

RESEARCH ARTICLE

Analysis of Garri Processing and Marketing amidst COVID-19 Lockdown in Ohaukwu Local Government Area, Ebonyi State, Nigeria

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ABSTRACT

The study examined Garri processing and marketing amidst COVID-19 lockdown in Ohaukwu local Government Area, Ebonyi State, Nigeria, and specific objectives are to describe the socio-economic characteristics of the respondents, identify the precautionary measures employed by the processors for Garri processing in the mid of COVID 19, identify the marketing strategy used for marketing Garri in the mid of COVID 19, analyze the cost and returns of Garri processing and marketing before and during COVID-19 lockdown, and to identify the lockdown related constraints to processing and marketing of Garri in the study area. Sixty respondents were selected through multistage sampling procedure. Frequency distribution, percentages, and gross margin analysis were used for data analysis. The results revealed that majority of the Garri marketers/processors were females that are still in their economically active age group, 100% of the respondents were aware of the outbreak of COVID-19 and observed the following precautionary measures during processing; wearing of face mask during peeling (18.3%), maintaining physical distancing among laborers during processing (18.3%), wearing face mask during packaging (18.3%), maintaining high hygiene at processing site (18.3%), and people other than laborers are not allowed to the processing site (18.3%). The rate of return on investment of 30% indicates that the respondents earn 30% profit for every cost associated with Garri processing. The benefit cost ratio of 1.30 which implies that for every ₦1 invested in processing cassava to Garri, a return of ₦1.30 and a profit of ₦0.30 were realized and majority of the farmers depends on their personal savings as capital making their income very low. Majority were wholesalers and most of them sold in market stall during the outbreak of COVID-19. The respondents made more profit during the lockdown because of inflation in prices of staple food. Therefore, processing cassava to Garri is a profitable and viable business and the following were observed as constraints that militated against the marketing and processing of Garri amid COVID-19 lockdown, low demand/patronage (96.7%), border closure (100.0%), social distance order increased processing cost (41.7%), scarcity of laborers because of social distance order (50.0%), lack of access market (25.0%), absence of buyers from the neighboring states (100.0%), increased transport cost (96.7%), and low price (50.0%). It is recommended that Garri marketers and processors should be encouraged to form and participate in cooperatives, SMEDAN should organize periodic training for Garri marketers, government agencies should assist in educating the cassava processing farmers through effective and efficient extension agents.

Key words: COVID-19, Garri, lockdown, marketing, ohaukwu, processing

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INTRODUCTION

Cassava (*Manihot esculenta*) is a popular crop grown mainly by arable small holder farmers in Nigeria. It remains a major staple food for many households in urban and rural areas. Cassava contributes about 40% of the staple food calories consumed in Africa.^[1] It is now an essential part of the daily diet of over 70 million Nigerians.^[2] In Africa, the crop has become an essential part of the diet of 500 million people and provides a livelihood for millions of farmers, processors, and marketers.^[3] Nyerhovwo projected that approximately 80% of Nigeria population especially rural dwellers depend on cassava meals of one form or the other on daily basis.^[4]

Cassava has the potential to increase farm incomes, reduce rural and urban poverty and help close the food gap.^[2] Without question, cassava holds great promise for feeding Africa's growing population. Cassava is available to low-income rural households in the form of simple food products (e.g., dried roots and leaves) which are significantly cheaper than grains such as rice, maize, and wheat.^[2]

Cassava tubers consist of 60–70% water and have a shelf life of 2–3 days.^[5] Once harvested, the tubers have to be processed or consumed immediately otherwise the tubers begin to deteriorate. In addition, it is very necessary that the processing commence as early as possible because it influences the market value. Processing of cassava roots before consumption is also essential because it helps to eliminate its cyanide content.^[6]

Cassava can be processed into Garri, high quality cassava flour, odorless fufu, fermented cassava flour, tapioca, and cassava chips, but the one generally consumed in Nigeria is Garri and the more commercialize cassava product in Ohaukwu. FAO observed that urban households in many parts of West Africa consume cassava in the form of garri.^[2] Similarly, Isitor *et al.* opined that one of the most popular forms in which cassava is processed and marketed in Nigeria is garri.^[1] Garri is a fermented and roasted granular cassava food product. It is made from cassava tubers through a series of processing activities. Garri processing takes the following form: Harvest – washing – grinding – pressing – sieving – frying – cooling – packaging – storing in a cool/dry place. Cassava remains a cheap alternative

to several other energy rich food in Nigeria and processing Garri from cassava is one of the major economic activities of the people of Ohaukwu Local Government Area (LGA) of Ebonyi State in Nigeria. Several studies have established the high acceptability and consumption of Garri both in the rural and urban Nigeria;^[7] and Abass *et al.*^[1] Thus, Garri processing and marketing has the potential of contributing immensely to economic empowerment and the development of the downstream component of the agribusiness sector in Nigeria. However, inadequate marketing system for Garri and other food commodities has been identified as a constraint to agricultural development in Nigeria, particularly in rural communities.^[8]

Awoyinka and Ikpi noted that efficient marketing system stimulates agricultural production.^[9] However, marketing of food in Nigeria has been characterized by a lot of deficiencies.^[10] These deficiencies have constrained sustainable cassava products development in one way or the other.

Coronavirus officially known as COVID-19 is an infectious disease that primarily attacks the lungs, making it difficult for the affected person to breath. The disease which originated from Wuhan China in December 2019 has since spread to almost every region of the world, prompting the World Health Organization (WHO) to declare it a global pandemic on January 30, 2020.^[11] Nigeria confirmed her first index case of COVID-19 on February 27, 2020, following the arrival of Italian man from Malian. Ever since then, Nigeria has been gabbling with containment of the disease that has spread to 36 States including the Federal Capital Territory, Abuja with about 40,532 cases and 858 fatalities as of July 26, 2020.^[12] In the bid to curb the spread of the coronavirus, the Federal Government of Nigeria on March 27, 2020 imposed a 5 weeks lockdown in Abuja, Lagos, and Ogun States.^[13] At the state level, Ebonyi State announced a total lockdown of her borders with other states and restricted vehicular movement within the state even when the state has not recorded any case of COVID-19 as part of preventive measures. On April 26, 2020, the state recorded her first case which as of July 26, 2020, the state has a total of 759 cases and 24 mortalities.^[12]

The Federal government has announced gradual lifting of the lockdown in the affected states and

replaced it with inter-states border lockdown. The situation has led to glut of staple food and dramatic price fall in food producing states like Ebonyi due to low demand. Ohaukwu LGA of Ebonyi has comparative advantage in cassava production, and processing and marketing of Garri remains the major economic activities of the inhabitants. The processed Garri from the area is sold to major cities and towns in other States of Nigeria. The inter-states border lockdown occasioned by COVID-19 has made it impossible to move Garri from the processed centers to markets located in states other than Ebonyi State. Equally, marketers from outside the state are unable to access markets in Ohaukwu LGA for Garri patronage. This development has led to garri glut with its attendant effect on the livelihoods of garri value chain actors – farmers, processors and marketers in the area who are now unable to sale their product. Cassava farmers are experiencing post-harvest losses, already processed garri is stocked with the processors, and marketers lack access to markets. This worrisome development has led to lose of income across the value chain actors. Okorochoa alluded to this fact by stating that farmers, processors, and marketers are losing income from notable staple foods like cassava because of their inability to move their produce from farms to rural, semi-urban, and urban markets.^[14]

In the view of this, there is need to critically analyze the economic effect of COVID-19 lockdown on Garri processing and marketing as one of the major staple food consumed in Ohaukwu, Ebonyi State, and Nigeria in general. The broad objective of this study is to analyze the economy of Garri processing and marketing in the midst of COVID-19 in Ohaukwu LGA of Ebonyi State.

The specific objectives are to; describe the socio-economic characteristics of the respondents in study area, identify the precautionary measures employed by the processors for Garri processing in the mid of COVID 19, identify the marketing strategy used for marketing Garri in the mid of COVID 19, analyze the cost and returns of Garri processing and marketing before and during COVID-19 lockdown, and to identify the lockdown related constraints to processing and marketing of Garri in the study area.

METHODOLOGY

The study area

The study was carried out in Ohaukwu LGA of Ebonyi State, Nigeria. The study area has an area of 517 km² and a population of 196,337 people as at the 2006 national census.^[15] It has three main clans, namely: Izhia, Ngbo, and Effium. The area lies within latitudes 60 3'N to 60 50'N and longitude 70 80'E to 80 00'E.^[16] The people of Ohaukwu local government are predominantly farmers and Garri processing and marketing is a common livelihood activity. Small scale farming activities is also common in the study area. The choice of the study area was based on the fact that cassava is common food crop with great attention given to processing, marketing, and distribution.

Methods of data collection and sampling technique

Primary data were used for the study and obtained through the administration of structured questionnaire. A multistage sampling technique was adopted in the study. The first stage of the sampling procedure involved the purposive selection of two main villages from the three communities in Ohaukwu LGA based on the concentration of Garri processing and marketing activity to give rise to six villages. The villages selected included Izhiangbo, Ndiulo Okoshi, Umuogudu Akpu, Umuogudu Oshia, Ukwuagba, and Ezza-Effium. In the second stage, ten respondents (Garri processors/marketers) were selected randomly from each selected village. Thus, a total of 60 respondents were selected for the study. Data gathered were analyzed using descriptive statistics and gross margin analysis. Specifically, frequency count and percentage distribution were used to achieve objectives (i), (ii), (iii), and (iv), while gross margin and profitability analysis were employed to analyze objective (v). The gross margin formula is represented as:

$$GM = GI - TVC \quad (i)$$

Where GM = Gross margin

GI = Gross income

TVC = Total variable cost

The profitability is also represented mathematically as:

$$\pi = TR - TC \quad (ii)$$

Where: π = profit

TR = Total revenue/gross income

TC = Total cost (total fixed cost [TFC] + Total variable cost [TVC])

RESULTS AND DISCUSSION

Socioeconomic characteristics of the respondents

Table 1 shows that 75% of marketers in the study area were females while 25% were male. The greater percentage of the Garri marketers/processors being females could be attributed to the general hold perception that cassava is a woman crop in the study area plus the fact that food processing and marketing are seen as women responsibility. The finding is in line with that of Abasilim *et al.* that Garri processing activity is perceived as female job while the men are more involved in cassava farming.^[17] The age distribution of the respondents with the highest percentage of respondents, 42% were between 31 and 40 while the least percentage of respondents, 23% were between the ages of 41 and 50 years. The results also showed that 55% of the respondents were married with 27% unmarried, 28% had secondary education, 23% with no-formal education, 53% of the respondents were into Garri marketing, 18% into Garri processing, 17% were both processors, and marketers. Majority (65%) earned between N21,000 and 30,000, 42% had experience of <10 years and 40% had experience between 10 and 20 years in Garri marketing and processing, 65% of them got their capital from personal savings.

Most of the socio-economic features show that the cassava marketers and processors, respectively, have low literacy level and their monthly income suggests that they are small scale cassava processors and marketers. More so, greater percentage of the respondents relying on their personal savings to raise capital for their enterprise is an indication that they are completely excluded from credit assistance.

Marketing strategies used for marketing Garri in the midst of COVID-19 lockdown

Table 2 shows that 100% of the respondents were aware of the outbreak of COVID-19, the category

Table 1: Socio-economic characteristics of the respondents

Variables	Frequency (n=60)	Percentage
Sex		
Male	15	25
Female	45	75
Age		
<30	21	35
30–40	25	42
41–50	14	23
Marital status		
Single	16	27
Married	33	55
Widow	11	18
Educational level		
No formal education	14	23
Primary	22	37
Secondary	17	28
First degree	7	12
Monthly income		
<20,000	11	18
21,000–30,000	39	65
31,000–40,000	7	12
41,000–50,000	-	-
51,000–60,000	3	3
Occupation		
Garri processing	11	18
Garri marketing	32	53
Both	17	29
Religion		
Christian	60	100
Experience(years)		
<10	25	42
10–20	24	40
>20	11	18
Source of capital		
Personal savings	39	65
Osusu	10	17
Cooperative	6	10
Money lender	5	8
Member of co-operative		
None	59	98
Member	1	2

Source: Field Survey, 2020

of Garri marketers with the highest respondents 58% were wholesalers while the least percentage of the respondents, 17% were middlemen which only specialize in buying and way billing outside the state. About 15% of the respondents were both wholesalers and middlemen. The result equally shows that 70% of the respondents marketed Garri

amid COVID-19 lockdown in market stall/shop because Garri is among the essential commodity, thus, they were allowed access to market, while 23% were into contract marketing as the road was blocked and not accessible by buyers from the neighboring states.

Lockdown-related constraints to processing and marketing of Garri in the study area

There were constraints that militated against the marketing and processing of Garri amid COVID-19 lockdown within the study area, as shown in Table 3. These included low demand/patronage (96.7%), border closure (100.0%), social distance order increased processing cost (41.7%), scarcity of laborers because of social distance order (50.0%), lack of access market (25.0%), absence of buyers from the neighboring states (100.0%), increased

Table 2: Marketing strategy used for marketing Garri amidst COVID-19 Lockdown

Variable	Frequency	Percentage
Awareness of COVID-19 outbreak		
Yes	60	100
No	-	-
Category of Garri marketer		
Wholesale	35	58
Middle man	10	17
Both	15	25
Marketing strategies adopted in Garri marketing during COVID-19		
Market in stall/shop	42	70
Contract marketing	14	23
Hawking	4	7

Source: Field Survey, 2020

Table 3: Lockdown-related constraints to processing and marketing of Garri

Variable	Frequency (n=60)*	Percentage
Low demand/patronage	58	96.7
Border closure	60	100.0
Social distance order increased processing cost	25	41.7
Scarcity of laborers because of social distance order	30	50.0
Lack of access to market	15	25.0
Absence of buyers from the neighboring state	60	100.0
Increased transport cost	58	96.7
Low price	30	50.0

*Multiple Responses. Source: Field Survey, 2020

transport cost (96.7%), and low price (50.0%). Many Garri marketers and processors were discouraged because they earned low income as result of lockdown which made it impossible for large scale buyers from neighboring states to patronize them. The border closure equally caused astronomic increase in transportation cost because of heavy extortion of the drivers by security personnel at the border post.

Precautionary measures employed by the Garri processors for processing Garri amid of COVID-19

The processors among the respondents were asked to indicate the precautionary measures they adopted during processing of Garri amid COVID-19 outbreak as outlined by the WHO and NCDC. The precautionary measures generally observed by the processors were wearing of face mask during peeling (18.3%), maintaining physical distancing among laborers during processing (18.3%), wearing face mask during packaging (18.3%), maintaining high hygiene at processing site (18.3%), and people other than laborers are not allowed to the processing site (18.3%) [Table 4].

Table 5 revealed that the highest weekly income earned from Garri processing by the processors

Table 4: Precautionary measures employed by the processors for Garri processing

Measures	Frequency (n=60)*	Percentage
Wearing of face mask during peeling	11	18.3
Washing of hand before peeling	9	15.0
Washing of hands and wearing of face mask before washing the cassava tuber	8	13.3
Wearing of face mask during frying	10	16.7
Maintaining physical distancing among laborers during processing	11	18.3
Wearing of face mask during packaging	11	18.3
Disinfection of processing site	6	10.0
Maintaining high hygiene at processing site	11	18.3
People other than laborers are not allowed to the processing site	11	18.3

*Multiple response. Source: Field Survey, 2020

among the respondents before COVID-19 lockdown by 20%, was between 6000 and 10,000, 13.3% earned ≤5000, 8.3% earned between 11,000 and 15,000, and only 5% earned above 15,000. The low weekly income may be due to the fact that most of those into Garri business in the study area relies in their personal savings which may not be in large commercial quantity to produce large output for higher profit and Table 5 revealed the weekly incomes distribution of Garri processors before and amid COVID-19. The result shows that 13.3% of the respondents earned <N5000 prior to outbreak of COVID-19 but this dropped to 3.3% after the outbreak of the virus. About 20.0% of the respondents earned between the range of N6000 and 10,000 before the outbreak of COVID-19, which decreased to 13.3% following COVID-19 outbreak. However, from the 8.3% of respondents who earned between N11000 and 15,000 before COVID-19 outbreak, the figure rose to 21.7%. In a similar trend, those earning above N15000 increased from 5.0% before COVID-19 to 8.3% after COVID-19 outbreak. The result apparently shows that the Garri processors experience sharp income rise following the outbreak of COVID-19. This could be due to the fact that the outbreak of COVID-19 led to hike in Garri price. The increase income during the lockdown era may be due to the higher demand for food, and the attendant price hike. This is in agreement with the finding of Anagah (2020) who reported that border closure had positive effect on the few active farmers;

because of the inflated prices of agricultural produce.^[18] However, the finding is at variance with that of Eke and Effiong who opined that inter-state border closure caused low patronage/demand of food commodities.^[19]

Table 6 shows the weekly incomes of Garri marketers in the study area before and during the era of COVID-19 lockdown. The highest percentage (42%) of the respondents earned equal or less N5000 before COVID-19 outbreak but this dropped to insignificant proportion (5%) during the COVID-19 lockdown. The proportion of marketers who earned between N6000 and 10,000 before COVID-19 outbreak rose to 30.0% in the COVID-19 lockdown era. More so, the percentage of respondents earning between N11000 and 15,000 rose slightly from 18.3% before COVID-19 to 20.0% in the COVID-19 era. However, for the marketers earning above N15,000, there was a sharp increase from 3.3% before COVID-19 to 16.6% during the COVID-19 lockdown era. Obviously, the Garri marketers made higher income during the COVID-19 lockdown era, apparently, due to rising prices and the fact that it falls among essential items granted unrestricted movement during the interstate border lockdown. This suggests that Garri marketing is more profitable during the lockdown period. This is contrary to general opinion that the inter-state border closure prevented buyers from neighboring States from patronizing Garri product in the study area, which translated into reduced income for marketers and processors alike [Table 7].

Table 5: Weekly income earnings of Garri processor before and amid COVID-19 lockdown (₦/week)

Income range (N)	Before COVID-19 Freq. (n=60)	Percentage	COVID-19 Era Freq. (n=60)	Percentage
≤e000	8	13.3	2	3.3
6000–10,000	12	20.0	8	13.3
11,000–15,000	5	8.3	13	21.7
>15,000	3	5.0	5	8.3

Source: Field Survey, 2020

Table 6: Weekly income earning of Garri marketers prior and during the era of COVID-19 lockdown (₦/week)

Income range	Weekly income prior to COVID-19 Frequency (n=60)	Percentage	Weekly income after COVID-19 Frequency (n=60)	Percentage
≤e000	25	42.0	3	5.0
6000–10,000	5	8.3	18	30.0
11,000–15,000	11	18.3	12	20.0
>15,000	2	3.3	10	16.6

Source: Field Survey, 2020

Table 7: Costs and return from Garri processing (₦/Month)

Items	Amount	% TC
Variable cost		
Cassava tubers (200 kg)	12,000	37
Labor cost	2000	6
Cost of grating	1200	3.7
Transportation cost	1800	5.5
Firewood cost	1000	3.1
Miscellaneous	1500	4.6
TVC	19,500	60
Fixed cost		
Frying pan	8000	25
Bags	560	1.7
Basin	3000	9.2
Tapolin	1500	4.6
TFC	13,060	
Total cost (TFC + TVC)	32,560	
TR	42,400	
Gross margin (TR – TVC)	22,900	
NR (GM – TFC)	9840	
ROR (NR/TC*100)	30%	
BCR (TR/TC)	1.30	

TVC: Total variable cost, TFC: Total fixed cost, TR: Total revenue, NR: Net returns

The result in Table 6 revealed that the cost of cassava tubers (36.7%) accounted for the largest percentage of the total cost of garri processing in the study area. This is followed by frying pan cost (24%). The cost of labour, grating, transport, basin and tapolin constituted 6%, 3.7%, 5.5%, 9.2% and 4.6% of the total cost respectively. The items with lowest costs were firewood (3.1%), and bags (1.7%). This may be due to the fact that most of the respondents get firewood freely from their farms or near-by bushes and lend bags from their neighbours. The low transportation cost (6%) may also be due to the fact that most of them farm around their houses and uses their personal wheel barrow, bicycle, and/or motor cycle as mode of transportation. The total cost incurred by the respondents per month was ₦32,560 while a total revenue of ₦42,400 was realized thereby returning gross margin of ₦22,900 and net returns of ₦9,840. The Rate of Return on Investment (RRI) of 30% indicates that the respondents earn 30% profit for every cost associated with garri processing per month. The benefit cost ratio of 1.30 which implies that for every ₦1 invested in processing cassava to garri, a return of ₦1.30 and a profit of ₦0.30 were realized. This study confirmed

that processing cassava to garri is a profitable and viable business that will generate revenue that can be used by processors in the study area to improve their standard of living and advance economically. The finding agrees with that of Eze and Nwibo (2014) who reported that more households should be encourage to engage in cassava processing due to its profitability and high return to investment.^[20]

CONCLUSION

This study analyzed economics of Garri processing and marketing in the midst of COVID-19 lockdown in Ohaukwu LGA of Ebonyi State. The findings from this study showed that Garri processing and marketing business continued to experience increasing income and profit margins during COVID-19 lockdown. Apparently, the processors and marketers exploited opportunity offered by the inter-state lockdown occasioned by the COVID-19 lockdown to hike food prices including Garri. Garri being one of the exempted essential commodities continued to enjoy unrestricted movement throughout the lockdown period and this made those who engaged in the business during the lockdown to experience boom. More so, the study showed that Garri processing and marketing are dominated by women with high experience but most of them have low education and do not belong to co-operative society, which would have given them avenue to access credit facility to enable them expand their business and increase profit margin. This would have enabled them to overcome the issue of meager capital as result of reliance on their personal savings as major source of investment capital and these were identified as precautions observed by processors during processing amid COVID-19 lockdown: wearing of face mask during peeling (18.3%), maintaining physical distancing among laborers during processing (18.3%), wearing face mask during packaging (18.3%), maintaining high hygiene at processing site (18.3%), and people other than laborers are not allowed to the processing site (18.3%) by them.

Therefore, the study revealed that processing cassava to Garri is a profitable and viable business that will generate revenue that can be used by processors to improve their standard of living and advance economically.

Recommendations

Based on the findings, the following recommendations were advanced toward resolving the economic challenges faced by Garri marketers and processors to elevate their economy.

Garri marketers and processors should be encouraged to form and participate in cooperatives as that will help them to reduce the exploitative influence of middlemen in the Garri distribution, and enhance their access to fund through cooperative engagement. SMEDAN should organize periodic training for Garri marketers to enable them handle Garri marketing as business enterprise as many of them keep no track record of their transactions, account statement, and zero plan of upgrading their business. Government agencies should assist in educating the cassava processing farmers through effective and efficient extension agents on improved cassava processing technology and making available hybrid cuttings which will aid bounty harvest and increase profitability.

Therefore, extension agents need in cassava processing should be given special and urgent attention. Thus, the situation can be improved through the action research on crops systems to bring about improved production, marketing and in doing so, improves livelihood, income, and food security of the people.

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