

Impact of Micro Credit on Rural Farming Activities: The Case of Farming Communities Within Sunyani Area

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Abstract

Most MFIs especially rural banks have performed creditably well in their operations and have contributed a lot towards agricultural development. The study seeks to investigate the impact of micro credit on farming activities but specifically to determine the impact of micro credit on labour employed, working capital, output and income of farmers and other forms of support rural banks give to farmers. A total of 103 farmers were randomly selected from farmer clients of a rural bank to respond to close-ended questions. Paired samples t-test was run to determine the differences and impact of the credit intervention on the four dependent variables. A modified Eta squared formula and paired samples correlation were used to determine the impact of the independent on the dependent variables.

The result found significantly large effect of the micro credit intervention on the labour employed, working capital, output and income of farmers. All the dependent variables had increased during the period under study although all the increases cannot be attributed to the credit intervention only. Apart from the credit, other forms of support given to farmers include improved and subsidized farm inputs like fertilizer, seedlings and other inputs.

Key words: Micro credit; Rural banks; Farming activities

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INTRODUCTION

It has been the vision of well-meaning governments to ensure the development of rural areas and better the lots of rural dwellers. Ghana, as an agrarian economy has significant proportions of its dwellers in the rural areas. Farming and for that matter agriculture contributes significantly to the country's GDP. Rural development has been a topical issue in most parts of Sub-Saharan Africa. Terluin (2003) indicated that economic development of rural areas has been determined externally by the state, where big issues such as modernization in agriculture took priority over local sensitivities. Writing on rural development in the UK, Mason (2008) emphasized home-based businesses as pivotal to developing rural economies. Mason defined home-based business as any business entity engaged in selling products or services into the market operated by a self-employed person, with or without employees that uses residential property as a base from which they run their operation. The definition was expatiated by Newbery and Bosworth (2010) as businesses that covered sectors which included agriculture. Such businesses have the potential to champion the economic, social and environmental benefits linked to local development, job creation and community vitality. Thus anytime there is a call to pursue rural development, agriculture cannot be left behind. Newbery and Bosworth (2010) made strong cases for home-based business as vital for developing the rural economy and the rural dweller. This paper focuses on agriculture as a backbone for rural development and the rural farmer. Rural banks through their credit facilities contribute to agricultural development and the welfare of the farmer.

According to Nair and Fissaha (2010), agriculture contributes 40 percent of Ghana's GDP as well as three-quarters of export earnings and provides the main source of livelihood for about 60 percent of the population. Cocoa accounts for about 16 percent of agricultural GDP, cereals and root crops cover 65 percent and forestry,

livestock and fisheries the remaining 19 percent. The Bank of Ghana Annual Report (2011) made it clear that credit for agricultural purposes increased to 85.3 percent thus making strong case for the country's reliance on that sector of the economy.

Financial intermediation in the rural areas has always been under-represented as compared to urban centres in Ghana. In spite of the encouragement given to commercial banks to expand the frontiers to the rural communities, not much has been realized. It was in the wisdom of this that rural banking was started in the 1970s. The neglect of rural farmers (commercial and subsistence scales) by mainstream banks left the farmers at the mercy of money lenders and traders who charged exorbitant rates for credit offered. The negative impact of lack of access to credit facilities cannot be over-emphasized. Obadan (1997) and Adepoju (2005) have identified minimal access to credit and employment opportunities as major source of poverty in sub-Saharan Africa. Lack of access to credit has resulted in low acreages under cultivation, poor farm maintenance practices, inadequate or no fertilizer application which eventually led to poor yields and low income for the rural farmer (Asiedu-Mantey, 2011). This lack of credit is also attributed to the uncertainty in farm input and output and the time lag between input and output. Thus until harvest time, farmers have difficulty meeting basic household demands (Rahji & Adeoti, 2010).

Before the establishment of the first rural bank in 1976, formal credit to rural communities was provided by traders and money lenders who charged throat-cutting rates. The government of the day had several policies in place to satisfy the rural communities in terms of credit delivery. Among such was the requirement that commercial banks lend at least one-fifth of its portfolio for agricultural purposes and the establishment of Agricultural Development Bank (ADB) in 1965 (Nair & Fissaha, 2010). The requirements and demands by commercial banks made it unattractive to rural dwellers thereby widening the gap of financial intermediation.

Ghana modeled the Philippines unit banking system to come out with the rural banking system in order to extend financial intermediation to the countryside. The rural banking concept was thus introduced to encourage rural savings and to meet the financial needs of dwellers. All rural banks were registered at the Registrar of Companies as limited companies. The rural banks floated shares which were subscribed by people in the locality. In as much as a lot of successes have been chocked by rural banks viz improving banking habits of residents, mobilizing funds, offering credit to rural dwellers, purchasing cocoa, supporting rural development, job creation and women empowerment (Asiedu-Mantey, 2011), a lot leaves much to be desired as far as bettering the lot of the rural farmer is concerned.

Rural banks are established to:

- i. Stimulate banking habits among rural dwellers
- ii. Mobilize resources locked up in the rural areas into the banking system to facilitate development and
- iii. Identify viable industries in their respective catchment areas for investment and development.

The Bank of Ghana sectorial allocation for rural bank loans ensures that the bulk of facilities go into agriculture. The requirement provides that the maximum acreage a loan-eligible farmer can cultivate is 10 acres for vegetables and 100 acres for staple crops (Essel & Newsome, 1995).

Most West African economies rely so much on agriculture to achieve economic growth. The sector is still plagued by a lot of challenges which if addressed will see light beyond the tunnel. It was reported by Okunmadewa (2003) that over 60 percent of farmers in Nigeria live below the poverty line. Akinsoye (2006) remarked that Nigeria suffered decline in the contribution of agriculture to its exports as a result of neglect of the sector which mainly comprised small-scale farmers. The situation resulted in increase in food importation, a situation which is not different from Ghana. The resultant effect is decline in income that could have been used to improve their socio-economic status. Bolarinwa and Fakoya (2011) reported that farmers' access to credit facilities is supported to be a catalyst to agricultural development through the adoption of improved technology. Citing Flores (2004), the writers noted that institutional credit if made available to farmers could be a panacea to farmers' problems of small farm size, low output, low income and low socio-economic status. The government's intervention schemes have been several to address the menace. The establishment of rural and community banks to provide institutional credit to rural farmers is a step in the right direction. The rest of the paper is divided into literature review, methodology, results discussion and conclusion.

1. LITERATURE REVIEW

Ghana covers about 240000 square kilometers of land in three major ecological zones including the rainforest zone (25 percent of total area), the transitional zone (11 percent) and the savannah zone (64 percent). Agricultural growth which averaged 3.6 percent from 1997 to 2007 remains the mainstay of strong overall growth performance, accounting for more than half of total growth in this period. The country has an agricultural system that is traditional, rain-fed and dominated by smallholders. Studies indicate that 2.7 million farms averaging 1.2 hectares in size account for 80 percent of agricultural production. Almost all farming activities take place in the rural areas and efforts to link this section of the financial market culminated the establishment of rural and community banks. After the establishment of the first rural bank at Agona Nyakrom in the central region, several of such banks have been established in all the ten regions of

Ghana. As at March 2012, 136 of the 140 licensed rural and community banks were fully operational with the four banks whose licenses were withdrawn (www.bog.gov.gh).

Burges and Pande (2005) and Hakenes et al. (2009) lauded the presence of banks in influencing local development by improving financing opportunities to SMEs. Increasing rural investment as a result of provision of loans and advances will gear up output levels which will in turn raise the consumption level and possibly improved accessibility to public goods and services within rural environments (Jenyo, 2002; Olawepo, 2004).

FAO (1994) identified the sources of rural credit as institutional and non-institutional. In rural communities, the latter is provided by money lenders, relatives, friends, traders, commission agents, cooperatives, consumers, and distributors of farm inputs and processors of agricultural products. Depository Money Banks (DMBs) provide most of formal credit. Informal sources may come from family, friends, money lenders and savings from and off-farm income (Mohieldin & Write, 2000). Agricultural credit can be obtained from both formal institutions and informal sources (Asiedu & Fosu, 2003). The traditional practice among banks has been the demand for collateral which makes it very difficult for most farmers to have access to formal finance. Arzeno (2004) lauded the keeping of good farm records as basis for accessing credit from formal institutions. The amount of credit a farmer could access is a function of the volume of output (Nimoh et al., 2011).

There are evidence to show that farmers diverted credit facilities for other purposes apart from the farming (Essel & Newsome, 1995). The authors found that 80 percent of loans given to farmers were rather channeled for family obligations, health education and consumer items at home. Ojo (2003) found that a greater percentage of poultry farmers used the credit for its intended purposes (purchase of poultry feeds). The assertion was confirmed by Nimoh et al. (2011) when they studied poultry farmers in the Brong Ahafo region of Ghana.

Agabin and Daly (1996) gave three reasons for providing financial intermediation for rural populations. They mentioned the positive impact on their economic welfare through improved savings habits in order to enjoy credit for investment and consumption. They again mentioned the ripple effect of developing the rural market on the national economy. There is a dynamic integration of urban and rural markets, the last but not the least was the reduction or lessening of the effect of marginalization and inequality existing between the rural and urban areas. The loss of such opportunities does not enhance economic efficiency, improved technologies and attraction to potential investors.

According to Gillis (1996), agriculture's role in economic development is central in LDC's because most of the people in these nations make their living from the land and the only ways that those peoples' welfare can readily be improved is by helping to raise the farmers'

productivity in growing food and cash crops. According to Chatrath and Vallabh (2006), the rural population in India suffers from a great deal of indebtedness and is subject to exploitation in the credit market due to high interest rates and the lack of convenient access to credit. Rural households need credit for investing in agriculture and smoothening out seasonal fluctuations in earnings.

Difficulties in accessing credit in rural areas of developing economies adversely affect farm output (Feder et al., 1990; Petrick, 2004) farm investment (Carter & Olinto, 2003) and farm profits (Carter 1989; Foltz 2004). Osei-Mensah and Adams (2009) found that micro credit had significant and positive impact on both labour force and output of farmers. Dong, Lu and Featherstone (2010) indicated that rural credit is a necessity for improving farm profits and improving the living standards of rural communities in developing countries. The writers found that by removing credit constraints, the income of farmers would improve considerably.

Ibrahim and Bauer (2013) mentioned that the most significant interventions provided by microfinance institutions in the support of agriculture are the supply of improved seedlings, fertilizer and cash loans.

2. METHODOLOGY

The study involved 103 rural farmers who are clients of a rural bank within the Sunyani municipality. A total of 150 questionnaires were distributed thus representing a response rate of 68.7%. The main source of data was the primary source through the use questionnaire. The items were basically closed-ended questions the purpose of which was to give direction to the responses. The study involved both quantitative and qualitative analyses. One hypothesis was tested and four key variables were measured using paired samples t-test to establish whether significant differences existed in the variables after the introduction of the micro credit intervention. The variables were labour force, capital, output and income. A modified Eta squared formular was used to determine the effect size of the intervention. To determine the size of effect of the micro credit on rural farmers, the researcher used the Eta squared which is given by the formular:

$$\text{Eta squared} = \frac{t^2}{t^2 + N - 1}$$

where t = t-value and $N-1$ = degrees of freedom (df)

Pallant (2010) cited Cohen, (1988) who interpreted the eta squared values using the following guidelines: 0.01 = small effect, 0.06 = moderate effect, 0.14 = large effect.

The effect size of the impact of credit on labour force employed is calculated as:

$$\text{Effect size} = \frac{8.213^2}{8.213^2 + 103 - 1} = 0.398$$

The effect size obtained (0.398) above suggests that there is large effect of the credit facility on the labour force employed by farmers.

The effect size of the impact of credit on capital is calculated as:

$$\text{Effect size} = \frac{25.085^2}{28.085^2 + 103 - 1} = 0.8605$$

The effect size of credit on capital calculated is 0.8605 which indicates large effect.

The effect size of the impact of credit on output is calculated as:

$$\text{Effect size} = \frac{25.085^2}{28.085^2 + 103 - 1} = 0.8605$$

The effect size of the impact of the credit on output is 0.8605 which shows that there is a large effect.

The effect size of the impact of credit on income is calculated as:

$$\text{Effect size} = \frac{27.493^2}{27.493^2 + 103 - 1} = 0.8811$$

The effect size of the impact of the credit facility on income is 0.8811 which indicate a large effect.

3. DISCUSSION OF RESULTS

Table 1
Demographic Characteristics of Respondents

Variables	Frequency	Percentage (%)	
Sex	Male	70	68
	Female	33	32
Age	20-29 years	2	1.9
	30-39 years	54	52.4
	40-49 years	44	42.7
	Above 49 years	3	2.9
Years in farming	1-5 years	14	13.6
	6-10 years	79	76.7
	11-15 years	8	7.8
	None	2	1.9
Years dealing With the banks	Below 5 years	28	27.2
	5 -10 years	75	72.8

Field survey, 2012

Table 2
Paired Samples Statistics

		Mean	N	Std. deviation	Std. error mean
Pair 1	Labour force employed 2	4.27	103	1.270	.125
	Labour force employed 1	3.87	103	1.426	.140
Pair 2	Amount of startup capital 2	1708.74	103	619.293	61.021
	Amount of startup capital 1	683.59	103	234.792	23.135
Pair 3	Output per quarter 2	281.28	103	97.349	9.592
	Output per quarter 1	107.41	103	31.375	3.091
Pair 4	Income per quarter 2	875.16	103	286.508	28.230
	Income per quarter 1	257.73	103	73.446	7.237

Field survey, 2012

Out of the 103 farmers who responded to the questions, 70 representing 68 percent were men and the remaining 33 representing 32 percent were women. There were 52.4 percent farmers between the ages of 30-39 years which was closely followed by 42.7 percent who were between 40-49 years thus representing relatively middle-aged farmers. It was found that 76.7 percent had spent between 6-10 years in farming indicating relative experience in farming and had significant knowledge in the job. The farmers (72.8%) had also dealt with the bank for above five years whilst the remaining had been transacting with the bank for below five years. Those with more years might have had more loan cycles thereby deepening a good relationship which could minimize possible cases of default.

4. PAIRED SAMPLES T-TEST ON DIFFERENCES IN VARIABLES BEFORE AND AFTER RURAL CREDIT

Paired samples t-test is a type of analysis that tests whether there are significant differences between variables especially after the introduction of an intervention. There were four variables of interest which were labour force employed, capital, output and income. These variables were compared between two periods. Period 1 represents the period before the introduction of the intervention which in this case is the credit and Period 2 which is the period after farmers had received credit and other support from the bank.

The paired samples statistics table shows differences in means and standard deviations on the labour force employed, capital, output and income before and after the introduction of the credit scheme. The mean labour force employed before the introduction of the micro credit was 3.87 (with standard deviation 1.426) which increased to 4.27 (with standard deviation 1.270) after the introduction of the loan. This can be seen in Pitt and Khandker (1998) that the client on the program could gain from participating microfinance programmes in many ways. The means indicate an increase in labour force employed after the rural bank intervention.

The mean capital before the introduction of rural credit was Gh¢683.59 (with standard deviation 234.792) whilst the post intervention mean was Gh¢1708.74 (with standard deviation 619.293). The means for the output before the introduction of the loan was 107.41 (with standard deviation 31.375) whilst the mean for the output was 281.28 (with standard deviation 97.349). The result indicated significant increase in output as a result of the introduction of the loans. The income is another important factor that explains the quality of farming. The mean income before the introduction of the loan was Gh¢257.73 (with standard deviation 73.446) whilst that of the post intervention was Gh¢875.16 (with standard deviation

286.508). The researcher agrees with Hulme and Mosley (1996), that there is positive relationship between access to credit and the borrowers' level of income.

The result indicates that, there are significant differences in the labour force employed, capital, output and income. This showed significant differences as a result of the introduction of the credit intervention. The result was tested at 95% confidence interval. The paired samples correlation shows that there are significant positive relationship between the credit facility and the outcome variables made up of labour force (0.940), amount of capital (0.917), output (0.902) and income of farmers (0.844).

Table 3
Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Labour force employed 2 & Labour force employed 1	103	.940	.000
Pair 2	Amount of capital 2 & Amount of capital 1	103	.917	.000
Pair 3	Output per quarter 2 & Output per quarter 1	103	.902	.000
Pair 4	Income per quarter 2 & Income per quarter 1	103	.844	.000

Field survey, 2012

On assessing the contributions of rural banks towards agricultural developments, it was established that apart from giving the farmers credit, the rural banks contribute to agriculture development in the form of provision of fertilizers, farm implement, improved seedlings and other forms of support. This is done as loyalty to their customers and also to attract new customers. This helps the farmers to minimize their farming cost in the form of purchasing fertilizers and other farm implements at reduced prices or for free. This is because the money which would have been used to purchase the fertilizer can now be channeled to other avenues such as hiring of extension officers. The result is consistent with ADB and ADF (2000) which reported that the rural farmers usually suffer from poverty and may have difficulty purchasing farm inputs; therefore, the provision of fertilizers and other farm implements by rural banks will cushion them. This in a way will solve part if not all the poverty issues among rural farmers.

CONCLUSION

It could be concluded from the study that, there are more males than females in farming within the area of study whose ages range between 30-49 years with a long standing relationship with rural banks. This long

relation could increase their loan cycles and minimize default which could make the banks sustainable to support farmers.

There is significantly large effect of rural credit on labour force employed by farmers, capital for farming, output and income of farmers. There have been significant increases in the labour employed, capital, output and income as well as significant positive correlation between rural credit (independent variable) and labour force employed, working capital, output and income of farmers (dependent variables). This is to say that as rural credit is increased, labour force, capital, output and income could increase accordingly to better the lot of the rural farmer.

Apart from credit facilities, rural banks support farmers through the provision of fertilizers, farm implement, improved seedlings and other forms of support. These forms of support help to deepen the banker/customer relation and financial intermediation within the rural communities.

On the whole, rural banks have made and continue to make significant positive impact on farmers through the provision of credit facilities and other forms of support thereby reducing their poverty situation. The credit facilities have brought about improvements in the number of labour force employed, working capital, output and income of farmers in rural areas.

Table 4
Paired Samples Test

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% Confidence interval of the difference				
					Lower	Upper			
Pair 1	Labour force employed 2- Labour force employed 1	.398	.492	.048	.302	.494	8.213	102	.000
Pair 2	Amount of startup capital 2- Amount of startup capital 1	1.025	414.750	40.867	944.087	1106.204	25.085	102	.000
Pair 3	Output per quarter 2- Output per quarter 1	173.874	70.347	6.931	160.125	187.622	25.085	102	.000
Pair 4	Income per quarter 2- Income per quarter 1	617.427	227.918	22.457	572.883	661.971	27.493	102	.000

Field survey, 2012

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