MARKET INEQUALITY AND PERFORMANCE OF GARI MARKETING IN ONDO STATE, NIGERIA

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ABSTRACT

This study examined market inequality and performance of gari marketing in Ondo State, Nigeria using primary data. The data were sourced using a well-structured questionnaire and Focus Group Discussion sessions. A multistage sampling technique was employed to randomly select 100 respondents at the final stage in the study area. The data were analysed using descriptive statistics, gross margin, gini coefficient and multiple regression model. The results showed that women dominated the enterprise with 84% and most (80%) of them were still in their active and productive age. Many of them were married with average of about 5 persons per household and over 88% of them had at least primary school education. The most frequent category of year of experience was between 6 and 10 years (40%), while personal savings (65%) was their most common source of capital. The result of gross margin analysis showed that gari business was a profitable venture given the value of gross margin to be N5, 352.10 per trip. The value of gini-coefficient (0.649) indicated a high inequality among the marketers while the results of regression revealed that marketers' experience, distance to market, cost of storage, acquisition cost and education were the main factors statistically determining the revenue of the gari marketers in the study area. It is therefore recommended that government should make gari business conducive by providing adequate infrastructure that could encourage more young people as a way of combating the scourge of unemployment ravaging the country.

Key words: Gari, Marketers, Profitability, Gini Coefficient, Multiple Regression

INTRODUCTION

Cassava is one of the most popular and widely consumed food crops in Africa. It is commonly referred to as the cornerstone of food security in Africa because it is such an extremely versatile crop (Iwuoha, 2013). Nearly every person in Africa eats 80kg of cassava per year. it is estimated that 37% of dietary energy comes from cassava. The Democratic Republic of Congo (DRC) is the largest consumer of cassava in sub-Saharan Africa followed by Nigeria (Maziya *et al*., 2004).

As Africa population and economy continues to grow rapidly, the demand for staples food like cassava has increased. This high demand for various forms of processed cassava products is pushing prices to the ceiling while the standard of living of several has small scale cassava farmers has greatly improved through this business (Iwuoha, 2013).

Cassava can be a powerful poverty fighter in Africa if properly managed through a massive production. The cash income from cassava proves more evenly distributed than the other major staples crops because of cassava's low cash input cost (Nweke, 2004). Compared with other major crops, cassava performs well across a wide ecological spectrum. It therefore benefits farmers across broader swathe of ecological zones (Olagunju *et al.*, 2012). Cassava is less expensive to produce compare to other crops in its categories. It tolerates poor soil, adverse weather, pests and diseases more than other major crops (Maziya, 2004). Regardless of the production environment, compared to other crops, cassava has lower production risks and provides the possibility of maintaining a continuous food supply throughout the year (Nweke *et al.,* 1994). Among the starch foods, cassava gives a carbohydrate production which is about 40% higher than rice and 25% more than maize and therefore the cheapest source of calories for both human nutrition and animal feeding Nyerhovwo, 2004). Cock (1985) opined 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 out 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) and Latham (1979) noted that well prepared cassava leaves is very nutritious and contain appreciable amount of proteins, minerals and vitamins. Nigeria grows more cassava than any other country in the world. According to Food and Agricultural Organisation, total cassava output in Nigeria was estimated at 38 million metric tons. It was further reported that production increased by 22% between1995 and 2004. Area cultivated also increased by 40% but yields remained relatively stagnant at 10 tons per hectare (FAO, 2007). The production of cassava is concentrated in the hands of numerous resource poor farmers located primarily in the south and central regions of Nigeria. In Nigeria, about 85% of total cassava output is processed into various products that include *gari*, fermented paste, flour, chips, and starch, while only about 15% is consumed in fresh and unprocessed form (Ugwu and Ukpabi, 2002).

Gari is the most popular form of cassava products in Nigeria and it accounts for about 70% of the entire cassava production in the country (IITA, 1990). In general, Garification (the process by which cassava is being converted to Gari) reduces moisture content to about 8 to 10%. The low moisture content gives gari a good shelf-life. The proximate composition of a locally produced gari in Nigeria as reported by FAO (1994) showed that gari consists of 81.8% weight of carbohydrate, 14.4% water, 1.4% weight crude fibre and 0.9% of crude protein. Particle size of gari ranges from below 50 μm (fine) to over 200 μm (coarse). In practice, the quality of gari is judged by the degree of coarseness and moisture content (Bencini, 1991).

Gari is the most popular West African staple food produced as it has traditionally remains popular than other carbohydrates sources like rice and maize. It is the most widely traded processed cassava product. It is estimated that more than 75% of the cassava produced in Africa is processed into Gari. As a result, gari prices are often a reliable indication of the demand and supply of cassava. Out of all the forms of cassava that can generate income, gari is the cheapest and easiest way for entrepreneurs to enter and exploits the processed cassava products. It is consumed as processed or reconstituted with hot water to give a dough-like paste called "Eba", which is consumed with sauce. The main

argument against gari is its bulky starch content which can be supplemented by enriching it during processing or consumption. Gari should be consumed with animal or plant protein accompaniments (Tubman 1989) or protein enriched with soybeans to boost its protein content (from 1.2 to 91.2%) (Sanni and Sobamiwa, 1993). It is therefore, the most developed, convenient and storable commodity from cassava. 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. A report by Phillips *et al*. (2004) reflects that gari is truly a national food with urban market presence. Gari appears to be a "food of choice" even in the face of alternative food options in urban area (Maziya *et al*., 2004). It is mainly produced for domestic markets but presently some of the dry processed food products from cassava (such as fufu flour) are known to be finding their ways to emigrant Nigerian communities in United States and Europe (Dipeolu *et al*., 2001). The product has gained the status of an urban convenience food from an initial status as a poor man's crop. In a recent survey in Nigeria, it was found that gari is traded in 90 percent of the rural markets and is found in all the urban markets in Nigeria (Ezedinma *et al*., 2006). Gari as a food commodity has certain characteristics and preferences. The behaviour of economic actors and consumers is determined by these characteristics or hedonic factors including colour, texture and taste. These also have functional relationship with gari prices since production is not complete until the product get to the hands of the final consumers. A critical appraisal of the Gari marketing processes will be of great help in strengthening the existing marketing institutions in the study areas.

Prior to the recent effort of the Federal Government at revolutionizing the cassava industry in Nigeria, there has been a marked improvement in the production of the crop resulting from improved awareness and general sensitization. But most unfortunately is the attention being given to the industrial products of the crop with the singular aim of generating revenue from the exportation of these products. As fallout from these, gari is having its availability threatened considering the impact of the policy on the efficiency of the marketing system and the corresponding interplay of the forces of demand and supply on the product (gari). Thus the task of developing a successful long term relationship between the Gari producers (farmers) to the agribusiness entrepreneurs to resolve the problems

faced by everyone from ineffectual markets, uncompetitive and fluctuating market prices. Effective and viable solutions to some of these problems were provided in the study.

Therefore, the need to assess the Gari marketing system, with a view to finding ways of overcoming inefficiency that is associated with it in terms of the imbalance in the supply and demand, price and market fluctuation become so obvious. The findings from the study could aid policy formulation that could boost the cassava industry especially gari marketing, improve its contribution to foreign exchange and yet be readily available and affordable at rates that is both mutually beneficial to the producers and consumers. Also, the overall interests of the actors in the enterprise will still remain protected especially as government intensifies her efforts towards the diversification of the industry and its products.

Theoretical Framework

Agricultural Marketing in Nigeria
Marketing is the sum total of all business activities involved in the movement of commodities from production point to the point of final consumption. The need for marketing arises with the production of a surplus (Olayemi, 1972; Adekanye, 1988). Marketing of agricultural products is done in mostly unorganized markets in Nigeria. Furthermore, marketing has been viewed as the crux of the whole food and agricultural problem in Nigeria (Adegeye and Dittoh, 1985; Okunmadewa, 1995). It was posited that it would be useless to increase the output of agricultural commodities and equally futile to set up optimum standards of nutrition unless means could be found to move agricultural commodities from the producer and at the prices affordable by the consumers. This in turn depends on the availability and effectiveness of marketing infrastructures like storage and transportation facilities, communication networks and access roads (Mafimisebi, 2001; Mafimisebi, 2002).

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) reported that 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 co-exist with inefficient use of resources, poor coordination and poor consumer satisfaction as well as disproportionate profit level. Market structure consists

of the characteristics of the organization of a market which seems to influence strategically the nature of competition and pricing within the market Harriss (1993). 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 that is 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.

Methodology

The Study Area: The study was carried out in Akure South and North Local Government Area (LGAs) of Ondo State. The average annual rainfall ranges between 1238mm and 2068.5mm while the average temperature is between 17.5^0C to 37^0C. The relative humidity is high (70 -90%) (Ondo State Agro-climatological Monitoring, 2005). The major occupation of the people in the area is farming. The Major agricultural products of the area include cocoa, yam, cassava, maize, oil palm, fruits and vegetables.

Sampling Procedure and Sample Size: Primary data were used for this study. The data were sourced using a well-structured questionnaire and focus Group Discussion Sessions. A multistage sampling technique was used for the random selection of the respondents. Stage one involved a purposive selection of two LGAs (Akure South and Akure North) based on their contribution to the total gari production in the State. In stage two, three markets were purposively selected from the two LGAs and they were Erekesan markets in Akure

South, Ogbese and Itaogbolu markets in Akure North. Stage three involved a random selection of thirty five respondents from each of the selected markets, making a total of one hundred and five respondents but one hundred were returned and used for the analysis.

Analytical Techniques: Descriptive statistics such as frequency distribution and percentages, profitability analysis, Gini coefficient and market function analytical techniques were used to analyse the data collected. Gini coefficient was 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 indicative of the presence of complete inequality) (World bank, 1992). This was used to examine the market concentration for Gari in the study area. Mathematically it is represented by equation (1)

$$GC = 1 - ? \, XY \qquad\qquad\qquad (1)$$

Where GC = Gini coefficient, X = proportion of sellers, Y = cumulative proportion of total sales, gross margin analysis was used to determine profitability of gari marketing in the study area. The Gross margin was represented by equation (2)

$$GM = GI – TVC \qquad\qquad\qquad (2)$$

Where: GM = gross margin, GI = gross sales/income, TVC = total variable cost

Again, some of the factors that affect the revenue of Gari marketers were determined quantitatively using marketing function analysis with the use of Ordinary Least Square (OLS) under the assumptions 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 and disturbance (Koutsoyianis, 1981).

Model Specification

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

$$Y = f(X1, X2, X3, X4, X5, X6, X7 \, Ui)\ldots\ldots\ldots\ldots (3)$$

Where Y = Sales revenue of respondents (₦); X_1 = acquisition cost (₦); X_2 = transportation cost (₦); X3 = marketing experiences (in years); X4 = cost of labour; X_5 = cost of storage (₦); X_6 = marketer's age; X_7 =

Education (years); X_8 = distance to nearest market; U_i = the error term or disturbance term (which is assumed to have zero mean and constant variance).

The Double-log functional form was also employed for this study and the economic analysis was based on conventional economic statistical and econometric criteria (Koutsoyiannis, 1981).

The model was fitted for the market function estimates as presented:

Double-log function: $\text{Log } Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + \beta_8 \log X_8 + e_i \ldots\ldots\ldots\ldots\ldots\ldots (4)$

Results and Discussion

Socio-economic Characteristics of Gari Marketers

Table 1 showed that women dominate the gari marketing in the study area as 84% of the respondents were women. This shows that women are predominantly responsible for gari marketing in the study area and has to be well encouraged to be able to carry out this responsibility efficiently. This development is stemmed out of the fact that gari marketing is culturally perceived to be women occupation in the area. This finding is in line with Ijigbade *et al*. (2014) who reported that less than 15% of the gari marketers in Ondo State are males. Again, the Table showed that the marketers between the ages of 20-49 years represent 80% of the respondents. It can be deduced that most of them are in their active and productive years which is expected to reflect in their agility and profitability. This is similar to the findings of Afolabi (2011) in his study on appraisal of smoked fish marketing in Ondo State, Nigeria that marketing of agricultural products were dominated by young people. The marital status of the marketers has a profound effect as it reflects in their social and economic commitments to their family. As seen in Table 1, the percentage of married respondents is about 52% while that of single respondents were 32%. The Divorced and Widowed respondents are 10% and 6% respectively. The implication of these is that most of the respondents had family commitments which share part of their business activities and consequently in the profit margin. Moreover, about 84% of the respondents had a household size of between 1 and 6 which represents 84% of the respondents while 16% of them have a household size of 7 and above as shown in Table 1. It can be deduced that most of the respondents had a manageable household size which is not likely to impinge on the success of the business. According to the

Table, majority (88%) of the marketers has one form of education or the other and just 12% of them has no formal education. This is a positive development as it will afford them the opportunities of boosting the profitability of their business compare with their illiterate colleagues. This result disagrees with the findings of Adeleke and Afolabi (2012) who reported that about 51% of the agricultural marketers had no formal education. Also, it was revealed that most (68%) of the respondents had spent between 6-20years in gari marketing while 32% have between 1-5 years of experience. The implication of this is that there will be higher level of efficiency resulting from the expertise knowledge of the marketing system acquired over the years as they have been accustomed to it. Furthermore, those with less years of experience may not be able to compete with them as they might not have mastered the act of the business. This is similar to the findings of Ijigbade *et al*. (2014) that about 64% of the respondents had been into gari marketing for not less than 10 years. The result also showed that, 65% of the respondents source their capital from personal savings, 12% from cooperatives, 3% from money lenders 2% from commercial banks while the remaining 3% is from other unspecified sources. The implication of these is that most of the marketers tend to patronise capital sources that are easily affordable without passing through undue bureaucracy. The exorbitant interest rates charged and request for collateral by commercial banks might have discouraged the marketers from patronizing them as they may not be able to provide such collaterals.

Table 1: Demographic Characteristics of the Respondents

Variable	Frequency	Percentage (%)
Gender		
Male	16	16.0
Female	84	84.0
Total	100	100.0
Age (years)		
Less than 20	8	8.0
20 – 29	24	24.0
30 – 39	24	24.0
40 – 49	16	16.0
50 – 59	20	20.0
Total	100	100.0
Marital Status		
Single	32	32.0
Married	52	52.0
Widowed	16	16.0
Divorced	6	6.0
Total	100	100.0
Household Size		
1-3	32	32.0
4-6	52	52.0
7 and Above	16	16.0
Total	100	100.0
Education		
No Formal Status	12	12.0
Primary Education	36	36.0
Secondary Education	40	40.0
Tertiary Education	12	12.0
Total	100	100.0

Years of Experience		
1-5	32	32.0
6-10	40	40.0
11-15	20	20.0
16-20	8	8.0
Total	100	100.0
Source of Capital		
Personal savings	65	65.0
Friends and relatives	15	15.0
Osusu	12	12.0
Commercial banks	2	2.0
Money lenders	3	3.0
Others	3	3.0
Total	100	100.0

Source: Field Survey, 2016

Profitability Analysis

Table 2 showed that acquisition cost accounted for 89.85% of the total cost while cost of transportation accounted for 4.98% of the total cost. The market charges gulped 2.16% of the total cost. The Table also revealed that an average marketer incurred a total variable cost of N23,240 per trip but earned average revenue of N28, 592 per trip. This indicates that average marketer earned N5352.1 as net revenue per trip suggesting that gari marketing is a profitable venture within the study area. Oguntade and Adeleke (2012) and Ijigbade *et al*. (2014) also reported that gari marketing is a profitable enterprise in their studies.

The Gini- Coefficient for gari marketers in the study area is shown in Table 3. The result revealed a high Gini coefficient of 0.649 (1 – 0.351) which implies that there is a significant inequality in the distribution of income among gari marketers. This implies that there is market concentration in the hand of few marketers because of high income level. This is in line with Adeleke and Afolabi (2012) in their studies among fresh fish marketers in Ondo State, that there is high level of concentration and consequently high inefficiency in agricultural markets. The structure of gari market in the study area is a competitive or perfect market. The market survey was characterized by many buyers and sellers. The conditions of entrance are free entry and free exit and perfect knowledge of the business is required and there is product homogeneity.

Table 2: Average Costs and Returns Analysis of Respondents

ITEMS	Amount(₦)	% TVC
Acquisition Cost	20,880.00	89.85
Transport Cost	1,156.90	4.98
Market Charges	503.00	2.16
Storage Costs	700.00	3.01
Total Variable Costs (TVC)	23,240.00	100.00
Total Revenue	28,592.00	
Gross margin	5,352.10	

Table 3: Computation of Gini Coefficient for Gari Marketing in Akure North and South LGA

Income (₦)	N	X	CF	CP	TS ₦	PS	CPTS (Y)	XY
> 5,000	21	0.21	21	0.21	840000	0.03	0.03	0.006
5,001 – 20,000	27	0.27	48	0.48	351000	0.12	0.15	0.041
20,001 – 35,000	18	0.18	66	0.66	504000	0.18	0.33	0.059
35,001 – 50,000	14	0.14	80	0.80	602000	0.21	0.54	0.076
50,001 - 65,000	12	0.12	92	0.92	696000	0.24	0.78	0.094
65,001 - 80,000	5	0.05	97	0.97	367500	0.13	0.91	0.045
>80,000	3	0.03	100	1.00	255000	0.09	1.00	0.030
TOTAL	100				2859500			0.351

Factors Affecting the Sales Revenue of Gari Marketers in the Study Area

The double-log multiple regression function was used to examine the factors that determine the marketing of gari in the study area. The results are shown in Table 4. The Coefficient of Determinants (R^2) of 0.8093 implies that 80.93% of the variations in the marketers' sales revenue are accounted for by the independent variables. F-value of 48.27 was significant at 1% level of probability, which indicates that the explanatory variables jointly influenced the variations in the revenue of the gari marketers. The result revealed that marketers' experience, cost of storage, cost of acquisition and their educational level had positive coefficient and significantly affect the revenue of the marketers. This implies that an experienced gari marketer, who is

educated and able to incur cost on storage and acquisition, would lead to an increase in the revenue. This was also observed by Afolabi (2011) in his study carried out among smoked fish marketers in Ondo State, Nigeria. Ehinmowo *et al*. (2015) also reported similar findings that education and experience had significant effect on the profitability of cassava processors in Ondo State. In other hand, distance to the market, cost of labour and cost of transportation had negative coefficients but not statistically significant except distance to the market. This implies that increase in any of these values will lead to a decrease in sales of gari marketers. Ehinmowo *et al*. (2015) reported in their study they carried out among cassava processors in Ondo State that transportation cost, cost of labour and environmental hazard were some of the major challenges facing cassava products marketers.

Table 4 : Regression Results on Determinants of Sales Revenue of Gari Marketers

Explanatory variable	Coefficient	Standard Error	P-value
Experience	0.2474296***	0.0776286	0.001
Distance to market	-0.0394373**	0.0197186	0.039
Labour cost	-0.5541479	.3639958	0.128
Transport cost	-1.01461	.8399022	0.227
Storage cost	0.4566329***	.175618	0.009
Acquisition cost	3.01e-06***	7.02e-07	0.000
Age	0.0531625	.3383117	0.875
Education	0.1921071***	.0562152	0.001
Constant	3.30374	1.234452	0.007

R = 0.8996; R^2 = 0.8093; Adj. R^2 = 0.7925; F-value = 48.27*;**
Number of observation = 100
Source: Computed from Field Survey, 2016

Summary and Recommendations

The findings from the study showed that 84% of the respondents were female, 80% were in the active and productive age range of 20 - 49years, 52% were married while 32% were single, a reflection of how family commitments may impinge on their profit margin. Household size between 1 and 6 represents 84% of the respondents. About 88% of the marketers had at least primary school education. Most (68%) of the marketers had spent between 6 and 20 years in gari marketing and subsequently bearing their experience on the business. Moreover, 65% of sampled respondents sourced their capital from personal savings. The profitability analysis showed that an average marketer earns a gross margin of N5352.10 per trip. A high gini coefficient of 0.649 for gari marketers indicates high level of concentration and consequently high inefficiency in the market structure indicative of inequality of income distribution among

Gari marketers. The results of regression analysis revealed that marketers' experience, distance to market, storage cost, acquisition cost and marketers' education were the factors that statistically affected the sales and revenue of gari marketers in the study area. Based on the findings of this study, the following recommendations were made.

Since the findings revealed that gari marketing is profitable, the government should encourage young school leavers to engage in the business as a way of combating the scourge of unemployment in the country.

Government can also assist by making available low interest credit facilities while the marketers could organise themselves into cooperatives groups to enable them enjoy governments patronage of such micro credit loans and other financial palliatives for their business. This will invariably results in the upscale of marketing, industry

expansion and opportunities in more income generation by the marketers.

· Strategic efforts should be made government in the provisions of adequate infrastructures such as efficient transport and storage facilities that will enhance gari marketing in the study area.

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