) \end{aligned}$$

Where y_i^* is the latent dependent variable, y_i is the dependent variable that is observed, x_i is the vector of the independent variables, β is the vector of coefficients, and the ε_i 's are assumed to be independently normally distributed i.e. $\varepsilon_i \sim N(0, \sigma)$ (and therefore $y_i \sim N(x_i\beta, \sigma)$)²¹.

In applying the foregoing discussed model, this study will follow the procedure used by Babatunde and Qaim¹⁰ and de Janvry and Sadoulet²².

In estimating a Tobit regression model discussed above, Maximum Likelihood Estimation (MLE) technique was used. Therefore from the foregoing analysis, this study developed the following Tobit model:

$$\ln IN_{off} = b_0 + b_3 AW + b_4 HS + b_5 HFS + b_6 FE + b_7 P + b_8 T + b_9 AL \dots \dots \dots (4)$$

$$\begin{aligned} &\text{If} && \text{RHS} > 0 \\ &= 0 && \text{otherwise} \end{aligned}$$

Where;

Inoff = Income from off-farm activities; AW = Age of Wife; HS = Household Size; HFS = Size of cultivated land; FE = Farm experience; P = Farm Productivity; T = On-farm training; AL = Accessibility to Credit.

Method of Data Analysis: Data analysis involved two steps which were data management and data analysis itself. The technique that was employed for analysis of data to estimate the Tobit model was the Maximum Likelihood Estimation (MLE) technique. The model was used due to a large portion of the sample stated to have zero income earned from off-farm activities, since disregarding it would cause bias²³. The model employs one set of variables to describe the decision to participate in off-farm activities and the income level generated.

Furthermore, the model was used mainly in order to identify as to which variables were most significant in influencing the level of income of the small-scale household farmers from various off-farm income generating activities; the aim of applying Tobit analysis in this context was to identify which of the variables were most significant in influencing the level of income of the small-scale household farmers' from various off-farm income generating activities.

Results and Discussion

Tobit model was estimated by utilizing the Maximum Likelihood estimation technique. The following Table 1 is a Tobit output which explains the factors affecting the level of income from various off-farm income generating activities, their coefficients and significance levels.

Literatures such as Green²¹ have identified two issues that commonly arise in microeconomic data in the Tobit setting namely heteroskedasticity and nonnormality of the disturbance term.


When the disturbances in the latent variable equation are heteroskedastic, the maximum likelihood estimator of the Tobit model is inconsistent and the inconsistency will be greater the greater the extent of the censoring. Furthermore when the disturbances in the latent variable equation are assumed to be normally distributed but in fact follow a different distribution, maximum likelihood estimates will be inconsistent.

In light of these warnings the `bctobit` option in Stata was used so as to compute the LM-statistic for testing $H_0: \lambda = 1$ against $H_1: \lambda \neq 1$ in the Box-Cox Tobit model. This is equivalent to testing the linearity, normality and homoscedasticity assumptions of the Tobit specification. The null hypothesis is that the correct model is the Tobit with the usual assumptions: linearity, homoscedasticity and normality of the error term. The alternative is that the specification may be non-linear, or have an error that is heteroskedastic and non-normal. The regressors are assumed to be random, and critical values are obtained from the bootstrap null distribution of the LM (Lagrange multiplier) test statistic by repeated sampling from the (parametric) bootstrap DGP (Data-generating process). The following Table 5.2 provides the results of the LM-test of Tobit specification.

Table-1
Tobit regression output

				Number of obs	=	212
				LR chi2 (10)	=	640.40
				Prob > chi2	=	0.0000
				Pseudo R2	=	0.5627
lnInNoff	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FEHH	-.0670215	.0403815	-1.66	0.099	-.1466449	.0126019
FEW	-.0657355	.0418645	-1.57	0.118	-.1482829	.0168119
AHH	-.1160822	.0345841	-3.36	0.001	-.1842743	-.1478901
AW	-.1601142	.0349424	4.58	0.000	.0912156	.2290128
HS	.3084486	.0749513	4.12	0.000	.1606614	.4562358
HFS	-.9343412	.1015128	-9.20	0.000	-1.134502	-.7341806
FE	-.3764288	0.695673	-5.41	0.000	-.5136002	-.2392575
T	-1.166255	.3119271	-3.74	0.000	-1.781306	-.5512046
AL	1.435008	.4713105	3.04	0.003	.5056884	2.364327
lnP	-.6388358	.213864	-2.99	0.003	-1.060528	-.2171435
_cons	21.26342	3.309299	6.43	0.000	14.73822	27.78862
/sigma	1.487786	.0955164			1.299449	1.676123
Obs. Summary:		85	Left-censored observations at lnInNoff<=0			
		127	Uncensored observations			
		0	Right-censored observations			

Table-2
LM test of Tobit specification

Bootstrap replications (499)	
	
.....	50
.....	100
.....	150
.....	200
.....	250
.....	300
.....	350
.....	400
.....	450
.....	
LM test of Tobit specification	
Bootstrap critical values	
lm %10 %5 %1	
110.2 4.12119 6.3093333 11.539051	

It can be seen from the test result in table 2 that the LM value is far greater than the bootstrap critical values even at 1% level of significance. As the LM-test is 110, then the null hypothesis can be rejected. This means that, Tobit is not the correct specification, implying that one or more of the assumptions of Tobit model are violated and thus an alternative model should be used.

The consistency of Maximum Likelihood Estimation (MLE) needs a correct and complete specification of a parametric family of the error distribution. When the model is misspecified, then the model assumptions must be relaxed, and the estimators

remain consistent under more general assumptions. Semi parametric estimators have been developed for this purpose.

Semi parametric estimators employs parametric and nonparametric hybrids for they allow a more overall specification of the nuisance parameters, are more consistent than corresponding parametric models and are typically more precise than their nonparametric counterparts, however, if the parametric model is correctly specified; they are in general less efficient than the corresponding maximum likelihood estimator²⁴.

Semi parametric estimators useful for cross-sectional type analyses include the censored least absolute deviation (CLAD) and symmetrically censored least squares (SCLS) estimators²⁴. In this study censored least absolute deviation (CLAD) was considered.

Furthermore the link test shown in table 4 was performed as a post estimation test in order to assess the reliability of the model showed that the model is correctly specified and there are no specification errors to be taken into account.

Estimation results from censored least absolute deviations (CLAD) that measure participation in different activities are given in Table 3. These results indicate that financial assets, human capital assets and physical assets are the key determinants of income from various off-farm income generating activities amongst the small scale household grape farmers in rural areas.

As far as physical assets are concerned; It was found out that the households that have large cultivated land (HFS) tend to

participate more in on farm activities as opposed to off farm activities and thus less income from off-farm activities.

In effect with regard to the financial assets; it was found out that the higher the level of productivity (P) as measured by income from agriculture, the lower the participation rate in off-farm activities and thus lower income from off-farm activities. Households with accessibility to credit (AL) had a greater chance of participating in off-farm income generating activities and thus more income from it.

As far as human capital is concerned, formal education of household head (FEHH) was found to be insignificant and formal education of wife (FEW) was found to be significant. The only explanation for this outcome could be that women are the key players in most of the off farm work in rural areas. With this in mind as the wife is more educated then she opts to work more off-farm as opposed to on farm work. Age of household head (AHH) which despite its insignificance in this study was found to have positive relation with the dependent variable. Its insignificance could be attributed to the fact that the household head is not the key player in agriculture in rural areas.

Table-3
Censored least absolute deviation output

Median regression				Number of obs =		212
Raw sum of deviations 1172.986 (about 12.072541)						
Min sum of deviations 249.1918				Pseudo R2 =		0.7876
lnINoff	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FEHH	-.0096144	.0333207	-0.29	0.773	-.0753175	.0560886
FEW	-.1150911	.0368297	-3.12	0.002	-.1877132	-.0424689
lnAHH	-1.096058	.7682222	-1.43	0.155	-2.610867	.4187505
lnAW	4.781064	.8456712	5.65	0.000	3.113539	6.44859
FE	-.0905418	.0291279	-3.11	0.002	-1479773	-.0331063
HS	.3943289	.0708434	5.57	0.000	.2546373	.5340206
HFS	-3899013	.0554355	-7.03	0.000	-.499211	-.2805916
T	-0.0409275	.2801132	-0.15	0.884	-.593265	.51141
AL	.7654	.4614702	1.66	0.099	-.1445437	1.675344
lnP	-1.080018	.2171048	-4.97	0.000	-1.508113	-.6519225
_cons	10.35618	5.029989	2.06	0.041	.4378652	20.2745

Table-4
Link test output

Iteration 1: WLS sum of weighted deviations = 249.12153						
Iteration 1: Sum of abs. weighted deviations = 274.51177						
Iteration 2: Sum of abs. weighted deviations = 249.11121						
Median regression				Number of obs =		212
Raw sum of deviations 1172.986 (about 12.072541)						
Min sum of deviations 249.1112				Pseudo R2 =		0.7876
lnINoff	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_hat	.9097012	.0591847	15.37	0.000	.7930257	1.026377
_hatsq	.0069542	.0044004	1.58	0.116	-.0017207	.0156291
_cons	-1.97e-09	.1203533	-0.00	1.000	-.237262	.237262

The variable age of wife (AW) in this study was looked at with greater concern after finding out that in rural areas women are the key participants in farming activities. With regard to this variable it was found out that, there is a positive relationship between the age of wife and income from off-farm activities. This implies that as the woman grows older, her ability to work on-farm decreases as a result she opt to work off-farm in order to subsidize her income.

Household size (HS) is another human capital variable that influences participation of small scale household farmers in various off-farm income generating activities. It was found out from this study that it has a negative influence to the participation decision by the household in various off-farm income generating activities. Large families will have a greater probability of working off-farm since the farming activities may not be able to absorb all the man power in the family but also in order to raise more money to subsist income from the on-farm activities and thus support the family.

Another human capital variable is farming experience (FE). It was found out from this study that, farming experience has a negative relationship with income from various off-farm income generating activities and significant. Also despite its insignificance, training in on-farm activities (T) was found to have a negative relationship with income from off-farm activities.

Social variables such as participation in various social and financial groupings like Savings and Credit Cooperative Organizations (SACCOs) were found to be inapplicable since almost all the interviewed households were not members in these social groupings. Furthermore, the locational variables which include distance to the farm and market availability where found to be inapplicable in this study since almost all the sampled households were residing close to their farms and markets with zero distance.

Conclusions

Generally, this study identifies the role that off farm activities play in supplementing both the small scale household farmers and on farm activities in rural areas. Therefore it should be noted here that in for the country to have sound policies, policy makers and implementers must observe beyond theories explaining rural households and working on desk. This will in return develop their understanding with regard to farming households' behavior so as to come up with policies that will benefit both parties the government and the farming household in particular.

When looking at the characteristics and problems facing the households, they may provide foundation for policy design on agriculture and upgrading of households' welfare in rural areas. It literally means that the effective and efficient policies will be the ones that are well targeted and carefully designed in

delivering intended incentives and programs to the targeted group.

Basing on the findings from the study, the following recommendations are suggested; there should be an awareness campaign for off-farmwork to enable rural dwellers to supplement their income from thereon farm work; there should be policies to make more land available to the farmers for agricultural production purposes; government should provide assistance to therural farmers by way of providing loans monitoring groups and generally programmes that can generate funds; nevertheless the government should put emphasis on the availability of sustainable markets for agricultural products; furthermore the government should put emphasis on the effective implementation of the Kilimo Kwanza policy so as to ensure its success in improving the agriculture sector in Tanzania; nevertheless the government should strive to provide training to the farmers on modern farming techniques so that they increase their farm yield; not only that but also acknowledgement of complementarities amongst incomes accrued from various income generating off-farm activities in rural areas in Tanzania is very important in order to come up with effective land use development policies; and lastly it was observed in this study that most of the infrastructure in rural areas is still very poor therefore advancement of investments of infrastructure in rural areas needs to be a key area in order to provide a link from the rural areas to the rest of the economy.

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