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Effect of Access to Microfinance Support on Growth of Women Agro-Processing Enterprises in the Northern Region of Ghana

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Abstract:

Microfinance institutions (MFIs) have been very instrumental in the provision of financial support to women agro-processors in the northern region of Ghana. However, the effect of microfinance support on the growth of small-scale women agro-processing enterprises in the study area has received little empirical investigation. This paper presents the findings of a study that assessed the effect of access to microfinance support on the growth of women agro-processing enterprises in the Northern Region of Ghana. A cross-sectional survey design was adopted to gather data on 402 women agro-processors in two districts of the Northern Region of Ghana. Descriptive and inferential statistics were employed in analysing the data. The study revealed that, access to microfinance support enabled women agro-processors to acquire credit and business development training which enabled them to improve the quality of their processed products which attracts higher prices. Hence the growth of women agro-processing enterprises through increased incomes, savings, and investments. The study also found a significant difference in the growth of enterprises of agro-processors who accessed microfinance support fully, and partially, and those who did not access microfinance support at all. It is therefore recommended that microfinance institutions should intensify training on the use of improved methods of processing, use of improved equipment and increase amounts of credit support given to women agro-processors to enable them increase productivity and growth of their agro-processing enterprises.

Keywords: *Microfinance, agro-processing, Ghana, and enterprise Growth*

1. Introduction

Globally, medium and small-scale enterprises have received a lot of attention in the promotion of economic growth. Changes in the socio-economic structure of some developed and developing countries have led to a vigorous involvement of women in the development of the economy and the formation of employment opportunities in small and medium-sized enterprises with funding from various sources including microfinance institutions (Muteru, 2013). One of the major issues that constrain the attainment of the development goal of eradicating poverty in developing or less developed countries is the complete inability of the population to access factors of production, specifically finance (Al-hassan, Yussif, and Mohammed, 2013). In this regard, rural populations particularly women, have limited capabilities to engage in significant entrepreneurial endeavors and if they do, they are not able to grow their enterprises. This subsequently leads to loss of prospective employment opportunities and chances of generating wealth and enhancing incomes and livelihoods of the poor are lost (Abdin, 2016).

The role of small and medium-sized enterprises (SMEs) in the growth of the Ghanaian economy, provision of employment, and the overall alleviation of poverty cannot be underestimated. Studies on enterprise growth suggest that, small and medium size enterprises pass through different levels of growth. These include the starting face, then growth by passing through different difficulties and disasters and eventually mature and decline. These difficulties and calamities faced by most enterprises bothers much on unavailability of resources including finance.

Growth is a flow concept that measures a temporal change in a variable like capital, output, or income, and this is largely influenced by changes in capital stock, labour force, technological progress, and attitudes (Todaro and Smith, 2012). For small businesses, growth can be measured using several indicators, including changes in sales revenue or income, business capital, savings, investments, profits and losses, market share, workforce health, among others (Forbes, 2017). Microfinance institutions have demonstrated tremendous effort to promote the financial inclusion of the poor in developing countries (Gray, Rao, and Rogers, 2015). Microfinance refers to formal financial services to low-income and otherwise disadvantaged households that are not served by the conventional financial sector (Fenton, Paavola, and Tallontire, 2017). Microfinance support can therefore be referred to as the provision of financial services such as micro-

credit, micro-saving, or micro-insurance to poor people who mostly are excluded from the conventional financial sector. Globally, microfinance has been demonstrated to be a very important development tool in creating entrepreneurial opportunities for improving the living standards for the relegated and vulnerable people who are frequently excluded from the formal financial sector (Wijesiri, 2016). In Africa, microfinance is believed to offer a wide range of benefits to the African people by efficiently addressing material poverty, the physical deficiency of goods, services, and the income to attain them. When appropriately directed, the material benefits of microfinancing can have the potential to spread outside the household into the community (Gabor and Germany, 2001).

The use of microfinance as a model in improving the wellbeing of the rural poor, especially in developing countries stems from the demand by the Microfinance Summit in 1997 to organize US\$20 billion over a ten-year period to support microfinance, the declaration of 2005 as a year of micro-credit by the United Nations, and the eventual award of the Nobel Peace Prize to a generally commended originator of contemporary microfinance, Professor Muhamad Yunus and the Grameen Bank (Annim and Alnaa, 2013). Additionally, microfinance is used as an important instrument in the fight against poverty due to the acknowledgment of credit market failures, especially in the banking sector which has led to a shift from banking to microfinance, which combines both savings by the poor and extending credit to the poor with the objective of sustaining their livelihoods (Egyir, 2010). This presupposes that saving services, and not just loans, can assist in improving the wellbeing and livelihoods of the rural poor in general and women in particular (Vonderlack and Schreiner, 2002).

Women's World Banking Global Policy Forum (1995) indicated that poor people worldwide are operating microenterprises and small businesses. However, most of these people have no access to the formal banking system because of their lack of collateral, high transaction cost per loan for small-scale ventures, and the risk of operating in the informal sector. Commercial banks frequently emphasize men and formal businesses neglecting women who make up the large and developing segment of the informal economy and register the highest repayment rate (ILO, 2007). Current studies have shown that there is a concrete indication of women using their incomes and savings in extra industrious ventures compared to their male counterparts by directing a bulk portion of their earnings into the nutrition of their children, clothing, health, and education (International Development Research Centre, 2020). Hence, the financial inclusion of women can result in better security and wealth for both sexes, their families, enterprises, and communities at large, particularly, with the significant role women play in molding succeeding generations (IDRC, 2020).

Accessibility of savings accounts to entrepreneurs by microfinance institutions supports entrepreneurs to develop the values of saving and the provision of training is positively related to the growth of SMEs. Therefore, the provision of credit, training and cheap form of savings assist in the development of small and medium-sized enterprises (Osoro and Muturi, 2013). Microfinance has a positive impact on business development in the form of an increase in employment. The provision of microcredit to women contributes greatly to creating employment for the productive male associates who may not have access to the credit facility hence MFIs contribute to increasing family's income through creating new employments (Mohamed and Al-Shaigi, 2017).

In Ghana microfinance serves people who are engaged in running small and medium-sized enterprises, including agro-processors, and their families. Most of the microfinance institutions provide a variety of financial services to women involved in agro-processing activities such as shea butter, rice, and groundnut oil processing, among others, with the aim of improving livelihood security and reducing poverty (Al-Hassan et. al 2012; Schindler 2010). This is because women are the worse victims of poverty in the country. Broadly, services provided by these MFIs are financial intermediation, mostly loans and saving services and social intermediation, mostly training of agro-processors and market sourcing. Most agro-processing enterprise owners invest the microfinance loans mainly into financing agro-processing activities such as shelling, husking, drying, milling, and acquisition of equipment and storage facilities among others (Sagarik, 2016).

Northern Ghana has the highest microfinance branch network. However, the incidence of poverty in the region is very high (50.4%) (GSS, 2014). According to the GLSS, Northern Ghana accounts for more than one-third of all poor households in the country (GSS, 2018), while women are the worst victims. Northern Ghana has consistently lagged in terms of per capita income, education, access to potable water, good infrastructure, and health (World Bank Group, 2017). Agro-processors in the region constitute mainly women most of whom are into the processing of shea butter, rice, groundnut oil, etc. The agro-processing industry has been found to be very essential in maintaining the supply of food, employment, income, and comprehensive national development (Afful-Koomson, Fonta, Frimpong, and Amoh, 2015). As indicated by the National Development Planning Commission (NDPC), increasing the average revenues of Ghanaians can be possible if there is substantial progress in the output of the agricultural sector and the agro-based processing industry (NDPC, 2005). The agro-processing industry also offers enormous opportunities for increasing food security and nutrition, exportability of agricultural produce, rural enterprise development and diversification of rural economies, and farmers' incomes and livelihood security (Owoo and Lambong-Quayefio, 2017).

Agro processing enterprises are one of the target markets of microfinance institutions in Ghana and the Northern Region in particular (Al-hassan, Yussif and Mohammed, 2013). Yet, the extent to which access to microfinance support affect growth of women agro-processing enterprises have not been adequately investigated (Mohammed, 2011; Ampedu-Ameyaw and Omari, 2015; Lambong-Quayefio, 2017). This leaves a gap in literature regarding the extent to which access to microfinance support affect growth of women agro-processing enterprises in the study area. It is in this light that this paper investigates the effect of microfinance support on the growth of women agro-processing enterprises in the Northern Region of Ghana.

2. Literature Review

2.1. Role of Microfinance Institutions in the Development of SMEs

One of the shared problems confronting small and medium-sized enterprises (SMEs) all over the world is the accessibility of external financial facilities (Thaker et al., 2020). Small and medium-sized enterprises are minor, autonomous enterprises that employ a small number of people and a given number of employees depending on the country in which the business is located (Thaker et al., 2020). In the developing world, improving the livelihoods of the poor has become a priority for most Governments in their efforts to increase the level of human development (Owusu, 2012). The role of small and medium-sized enterprises (SMEs) in the growth of the Ghanaian economy, provision of employment, and the overall alleviation of poverty cannot be underestimated. Yet, it is common to see most of these SMEs collapsing shortly after their establishment with the basic reason being unavailability of financial resources. Microfinance has been one of the sources of finance to small and medium-sized enterprises. In a study to examine the impact of microfinance institutions on inclusive financing of small to medium-sized enterprises in the Harare Central Business District using a quantitative descriptive design, Mayo (2018) found that access to credit, savings enhancement, provision of business and financial management training by microfinance institutions has a positive effect on the development and growth of small and medium-sized enterprises. Also, in examining the impact of financial support on sunflower production in the Lira District of Uganda, Auma et al., (2020) found that access to financial support results in the acquisition of technology, agro-inputs, and extension services that lead to increase in production and output.

Osoro and Muturi (2013) in their study on the role of financial institutions on the growth of SMEs in Kenya revealed that accessibility of savings accounts to entrepreneurs by micro finance institutions support entrepreneurs to develop the values of saving and that provision of training is positively related to the growth of SMEs. It was therefore concluded that provision of credit, training and cheap form of savings assist in the development of small and medium-sized enterprises (Osoro and Muturi, 2013). Similarly, in a study to assess the role of microfinance in reducing the poverty rate in Sudan et al., (2017) found that microfinance has a positive impact on business development in the form of an increase in employment. Provision of microcredit to women contributes greatly to creating employment for the productive male associates who may not have access to the credit facility hence MFIs contribute to increasing family's income through creating new employments (Mohamed and Al-Shaigi, 2017).

Also, in assessing the effects of services provided by microfinance institutions on the welfare of urban households in Malaysia, Loke et al (2020) found that most of the services provided by microfinance institutions comprising microcredit, micro insurance and training had aided urban households to make more income and improve their socio-economic welfare. Fatoki and Asah (2011) investigated the impact of firm and entrepreneurial characteristics impact on access to debt finance by SMEs in South Africa and found that, firm and entrepreneurial characteristics impacts on access to debt finance by SMEs.

The World Bank (2010) reports that micro, small and medium-sized enterprises constitute 99% of an estimated 19.3 million enterprises in the European Union (EU) and provide about 65 million jobs which represent two-thirds of all employment. In the developing world particularly Africa, SMEs constitute the largest proportion of businesses and employ a significant proportion of the population (Anane et al., 2013). The United Nations Capital Development Fund (2004) identified three broad roles played by microfinance. These include assisting extremely poor households to meet their basic needs and protect against risk, improvement in household economic welfare, and support in women empowerment by supporting women's economic participation and hence promoting gender equality. Yeboah (2017) in his study on the impact of microfinance on grassroots development using SMEs in Kwabre East District of Ashanti Region in Ghana as the case study found that individual operators of SMEs and their families benefit directly from the impact of microfinance through its impact on basic needs; employment; income; knowledge and skills and assets. In addition to these positive impacts, of microfinance were creativity, self-esteem, and critical reflection. SMEs owners who receive microfinance products and services are said to be better off with regards to improving the activities of their SMEs, improving their productivity, and ensuring prudent financial management compared to those without microfinance services (Anane et al., 2013).

2.2. Microfinance and Economic Development of Women

According to the Women's World Banking Global Policy Forum (1995), poor people worldwide are operating microenterprises and small businesses. However, most of these people have no access to the formal banking system because of their lack of collateral, high transaction cost per loan for small-scale ventures and the risk of operating in the informal sector. Commercial banks frequently emphasize on men and formal businesses neglecting women who make up the large and developing segment of the informal economy and register the highest repayment rate (ILO, 2007). Current studies have shown that there is concrete indication of women using their incomes and savings in extra industrious ventures compared to their male counterparts by directing a bulk portion of their earnings into the nutrition of their children, clothing, health, and education (International Development Research Centre, 2020). Hence, financial inclusion of women can result in better security and wealth for both sexes, their families, enterprises, and communities at large, particularly, with the significant role women play in moulding succeeding generations (IDRC, 2020).

One of the principal strategies for poverty alleviation by the international community of donors since the 1990s has been microfinance programmes specifically targeted at women. This is because female clients make up eighty-five percent of the poorest microfinance clients reached, register the highest repayment rate, and contribute larger portions of their income to household consumption compared to their male counterparts (ILO, 2007). According to the United Nations Capital Development Fund (2004), the role of microfinance can be categorized into three. These include helping extremely

poor families meet basic needs and guard against risks, enhancing the household's economic welfare, and ability to empower women through its subsidiary role in women's economic participation to ensure gender equity. In a study to analyze the social and economic impact that microfinance has on participants lives, especially on women in Mediterranean countries, Corsi et al., (2006) found that access to credit can change women's conditions, giving women the chance to find their way out of poverty. Their results also indicate that microfinance activities, granting loans only to women to have guaranteed high return rates, can stimulate women's empowerment by providing economic emancipation, which can result in broader levels of empowerment. Corsi *et al.*, (2006) further established a possible contention that, financial empowerment is more effective than programmes designed to fight gender discrimination directly.

Also, Annim and Alnaa (2013), undertook a study to assess the impact of access to microfinance programmes by rural women on poverty reduction in Rural Households in the Upper East Region of Ghana. They used the Treatment and Effect Estimation Technique to examine data on 250 beneficiaries and 250 non-beneficiaries in five districts in the Region. They concluded that access to microfinance by rural women contributes positively to consumption expenditure leading to poverty reduction amongst rural households in the Upper East Region of Ghana. Besides, a study to analyze access to microfinance services and its effect on the performance of small-scale women business entrepreneurs in Enugu State, Nigeria, Ike, (2012) used the Double-Difference (DD) Estimator to compare changes in outcome measures (i.e., change from before to after the intervention) between microfinance beneficiaries and non-beneficiaries. He found that the actual income of beneficiaries improved by about 46.67% (from N162, 480.00 to N238, 480.42), whereas that of the non-beneficiaries increased only by 11.6%. The mean increase in income of beneficiaries was found to be significantly different from that of non-beneficiaries at $p = 0.05$. Ike (2012) therefore, suggested that training, which is one of the essential services of microfinance institutions, should be highly implemented to improve the performance of clients.

In a study to ascertain whether microcredit members in Bangladesh are stuck in poverty and debt, as have been argued in recent years by critics of microfinance, Khandker and Samad, (2013) used a long panel survey in Bangladesh over 20 years beginning in 1991/92, found that participants of microfinance derive a variety of benefits from microcredit. These include helping beneficiaries to earn income and consume more, accumulating assets, investing in children's schooling, and getting out of poverty bracket. Findings of their study further indicate that the positive effect of microfinance on beneficiaries did mean that non-participants had failed to progress over the period.

Additionally, Khandker (2005) researched to examine the effects of microfinance on poverty reduction at both the participant and aggregate levels using panel data from Bangladesh, Findings of his study proposed that, access to microfinance contributes to poverty reduction, particularly for female members, including general poverty reduction at the village level. Consequently, microfinance helps not only poor participants but also the local economy.

However, upon questioning the conventional wisdom that, the benefits of microfinance begin with poverty reduction and are then followed by social liberation, Lakwo and Leo (2010) conducted a case study in Uganda. They used a consensual people-centred relevance test to assess the impact of microfinance on poverty alleviation. Results of their study revealed that microfinance does not improve the well-being of clients that much. Their study found only a marginal improvement in well-being achieved by clients. Nevertheless, a subsequent (gender) power relations analysis reveals that despite the marginal well-being gains, female clients achieved more liberation.

Mumin, et al., (2018) in their study to examine the impact of access to working capital and micro-enterprise development training programmes on household income and economic vulnerability among participants of development initiatives in the eKasih (national poverty data bank) in Peninsular Malaysia found that length of participation and the total amount of loan taken were found to increase household income.

In a study to investigate the effects of microfinance on micro and small business growth in Nigeria using a panel data and multiple regression analysis to analyze a survey of 502 randomly selected enterprises finance by microfinance banks in Nigeria, Babajide (2012) found that access to microfinance does not improve the growth of micro and small enterprises in Nigeria, though, some firm-level characteristics such as business size and business location, were found to have a constructive effect on enterprise growth. Babajide (2012) therefore recommends a recapitalization of the Microfinance banks to increase their capacity to support small business growth and expansion. Contrary to the findings of Babajide (2012), a study examined whether microfinance products, for example, loans, savings, insurance, and education affect small business growth in Ghana. Using descriptive and inferential statistics to analyse responses of 248 small business owners, and a multiple linear regression model, the study revealed that all the microfinance products positively affect small business growth, and the greatest influence is microloans (Gyimah and Boachie, 2018).

3. Methodology

3.1. Research Design

A cross-sectional survey design was adopted in this study with which primary data on income, savings made by processors, access to microfinance and other institutional services, and agro-processing activities and performance were obtained from sampled women engaged in shea butter and rice processing. This design was used because the study sought to analyse and describe the effect of microfinance support on growth of women rice and shea butter processors. Due to the accuracy of the design, it enabled the researcher to obtain an estimation of the effect of access to microfinance on the growth of women agro-processor's enterprises in the study area. With this background, quantitative method of data collection and analysis were employed in this study.

3.2. Target Population

The population for the study comprised of all women involved in agro-processing activities, including the processing of maize, rice, shea butter, soybeans, cassava, and groundnut oil among others, and who are residents in the Tamale Metropolis and the Kumbungu District of the Northern Region of Ghana. However, based on the agro-processing mapping of the Northern Regional office of the Ministry of Food and Agriculture and the 2010 Population and Housing Census, only women engaged in shea butter and rice processing were targeted for sampling since they are the two most widely processed foods among women in the region (GSS, 2013).

3.3. Sampling and Sample Size

The study employed a multi staged sampling technique. Based on density of licensed microfinance institutions (MFIs) and population of women engaged in shea butter and rice processing activities, Tamale Metropolis and Kumbungu Districts were selected for the study because the two districts have highest concentration of MFI and women agro-processors (GSS, 2013). In the second step, 9 and 6 enumeration communities respectively were selected from Tamale and Kumbungu Districts based on concentration of women agro-processors. The specific communities sampled are Kasalgu, Jisonaa-yili, Darigohini, Nyohini, Saganarigu-Dungu, Bilpela, Dabogshe, Kalariga and Vitim for Tamale Metropolis and Kuku, Gumo, Kumbuyili, Cheshegu, Kpalga and Bongnaayili for Kumbungu district. A sample of the total women in shea butter and rice processing was, however, selected for an interview during data collection because it would have been technically difficult and extremely expensive to have surveyed the whole population, especially when the population is non-registered (Anderson *et al.* 2010).

The sample size for this study was determined using a statistical procedure to ensure that inferences can be made for the whole population. Based on (Anderson *et al.* 2011), the sample size was determined using the desired margin of error formulae as follows:

$$E = Z_{\alpha/2} \frac{\sigma}{\sqrt{n}} \quad [1]$$

where E denotes desired margin of error, n is the sample size, σ is the sample estimate of the standard deviation, and $Z_{\alpha/2}$ is the Z-critical value which is determined from the confidence level. From equation [3.1], the sample size formula is deduced as follows.

$$n = \frac{Z_{\alpha/2}^2 \sigma^2}{e^2} \quad [2]$$

The study used a 3 per cent desired margin of error, which is recommended for largely quantitative studies (Bartlett *et al.*, 2001). Based on a pilot study conducted in February 2019 in three selected districts in the Northern Region (Tamale, Saveligu, and Kumbungu), the sample standard deviation for participation level in microfinance was computed to be 31%. Therefore, at 95% confidence level, which corresponds to 1.96 z-critical value ($Z_{\alpha/2}$), the sample size of 410 women agro-processors was determined as follows.

$$n = \frac{1.96^2 (0.31)^2}{0.03^2} = 410.198$$

Therefore, the sample size for the study is approximately 410 agro-processing women. Probability sampling techniques were employed to select respondents from whom data was collected for the study. It was based on this that a listing of all women in shea butter and rice processing activities was done in all enumeration areas before respondents were randomly sampled using Microsoft Excel. In the last step, due to lack of complete sampling frame of women in shea butter and rice processing in all selected communities, a total of 28 women were equally allocated to each of the selected communities in the two districts, which translated into 420 women. Thus, a total of 252 and 168 respondents were allocated for random sampling in Tamale Metropolis and Kumbungu district, respectively. The increase in the total sample size by 10 was to make up for shortages in some communities. However, data from only 402 respondents were used for analysis due to missing data for some respondents.

3.4. Data Collection

Data was collected with the help of a quantitative survey questionnaire which was printed and administered to the research subjects using the face-to-face method. Data was entered, processed, and edited using Microsoft Excel 2007 before it was exported into SPSS for final analysis. The data was analysed by employing quantitative methods. The study employed descriptive statistics and the Analysis of Variance (ANOVA) to test the hypothesis that 'there is no significant relationship between access to microfinance support and growth of women agro-processors' enterprises. The type and nature of data collected, which were determined fundamentally by the objective of this study, informed the choice of the specific quantitative analytical method used to generate results of this study.

4. Results and Discussions

4.1. Microfinance Support and Growth indicators

Growth is a flow concept that measures a temporal change in a variable like capital, output, or income, and this is largely influenced by changes in capital stock, labour force, technological progress, and attitudes (Todaro and Smith, 2012). For small businesses, growth can be measured using several indicators, including changes in sales revenue or income, business capital, savings, investments, profits and losses, market share, workforce health, among others (Forbes, 2017). Among these growth measurement indicators, change in savings, employment, investment, and income were used to measure the growth of shea butter and rice processing firms in this study.

Microfinance institutions (MFIs) in the study area provide both financial and social intermediation services largely to women operating in the informal sector of the economy. MFIs in the study area provide mostly savings and credit, and to some limited extent insurance as part of their financial intermediation services and provide and facilitate business development services, capacity building and market sourcing to women groups in the study area as a way of social intermediation services. Access to microfinance support offers women microentrepreneurs the opportunity to access valuable services including credit (small loans) and capacity development (Training). Thus, microfinance support accessibility which includes the provision of small loans and training on improved methods of processing enabled beneficiary women entrepreneurs to grow their enterprises through increased income, savings and investment. Access to microfinance support is operationalized in the study to involve access to credit, savings and training facilities provided by microfinance institutions in the study area.

The results show that (Table 1) access to microfinance support is at different levels, full and partial access. Women agro-processors who have accessed both financial (credit, savings services,) and social intermediation services (Training and market sourcing) of MFIs were classified as having full access, while those who have only accessed financial intermediation (credit and savings) were classified as having partial access and those who had not accessed any microfinance support as no access.

4.1.1. Access to Microfinance Support and Income of Agro-Processors

'Business income consists of earnings from farms or businesses owned by the household, net of variable costs, as well as money earnings from individually operated cottage industries' (Kusnic and Da Vanzo, 1980). Income is a very important determinant of agro-processors economic environment because it influences their purchasing power as well as their wellbeing.

The study employed the Analysis of Variance (ANOVA) to test the hypothesis that 'there is no significant relationship between access to microfinance support and income of agro-processors' enterprises. Tables 1a, 1b, and 1c. respectively present descriptive statistics and ANOVA of the access to microfinance support and income of women agro-processors. As shown in Table 2, which presents descriptive statistics of income of respondents who have accessed microfinance fully (accessed credit, savings, training, and market sourcing) and partially (Credit and savings) and those who have never accessed microfinance support (no access), the ANOVA analysis with $F = 123.418$ and $P = 0.000$, confirmed a significant difference in the incomes of agro-processors' who accessed microfinance fully, partially and those who had no access to microfinance support. Respondents who accessed microfinance fully made average income of GH¢1,546.02, those who partially accessed microfinance support made average income of GH¢731.22 and those who did not access microfinance support had an average income of GH¢506.06.

Also, as shown by the post hoc test in Table 3, the analysis confirmed a significant difference in average incomes between respondents who accessed microfinance support fully (full-access) and partially (Partial access) ($P = 0.000$), those who had full access (credit, savings services, Training and market sourcing) and those who have never accessed microfinance support ($P = 0.000$) and those respondents who had partial access and those who had no microfinance support ($P = 0.001$) at 1% level of significance. This implies that those respondents who had support from microfinance institutions had significantly higher incomes compared to their counterparts who did not receive any microfinance support.

It is therefore clear that those respondents who had access to both financial and social intermediation support of microfinance institutions made more incomes compared with those who accessed only financial intermediation and those who had no microfinance support. This is because those respondents who accessed microfinance support fully are exposed to training on business and financial management by the microfinance institutions which enabled them to improve upon their processing activities. This group of agro-processors are also given training on the use of improved methods for processing their agro-products particularly shea butter processors, and this helps to improve the quality of their processed products and so attract higher prices, hence improvement in their incomes. Improvement in incomes of women agro-processors is very important as it influences their purchasing power and therefore enhances improvement in their well being and that of their dependants (Mohammed, 2011). This finding supports that of Attah (2015) whose study found that access to MFIs services contributed greatly to accessing credit and savings mobilization which helped in women's ability to improve their petty trading, hence increase their income, which subsequently led to good health and education for their families, acquisition of assets and taking part in household decision making.

Categories of MFS Access	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Full access	113	1546.02	373.881	35.172	450	2500
Partial Access	181	731.22	669.106	49.734	80	6000
No access	108	506.06	379.560	36.523	20	2000
Total	402	899.76	671.347	33.484	20	6000

Table 1: Access to Microfinance Support (MFS) and Income
Source: Field Survey, 2019

Categories of MFS Access	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	69075609.442	2	34537804.721	123.418	.000
Within Groups	111657693.108	399	279843.842		
Total	180733302.550	401			

Table 2: ANOVA of Access to Microfinance Support (MFS) and Income
Source: Field Survey, 2019

(I) Categories of MFS Access	(J) Categories of MFS Access	Mean Difference (I-J)	Std. Error	Sig.	
Tukey HSD	Full Access	Partial Access	814.802*	63.424	.000
		No Access	1039.953*	71.187	.000
	Partial Access	Full Access	-814.802*	63.424	.000
		No Access	225.151*	64.321	.001
	No Access	Full Access	-1039.953*	71.187	.000
		Partial Access	-225.151*	64.321	.001

Table 3: Multiple Comparisons of Access to Microfinance Support and Income

*The Mean Difference Is Significant at the 0.05 Level. Levene's Statistics $F(2, 399) = 3.722; P = 0.025$
Source: Field Survey, 2019

4.1.2. Access to Microfinance Support and Number of People Employed

According to the International Labour Organization (ILO) 'Employment includes all persons of working age who during a stated short-term, such as one week or one day, are in paid employment, either at work or with a job but not at work or self-employment either at work or with an enterprise but not at work' (ILO, 2013a). People who worked in the past weeks, either full-time or part-time are classified as being employed (Brown, 1995). Entrepreneurs can be agents of innovation or increase competition in a business, which might promote improvement in productivity, and which will in turn positively affect employment growth and consequently growth of an enterprise (Doran *et al.*, 2016). Based on this, the study assessed the influence of access to microfinance support on the employment status of women agro-processors using Analysis of Variance (ANOVA) test.

Results of F-test conducted from the ANOVA (results as presented in Table 5) found no significant difference in the number of persons employed by agro-processors who fully, partially, or never accessed microfinance support. With F-test of 1.353 ($P = 0.260$) the analysis found no significant difference in the number of persons employed by agro-processors who access microfinance support fully, partially and those who have never accessed microfinance support. This is because agro-processors feel that their businesses are not big enough to hire external labour coupled with the fact that most agro-processing households (56.5%) have bigger household sizes (6-10 members) and so rely much on family labour to carry out their processing activities. With the family labour use, enterprise owners mostly use their dependents and so do not pay them for the work done because income made from the agro-processing enterprise is used to cater for the needs of every member of the household.

This finding corroborates that of Diro and Regasa (2014), Chowdhurya and Mukhopadhaya (2014) and Ike (2012) who found that microcredit participation has a positive significant effect on household's average monthly income, consumption expenditure, savings, and housing improvement, whereas the number of employments generated to and out of household members showed no difference. It, however, contradicts that of Mohammed and Al-Shaigi (2017) which found that provision of microcredit to women contributes greatly to creating employment for the productive male associates who may not have access to the credit facility and therefore MFIs contribute to increasing family's income through creating new employments. Tables 3a and 3b provide detailed information on descriptive statistics and ANOVA results of the level of participation in microfinance and the number of people employed.

Categories of MFS Access	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Full Access	113	4.1681	1.20936	.11377	3.00	9.00
Partial Access	181	4.0387	1.16125	.08631	3.00	9.00
No Access	108	4.2685	1.15691	.11132	3.00	8.00
Total	402	4.1368	1.17483	.05860	3.00	9.00

Table 4: Descriptive Statistics of Access to Microfinance Support and Employment
Source: Field Survey, 2019

Categories of MFS Access	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.728	2	1.864	1.353	.260
Within Groups	549.748	399	1.378		
Total	553.475	401			

Table 5: ANOVA of Access to Microfinance Support and Employment

Source: Field Survey, 2019

4.1.3. Access to Microfinance Support and Savings of Agro-Processors

Empirical evidence has it that, there is a significant positive relationship between savings and credit services provided by microfinance institutions and growth of small-medium size enterprises. Studies have shown that, microfinance Institutions services increase access to loans by small to medium sized enterprises which enhance their operations and increase their ability to save (Sani and Jan Mohd-Khan, 2016). Based on the connection between access to credit and savings, the study assessed access to microfinance support and savings among women agro-processors using Analysis of variance to test the hypothesis that, there is no significant difference in savings between agro-processors who access microfinance support fully, partially, and those who have never access microfinance support.

Results of ANOVA and post hoc analysis, as shown in Tables 3a, 3b and 3c with F - value of 84.055 (P = 0.000) confirmed a significant difference in the savings between agro-processors who accessed microfinance support fully, partially, and those who have never accessed microfinance support at 1% level of significance.

As shown in Table 6, the average savings per month for respondents who fully accessed microfinance support amounts to GH¢713.08, and that of respondents who partially accessed microfinance is GH¢, 276.30 and those who have never access microfinance support have average savings of GH¢323.46 per month. Thus, agro-processors who fully accessed microfinance support made significantly higher savings compared to the ones who accessed microfinance support partially and those who have never accessed any microfinance support. Also, the Post Hoc analysis, as shown in Table 8, found a significant difference between the savings of those respondents who accessed microfinance support partially, and those who have never accessed any microfinance support (P = 0.000) with a mean difference of GH¢ 436.78. Similarly, there was a significant difference between the savings of respondents who accessed microfinance support fully, and those who access it partially (P = 0.000) with a mean difference of GH¢389.62.

This implies that access to microfinance support either fully or partially has a positive significant effect on the savings of women agro-processors. Thus, agro-processors who have access to microfinance support are more likely to improve on their savings and therefore save better compared to their counterparts who did not have the support. This can be attributed to the fact that women agro-processors who accessed microfinance have averagely higher incomes compared to their counterparts who did not. The higher income status of agro-processors who accessed microfinance support is because they are exposed to training on business management as well as improved methods of carrying out their processing activities which helped them to attract better prices for their produce. Also, with higher incomes microfinance beneficiaries buy agro inputs such as paddy rice and shea nuts and store which they process during the lean season when prices of these inputs are very high and as a result earn more income and save more. This finding is in line with that of Chowdhury and Mukhopadhyaya (2014) who reported in their study that, women participants of microfinance programmes have improved savings patterns and much better access to markets and additional significant information, excluding facts about politics and government. Table 6, 3b and 3c provide detailed information on level participation in microfinance and savings of women agro-processors.

Categories of MFS Access	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Full Access	113	713.0796	226.94580	21.34926	15.00	900.00
Partial Access	181	276.2983	297.93428	22.14528	15.00	1950.00
No Access	108	323.4630	341.60198	32.87067	6.00	2400.00
Total	402	411.7463	348.33125	17.37318	6.00	2400.00

Table 6: Descriptive Statistics of Access to Microfinance Support and Savings

Source: Field Survey, 2019

Source of Variance	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	14423001.095	2	7211500.547	84.055	.000
Within Groups	34232197.025	399	85794.980		
Total	48655198.119	401			

Table 7: ANOVA Table of Access to Microfinance Support and Savings

Source: Field Survey, 2019

(I) Categories of MFS Access		(J) Categories of MFS Access	Mean Difference (I-J)	Std. Error	Sig.
Full Access	Partial Access	Partial Access	436.78130*	35.11770	.000
		No Access	389.61668*	39.41631	.000
Partial Access	Full Access	Full Access	-436.78130*	35.11770	.000
		No Access	-47.16462	35.61465	.382
No Access	Full Access	Full Access	-389.61668*	39.41631	.000
		Partial Access	47.16462	35.61465	.382

Table 8: Multiple Comparisons of Categories of MFS Access and Savings

*The Mean Difference Is Significant at the 0.05 Level, Levene's Statistic $F(2, 399) = 23.041$; $P = 0.000$.

Source: Field Survey, 2019

4.1.4. Access to Microfinance Support and Investment

Investment outflow is a serious contributor to a country's industrious capacity and subsequently, the degree of growth in production and employment (Craigwell, 2006). Investment is mainly a financial decision, the desire for monetary gain, but the act itself is one of spending by businesses to obtain capital goods. Before business owners think of investing, they must decide whether the return on investment will cover all cost and leave some profit (Brown, 1995; Craigwell, 2006). As a result, access to microfinance support and investment made by women agro-processors were examined by testing the hypothesis that, there is no significant difference in investment made by agro-processors who accessed microfinance support fully, partially and those who had not accessed microfinance support.

The average amount of investment made by women agro-processors who accessed microfinance support fully, partially, and those who have never accessed microfinance support were compared using ANOVA. The result is shown in Tables 4a, 4b and 4c. As shown in Table 11 the data set met the assumption of population variance with Levene's statistic $F(2, 399) = 4.722$; $P = 0.009$ indicating that the groups being compared have equality of population variance. With F-value of 84.055 ($P = 0.000$), the analysis found a significant difference in the amount of investment made by women agro-processors who accessed microfinance fully, partially and those who never access microfinance support at 1% level of significance. Women agro-processors who accessed microfinance support fully made an average investment of GH¢570.46 in a month while those who access microfinance support partially made an average investment of GH¢221.04 monthly and those who have never access the support made an average monthly investment of GH¢258.78 (Table 9). Post Hoc test conducted, as shown in the Table 11, found a significant difference in average monthly investment made between respondents who accessed microfinance fully and those who accessed it partially ($P = 0.000$) at 1% level of significance with mean difference of GH¢349.43 and that of respondents who had full access and those who did not access the support ($P = 0.000$) at 1% level of significance with a mean difference of GH¢311.69.

However, there was no significant difference in the investment made by respondents who access microfinance partially and those who had no access to any microfinance support. The ability of respondents who access microfinance support to invest more than their counterparts who did not is because microfinance institutions educate women on the importance of savings and make mandatory savings a requirement for accessing loans or credits. With the savings made women processors are able to invest their accumulated savings in a variety of ways, including purchase of inputs for their agro-processing, animal rearing, food banking, buying cloths and cooking utensils, meeting their health needs, and most often in their children's education. It is important to mention that in times of need or crises, agro-processing women sell out some of these invested items for cash in order to solve their problems. This finding supports that of Mia, (2019) who indicated that, availability and accessibility to financial institutions motivate individuals to save and invest. Tables 4a, 4b, and 4c provide detailed information on level of access to microfinance support by women agro-processors and investment.

Categories of MFS Access	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Partial Access	181	221.0387	238.34742	17.71622	12.00	1560.00
No Access	108	258.7704	273.28159	26.29653	4.80	1920.00
Total	402	329.3970	278.66500	13.89855	4.80	1920.00

Table 9: Descriptive Statistics of Categories of MFS Access and Investment

Source: Field Survey, 2019

Categories of MFS Access	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9230720.701	2	4615360.350	84.055	.000
Within Groups	21908606.096	399	54908.787		
Total	31139326.796	401			

Table 10: ANOVA of Categories of MFS Access and Investment

Source: Field Survey, 2019

	(I) Categories of MFS Access	(J) Level of Participation in Microfinance	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	Full Access	Partial Access	349.42504*	28.09416	.000
		No Access	311.69335*	31.53305	.000
	Partial Access	Full Access	-349.42504*	28.09416	.000
		No Access	-37.73170	28.49172	.382
	No Access	Full Access	-311.69335*	31.53305	.000
		Partial Access	37.73170	28.49172	.382

Table 11: Post Hoc Multiple Comparisons of Categories of MFS Access and Investment

* The Mean Difference Is Significant at the 0.05 Level. Levene's Statistic $F(2, 399) = 4.722; P = 0.009$

Source: Field Survey, 2019

5. Conclusion and Recommendations

The paper assessed the effect of access to microfinance support on the growth of women agro-processing enterprises. Indicators used in measuring growth of women agro-processing enterprises were income, number of people employed (labour), investment and accumulation of savings. While indicators use for microfinance access were the use of credit (small loans), savings with microfinance institutions and taking part in training provided by microfinance institutions. ANOVA test conducted revealed a significant difference in incomes, savings and investment made between women agro-processors who accessed microfinance support fully, partially, and those who had no access to microfinance support. However, there was no significant difference between women agro-processors who accessed microfinance support fully, partially, and those who had no access to microfinance support in terms of the number of people employed. It is also concluded that most women agro-processors who accessed microfinance support have been able to grow their processing enterprises through improvement in their incomes, savings, and investments. This implies that access to microfinance support has significant effect on the growth of women agro-processing enterprises in the study area since it enabled women agro-processors to improve their incomes, savings, and investments levels. It is therefore recommended that; microfinance institutions intensify training on the use of improved equipment and methods of processing and increase amounts of credit given to women agro-processors to enable them increase production by adopting and using improved methods and equipment to enhance growth of women agro-processing enterprises. The central government can help in this regard by increasing amounts it lends to microfinance institutions to enable them meet the demands of their clients. When this is done, microfinance institutions could improve upon their coverage to include all agro-processors especially those in the hinterlands to enable them expand their agro-processing enterprises and be able to diversify their income sources.

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