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An Assessment of Gari Marketing in South-Western Nigeria

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ABSTRACT This study carried out an assessment of gari marketing in South-Western Nigeria. It specifically examined the socio-economic characteristics of the gari marketers in the study area; determined profitability of gari marketing and examined the market structure and conduct for gari in the study area. A multi-stage sampling technique was used to select 150 gari marketers in the study area and structured questionnaire administered on them. Descriptive statistics, gross margin, gini-coefficient and production function analyses techniques were used to analyse the data collected. The study showed that 92% of the respondents belong to the active segment of the population while the remaining 8% were aged. Analysis also revealed that gari market was dominated by retailers which accounted for 40.67% of the sellers though there were other categories of sellers such as processor/sellers (15.33%), wholesalers (12.67%) and wholesaler/retailers which accounted for 31.33% of the respondents. The profitability analysis showed that an average marketer incurred an average total variable cost of N6,730.98 per week but earned an average revenue of N10,397.53 per week which indicate that an average marketer earned N3,665.55 as gross margin. A Gini-coefficient of 0.4426 obtained in this study indicates a high level of concentration in the gari market. The result of the production function postulated for gari marketers in the study area reveals that the postulated regressors explained 74.2% in the variation of the regressand.

INTRODUCTION

Despite the contribution of agriculture to the economy of the sub-Sahara African countries, per capita food production has not been able to keep pace with a rapidly expanding demand for food. As a result, countries in the region have become increasingly dependent on commercial imports and food aid (World Bank 1996). To reverse this trend, most governments in the area have been designing research programmes and policy initiatives aimed at achieving national food security. One of the many crops being considered currently in this effort is cassava both in terms of its potential to ensure adequate food supply for all and generate rural household income thereby increasing access to food. Abubakar (2003) said that the current trend in cassava production and demand showed that cassava production is increasing globally and that growing of cassava is expanding to the semi-arid areas where cassava was not cultivated 30 years ago.

Compared to grains, cassava is more tolerant to low soil fertility and more resistant to drought, pests and diseases. Furthermore, its roots are storable in the ground for months after they mature. These attributes combined with other socio-economic considerations are reasons for International Fund for Agricultural Development (IFAD) to recognize it as crop that lent itself to a commodity-based approach to poverty alleviation (FAO/IC 1995). In the same vein, Nweke et al. (1994) said that regardless of the production environment, compared to other crops, cassava has lower production risks and provide the possibility of maintaining a continuous food supply throughout the year.

According to Nyerhovwo (2004), among the starchy staples, cassava gives a carbohydrate production which is about 40% higher than rice and 25% more than maize with result that cassava is the cheapest source of calories for both human nutrition and animal feeding. Cock (1985) said that current estimates showed that the dietary calorie equivalent of per capita consumption of cassava in the country amounts to about 238 Kcal. Tewe and Bokanga (2001) found in a trial feed that if cassava roots and leaves were combined in a ratio 4:1, the mixture could replace maize in poultry feed without a loss in weight gained or egg production but a reduction in cost of production. Hahn 1997;Latham 1979 said that well prepared cassava leaves is very nutritious and contain appreciable amount of proteins, minerals and vitamins.

Gari – a fermented and roasted granular product from cassava was hitherto considered a

poor man's food until recently. It is now elevated to an urban convenience food. It is a cheap and ready source of vital energy. Gari is produced following harvesting of cassava, peeling, grating, dewatering, fermentation (optional), sieving, frying and bagging. This process will give white or creamy white gari while addition of palm oil prior to dewatering will add yellow colour to gari. Yellow gari is preferred and can cost twice as much, making it less available to poorer households. Gari is commonly consumed either as a paste made with hot water and eaten with soup or by soaking in cold water with sugar, coconut, roasted peanut, fish, boiled cowpea as complements. A report by Phillip et al. (2004) reflects that cassava (gari) is truly a national food with urban market presence. Cassava gari appears to be a "food of choice" even in the face of alternative food options in urban area (Maziya-Dixon et al. 2004). It is mainly produced for domestic markets but presently some of the dry processed food products from cassava (such as gari and fufu flour) are known to be finding their ways to emigrant Nigerian communities in United States and Europe (Dipeolu et al. 2001).

Since production is not complete until the product get to the hands of the final consumers, this study therefore carried out an assessment of gari marketing in South Western Nigeria. Specifically, it

(i) examined the socio-economic characteristics of the respondents in the study area
(ii) determined the profitability of gari marketing in the study area
(iii) examined the market structure and conduct for gari in the study area.

Theoretical Framework

Marketing margin is the difference between producer and consumer prices of an equivalent quantity and quality of a given commodity (Vanessa and Jonathan 1992). Adekanye (1988) said small margin can be regarded as proof that distribution or marketing is efficient but Vanessa and Jonathan (1992) opined that gross marketing margin cannot be treated as an indicator of economic performance as such low margin may coexist with inefficient use of resources, poor coordination and poor consumer satisfaction as well as disproportionate profit level. Harriss (1993) said that the market structure consist of the characteristics of the organization of a market which seems to influence strategically the nature of competition and pricing within the market. The set-up of the market consists of the degree of concentration of buyers and sellers, integration, product differentiation and the degree of competition between buyers and sellers. According to Afolabi (2004) majority of the sellers of agricultural products including beef used both open display and persuasive methods to draw the attention of customers. Imoudu and Afolabi (2002) posited that market structure for agricultural products in Nigeria is not perfectly competitive due to collusive tendencies of sellers by forming associations for particular product. The market structure can be examined by using the Lorenz curve and Gini-Coefficient (Dillon and Hardaker 1993). According to them, the Lorenz curve is obtained by plotting the cumulative proportion of sellers from the smallest number to the largest against cumulative proportion of their sales earnings. If the distribution is totally equitable, the curve will fall on the 45-degree line. The greater the inequality, the greater the departure from 45-degree line. Gini coefficient is the rate of the area between the curve and the 45-degree line to the area under the 45-degree line. It is also a measure of inequality. Gini-Coefficient greater than 0.35 are high indicating inequitable distribution (Dillon and Hardaker 1993). In other words, higher Gini-Coefficient means higher level of concentration and consequently, high inefficiency in the market structure.

RESEARCH METHODOLOGY

Study Area: This study was carried out in Ondo State situated in the South-Western Nigeria. Ondo State is one of the six states that made up South-Western Nigeria. Ondo State was purposively selected because of the prevalence of cassava growers and processors. This state lies between longitude $4^{O}30$" and $6^{O}00$" East of the Greenwich meridian and latitude $5^{O}45$" and $8^{O}15$" North of the equator. The state has a tropical climate with its characteristic high temperature all the year round, heavy rainfall during the rainy season (April to October) and dry wind during the dry season (November to March). This favourable climate account for reason why about 75 percent of the inhabitants are farmers. They grow both cash and food crops. Apart from farming, the inhabitants also engage in other occupations like, manufacturing and commerce.

Sampling Technique: A multi-stage sampling technique was used to select 150 gari marketers. A simple random sampling method was used to select 30 respondents from each of the 5 local government areas making a total sample size of 150 and structured questionnaire administered on them.

Analytical Techniques: Descriptive statistics such as frequency distribution and percentages were used to analyse some socio-economic characteristics of the respondents. Gini-Coefficient is used to measure inequality in income distribution among the respondents. It varies from zero (where every person in the society has the same income indicating absence of inequality, which is a condition of perfect equality) to unity (where one gets all the income and the rest receive nothing indicating a presence of complete inequality), World Bank (1992). Gini coefficient was used to examine the market concentration for gari in the study area.

Mathematically, it is represented by equation (1) i.e.

$GC = 1 - \Sigma XY$

Where

G.C = Gini coefficient

X = Proportion of sellers

Y = Cumulative proportion of total sales

Gross margin analysis was used to determine the profitability of gari marketing in the study area. The gross margin was represented by equation (2) i.e.

$GM = G.I - TVC$

where

G.M = Gross margin

G.I = Gross sales/income

TVC = Total variable cost

Some of the factors that influence the sales revenue of gari marketers was determined quantitatively using marketing function analysis with the use of the Ordinary Least Square multiple regression analysis (OLS) under the assumption that data collected fulfilled the assumptions of multiple regression model. These assumptions include absence of multicollinearity among the explanatory variables, normally distributed error term with zero mean and constant variance and non auto regression disturbance (Koutsoyiannis 1977).

Model Specification: The marketing function postulated for gari marketers in the study area is implicitly presented by equation (3) i.e.

$Y = f(X_1, X_2, X_3, X_4, X_5, U_i)$

Where

Y = Sales revenue of respondents (N)

X_1 = acquisition cost (N)

X_2 = transportation cost (N)

X_3 = Marketing experiences (in years)

X_4 = Labour (mandays)

X_5 = Cost of storage (N)

U_i = The error term or disturbance term (which is assumed to have zero mean and constant variance).

RESULTS AND DISCUSSION

Socio-economic Characteristics of Gari Marketers: Table 1 reveals that 20% of the respondents were less than or 29 years old while 47.33% of them were between 30 and 40 years old. Only 8.00% of these marketers were more than 50years old while 24.67% of them were between 41 and 50years old. Analysis shows that 92% of the respondents belong to the active segment of the population while the remaining 8% belong to the aged group. This age distribution can have positive impact on the business aggressiveness of the respondents. Table 1 also shows that both male and female gender sell gari in the study area. The females accounted for 68.67% while the remaining 31.33% of these sellers were males. The dominance of the females in the gari marketing activities particularly at the retail level may be due to small capital based required to start the business. Analysis also reveals that 74% of the respondents were married

Table 1: Socio-economic characteristics of respondents

Variable	*Frequency*	*Percentage*
Age (yrs)	*n = 150*	
< 29	30	20.00
30 – 40	71	47.33
41 – 50	37	24.67
> 50	12	8.00
Total	150	100.00
Sex		
Male	47	31.33
Female	103	68.67
Total	150	100.00
Marital Status		
Single	39	26.00
Married	85	56.67
Widowed	17	11.33
Divorced	9	6.00
Total	150	100.00
Level of Education		
No formal education	33	22.0
Primary education	77	51.33
Secondary education	40	26.67
Total	150	100.00

Table 2: Category of sellers in the study area

Category of Seller	*Frequency*	*Percentage*
Processor/Sellers	23	15.33
Wholesalers	19	12.67
Wholesaler/retailers	47	31.33
Retailers	61	40.67
Total	150	100.00

though 11.33% and 6% of them were widowed and divorced respectively. This may have a positive effect on the availability of family labour. The table also showed that 78% of the respondents were literates and this can have positive effect on the business acumen of the respondents.

Category of Sellers Interviewed: Analysis of Table 2 reveals that 15.33% of the respondents were processor/sellers while 12.67% of them were wholesalers. About 31.33% of these sellers were wholesaler/retailers while the remaining 40.67% of them were retailers. The dominance of gari marketing in the study area by retailers may be due to the small capital investment required to start the business.

Profitability Analysis

The result in Table 3 revealed that acquisition cost accounted for 61.26% of the total sales revenue while cost of transportation accounted for 0.84% of the sales revenue. The cost of labour gulped 2.33% while cost of storage accounted 0.25% of the total sales revenue.

The table also showed that acquisition cost accounted for 94.47% of the total cost while cost of transportation accounted for 1.29% of the total cost. The cost of labour gulped 3.59% of the total cost while cost of storage accounted for 0.38% of the total cost. The low storage cost among the respondents may be due to the fact that most of them particularly the retailers sell their gari in open spaces, along the road where stalls are allocated to other foodstuff sellers or pay for a section of another person's shop.

The table also revealed that an average marketer incurred a total variable cost of N6,730.98 per week but earned an average revenue of N10,397.53 per week. This indicates that an average marketer earned N3,666.55 as gross margin per week suggesting that gari marketing is a profitable venture in the study area.

Table 3: Costs and returns of respondents

Items	*Amount (N)*	*% of TC*	*% of Total sales*
Acquisition cost	955454.46	94.47	61.26
Transportation cost	13046.86	1.29	0.84
Storage cost	3843.30	0.38	0.25
Cost of labour	36308.69	3.59	2.33
Miscellaneous	809.11	0.08	0.05
Depreciation	1921.63	0.19	0.12
Total Variable Cost (TVC)	1009647	99.82	64.75
Total Cost (TC)	1011384	100	
Total Revenue (TR)	1559629		
Total Variable Cost/Seller	6730.98		
Total Cost/Seller	6742.56		
Total Revenue/Seller	10397.53		
Gross Margin/Seller	3666.55		
Net Revenue/Seller	3655		

Table 4: Computation of Gini coefficient for Gari marketing in South Western Nigeria

Income sales (N)	*Number of sellers (Freq.)*	*Proportion of sellers (X)*	*Cumulative freq.*	*Cumulative proportion of sellers*	*Total sales (N)*	*Proportion of sales*	*Cumulative proportion of total sales (Y)*	*XY*
<20,000	25	0.17	25	0.17	334540.42	0.21	0.21	0.0357
20,001-30,000	29	0.19	54	0.36	163605.10	0.10	0.31	0.0589
30,001-40,000	23	0.15	77	0.51	219595.76	0.14	0.45	0.0675
40,001-50,000	18	0.12	95	0.63	242054.42	0.16	0.61	0.0732
50,001-60,000	15	0.10	110	0.73	200724.25	0.13	0.74	0.0740
60,001-70,000	16	0.11	126	0.84	171247.26	0.11	0.85	0.0935
70,001-80,000	13	0.09	139	0.93	138183.12	0.09	0.94	0.0846
>80,000	11	0.07	150	1.0	89678.67	0.06	1.00	0.0700
Total	150	1.0			1559629	1.0		0.5574

Mean value of sales = N10397.53
Gini coefficient = 1 - ΣXY
= 1 - 0.5574
= 0.4426

The Market Structure for Gari in the Study Area

The value of Gini-Coefficient greater than 0.35 are high indicating inequitable distribution of income/sales (Dillon and Hardaker 1993). The Gini-Coefficient for gari marketers in the study area shown in Table 4 i.e. 0.4426 indicates high level of concentration and consequently high inefficiency in the market structure.

Market Conduct for Gari in the Study Area

All the respondents claimed that prices were determined by some factors such as the forces of demand and supply, cost of acquisition plus margin, the ability of the buyers to haggle and the quantity of gari. The ability of the buyers to haggle well in price determination indicates that there is price discrimination. There was a low degree of product differentiation in the gari market.

Gari trader association exist only at the wholesalers level. However, they do not exclude anybody from selling gari in the market. Gari traders are not organized at the retail level because many of them are transient.

All the respondents reported that they used both the open display and persuasive efforts to draw customers which confirm the finding of Afolabi (2004).

Marketing Function Analysis

The linear, semi log and Cobb-Douglas functional forms of the production function were tried using Ordinary Least Square Technique (see Table 5). The estimated functions were evaluated in terms of the statistical significance of the coefficient of multiple determination (R^2) as indicated by F-value, the significance of the coefficients and the magnitude of standard errors. Based on these statistical and economic criteria, the Cobb-Douglas functional form was selected as the lead equation.

The result shows that the estimated coefficient of multiple determination (R^2) indicates that the postulated regressors (i.e included variables in the model) explained 72.4% in the variation of the regressand (i.e sales revenue from gari). All the estimated coefficients except transportation (X_2) had positive signs which indicate that increase in the quantity of these variables would lead to an increase in the sales revenue of respondents ceteris paribus. The coefficient of transportation that had negative sign implied that an increase in this variable would lead to decrease the sales revenue of respondents which may be due to high cost of transportation in the country.

CONCLUSION

The study revealed that 92% of the respondents belong to the active segment of the population while the remaining 8% belong to the aged group. Analysis also showed that 68.67% of the respondents were females while the remaining 31.33% of them were males. Result

Table 5: Estimates of the marketing function postulated for Gari marketers in the study area.

Variable	*Functional Form*		
	Linear	*Cobb-Douglas*	*Semi Log*
Constant	365289.06	3.080	2734152
	(349839.02)	(0.367)	(455467.6)
Acquisition Cost (X_1)	-3662.09	0.6458*	198823.75
	(16231.02)	(0.0044)	(250186.6)
Transportation Cost (X_2)	107841.07	-0.843*	-331204.34
	(612840.1)	(0.017)	(1655152.9)
Marketing Experience (X_3)	463650.3	0.597	413455.82
	(88763.4)	(0.340)	(25872.9)
Labour (X_4)	-121879.2	0.8961	192927.4
	(14536.7)	(0.359)	(105614.5)
Cost of Storage (X_5)	156048.59	0.2842*	438973.53
	(295649.49)	(0.124)	(33415.67)
R^2	0.667	0.724	0.543
R^{-2}	0.615	0.694	0.512
F-Value	262.53	130.68	176.72

* Significant at 5%
Figures in parenthesis are standard errors of the coefficients.

showed that 78% of the respondents were literates. The study revealed that gari market in the study area was dominated by retailer which accounted for 40.67% of the sellers though there was other categories of sellers such as processor/ sellers (15.33%), wholesalers (12.67%) and wholesaler/retailers which accounted for 31.33% of the respondents. The profitability analysis showed that an average marketer incurred an average total variable cost of N6,730.98 per week but earned an average revenue of N10,397.53 per week which indicates that an average marketer earned N3,665.55 as gross margin per week. A Gini-Coefficient of 0.4426 obtained in this study indicates a high level of concentration in the gari market and hence high inefficiency in the market structure. Analysis of the market conduct revealed that factors such as cost of acquisition plus margin, demand and supply and quality of the gari determined the prices set by the respondents. The result of the marketing function for gari marketers in the study area showed that the postulated regressors explained 74.2% in the variation of the regressand. One can say without mincing words that gari marketing can serve as one of the veritable venture to alleviate poverty in the study area.

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