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Effect of Micro Savings on Poverty Reduction in Central Region of Ghana

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Abstract:

The study sought to investigate the effect of micro savings on poverty reduction from the perspective of microfinance clients who are also entrepreneurs of micro small and medium enterprises in the Central Region of Ghana. The Ghana Living Standards Survey (2014) found that over 6.4 million of Ghanaians representing 24.2 percent of the population lived below the poverty line in spite of the numerous interventions instituted by government and development partners over the years to address poverty. The Specific objectives of the study was to establish the effect of micro savings on poverty reduction in Central Region of Ghana. One hypotheses was formulated to cover the specific objective which was operationalized into four sub-hypotheses. Using cluster sampling techniques, the study sampled 370 entrepreneurs of micro small and medium enterprises. Questionnaire was used as the data collection instrument in an exercise that took place in November and December 2016. SPSS was used to analyse the data using cross tabulations and multiple regression analysis. The study found that micro savings had a statistically significant positive effect on growth in income and acquisition of business assets. It however had a relatively weak positive effect on consumption expenditure and a moderate effect on ability to educate children as poverty indicators. Accordingly the study rejected all the null hypothesis and concluded that microfinance interventions are effective at reducing poverty in Central Region of Ghana. The study cites limitations encountered and recommends areas for further studies.

Keywords: *Microfinance Interventions, Microsavings, poverty reduction, poverty stricken individuals, Growth*

1. Introduction

Poverty has been identified as one of the world's biggest problems, the international community recognises that reducing global poverty is one of the major development challenges of the twenty-first century (Kirsten 2011, Dupas & Robinson, 2012). Indeed, It was estimated in 2009 that over 1.8 billion of the worlds population lived on less than US\$2 a day (UNESCAP-ADB-UNDP, 2012); and in 2010, 1.4 billion people lived at or below the level of US\$1.25 per day (UNDP 2010).

A variety of measures have been adopted over the years by governments across countries to reduce the poverty gap. The World Bank for instance has adopted the twin goal of reducing the percentage of people living on less than \$1.25 a day to 3 percent by 2030 and improving the living standards of the bottom 40 percent of the population in every country by the year 2030 (World Bank, 2015). Stewart, Van Rooyen, Dickson, Majoro and De Wet (2010) contend that in response to the Millennium development goals, several interventions have been adopted by countries to eradicate poverty. These interventions include support programme for enterprise development (SPEED), "Emprendedores and Tecnología" (EMPRETEC), Business Assisted Funds(BAF) and microfinance interventions among others. Microfinance interventions gained significant attention when the United Nations in its millenium development goals pledged to halve, the proportion of people whose income was less than \$1 a day between 1990 and 2015 and directed governments across the world to assist in reducing extreme poverty and hunger by the year 2015 (UNDP, 2012).

Microfinance interventions entails the provision of financial services to low-income individuals and households, as well as micro, small and medium enterprises (MSMEs), using specially designed methodologies that ensures sustainability for lenders and improvement in the standard of living for its subscribers (PWC, 2016). Microfinance interventions which have widely been recognized as one of the most important engines of poverty reduction and economic development encompasses micro savings, access to credit, microinsurance and micro credit provided to people who operate micro, small and medium enterprises. It contributions to individual and social welfare, business creation and expansion particularly for MSME's has been underscored by many studies. Microfinance interventions affords poor clients access to financial institutions, expand consumption, absorb disruptive shocks, manage risks and invest in durable goods, health and education which ultimately leads to economic development and poverty reduction (Cheston, Conde, Bykere, and Rhyne, 2016) .

The relationship between microfinance interventions and poverty reduction shows that cash flow requirements are not the only burden which impacts microfinance clients (Odell, 2009; Arun, Imai and Sinha, 2006 & Rosenberg, 2010). The health status of household members, education for children and funerals for family members also place a heavy burden on microfinance clients and threaten their ability to fulfill loan repayment obligations. According to Duvendack, Palmer-Jones, Copstake, Hooper, Loke and Rao (2011) microfinance interventions has gained considerable international acceptance as an imperative poverty reduction tool in most developing countries. This assertion is supported by Dzisi and Obeng(2013); Stewart *et al.*, (2010) and Stewart *et al.*, (2012). who have all argued that microfinance interventions are among the few recent innovations which have held much hope for poverty reduction in developing countries. The choice of the Central Region of Ghana as the study locale was based on a 2014 study which ranked the region as the fourth poorest in Ghana in spite of its unique characteristics as the seat of education, the heartbeat of tourism in Ghana, the availability and spread of microfinance institutions and enterprises and the availability of data to support the study.

1.1. Statement of the Problem

The Ghana Living Standards Survey (2014) indicates that over 6.4 million of Ghanaians representing 24.2 percent of the population lives below the \$1.25 poverty mark set by the World Bank. The study further stated that about 8.4 per cent of Ghanaians are extremely poor and lives below the poverty line of US\$1 mark a day. The report further indicate that 18.8 percent of the people in Central Region of Ghana, with a population of 2.2 million (GLSS, 2014) lives below the poverty line. To address the poverty gap, the Government of Ghana implemented several interventions ranging from livelihood enhancement programs to support program for enterprise development and the setting up of microfinance institutions. For instance and In 2006, the government of Ghana established the microfinance and small loans centre (MASLOC) under the Ghana Poverty Reduction Strategy (GPRS) II to provide loans to the marginalized productive poor as a tool for reducing poverty and creating jobs (BOG, 2015).

Despite these interventions the number of people living with poverty continues to rise in rural Ghana (GSS, 2014). While several factors could be responsible, this study concentrates on the role of microfinance in the poverty reduction strategy of Ghana. Leading advocates of microfinance interventions such as Yeboah (2010) and Stewart *et.al.* (2012) have argued that, microfinance helps lift people out of poverty by raising incomes and consumption, not just smoothing them. However, Arhin-Sam (2013), Roodman and Morduch (2013) and Awarwoyi (2014) have all found statistically insignificant association between microfinance interventions and poverty reduction. Given the findings of the above studies and the lapse of time, the projection of microfinance as a poverty reduction strategy needed to be revisited. This study therefore sought to investigate whether new evidence has emerged to support the ability of microfinance interventions to eradicate poverty or otherwise from the point of view of clients who own micro small and medium enterprises in Central Region of Ghana to give a clearer understanding as to how microfinance interventions affect poverty reduction in Ghana.

1.2. Objective of the Study

The specific objective of the study was to establish the effect of microsavings on poverty reduction in Central Region of Ghana.

2. Literature Review

According to Ahmed-Karim and Alders-Sheuya (2014), microsavings have been much less at the forefront in the discourse of microfinance than microcredit. They contend that microsavings are generally less a financially profitable proposition for lending institutions than microcredit. However, providing the poor with access to save their money has been found by a number of studies to have promising effects on poverty reduction (Dupas & Robinson, 2012 and Pomaranz, 2013). This assertion is supported by Prina (2015) whose study on banking the poor in Malawi found that providing access to accounts to rural farmers resulted in increased input usage, higher crop sales and greater household expenditure over the subsequent agricultural year.

The impact of microfinance on income has been analyzed at the individual, household and enterprise levels. Microfinance impact studies assume the borrower is the sole operator of a single income generating activity, the output of which is constrained either by lack of capital or by the high marginal cost of credit relative to its marginal returns. Easing the capital constraint permits the operator to increase output, net income, profits, and hence their own welfare (de Mel *et al.* 2008). Deininger and Liu (2013) conducted various studies on different microfinance programmes in numerous countries and found strong evidence of positive relationship between access to credit and the borrower's level of income. The authors indicated that the middle and upper poor received more benefits from income-generating credit initiatives than the poorest.

Copstake *et al* (2001) estimated the effect of an urban credit programme – a group-based microcredit programme in Zambia- and found that microcredit has a significant impact on the growth in enterprise profit and household income in the case of borrowers who have received a second loan. With regards to association between microcredit and income, Awarwoyi (2014) relying on 60 estimates drawn from nine primary studies found that about 81.67% (49 estimates) were statistically insignificant, while the remaining estimates presented a positive and statistically significant weighted average. Thus, based on reported FEEs, he concluded that there was no significant association between microcredit and income.

Expenditure is one of the indicators which has been used by many researchers to measure the impact of microfinance on poverty reduction. Duvendack *et. al.* (2011) estimated the effect of microcredit obtained by both male and female clients of Grameen Bank and two other group-based microcredit programmes in Bangladesh on various indicators such as expenditure on household consumption, health, education and welfare. They found that per capita consumption increased by accessing a loan from a microcredit. The above findings is supported by Dupas and Robinson (2012), whose study in Kenya found that microfinance had a sustainable impact on consumption expenditure among programme participants. In contrast, Roodman and Morduch (2013) revisited the famous

Pitt and Khandkar (1998) and Morduch (1998) studies and was unable to replicate their positive findings on consumption smoothing. Instead they concluded that there was no statistically significant effect between access to credit and consumption expenditure, contradicting the strongest findings of those studies.

Ownership of financial and non-financial assets has also been used as a proxy to measure poverty reduction as an alternative measure of consumption-based welfare. One of the merits of these asset-based indicators is the ease with which they can be measured compared with consumption based indicators (Khanom, 2011). An increase in the number of non-financial assets purchased for the household is regarded as a potentially strong indicator of the effect of a microfinance programme on clients as it serves as a measure of the wealth of a household (Batman, 2011). A study by Yeboah (2010) revealed that participation in SAT's microfinance programme was strongly associated with increased expenditure by clients for the acquisition of household assets. In a similar study, Adjei *et al.* (2009) using 547 respondents in Ghana found that an important form of self-insurance against crises is building up a household's assets, which can reduce vulnerability through sale of assets to meet immediate consumption needs; improve credit worthiness, thereby improving the household's borrowing chances during a crisis; and, finally, a larger and more diverse asset base can reduce covariate risk. In contrast, Stewart, Rooyen, Korth, Chereni, Da Silva and De Wet (2012) in their study captioned microfinance, silver bullet or poisoned chalice, found that micro credit has mixed impacts on levels of savings and accumulation of assets and in most cases reduce expenditure. The study also found no evidence that micro savings enables engagement in economic opportunities, although in some cases, but not all, it increases income, savings, expenditure and the accumulation of non-financial assets.

Education, one of the measures of poverty reduction as used in this study has been identified as the most important tool in providing people with the basic knowledge, skills and the competencies to improve their quality of life at all levels of development (Ampiah & Adu-Yeboah, 2009). Ghanaians therefore place high value on education and invest in their children's education. According to Adjei *et al.* (2009) who conducted a study in Ghana on the role of microfinance in asset building using clients of Sinnapi Aba Trust (SAT) as a case study. They found that for every 100 Ghana Cedis increase in the loan amount; expenditure on children's education increased by five Ghana Cedis and concluded that established clients were found to be in a better position to contribute towards the education of their children and payment of healthcare for members of their households than new clients.

3. Methodology

The study adopted explanatory research design. Explanatory research design is appropriate where a researcher is attempting to explain how a phenomena operates by identifying the underlying factors that cause change in it in which case there is no manipulation of the independent variable (Kerlinger & Lee, 2000). As noted by Saunders, Lewis and Thornhill (2012) explanatory research is the systematic inquiry in which a researcher does not have direct control of the independent variables because their manifestations have already occurred. The target population for this study consisted of 10,000 active microfinance clients who were also operators of micro small and medium enterprises in Central Region of Ghana. The study combined clients of the various microfinance institutions into one population to have a fair representation in the study locale.

The study adopted the two-staged cluster sampling method in selecting respondents. Clients of microfinance institutions were grouped according to the various sub groups already in existence such as women associations, farmers groups, fishermen association, micro small and medium enterprises and households. A simple random sample was selected within each of these groups which formed the cluster. According to Cooper and Schindler (2003), cluster sampling techniques is appropriate when sampling "natural" but relatively heterogeneous groupings of a population.

To ensure that the sample size was representative of the population, the study adopted the formula given by Israel (2009) as follows: $n = N/[1 + N(e^2)]$ where: n is the sample size, N the population and e the alpha level. Accordingly, the sample size for the study was 370 given a population of 10,000 at a 5% confidence interval. The study utilized multiple regression analysis to analyse data. The statistical package for services solution (SPSS) was used to analyse the data. Where the p value was found to be less than the significant value of 0.05, the null hypothesis was rejected.

4. Results and Findings

The specific objective of the study was to ascertain the effect of microsavings on poverty reduction. Four sub hypotheses were formulated for each of the four outcome variables of poverty reduction (Growth in income, increase in consumption expenditure, acquisition of business assets and ability to educate children in Central Region of Ghana).

4.1. Microsavings and Growth in Income $H0_{1a}$

Table 1a to 1c presents the results of the above sub hypothesis. In table 1a, the regression function is modelled by taking microsavings as the predictor variable and growth in income as the outcome variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.783 ^a	0.613	0.609	0.48458	0.613	155.621	3	295	0.000

Source: Study data, 2016; Significance Level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings
b. Dependent Variable: Growth in Income

Table 1a: Model Summary^b

From table 1a above, a strong positive correlation is observed between microsavings (rate of savings, interest rates and type of savings) and growth in income ($R = 0.783$ and $P = 0.000$). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 61.3%, indicating that microsavings accounts for 61.3 percent of growth in income ($R^2 = 0.613$). The adjusted R^2 tells us how much variance in Y would be accounted for if the model had been derived from the population. The Adjusted R^2 is 60.9 percent and therefore very similar to the R^2 indicating that the cross-variability of this model is very good.

Table 1b below presents results of the models overall significance in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	109.628	3	36.543	155.621	.000b
	Residual	69.271	295	0.235		
	Total	178.899	298			
Source: Study data, 2016						
Significance Level = 0.05						
a. Dependent Variable: Growth in income						
b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings						

Table 1b: ANOVA^a

Results from table 1b above indicate that the model overall is statistically significant with a P-value less than 5 percent ($p = 0.000$). The F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In this case $F = 155.621$ meaning that the model significantly improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, H_{01a} which states that microsavings does not have a statistically significant effect on growth in income is not supported and therefore rejected.

Table 1c below presents results of the regression coefficient (beta values) for microsavings and growth in income to indicate whether microsavings is significant in explaining growth in income.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	0.788	0.170		4.632	0.000		
	Type of savings	0.259	0.046	0.312	5.631	0.000	0.429	2.332
	Rate of savings	0.014	0.058	0.009	0.250	0.802	0.925	1.081
	Interest rate	0.351	0.038	0.523	9.275	0.000	0.413	2.420
Source: Researcher, 2017								
a. Dependent Variable: Growth in income								
b. Significance level = 0.05								

Table 1c: Coefficients^a

From table 1c above, the study finds that Type of Savings ($P = 0.000$) and Interest Rates ($P = 0.000$) are statistically significant microsavings indicators in explaining growth of income as a poverty indicator. Rate of savings is however not significant given that $P = 0.802$. The beta values tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The implication of this is that as type of savings increases by one unit, growth in income increases by 0.259 units. Similarly as Interest Rates increase by one unit, growth in income increases by 0.351 units. The regression function for the sub-hypothesis (H_{01a}) is extracted as follows:

$$Y_1 = 0.788 + 0.259X_1 + 0.351X_3$$

Where Y_1 = Growth in Income, X_1 = Type of Savings and X_3 = Interest Rate.

The above findings indicate that Microsavings have a significant positive relationship with growth in income. This finding is supported by Dupas and Robinson (2012) whose field experiment in Kenya found that market women who subscribed to the savings products significantly increased their income over the period of the intervention.

4.2. Microsavings and Increase in Consumption Expenditure H_{01b}

Table 2a to 2c presents the results of the above sub hypothesis. In table 2a below, the final output of the regression function is modelled by taking microsavings (Types of savings, Interest Rate and Rate of savings) as the predictor variable and increase in consumption expenditure as the outcome variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.393a	0.154	0.146	0.34947	0.154	17.990	3	296	0.000
Source: Study data, 2016 Significance Level = 0.05									
a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings									
b. Dependent Variable: Increase in consumption expenditure									

Table 2a: Model Summary^b

Results in table 2a above indicate a weak positive correlation between Microsavings and increase in consumption expenditure ($R = 0.393$ and $P = 0.000$). This could imply that people who are active savers are reluctant to spend on consumption. The results further indicate that microsavings accounts for only 15.4 percent of increase in consumption expenditure ($R^2 = 0.154$). According to Field (2013), the adjusted R^2 gives some idea of how well the model generalizes and should be very close to the value of R^2 . The Adjusted R^2 is 0.146 and is close to the R^2 indicating that the cross-variability of this model is very good.

Table 2b below presents results of the models overall significance in the form of analysis of variance (ANOVA).

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.591	3	2.197	17.990	.000 ^b
	Residual	36.151	296	0.122		
	Total	42.743	299			
Source: Study data, 2016 Significance level = 0.05						
a. Dependent Variable: Increase in consumption expenditure						
b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings						

Table 2b: ANOVA^a

Table 2b shows that the model overall is statistically significant with $P < 5$ ($p = 0.000$). The F-ratio which represents the ratio of the improvement in predicting that results from fitting the model, relative to the inaccuracy that still exists in the model is 17.990 indicating that the model improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, H_{01b} which states that microsavings does not have a significant effect in predicting increase in consumption expenditure is hereby not supported and therefore rejected.

Table 2c below presents results of the regression coefficient (beta values) for microsavings and increase in consumption expenditure to indicate whether microsavings are significant in explaining increase in consumption expenditure.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.822	0.123		23.003	0.000		
	Type of savings	-0.204	0.033	-0.500	-6.133	0.000	0.429	2.329
	Interest rates	-0.113	0.042	-0.152	-2.728	0.007	0.925	1.082
	Rate of savings	0.059	0.027	0.180	2.171	0.031	0.414	2.418
Source: Study data, 2016 Significance level = 5%								
a. Dependent Variable: Increase in consumption expenditure								

Table 2c: Coefficients^a

Results from table 2c above indicate that all three sub variables of savings with P values less than the significant level of 5% are statistically significant microsavings indicators in explaining increase in consumption expenditure as a poverty indicator. Table 2c above indicate that type of savings with a beta of -0.204 and interest rates with a beta of -0.113 have an inverse relationship with the outcome variable increase in consumption expenditure. The implication is that as type of savings increases by one unit, increase in consumption expenditure decreases by 20.4 percent. Similarly as Rate of Savings increases by one unit, increase in consumption expenditure increases by 5.9%. The regression function for the sub-hypothesis (H_{01b}) is extracted as follows:

$$Y_2 = 2.822 - 0.204X_1 - 0.113X_2 + 0.059X_3$$

Where Y_2 = Increase in consumption expenditure, X_1 = Type of Savings, x_2 = Interest Rate and X_3 is rate of savings.

The weak positive correlation found between microsavings and increase in consumption expenditure is supported by Augsburg *et. al.* (2015) whose study in Bosnia and Herzegovina also found weak positive correlation between Microsavings and poverty reduction. This is not strange as studies have found that people with high propensity to save tend to consume less (Pitt & Khandaker, 1998 and Roodman and Morduch, 2013)

4.3. Microsavings and Acquisition of Business Assets H_{02c}

Table 3a to 3c presents the results of the above sub hypothesis. In table 3a below, the final output of the regression function is modelled by taking microsavings (Types of savings, Interest Rate and Rate of savings) as the predictor variable and acquisition of business assets as the outcome variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.775 ^a	0.601	0.597	0.47163	0.601	148.468	3	296	0.000
Source: Study data, 2016 Significance Level = 0.05									
a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings									
b. Dependent Variable: Acquisition of business assets									

Table 3a: Model Summary^b

Table 3a above indicate a strong positive correlation between microsavings and acquisition of household assets and or business assets (77.5 percent). This may imply that MSME's are either able to save to acquire business assets or are able to use savings as a form of collateral to acquire assets. Table 3a also indicate that Microsavings accounts for 60.1 percent of acquisition of business assets ($R^2 = 0.601$).

The above finding is consistent with that of Adjei and Arun (2009) whose study in Ghana suggested that Microsavings influenced the amount of wealth made by participants. It must however be called out that most microfinance institutions in Ghana adopted the Grameen model meaning that to qualify for a loan you need to have about 20 percent of the amount you require in the form of savings deposits before a loan will be approved.

Table 3b below presents results of the models overall significance in the form of an analysis of variance (ANOVA).

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	99.075	3	33.025	148.468	.000b
	Residual	65.842	296	0.222		
	Total	164.917	299			
Source: Study data, 2016 Significance level = 0.05						
a. Dependent Variable: Acquisition of business assets						
b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings						

Table 3b: ANOVA^a

Table 3b above shows that the model overall is statistically significant with $P < 5$ ($p=0.000$). The F-ratio is 148.46 indicating that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, H_{02c} which states that microsavings do not have a significant effect on acquisition of business asset is hereby rejected.

Table 3c below presents results of the regression coefficient for microsavings and acquisition of business assets to indicate whether microsavings has a significant effect in explaining acquisition of business assets.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.431	0.166		2.603	0.010		
	Type of savings	0.315	0.045	0.395	7.040	0.000	0.429	2.329
	Interest rates	0.166	0.056	0.113	2.965	0.003	0.925	1.082
	Rate of savings	0.293	0.037	0.455	7.968	0.000	0.414	2.418
Source: Study data, 2016								
a. Significance level = 0.05								
b. Dependent Variable: Acquisition of business assets								

Table 3c: Coefficients^a

From table 3c above, it can be deduced that all three sub variables of savings are statistically significant in explaining acquisition of business asset as a poverty indicator given that $P < 0.05$. They all have a positive beta values indicating that there is a positive relationship between the predictor, microsavings and the outcome variable acquisition of business asset. Table 3c above also indicate the beta for type of savings as 0.315, interest rates as 0.166 and the beta for rate of savings as 0.293. The implication is that as rate of savings increases by one unit, acquisition of business asset increases by 29.3 percent. The regression function for the sub-hypothesis (H_{02c}) is extracted as follows:

$$Y_3 = 0.431 + 0.315X_1 + 0.166X_2 + 0.293X_3$$

Where Y_3 = Acquisition of business asset, X_1 = Type of Savings, X_2 = Interest Rate and X_3 is rate of savings.

Evidence from similar studies in Uganda and Zanzibar found that micro-credit clients invested more in business assets such as tools, plants and equipments (Barnes et al. 2001; Brannen 2010). The data from Tanzania suggests that investing in household assets is especially true of male clients, although it is also significant amongst female borrowers. Accordingly the findings of this study that microsavings has a significant effect on acquisition of business assets is hereby supported.

4.4. Microsavings and Ability to Educate children H_{01d}

Table 4a to 4c presents the results of the above sub hypothesis. In table 4a below, the output of the regression function is modelled by taking microsavings (Types of Savings, Interest Rate and Rate of Savings) as the predictor variable and ability to educate children as the outcome variable.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.658 ^a	0.433	0.427	0.56188	0.433	75.214	3	296	0.000
Source: Study data, 2016									
Significance Level = 0.05									
a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings									
b. Dependent Variable: Ability to educate children									

Table 4a: Model Summary^b

From table 4a above, a moderate positive correlation is observed between microsavings (rate of savings, interest rates and type of savings) and ability to educate children ($r = 0.658$). The results further indicate that Microsavings accounts for 43.3 percent of ability to educate children ($R^2 = 0.433$). The adjusted R^2 which gives us some idea of how well our model generalizes is R^2 is 42.7 percent and therefore very similar to the outcome predicted by the R^2 , indicating that the cross-variability of this model is very good.

Table 4b below presents results of the models overall significance in the form of analysis of variance. According to Field (2013) ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	71.236	3	23.745	.000 ^b
	Residual	93.449	296	0.316	
	Total	164.686	299		
Source: Study data, 2016					
a. Dependent Variable: Ability to educate children					
b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings					

Table 4b: ANOVA^a

The findings of table 4b above indicate that the model overall is statistically significant with a P-value less than 5 percent ($p=0.000$). According to Saunders, Lewis and Thornhill (2012) the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In this case $F=75.214$ meaning that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, H_{02d} which states that microsavings do not have a significant effect on ability to educate children is therefore not supported and rejected.

Table 4c below presents results of the regression coefficient (beta values) for microsavings and ability to educate children.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	1.276	0.197	6.472	0.000			
	Type of savings	0.774	0.053	0.969	14.508	0.000	0.429	2.329
	Interest rates	-0.002	0.067	-0.001	-0.028	0.978	0.925	1.082
	Rate of savings	-0.362	0.044	-0.562	-8.257	0.000	0.414	2.418
Source: Study data, 2016								
a. Dependent Variable: Ability to educate children								
b. Significance Level = 0.05								

Table 4c: Coefficients^a

Table 4c above indicate that only type of savings and rate of savings with $P < 0.05$ are statistically significant in explaining ability to educate children as a poverty indicator. While type of savings have a positive beta value of 0.774 and therefore indicating that there is a positive relationship between type of savings and ability to educate children, rate of savings has a negative beta of -0.362 implying

that rate of savings has an inverse relationship with ability to educate children. Accordingly, a unit increase in the rate of savings will result in a 0.362 decrease in ability to educate children.

Interest rate is not significant and is therefore excluded from the regression equation. The regression function for the sub-hypothesis (H_{01d}) is therefore extracted as follows: $Y_4 = 1.4276 + 0.774X_1 - 0.362X_3$

Where Y_4 = Ability to educate children, X_1 = Type of Savings and X_3 is rate of savings.

The above finding is supported by empirical studies by Adjei *et al.* (2009) and Ssewamala (2010) whose respective studies in Ghana and Uganda found significant positive relationship between microsavings and ability to educate children. Nanor (2008) and Shimamura (2009) however found mixed effect on ability to educate children. Nanor (2008) in particular found significant positive effect in some districts of the Eastern Region of Ghana and significant negative effects in other districts of the same region in Ghana.

5. Summary of Findings

The specific objective of the study was to establish the effect of microsavings on poverty reduction in Central Region of Ghana. To this end the researcher hypothesized that microsavings does not have statistically significant effect on poverty reduction in Central Region of Ghana (H_{01}) and constructed four additional null hypotheses. The four hypothesis measured microsavings against growth in income (H_{01a}), increase in consumption expenditure (H_{01b}) acquisition of business assets (H_{01b}) and ability to educate children (H_{01d}), as proxies for poverty reduction.

Using multiple regression analysis, the study established strong positive relationship between microsavings and poverty reduction, microsavings and growth in income, Microsavings and acquisition of business asset. The study however found a weak positive relationship between microsavings and increase in consumption expenditure and a moderate positive relationship between microsavings and ability to educate children. This is in line with the theory of life cycle savings which view financial assets as vehicles for transferring resources across different times and outcomes over the life cycle, and that perspective allows households and planners to think about their decisions in a logical and rigorous way.

6. Conclusions and Recommendations

In view of the above findings in relation to the specific objective and research hypothesis, the study concluded that microsavings is perhaps the most important microfinance intervention which influences poverty reduction as compared to other forms of interventions. The study therefore recommended that microfinance institutions should intensify their savings mobilisation initiatives by increasing the rate of interest on savings deposits so as to encourage the informal sector which continues to remain unbanked to save.

7. Implications of The Study and Areas for Further Research

There are several noteworthy implications associated with the outcome of this study. Firstly, the study rejected the main hypotheses and its sub hypothesis. The implication of this is that microsavings are important and efficient poverty reduction tools which could contribute significantly to growth in income and entrepreneurial development, increase in consumption expenditure, acquisition of assets and ability to educate children and should therefore be given all the attention it deserves.

The research gaps observed out of the study effort provide some basis for further empirical investigations. There is need to consider similar study over a longer period of time using randomised control trials as against the cross sectional design used for this study to capture the time effects of changes in the implementation of the interventions. Also, there is the need to expand the study variables to cover, microcredit, micro leasing, money transfer and access to credit which are various forms of microfinance interventions to understand how these variables affect poverty reduction.

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