ESTIMATION OF THE DETERMINANTS OF MICROCREDIT USE AMONG GINGER PROCESSORS IN SOUTH EAST, NIGERIA.

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ABSTRACT

This study evaluated the determinants of microcredit use among ginger processors in South East, 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 processors. The result shows that majority of the marketers were female and are married, they are still in their active age of 31-50 years which had the highest representatives (64.17%). The result of the estimation of the determinants of microcredit use among ginger processor indicates that a 1.0% decrease in the distance to the source of microcredit increase microcredit use for those already processing ginger by 0.31%, 0.04% for participation, and 0.35% for all processors. An increase in educational level, led to a rise in microcredit use for those who are already processing, for participation and all processors respectively. It is therefore recommended that male should be encouraged in the processing of ginger since is profitable and it is source of livelihood. Awareness campaigns should made to popularize the crop, microcredit and it benefits towards processing of ginger

Keywords: Ginger, processors, Microcredit, use.

1.0 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 (Ojiako *et al.,* 2007). The plant is now cultivated in different parts of Nigeria, though the significantly producing areas include Kaduna, Nassarawa, Sokoto, Zamfara, Akwa-Ibom, Oyo, Abia and Lagos states. Kaduna State stands as the highest producer of the crop. Southern Kaduna remains the largest producers of fresh ginger in Nigeria (Bernard, 2008). 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 Ezeagu (2006), 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 with spice. The crop is highly cherished in the international market because of its aroma pungency and high oil and oleoresin content called gingerin.

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 in 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. 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 (UNDP, 1999). 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 (Thorn, 1976; Awosika and Nwoko, 1983). 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).

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 (Atieno, 2009). 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 (Atieno, 2009). Microcredit helps the poor to get access to capital and escape persistent poverty (Ayayi, 2012; Valadez and 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. In many communities, women lack the highly stable employment histories that traditional lenders tend to require. Many are illiterate, and therefore, unable to complete the paperworkneeded to get conventional loans. As of 2009, an estimated 74 million men and women held micro-loans that totalled US$38 billion. Grameen Bank reports that repayment success rates are between 95 and 98 percent. Microcredit markets play a significant role in capital formation (Wall, 1987).

Ginger processors 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 processing 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 (Ezedimma *et al.,* 2006). The objective of the study is to describe the socio-economic characteristics of ginger processors and estimate the determinants of microcredit use among ginger processors in South East, Nigeria.

MATERIALS AND METHODS
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 processing. 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 processors compiled with the aid of the community resident and extension agents, 5 ginger processors were randomly sampled from each community. This gave 180 ginger processors. 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 processors that accessed the banks. Cross-sectional data were used for this study. Primary data were collected using well-structured questionnaires administered on ginger processors that use microcredit. The socio-economic characteristics of ginger processors was achieved using descriptive statistics and estimating the determinants of microcredit used among ginger processors was analyzed using the Heckman selectivity model. (Makhura *et al*., 2001).

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

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

Micro credit$_i$ use = 1for 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 processors using the Heckman selectivity model. (Makhura, 2001)

RESULT AND DISCUSSIONS

Socio-economic characteristics of ginger processors in southeast Nigeria
The result of the socio-economic characteristics of ginger processors for microcredit is presented in Table 1.

Table1: Socio-economic characteristics of ginger processors for microcredit

Variables	Freq	Percentage
Gender		
Male	45	25.00
Female	135	75.00
Total	180	100
Age (years)		
21-30	32	17.78
31-40	59	32.78
41-50	51	28.67
51-60	30	16.66
61-70	8	4.44
Total	180	100
Mean		40.33
Marital status		
Married	100	55.55
Single	27	15.00
Divorced	20	11.11
Widow	33	18.33
Total	180	100
Education level (years)		
No formal Education	13	7.22
Primary Education(1-6)	45	25.00
Secondary Education(7-12)	78	43.33
Tertiary Education(13-17)	44	24.44
Total	180	100
Experience (Years)		
1-5	30	16.67
6-10	30	16.67
11-15	40	22.22
16-20	34	18.89
21-25	27	15.00
26-30	19	10.56
Total	180	100
Mean		16.67
Household size		
1-3	48	26.67
4-6	66	36.67
7-9	53	29.44
10-12	13	7.22
Total	180	100

Source: Field Survey Data, 2020

The result in Table 1 shows that majority (75.00%) of the ginger processors who used microcredit was female. This could be that processing of ginger requires less effort and not tedious 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 processing is due to low demands of time and efforts required to work in the enterprise.
The result shows that the mean age of microcredit users of ginger processors was 40.33 years. The majority

(61.45%) of the microcredit users of ginger processors were in the age bracket of 31-50 years. This implies that ginger processors are within the active working bracket. They are young people who can withstand stress involved in the processing of ginger, and they are matured to take credit decisions that sustain the business and innovative for improved performance. 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 results 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 showed that the majority (55.55%) of microcredit users of ginger processors were married. This result indicates that ginger processing can be used to sustain the basic needs of families involved in the processing. This result agrees with Ojo and Jibowa (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 result shows that the literacy level is high (92.78%) of microcredit users had one form of formal education or the other. The majority of the processors are highly educated. This will enhance the management of ginger processing in the study area. This finding agrees with the fact that high literacy level, western education facilitates the adoption of modern technologies and improved practices (Offor and Nse-Nelson, 2015).

The mean years of experience of processors of ginger using microcredit was 10.84 years. This result is an indication that the ginger processors have been in processing over a long period and can be said that there are experienced. This implies that the more experience, the more committed and confidence they have in the processing.

The level of microcredit use among ginger processors

The second stage of the selectivity model (Heckit) was used to determine the level of the determinants of microcredit use among ginger processors. The model accounts for bias in the estimation. Table 2 shows the results of the level of determinants of microcredit use among ginger processors. The Chi^2(χ^2) and the inverse mill ratio λ for microcredit use by the processors were significant at 1.0% level of probability. Heckman estimate ρ was obtained as 0.9532. The ρ is the correlation of the residuals in the two equations. The σ equals 6.482, and it is the standard error of the residuals of the microcredit use equation. Since ρ > 0, the null is rejected. The coefficients for age and distance to the source of microcredit were negative and significantly related to the level of microcredit use at 5% and 1.0% respectively.

The result in Table 2 shows that a decrease in age by 5% resulted to an increase of about 0.014%, 0.032% and 0.047% in microcredit use for those who are already processing; those that intend to participate as processors and for all processors respectively.

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

Variables	Direct (SE)	Indirect (SE)	Total
Constant	4.0468	3.7729	7.8197
	(3.39)**	(4.08)***	(7.47)***
Age	-0.0146	-0.0327	-0.0473
	(-0.87)**	(-2.92)***	(3.79)***
Gender	0.3273	0.6214	0.9487
	(1.06)**	(4.55)***	(5.61)***
Educational Level(years)	0.1289	0.0690	0.1979
	(0.71)	(0.15)	(0.86)
Extension Visits	0.1714	0.2253	0.3967
	(0.52)	(1.59)	(2.11)
Experience (years)	0.1821	0.5780	0.7601
	(0.54) **	(2.25) **	(2.79)***
Household size	-0.0085	-0.2286	0.2371
	(-0.12)	(-0.42)	(0.54)
Membership , of cooperatives	1.2457	1.1193	2.3650
	(2.46)**	(2.30)**	(4.76)***
Distance to source of microcredit	-0.3130	-0.0408	0.3538
	(-0.63)***	(-3.34)***	(3.97)***
Income	2.004	2.1416	4.1456
	(1.58)***	(2.39)**	(3.97)***
Interest payment	-1.5825	-0.2762	1.8587
	(-2.55)*	(-2.47)**	(5.02)***

P	0.9532
λ (inverse mill ratio)	5.9109
	(3.0097)***
χ^2	0.00001
Σ	6.482
Number of observations	288

Source: Field Survey Data, 2018
***, **, * = statistically significant at 1%, 5% and 10% respectively.
X^2= chi², ρ = rho, λ = (lambda) inverse mill ratio, σ = sigma

This shows that the use of microcredit is more during the younger age bracket of the processors.

The result indicates that a 1.0% decrease in the distance to the source of microcredit increase microcredit use for those already processing ginger by 0.31%, 0.04% for participation, and 0.35% for all processors. The decrease in the distance also results in a reduction in the cost of transportation by a quantity and the associated risks involved such as accidents. This reduction in distance tremendously increases microcredit use by the processors. The processors obtained their microcredit from the FBN microfinance Bank a subsidiary of First Bank Nigeria PLC nearest to them.

The coefficients of gender and experience were positive and significantly related to the level of microcredit use at 5%. The result shows that an increase in experience by 5% led to the rise of about 0.17 %, 0.57% and 0.74% in microcredit use for those who are already processing; those that intend to participate as processors and all processors respectively. This shows that as the experience of processors increases by 5%, they become more confident and committed in the trade. The gain in experience resulted in their acquiring the right information in the business and a corresponding increase in microcredit use.

Also, a 5% increase in gender increased microcredit use by 0.32% for those who are already processing, 0.62% for participation, and 0.95% for all processors. This implies that a 5% increase in gender facilitates microcredit use. The coefficient of the educational level is positive and significantly related to the level of microcredit use at 1%. The result shows that an increase in educational level by 1% led to a rise of about 0.13%, 0.07% and 0.20% in microcredit use for those who are already processing, for participation and all processors respectively. This shows that the literacy level is essential for the microcredit use by processors of ginger. This gave rise to the corresponding quantity of microcredit use by the processors.

The coefficients of income and membership of cooperatives were positive and significantly related to the level of microcredit use at 5% and 1% respectively. The result shows that an increase in income by 5% led to a rise of about 2.0%, 2.1% and 4.1% in microcredit use for those already processing, for participation and all

processors respectively. The result shows that an increase in income led to the rise in microcredit use by the processors of ginger. The results also show that the increase in the processor's income by 5% increased microcredit use tremendously.

Also, a 1% increase in membership of cooperatives will increase microcredit use by 1.2% for those already processing, 1.12% for participation, and 2.37% for all processors. The result obtained shows that an increase in membership of cooperatives led to the rise in the microcredit use by the processors of ginger. The results obtained made it easier for the processors to access microcredit and in-turn motivated them to use it.

The coefficient of interest was negative and significantly related to the level of microcredit use at 5%. The result shows that a decrease in interest rate will lead to an increase of 1.58%, 0.27% and 1.86% in microcredit use for those already processing, for participation and all processors respectively. The results show that the low-interest rate encourages the processors to access microcredit. The processors have the opinion that the benefits involved are higher than the intended risks. The coefficient of household size was negative but not significant. Also, the coefficient of the number of extension visits was positive but not significantly related to the level of microcredit use.

CONCLUSION

The majorities of the ginger processors were females and are married. The mean years of experience of the processors is 16.67 this means that they are more committed and confidence in the business. The factors influencing the level of microcredit use among ginger processors, indicates that a decrease in the distance to the source of microcredit increase microcredit use for those already processing ginger, for participation and for all processors and an increase in educational level, led to a rise in microcredit use for those who are already processing, for participation and all processors respectively. It is therefore recommended that male should be encouraged in the processing of ginger since is profitable and it is source of livelihood. Awareness campaigns should made to popularize the crop, microcredit and it benefits towards processing of ginger

REFERENCES

Atieno, R. (2009). Linkages, Access to Finance and Performance of Small Scale Enterprises in Kenya.Research Paper No. 2009/06.United Nations University, World Institute for Development Economics Research.15.

Awosika, K. and S. G. Nwoko (1983), Perspective in Rural Banking. Rural Banking in Nigeria. NIB, Longman Publishers Inc.

Ayayi, A. G. (2012). Microfinance: A Time to Deliberate. Asian Economic and Financial Review, *2*(3), 445-447.

Bernard, A.(2008). Diseases, pest, and other factors are limiting ginger (Zingiber officinale Rose) production in River State. Being the text of a paper delivered during the Agricultural Product Development Strategy Workshop organized by Uptonville Foundation under the aegis of Rivers State Sustainable Development Agency (RSSDA); Available :http://uptonvilleoginstu.org/ginger .litm 8.

Bigsten, A., Collier, P., Dercon, S., Gauthier, B., Fafchamps, M., Gunning, J., Zeufack, A. (2003). Credit Constraints in Manufacturing Enterprises in Africa. *Journal of African Economies, 12*(1), 104-25.

Brian O. (2014) Steps to Take in Ginger Cultivation By agronigeria - January 9, 2014,17117 10

Ezeagu, W. (2006). Ginger Export. A Paper Presented at a 3-day National Workshop on Massive Cassava and Ginger Production and Processing for Local Industries and Export held at FatiMuasu Hall, National Centre for Women Development, Abuja

Ezedinma, C. L., Okafor C., Asumngha G. N., and Nweke (2006). Trends in the form of labour productivity and Implication for cassava Industrialization in Nigeria proceedings of the 40th Annual Conference of the ASN held at NRCI Umuahia, Abia State, October 16th – 20th, 109-115.

Ezra, D, Akinola .M.O , Banta ,A.L , Makarau ,S.B, and Hussani, A (2017). Socio-Economic Assessment of Ginger production in Jaba Local Government Area of Kaduna State , Nigeria . Asian Journal of Agricultural Extension , Economics & Sociology 15(2): 1-11.

Hoff, K., and Stiglitz, J. (1990). Imperfect information and rural credit markets: Puzzles and Policy perspectives. World Bank Economic Review, 5, 235–250.

Kantiok, B.(2007) . Economics of Ginger Production in Kaduna State , Nigeria M.Sc Thesis ,

Department of Agriculture Economics and Rural Sociology , Ahmadu Bello University Zaria , Nigeria .

Makhura, M., Kirsten, J. and Delgado, C (2001). Transaction Costs and Small Holder Participation in the Maize Market in the Northern Province of South Africa. Seventh Eastern and Southern African Regional Maize Conference, 11th – 15th Feb. 2001. 463-462.

National Population Commission (NPC). (2014). National Population Report, Abuja, Nigeria.

Offor , E.I, and Nse-Nelson F.A (2015). Marketing Efficiency of poultry Egg in Umuahia south local Government Area of Abia state , Nigeria .

Ojiako, I. A; Asumugha, G. N; Ezedinma, C. and Uzokwe, N. E (2007)."Analysis of production trends in primary root and tuber crops in Nigeria, 1961-2005. *Res . on crops* 8(2); 371-380.

Ojo, M.A and Jibowa , A.A .(2008) Socioeconomics characteristics influencing Role performance of Rural Community power Actors in Agricultural Extensive Delivery System in Osun state Nigeria. Journal of Agriculture and Rural Development ISSN 1990-3375 , Vol .2 pp 27-40.

Sheremenko, G., Escalante, C. L., and Florkowski, J.W (2012). *The Universality of Microfinance Operations Model in Eastern Europe and Central Asia: Financial Sustainability vs. Poverty Outreach.* Selected Paperprepared for presentation at the Agricultural & Applied Economics Association's 2012 AAEA AnnualMeeting, Seattle, Washington, August 12-14.

Udoh, A.J, and Nyienakuma ,M.G.(2008). Examining Socioeconomic Characteristics and adoption trend of artisanal fishers of Akwa Ibom state in West Africa .Journal of Agricultural and Social Science 4:(1) 41-46.

United Nations Development Programme, (1999). Savings as an Instrument for Poverty Reduction. Conference report of Workshop facilitated by UNDP's special Unit for Microfinance (SUM) and UNDP Africa, October 4-5.

USAID Next Project (2017) Ginger Processing To Oleoresin- An Industry-Wide Study Report