Economic Analysis of Gari Marketing in Osun State Nigeria

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Abstract: Gari is a fermented, gritty, starchy food which is fast becoming a marketable product among the rural and urban populace in Nigeria. The study was done in Osun State Nigeria. In order to increase income and to ensure food security among the marketers of gari in the study area, economic analysis of gari marketing was carried out. Specifically, factors influencing the income realized from the sales of gari were determined while the profitability of the business was also examined. A multi-stage sampling technique was employed to randomly select 120 respondents while a structured questionnaire was administered to retrieve information from the selected gari marketers. The data were subjected to descriptive statistics, gross margin analysis and Ordinary Least Square multiple regression analysis. It was found out that the mean age of the marketers was 41 years. Also, most (92.5%) of the marketers were female and 88.3 percent had formal education. Few (13.3%) were single while the mean marketing experience was 14 years. The mean household size was 5 persons and the main source of capital to most (40%) marketers was Esusu. Averagely, 575.25kg of gari were sold weekly by the marketers. Profitability analysis revealed that gari marketing was profitable with gross margin of ₦13,751.86 per week while it was showed that the main determinants of the income realized from the sales of gari were marketer's age (X_1), gender (X_2), access to credit (X_3), household size (X_5), marketing experience (X_6), and labour (X_7). In order to expand gari marketing business, it is recommended that gari marketers should be encouraged to take bank loans.

Keywords: Gari, profitability, regression, techniques, marketers.

Introduction

Over 75 percent of the cassava roots harvested in Africa are processed into gari. This coarse-grained product called gari is produced from cassava roots by washing, peeling, grating, fermenting and pressing, sieving, frying and drying. Gari production is done by most people in West Africa through low cost traditional methods. It can either be yellow in colour due to addition of palm oil prior to dewatering as well as white or creamy in colour. Yellow gari is preferred among the rich and is rich in vitamin A and can cost twice as much, making it less available to poorer consumers (Afolabi, 2009).

In Africa, gari can be consumed in a variety of ways across cultures and countries. It is commonly consumed either as a paste made with boiled water and eaten with delicious vegetable or egusi soup or as snack by soaking in cold water with sugar and milk, coconut, roasted groundnuts, fried or smoked fish, cooked beans as complements. Additive such as soya bean are sometimes used to enrich the protein content of the product. Gari, when properly stored, has a shelf-life of six months or more. According to Maziya-Dixon et al., (2004), gari is regarded as a "food of choice" even in the face of alternative food options in urban areas.

Of all the products of cassava roots that can generate income, gari is the cheapest and easiest way for potential marketers to enter and exploit the processed cassava market. Gari is the most widely traded processed cassava product in West Africa (Iwuoha, 2013). This product is very popular in Nigeria as it has traditionally remained cheaper than other carbohydrate sources, especially maize, millet and rice. It is called "the common man's food". Recently, the price of gari has gone up sharply due to increase in demand for the product. For as long as a large proportion of Nigerians remains below the poverty line, gari will continue to be the preferred food for many years to come. In addition to the large local market for gari, there is a huge opportunity, with a higher profit potential in its exportation to African emigrants in Europe, America and Asia continents. Gari is a popular food in Nigeria and is fast becoming a marketable product among the rural and urban populace.

Hence, in order to increase incomes, to achieve food security and improve the social welfare of marketers of gari, there is need to examine the socio-economic characteristics of the marketers and determine the factors influencing the income earned from the sales of this product. Also the profitability of the business will be examined.

Materials and method

Study area

This study was carried out in Osun State, Nigeria (figure 1). It was carved out of Oyo State on 27th of August, 1991. The State was purposively selected because of the prevalence of cassava growers and processors. This State lies between longitude 4^030^1 and 6^O00^1 East of the Greenwich Meridian and latitude 4^075^1 and 7^O30^1 North of the Equator. The State climate condition is characterized with high temperature all the year round with heavy rainfall during the rainy season (April to October) and dry wind during the dry season (November to March). The annual mean temperature is about 85^OC and the annual mean rainfall is about 1600mm. This favorable climate condition account for reason why about 75 percent of the inhabitants were farmers. They grow both cash and food crops like cocoa, oil palm, cassava, rice, maize etc. Apart from farming, the inhabitants also engage in other occupations like, manufacturing, trading, and artisanship.
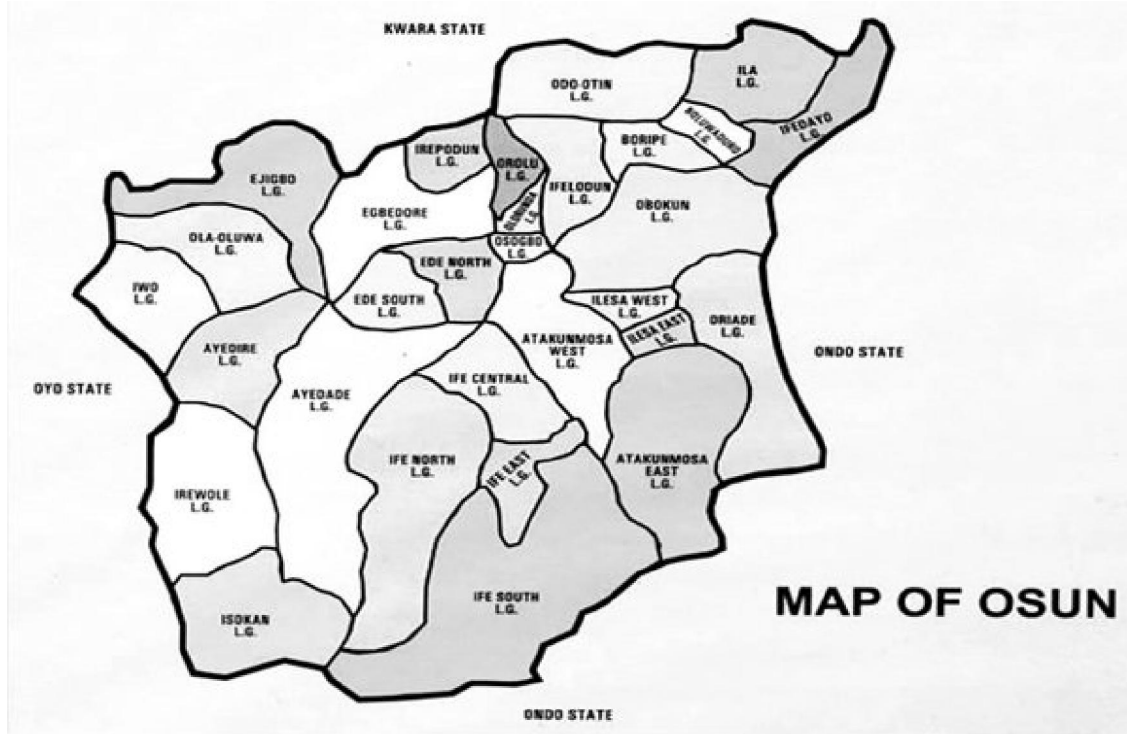

Figure 1: Map of Osun State

Methods of data collection

In this study, data were collected from two principal sources namely primary and secondary sources. The primary data were obtained through the use of well-structured questionnaire. The questionnaire was designed to collect information on socio economic characteristics of the marketers and costs and returns on gari marketing in the study area. The secondary data were obtained from books, articles, journals and research reports.

Sampling technique

A multi-stage sampling technique was used to select respondents in Osun State. The first stage was purposive selection of Ijesha Zone while in the second stage, four Local Government Areas were randomly selected in the Zone. The third stage involved random selection of three villages from each Local Government Area and the last stage involved the random selection of ten gari marketers from each of the villages making thirty respondents from each Local Government Area and total sample size of 120 respondents.

Analytical techniques

Descriptive statistics such as frequency, distribution and percentages were used to analyze some socio-economic characteristics of the respondents.

Gross margin analysis was used to determine the profitability of gari marketing in the study area. This is presented in equation1.

GM = TR – TVC   1

Where;

GM = Gross margin

TR = Total revenue

TVC = Total variable cost

In addition, Ordinary Least Square multiple regression techniques was used to determine the relationship between the income realized by marketers and their various socio- economic characteristic. Four functional forms were tried. These are Linear, Semi-log, Double log (Cobb Douglas) and Exponential. The lead equation was selected based on apriori expectation, economic, statistic and econometric criteria. The marketing model postulated for gari marketers in the study area is implicitly stated below in equation 2.

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U_i) \qquad 2$$

Where;

Y = revenue realized from sales of gari(₦)

X_1 = marketer's age (years)

X_2 = Gender (1 male, 0 otherwise)

X_3 = Access to credit (1 access, 0 no access)

X_4 = ordering costs (₦)

X_5 = household size (number)

X_6 = Marketing experiences (years)

X_7 = Labour (mandays)

X_8 = Holding costs (₦)

U_i = the error term

Results and Discussion

Socio-economic characteristics of marketers of garri

Table 1 shows that, about 26 percent of the respondents were below 31 years of age while about 31 percent were between 31 and 40 years. Also, 21 percent of the respondents were between 41 and 50 years while about 23 percent were above 50 years. The mean age of respondents was 41 years while the maximum age was 70 years and the minimum was 20 years. This implies that marketing of gari in the study area is dominated by those in their productive and active ages. This may be so because moving around to purchase stocks needed for sales requires energy and which can only be found in the young people. Also, in the study area, gari processors are scattered in the remote villages and most of the roads leading to these villages are bad.

The sex distribution (Table 1) of the gari marketers in the study area reveals that 92.5 percent of the respondents were female while 7.5 percent were male. This implies that both men and women engage in gari marketing but women are more in the business than men.

Education is among the factors that are very important in every aspect of human endeavor. Table 1 reveals that about 12 percent of the sellers had no formal education while 18.3 percent were able to complete primary education. Also, the majority (70%) had at least secondary education. The findings suggest that most marketers are literate and hence should be

able to document their marketing activities. Also, literacy assists people to use most of the modern Information and Communication Technologies (ICTs).

In addition, the result shows that 13 percent of the respondents were single, while 49 percent were married, and 20 percent were divorced. This implies that married women dominate the marketing of gari in the study area. Since basic necessities of life are to be provided for members of the households by the household heads, marriage makes people to be more committed to their business activities.

Table 1: Respondents' socio-economics characteristics

Variable	Frequency	Percentage
Age		
<31	31	25.8
31-40	37	30.8
41-50	25	20.8
51-60	17	14.2
>60	10	8.4
Sex		
Female	111	92.5
Male	9	7.5
Education		
No formal education	14	11.7
Primary	22	18.3
Secondary	47	39.2
Tertiary	37	30.8
Marital status		
Single	16	13.3
Married	59	49.2
Divorced	24	20.0
Widowed	21	17.5
Marketing experience		
≤10	55	45.7
11-20	39	32.6
21-40	26	21.8
Household size		
1-3	13	10.8
4-7	78	65.0
Above 7	29	24.2
Source of capital		
Personal saving	33	27.5
Friend and relative	9	7.5
Esusu	48	40.0
Money lenders	30	25.0
Weekly sales of gari (kg)		
≤600	83	69.2
601-800	14	11.7
801-1000	10	8.3
>1000	13	10.8

According to table 1, the majority (54.4%) had above 10 years marketing experience while 45.7

percent had between 1 and 10 years. The mean marketing experience was 14 years while minimum and maximum experiences were 1 year and 40 years respectively. This shows that seller of gari in the study area are experienced marketers and hence expected to package the product in a way to entice the consumers of the product.

Table 1, reveals that 10.8 percent of the households had between 1 and 3 household members while those with between 4 and 7 members were 65 percent. About 24 percent were with over 7 members. The mean value of the household size was 5 members while the maximum and minimum were 12 members and 1 member respectively. This indicates that the household size of gari marketers in the study area is moderate. It implies that more resources at the marketers' disposal will be diverted to investment rather than household consumption.

Table 1 shows that about 28 percent of the respondents used their personal savings for their businesses while about 8 percent used capital collected from friends and relatives to run their businesses. Also, 40 percent used Esusu while 25 percent depended on the money lenders. The result shows that the respondents have no access to commercial banks and Government credit facilities.

Table 1 reveals that, 69.2 percent of the gari marketers sold 600kg or less per week, while 11.7 percent sold between 601kg and 800kg per week. Also, 8.3 percent sold between 801kg and 1000kg per week, while those that sold over 1000kg per week

were 10.8 percent. The mean value was 575.25kg while the minimum and maximum sales per week were 120kg and 2100kg respectively. This is an indication that gari marketing is a lucrative business in the study area.

Profitability analysis

The profitability of gari marketing in the study area was determined with gross margin analysis given as: GM = TR – TVC. The Average Total Revenue was calculated as the product of Average Quantity Sold per week and Average Price of gari per Kg.

ATR = 575.25kg X ₦141.42 = ₦81,351.86 per week, while ATVC = ₦67,600, therefore,

GM = ₦81,351.86 - ₦67,600 = ₦ 13,751.86 per week. ATVC is the Average Total Variable Cost. Since gross margin of ₦ 13,751.86 per week was realized, it shows that gari marketing is a profitable business.

Regression analysis

Regression analysis was used to determine the relationship between the income realized from the sales of gari and the socio-economic characteristics of respondents. Based on the economic, statistic and econometric criteria, linear function was selected as the lead equation. The results of the OLS are hereby shown in Table 2. The coefficient of multiple determination of 0.990 indicates that 99 percent variations in the income realized from the sales of gari was due to all the independent variables included in the model while the remaining 1 percent was due to all other variables not included.

Table 2: Regression analysis for marketing of gari

Variable	Linear	Cobb Douglas	Semi -log	Exponential
Constant	-434.177*** (-0.133)	0.828 (4.773)	-767338.76 (-16.399)	10.220 (103.341)
Marketer's Age (X_1)	-0.204*** (-0.002)	-0.046 (-1.214)	-9878.735*** (-0.970)	-0.017 (-0.212)
Gender (X_2)	-6702.734*** (2.474)	0.037 (1.409)	13371.208*** (1.878)	0.002 (0.620)
Access to credit(X_3)	458.496*** (0.922)	0.006 (0.514)	5197.944*** (1.766)	-0.002 (-0.112)
Ordering costs (X_4)	1.116 (35.363)	0.944 (44.765)	81102.074*** (14.249)	0.000012 (12.871)
Household size (X_5)	0.304* (0.1755)	-0.004 (-0.246)	-1621.298*** (0.372)	0.00046 (0.869)
Marketing experience(X_6)	83.721*** (0.615)	0.017 (1.961)	1533.097*** (-0.398)	0.004 (-0.142)
Labour (X_7)	8.072*** (1.785)	0.008 (1.637)	-1258.97*** (-1.011)	0.000035 (0.258)
Holding cost (X_8)	5.275 (3.212)	0.018 (3.279)	1247.202*** (0.840)	-0.000022 (-0.445)
R^2	0.990	0.983	0.877	0.862

* and *** significant at 10% and 1% respectively. Figures in the parentheses are standard errors.

Table 2 reveals that the marketer's age (X_1) had a negative relationship with the income realized from the sales of gari. The variable was significant at 1 percent level of significance. It implies that as the age of marketer increases, the income realized decreases. This may be due to the fact that old age reduces the energy and strength needed by marketers to carry out marketing activities. It indicates that, in the business, young gari marketers are expected to realize more income than those that are of age.

Also, gender (X_2) had a significant (1%) and negative relationship with the income realized from the sales of gari. This implies that less income is realized by the male marketers of gari when compared with their female counterparts in the study area. It shows that the business is more profitable with women than men. This may be one of the reasons why few men are found in the business.

In addition, access to credit (X_3) was positively and significantly (1%) correlated to the income realized from the sales of gari. It shows that those that have access to credit will realize more income than those without access. This reveals the importance of credit in the marketing of gari since credits are needed to purchase, transport, package, and store and sell the product by marketers.

Ordering costs (X_4) which must be incurred each time an order is placed include those of requisition, purchase, trucking, receiving and placing the product in store were positively related to the income realized from the sales of gari. This indicates that as X_4 increases (decreases), income increases (decreases). The variable was not significant at the levels (1%, 5% and 10%) of significance considered in the study.

Furthermore, household size (X_5) had positive and significant (10%) relationship with the dependent variable. This implies that as the size of household increases more income is realized and vice versa. This may happen in a situation where the members of the household assist the marketer in the sales of the product. Also there may be increase in the income realized when working members of the family provide funds that are needed to finance the business.

Marketing experience (X_6) was positively and significantly (1%) related to the income realized from the sales of gari. This implies that increase in marketing experience leads to increase in income. It indicates that experienced marketers earn more income than their inexperienced counterparts. This shows that over the years, skills, knowledge and strategies needed for an effective management of the business are acquired. Also, labour (X_7) had a positive and significant (1%) relationship with the income realized from the sales of gari. This implies that the

more the use of this variable, the more the income and vice versa. Holding costs (X_8) displayed a non significant positive relationship with the income realized from the sales of gari. Holding costs include, depreciation, interest on loans, taxes, storage and preservation costs. It means that the more the holding costs the more the income realized and vice versa.

Conclusion and Recommendations

Gari is one of the staple food produce from cassava roots in Nigeria. The study was carried out to examine the socio-economic characteristics of gari marketers. Also the profitability of the business was examined and the determinants of the income realized from sales of the product were determined. The results revealed that most of the marketers are young, energetic and have the strength to engage in the business. Most of the marketers are women and formally educated. The majority of the sellers of gari in the study area are experienced marketers with moderate household size. The study reveals that the marketers have no access to commercial banks and government credit facilities. Profitability analysis shows that gari marketing is lucrative and profitable. The main determinants of income realized from the sales of gari were, marketer's age (X_1), gender (X_2), access to credit (X_3), household size (X_5), marketing experience (X_6), and labour (X_7). Based on the findings of the study, the following recommendations are hereby proffered:

- Since none of the respondents have access to bank and government loan facilities, there is need to assist the marketers with loans that are interest free. Also, government should encourage commercial banks to extend credit facilities to marketers without demanding for collateral securities from them.

- In order to provide employment opportunity for men as well, men should be encouraged into this lucrative and profitable business (gari marketing).

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