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Estimation of The Determinants of Microcredit Use Among Ginger Marketers in South East, Nigeria

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ABSTRACT

Ginger marketers in Nigeria operate in a subsistence economy with the use of local technology. The subsistence economy resulted in the use of local knowledge with little commercialization. Therefore, improving ginger marketing to commercial form is faced with post-production challenges ranging from local processing techniques and inadequate credit, which often results in low and poor ginger marketing. The study improved our understanding of all the complexities affecting the microcredit use and the performance of ginger marketers in South East Nigeria. This study evaluated the determinants of microcredit use among ginger marketers in Southeast, Nigeria. A multi-stage sampling procedure was used in selecting one hundred and eighty (180) respondents for the study. A well-structured questionnaire was used in collecting data from the respondents and the data collected were analyzed using frequency distribution and Heckman selectivity model. The second stage of the selectivity model was used to determine the level of the determinants of microcredit use among ginger marketers. The result shows that majority of the marketers were females and are married, they are still in their active age of 31-50 years which had the highest representatives of 64.17%. The result of the estimation of the determinants of microcredit use among ginger marketers indicates that a 1.0% decrease in the distance to the source of microcredit, increase microcredit use by 0.31% for those already marketing ginger and 0.04% for participation, and 0.35% for all marketers. An increase in educational level, led to a rise in microcredit use for those who are already marketing, for participation and all marketers of ginger respectively. It is therefore recommended that those marketing ginger should acquire higher education, since the high literacy level is essential for the use of microcredit in ginger marketing.

INTRODUCTION

Ginger is grown in Nigeria in the Middle Belt States. The crop is one of the principal cash crops in Nigeria. Nigeria is one of the major producers, and it is an important export commodity of Nigeria (Kadurumba, *et al.*, 2021). The plant is now cultivated in different parts of Nigeria, though the production is significant in Kaduna, Nassarawa, Sokoto, Zamfara, Akwa-Ibom, Oyo, Abia and Lagos states. Southern Kaduna remains the largest producers of fresh ginger in Nigeria (Nmadu & Marcus, 2011). In the market, ginger is available in various forms; fresh ginger rhizome, powder ginger, and dry ginger rhizome (Brian, 2014). About 10% of the produce is consumed locally as fresh ginger while the remaining 90% is dried for both local consumption and export. According

to Adegboye (2011), 20% of the dried ginger is consumed locally for various uses, and 80% is exported.

The crop is an essential spice with real potential for employment creation and income generation. It is a low-volume, high-value tropical crop. In the foods and beverages industry, ginger is used as an additive for its aroma and pungency. It is one of the oldest rhizomes widely domesticated for spice. The crop is highly cherished in the international market because of its aroma pungency and high oil and oleoresin content called gingerin. (Brian, 2014).

Ginger is a seasonal crop and perishable (USAID 2017). It is an export crop because of its high demand in advanced medical and confectionery industries. Due to the lack of storage facilities, traders are forced to sell the product immediately after collection from farmers. Similarly, there are limited collection Centers at production sites so that there are difficulties in handling the product correctly. There is also the absence of ginger washing facilities in Nigeria, which has resulted in low price in the market due to its dirty appearances.

However, in some instances in the developing countries like Nigeria and others Africa and Eastern Europe, efforts are made to ameliorate the challenges encountered by the farmers, marketers, and processors of ginger such as lack of processing and storage facilities (Shristi *et al.*, 2020). In developing countries, numerous efforts are being made to establish modern financial institutions to assist rural producers, processors, and marketers enhance their productivity and income earning capacity (Bedru *et al*., 2022). Hence, rural credit markets are established to mitigate the constraints encountered by households in accessing funds to boost their business. Thus, rural credit markets can be described as an arrangement for the mobilization and purveyance of finance for investment in the rural sector (Bime & Mbanasor, 2011). Microcredit facilities are established to help these rural households. Microcredit is an ideal tool to tackle poverty and improve food security. Microcreditis aimed at placing credit facilities at reasonable terms within easy reach of rural dwellers, increasing the productivity of the rural sector, promoting and expanding the rural economy in an orderly and efficient manner. (Sheremenko *et al.,* 2012).

In microcredit markets, there is a smooth flow of funds from surplus spending units to deficit spending units (Brian, 2022). Microcredit is part of microfinance, which provides a broader range of financial services, especially savings accounts, to the poor. Credit delivery is perhaps one of the most critical roles of microfinance banks, as the loans extended are used to expand existing businesses and, in some cases, to start new ones.

Micro Credit is needed to ensure flexibility in resource allocation and reduce the impact of cash flow problems (Bigsten, *et al*., 2003). Firms with access to microcredit funding can build up inventories to avoid stocking out during crises, while the availability of credit increases the growth potential of the surviving firms during periods of macroeconomic instability (Rooyen, *et al.*, 2012). Micro Credit enables individuals to smooth out processing in the face of varying incomes, provides income for investment, and improves the ability to cope with unexpected expenditure shock (Rooyen *et al.*, 2012). Microcredit helps the poor to get access to capital and escape persistent poverty (Ayayi, 2012; Valadez & Buskirk, 2012). Microcredit is the extension of minimal loans (microloans) to poor borrowers who typically lack collateral, steady employment, and verifiable credit history. It is designed not only to support entrepreneurship and alleviate poverty but also in many cases, to empower women and uplift entire communities by extension.

Ginger marketers in Nigeria operate in a subsistence economy with the use of local technology. The subsistence economy resulted in the use of local knowledge with little commercialization. Therefore, improving ginger marketing to commercial form is faced with post-production challenges ranging from local processing techniques and inadequate credit, which often results in

low processing and poor ginger marketing (Ahmed *et al*, (2019). The transportation of fresh products to the processing site is the primary cause of the high cost of materials in marketing. Nigeria's agricultural growth is constrained by inadequate infrastructures, weak institutions, and insufficient technical support for commercialization and supply chain development. These factors also affect the growth of ginger in the country. Also, the differences in technology in no small degree, account for observed lower marketing activity of the crop (Dayo, *et al* 2008).

The objective of the study is to describe the socio-economic characteristics of ginger marketers and estimate the determinants of microcredit use among ginger marketers in South East, Nigeria.

METHODOLOGY

The study was conducted in South-East states of Abia, Ebonyi and Imo of Nigeria. The areas lie between Latitude 5.4527^0N, Longitude 7.5248^0E, and Latitude 6.2649^0 N, Longitude 8.0137^0E, and Latitude 5.5720^0N, Longitude7.0588^0E respectively. (NPC, 2014). The zone is made up of five states, namely: Abia, Anambra, Ebonyi, Enugu, and the Imo States. It also has a rural population density of 173 persons per square kilometer. About 60-70% of the inhabitants are engaged in agriculture, mainly crop farming, animal rearing, food processing, and farm produce marketing. The climate can be described as tropical with two clear, identifiable seasons namely, the wet and dry seasons. Farming, processing, and marketing are the predominant occupations of the people.

A multi-stage sampling procedure was used in selecting the respondents for this study. The first stage involved purposive selection of three states, namely Abia, Imo, and Ebonyi out of the five states in the South-East geo-political zone. These states were chosen based on their high-level activities on ginger marketing. In the second stage, two agricultural zones were purposively selected from each of the selected states, giving a total of six agricultural zones. In the third stage, two LGAs were purposively chosen from each of the two agricultural zones, giving a total of twelve LGAs. In the fourth stage, three communities were purposively selected from each LGA based on the presence of microcredit activities, giving a sample of 36 communities. In the fifth stage, one market was purposively selected from each community to give a total of 36 markets was chosen from each of the selected communities. In the sixth stage, the sample frame was obtained from the list of males and females of ginger marketers compiled with the aid of the community resident and extension agents, 5 ginger marketers were randomly sampled from each community. This gave 180 ginger marketers. The financial institution used for this study is the First Bank of Nigeria PLC microcredit bank. The bank branches used was obtained from interview from the selected ginger marketers that accessed the banks. Cross-sectional data were used for this study. Primary data were collected using well-structured questionnaires administered on ginger marketers that use microcredit.

The socio-economic characteristics of ginger marketers was achieved using descriptive statistics and estimating the determinants of microcredit used among ginger marketers was analyzed using the Heckman selectivity model. (Makhura *et al*., 2001). Heckman allows the researcher to correct the selection bias

Explicitly the credit user in equation 1 for ginger marketers was modeled for marketers as follows;

$$\text{Micro credit}_i \text{ use}^{(\text{users or non-users})} = b0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + u_i$$

Where;

Micro credit_i use = 1 for Microcredit users, and 0 for Non-Microcredit users)

X_1 = Age (yrs);

X_2 = Gender (1=female; 0=male);

X_3 = Educational level (yrs);

X_4 =Number of Extension Visits (number);

X_5 = Experience in microcredit use (yrs)

X_6 = Household Size (Number);

X_7 = Membership of Cooperatives (dummy variable: 0= no, 1=yes);

X_8 = Distance to Source of Credit (km)

X_9 = Income (₦)

X_{10} = Interest (%)

U_i = error term

The equation 1 was estimated simultaneously for ginger marketers using the Heckman selectivity model. (Makhura, 2001)

RESULTS AND DISCUSSIONS

Socioeconomic characteristics of ginger marketers in southeast Nigeria

Table 1 shows the males (27.78%) engaged in ginger marketing in the study area was less than the females (72.22%). The result shows that the majority of marketers are females. This could be that the marketing of ginger requires less effort and not bulk and requires less energy for women to engage on. This is in line with the findings of Ezra *et al*., (2017) which indicated that the domination of women in ginger marketing is due to low demands of time and efforts required to work in the enterprise.

The results show that the mean age of microcredit users of ginger marketers are 43.71 years. It was observed that those between the age brackets of 31-50 in microcredit users of ginger marketers had the highest representatives (80.48%). This implies that ginger marketers are within the active working bracket. They are young people who can withstand stress involved in the marketing of ginger, and they are matured to take credit decisions that sustain the business. The result shows that they are relatively young and should have the energy required for the business and be reasonably enterprising and can withstand the stress involved in the trade. The results obtained are in line with the findings of Kantiok (2007), who opined that the majority of the agricultural enterprise actors are in their working age. Also, this is in line with the findings of Udoh and Nyienakuma (2008). They opined that agriculturist within the active age groups would be able to withstand stress and put more time in various agricultural operations.

The result of the marital status shows that the majority (59.44%) of ginger marketers were married. This implies that ginger marketing is a source of income to the families from which they meet their basic needs. This result agrees with Ojo and Jibowo (2008) that reported that married people being responsible, their views are likely to be respected within the rural communities as they decide on the use of agricultural inputs. The findings agree with the study of Bassey *et al.* (2015) who reported that the majority of the agrarian products marketers were married.

Table .1: Socio-economic characteristics of ginger marketers for microcredit

Variables	Freq	Percentage
Gender		
Male	50	27.78
Female	130	72.22
Total	180	100
Age (years)		
21-30	27	15.00
31-40	68	37.78
41-50	46	25.56
51-60	27	15.00
61-70	12	6.67
Total	180	100
Mean		43.71
Marital status		
Married	107	59.44
Single	27	15.00
Divorced	15	8.33
Widow	33	17.22
Total	180	100
Education level (years)		
No formal Education	11	6.11
Primary Education (1-6)	45	25
Secondary Education (7-13)	75	41.67
Tertiary Education (14-19)	49	27.22
Total	180	100
Experience (Years)		
1-5	23	12.78
6-10	27	15.00
11-15	30	16.67
16-20	38	21.11
21-25	37	20.55
26-30	25	13 89
Total	180	100
Mean		17.14
Household size		
1-3	36	20.00
4-6	60	33.33
7-9	51	28.33
10-12	33	18.33
Total	**180**	**100**

Source: Field Survey Data, 2021

The result shows that the majority of the ginger marketers (93.86%) had one form of formal education or the other. The result shows that literacy levels were high among them and could enhance marketing technology. In marketing, formal education allows ginger marketing to understand the proper management of resources in marketing. This finding agrees with the fact that high literacy level, western education facilitates the adoption of modern technologies and improved practices (Shehu *et al.*, 2014; Offor & Nse-Nelson, 2015).

Experience is expected to have a significant positive impact on the managerial ability of marketers. Therefore, the more experienced a marketer is, the more efficient the business. The result also shows the years of experience the marketers had acquired over the years. The result in Table 1 shows that microcredit users of ginger marketers had a mean of 12.14 years. This implies that the more experience, the more committed and confidence they have in the business. The finding also shows that the marketers are aware of the merits and demerits associated with the business because of the long years of experience and knows how to invest in making a profit. The experience gathered would assist and serve as a guide for marketers in their decision-making processes.

The level of Microcredit Use among Ginger marketers

The second stage of the selectivity model (Heckit) was used to determine the level of the determinants of microcredit use among ginger marketers. Table .2 presents the results of the level of determinants of microcredit use among ginger marketers.

2 The level of Microcredit Use among Ginger marketers

The second stage of the selectivity model (Heckit) was used to determine the level of the determinants of microcredit use among ginger marketers. Table 2 presents the results of the level of determinants of microcredit use among ginger marketers.

Table 2: Factors influencing the level of Microcredit use among Ginger marketers (Heckit Results)

Variables	Direct (SE)	Indirect (SE)	Total
Constant	1.8022 (0.11)**	2.199 (5.41)***	4.0012 (5.52)***
Age	-0.1038 (-0.23)	-0.044 (-0.38)	-0.1478 (-0.61)
Gender	0.3283 (0.02)	0.3846 (1.66)*	0.7129 (1.68)**
Educational Level	0.5115 (0.17)	0.4927 (3.39)***	1.0042 (3.56)***
Extension Visits	2.1545 (0.20)	0.3309 (1.33)	2.4854 (1.53)
Experience	0.0911 (0.23)	0.0110 (2.56) ***	0.1021 (2.79)***
Household size	-0.0540 (-0.13)	-0.0340 (-0.74)	-0.088 (-0.87)
Membership of cooperatives	0.8873 (0.26)	0.6821 (2.83)***	1.5694 (3.09)***
Distance to source of microcredit	-0.0292 (-0.17)	-0.0184 (-1.20)	-0.0476 (-1.37)
Income	0.1031 (0.99)	0.0524 (4.30)***	0.1555 (5.29)***
Interest	-0.0233 (-2.33)**	-0.0029 (-1.15)*	-0.0262 (-3.48)***
P	0.9114		
λ (inverse mill ratio)	6.9609 (3.0097)***		
χ^2	0.00001		
Σ	8.2452		
Number of observations	288		

Source: Field Survey Data, 2021
***, **, * = statistically significant at 1%, 5% and 10% respectively.
X^2= chi^2, ρ = rho, λ =(lambda) inverse mill ratio, σ = sigma

The $\chi^2$was significant at 1.0% level of probability. The inverse mill ratio λ for the microcredit use by ginger marketers was significant. Heckman estimate ρ value is 0.9114. It is the correlation of the residuals in the two equations, and this shows that the two outcomes were highly correlated. Since ρ > 0, the null is rejected. This shows that there was sufficient evidence to conclude that there

is a significant linear relationship between x and y (direct and indirect effects) because the correlation coefficient was significantly different from zero. The σ equals 8.2452, and it is the standard error of the residuals of the microcredit use equation. Sigma levels which are less than three are not desirable, and the gains are minimal. Organizations with less than three sigma levels will not be able to survive in a competitive market place. The sigma value of 8.245, which is greater than three shows that the microcredit use in both out comes improved gains and productivity and should be encouraged.

Seven of the ten variables had coefficients significantly different from zero in the direct effects implying that the factors were important in the level of microcredit use.

The coefficients of gender, educational level, experience, income and membership of cooperative societies were positive and significantly related to the level of microcredit use at 5%, 1.0%, 1.0%, 1.0%, and 1.0% respectively. The result shows that an increase in gender (female) by 5% will lead to an increase of about 0.33%, 0.38% and 0.71% in microcredit use for those who are already marketing, for participation and all marketers of ginger respectively. This implies that a 5% increase in gender led to a corresponding rise in microcredit use. Based on the result, more female marketers would be encouraged to participate in the business. Also, a 1.0% increase in educational level will increase microcredit use by 0.51% for those who are already marketing, 0.49% for participation, and 1.0% for all marketers of ginger. The result shows that, as the educational level increases by a certain quantity, the microcredit use also increases by a corresponding value. This indicates that high literacy level is essential for the microcredit use by marketers of ginger.

Result in Table 2 also shows that a 1.0% increase in income will increase microcredit use by 0.1% for those who are already marketing, 0.05% for participation and 0.16% for all marketers of ginger. The result shows that an increase in marketers' income l ed to a corresponding increase in microcredit use by marketers. Also, a 1% increase in experience will increase microcredit use by 0.09% for those already marketing, 0.01% for participation, and 0.1% for all marketers of ginger. This shows that as the experience of marketers' increases by 1%, it will lead to a corresponding rise in microcredit use. This will give marketers more confidence and commitment to the business. The reason may be because they have the right information on the business. Also, a 1.0% increase in membership of cooperative societies will increase microcredit use by 0.89% for those already marketing ginger, 0.68% for participation, and 1.57% for all marketers of ginger. The result shows that an increase in membership of cooperatives by 1.0 % leads to an increase in an equal quantity of microcredit use by the marketers of ginger. The results show that membership of cooperatives will make it easier for the marketers to access microcredit and in-turn motivates them to use it.

The coefficient of interest was negative and significantly related to the level of microcredit use at 1.0%. The result shows that a decrease in interest rate will lead to an increase of 0.02%, 0.0029% and 0.026% in microcredit use for those already marketing, for participation and all marketers of ginger respectively. The result shows that the lower interest rate encourages the marketers to access microcredit. The marketers have the opinion that the benefits involved are higher than the intended risks.

Furthermore, the coefficient of the number of extension visits was positive but not significantly related to the level of microcredit use. The coefficients for age, household size, and distance to the source of credit were negative and not significant.

CONCLUSION AND RECOMMENDATION

The majorities of the ginger marketers were females and are married. The mean years of experience of the marketers is 17.14 this means that they are more committed and confident in the business.

The factors influencing the level of microcredit use among ginger marketers, indicates that high literacy level is essential for the microcredit use by marketers of ginger. Also, an increase in experience will increase microcredit use for all marketers of ginger. It is therefore recommended that those marketing ginger should acquire higher education since the high literacy level is essential for the microcredit use by marketers of ginger.

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