

Market Structure and Market Conduct of Garden Egg Fruits Marketing in Onitsha Agricultural Zone, Anambra State, Nigeria

Nkamigbo, D.C.¹, Isibor, C.A.², Obiekwe, N.J.³, Udemba, K.U.⁴

^{1,2,3,4}Department of Agricultural Economics and Extension, Nnamdi Azikiwe University Awka

Corresponding Author: Nkamigbo, D.C.

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ABSTRACT

The study examined income and revenue analysis of garden egg fruits marketing in Onitsha agricultural zone, Anambra State, Nigeria. Specifically, it described the socioeconomic characteristics, determine the market structure, market conduct and constraints to garden egg fruits marketing in the study area. Multistage and sample random sampling methods were used to select 160 intermediaries 80 wholesalers and 80 retailers for the study. Data were analyzed using descriptive statistics, gini coefficient and relative index techniques. Findings from socioeconomic characteristics revealed that majority of the marketers had one level of education or other thus making the study area a very vibrant economic hub center for business activity. The result of market conduct revealed that both the wholesalers and retailers used big balls of garden egg fruits (size) as criteria for their selling strategies. Findings from gini coefficient revealed a gini coefficients of 0.7155 and 0.7488 for wholesalers and retailers respectively. This implies a high level of income inequalities (sale margin) in the distribution of income among the marketers and high concentration of sales in the hands of few marketers hence existence of imperfect competition in the market. The result revealed that some marketers can influence price of the commodity. Under aged hawking should be discouraged and irrigation system should be provided for all year-round availability and there is a need for government to address bad conditions of our road to minimize the cost of transportation were recommended.

Keywords: Marketing, structure, Fruits, conduct

INTRODUCTION

Agriculture is the engine of growth for most developing countries of the world and also one of the most effective ways to alleviate poverty and hunger. It can raise income and improve food security for 80% of the world's poor, who live in rural areas and work mainly on farms. Agriculture in Africa has a massive and economic footprint; more than 60% of sub-Saharan Africa are small-holder farmers, and about 23% of sub-Saharan Gross Domestic Product comes from Agriculture Gbughemobi, Meludu, and Nkamigbo (2021).

Garden egg are fruits vegetables of some varieties which are white and shaped like chicken. The fruits maybe pear-shaped, round, long or cylindrical depending on the variety Olubunmi, Abdulazeez, Khadijat and Tauheed (2017). It is a vegetable with increasing popularity in the world and it originated from Tropical Africa. It is an economic flowering plant that belongs to the family Solanaceae of which members about 1400 species found throughout the Temperate and Tropical regions of the world are mostly herbaceous plants. They are widely grown in most parts of Sub-Saharan Africa and they constitute the most affordable and sustainable source of micronutrients in diets Onu, Obike and Ebe (2011). Garden egg, Irish potato, tomato and pepper belong to same family of

Solanaceae. The crop is widely cultivated across most of the African continent and more intensively in West and East Africa. Other countries like Brazil, Southern Italy and France seems to produce the crop garden egg. There are four cultivars' groups recognized within the specie –Gilo, Kumba, Shum and Aculeatum of which the first three are of most important to Africa Onu et al. (2011).

Fresh garden egg fruits is mostly eaten raw as it enriches the body with minerals and vitamins. Garden egg fruits contains a lot of mineral, vitamins, carbohydrate and water substance which are important and highly beneficial for the maintenance of health and prevention of diseases. It is recommended to tackle malnutrition problem in Africa especially among women of childbearing age and children under five years old Onunka, Chinaka and Eze (2011). Africa garden egg fruits can be consumed raw as snacks by both adult and children. It can be served alongside with kola nuts in both big and small ceremonies such as marriages, festival, traditional title taking, meeting, academic seminars/conferences, naming ceremony/dedication, new yam festival. In most Igbo land, it is sliced and mixed with tapioca in the preparation of special native salad or dishes such as Nsisa or Ugba (Nwaorie and Agbaravoh, 2002 as cited by Onu et al, 2011). It can be used to prepare sauces for cocoyam and yam porridge. Anuebunwa (2007) as cited by Onu et al. (2011) reported that garden egg fruits offer gainful employment among the rural households. The roots are used in traditional medicine to treat bronchitis, asthma, wounds, abdominal worms, diabetes and stomach disorders Omovbude and Ikenwa (2020). Isibor, Nkamigbo and Ekeke (2021) reported that marketing involves all processes in the movement of products that consumers need from the point of production to the point of purchase. Marketing can contribute to economic development in Nigeria by stimulating production and consumption, facilitating

income to marketers and foreign exchange earnings to the Nation.

MATERIALS AND METHODS

The study was carried out in Onitsha Agricultural zone. Onitsha agricultural zone is located at the southern part of Anambra State at the latitude of $6^{\circ}05-8^{\circ}-21$ of the equator and longitude $6^{\circ}.44-7.41E$ of the meridian. The zone has an estimated population of about 2m people (Wikipedia, 2022). The zone is made up of seven (7) LGAs, Ekwusigo, Idemili North, Idemili South, Ihiala, Ogbaru, Onitsha North and Onitsha South. The landscape of the area is lowland with temperature of 39° . It experiences two major seasons; the rainy season starts at the end of March and lasts till the end of October and dry season covers from the month of November and ends in the month of February. There is a high rate of commercial activities due to the presence of the City of Onitsha and Onitsha main market which is the largest single market in the West Africa Sub-region. There is other several markets in the zone where almost every agricultural produce is marketed both wholesale and retail. The study was made up of all garden egg fruits marketers in Onitsha Agricultural zones, Anambra State, Nigeria. Multistage, purposive and random sampling methods was used to select 4 Local Government Areas, 8 daily garden egg (Agricultural Food) markets and 160 intermediaries (80 wholesalers and 80 retailers) for the study. The respondents were selected based on the size of the markets. Details of selection process is given as:

Stage 1: Four Local governments were randomly selected from the agricultural zone for the study.

Stag 2: This involves purposive selection of two daily markets with large number of intermediaries and consumers from each selected LGAs. The selection was based on open dairy nature, large intermediaries handled making it a total of 8 markets for the study.

Stage 3: Twenty garden egg fruits marketers consisting of 10 wholesalers and 10 retailers were randomly selected from

each of the 8 markets selected in stage two making it a total of 160 respondents for the study (80 wholesalers and 80 retailers).

Table 1: Sampling of markets and respondents

Agricultural zone	LGAs selected	Markets selected	Intermediaries selected
Onitsha		Ochanja market	10 Wholesalers 10 Retailers
		Relief market	10 Wholesalers 10 Retailers
	Ogbaru	Afor Atani	10 Wholesalers 10 Retailers
		Coke market	10 Wholesalers 10 Retailers
	Ekwusigo	Orie-Akpu Ozubulu	10 Wholesalers 10 Retailers
		Nkwo-Ozuluigbo	10 Wholesalers 10 Retailers
	Idemili	Afor- Nnobi	10 Wholesalers 10 Retailers
		Eke- Awka-Etiti	10 Wholesalers 10 Retailers
	4 LGAs	8 Markets	160 Marketers

Source, Field Survey, 2023.

Model specification

Gini coefficient was used to determine the market concentration or nature of competition in the market i.e. market structure. The technique was used to measure the degree of inequality in the volume of trade by the marketers as:

Gini-coefficient is being calculated as follows:

$$\text{Gini coefficient} = 1 - \sum XY$$

Where:

X= the ratio of percentage of onion marketers

Y= the ratio of cumulative percentage of their income

Σ = summation sign.

Socioeconomic factors were as follows:

NMI=Net Marketing Income ‘

AGE= Age in years

GEN = Gender (dummy: male =0; female = 1)

MRS = Marital status

EDU = Educational level

SOF = Source of finance

HOS = Household size (number of persons living together)

TOU = Membership of trade union (dummy: member =0, non-member = 1)

EXP = Marketing experience

MKS = Marketing cost

PDP = Product price

Constraints to garden egg fruits marketing

The respondents were asked to rate the problems they face in garden egg marketing from a list of problems compiled by the researcher. The relative importance index was used in determining the degree of importance of the problem as follows: Very important =4, Important =3, moderately important =2, Not important = 1. The responses on constraints to garden egg fruits marketing were disaggregated as follows:

Where:

$$RII = \sum W/A * N$$

RII = Relative importance index

W = Weighting given to each factor by the marketers (ranging from 1-4)

A = Is the highest weight

N = Is the total number of marketers.

To make inferential statement, the mean score was compared with the critical mean, 2.5. If the calculated mean of a problem is greater than the standard critical value, then the problem is regarded as very serious.

RESULT AND DISCUSSION

Socio-economic characteristics of the respondents

Socioeconomic characteristics of marketers in Table 2 indicates that majority of the marketers are within the age limit of 30-49 years (58.12%). This implies that the marketers are relatively young. The finding is in tandem with Chiemela, Onyia and Joesph (2020) who reported that marketing of agricultural produce requires active people in their middle age. Garden egg fruits market is dominated by female (85.62%) implying that it is gender sensitive in the study area with large number of married marketers (49.37%). This is at variance with Nkamigbo *et al.* (2019) who reported male dominance at wholesale level of watermelon marketing in their area. Findings from educational status revealed that majority of the marketers had one level of education or other thus making the study area a very vibrant economic hub center for business activity. From the result majority of the marketers kick started their enterprise with personal savings (55%) while 21.87% of the marketers started with loans from

local tariff. Majority of the marketers (54.37%) belongs to their trade union (Isusu union) where they practice Isusu for their personal welfare and interest. The result revealed a household size of 4-8 persons living and eating from same source had a percentage of (48.75%). Family members may be supportive in using many avenues to sale their products for multiple income. Findings revealed that majority of the marketers do not quit from garden egg fruits business as those that have spent more than 10 years in the enterprise recorded 43.75%. This is a sign that the fruits give tangible profit because it is used in every occasion and ceremony throughout the year in the study. This indicates that marketers are well experienced which is expected to enhance the efficiency with which the trading activities are performed which agreed with Idris, Chinda and Ahmed (2016). Majority of the marketers do not combine garden egg fruits marketing with other enterprise (75%) expect some at retail level.

Table 2: Socioeconomic characteristics of garden egg fruits marketers N=160

VARIABLES	FREQUENCY	PERCENTAGES
Age		
20-29	25	15.62
30-39	50	31.25
40-49	43	26.87
50-59	27	16.87
60 and above	15	9.37
Total	160	100
Gender		
Male	23	14.37
Female	137	85.62
Total	160	100
Marital Status		
Single	60	37.5
Married	79	49.37
Widow/Divorced	21	13.12
Total	160	100
Educational Status		
0-6	56	35.0
7-12	75	46.87
13-18	29	18.12
Total	160	100
Source of Finance		
Personal savings	88	55.0
Friends and relatives	37	23.12
Cooperatives/Isusu	35	21.87
Banks	-	-
Total	160	100
Household Size		
1-4	59	36.87
5-8	78	48.75
9 and above	23	14.37
Total	160	100
Trade Union		
Member	87	54.37

Non-Member	73	45.62
Total	160	100
Market Experience		
1-5	43	26.87
6-10	47	29.37
10 and above	70	43.75
Total	160	100
Other biz Activities		
Yes	40	25.0
No	120	75.0
Total	160	100

Source, field survey, 2023.

Market conduct garden egg fruits marketers

The distribution of market conduct of garden egg fruits is shown in Table 3. From the result, Size of garden-egg fruits (31.3%) is the major criteria for purchase for the wholesalers while Colour and specie of garden-egg fruits (32.5%) is also the major criteria for purchase for the retailers. This implies on the retailer's colour and specie (White or Green type) matters much to retailers because they deal directly with the end users who asks a lot of questions before purchase. This is followed by Freshness of garden egg fruits (27.5%) for wholesalers and size of garden-egg fruits (25%) for retailers. The analysis revealed that both the wholesalers and retailers used common

pricing techniques of fixing prices after consideration of purchase price and other expenses incurred in the enterprise. From the result the retailers consider brim full bag of garden egg fruits (50kg) and early arrival garden egg fruits as a criterion for purchasing the produce from the wholesalers. This implies that bags that are not well packed or full attracts less price from the intending buyers (retailers). The result also revealed that both the wholesalers and retailers used big balls of garden egg fruits (size) as a criterion for their selling strategies. The result showed that retailers used both neat environment and good rapport with customers (mannerism) as a strong criterion to call for the attention of their prospective buyers.

Table 3. Market conduct garden egg fruits marketers

VARIABLES	WHs		RTs	
CRITERIA FOR PURCHASE	F	%	F	%
Colour and specie of garden-egg fruits	18	22.5	26	32.5
Size of garden-egg fruits	25	31.3	20	25.0
Freshness of garden egg fruits	22	27.5	17	21.3
Lack of wounds, decay, cut or diseased	11	13.7	10	12.5
Absence of yellow-coloured ones	4	5.00	7	8.8
Total	80	100	80	100
SRATEGIES OF FIXING SELLING PRICES				
Fix price as you like (Arbitrary)	28	35.0	15	18.8
Fix prices through consideration of purchase price and other expenses incurred.	52	65.0	54	67.5
Fix prices through bargaining with wholesalers, retailers and consumers (demand and supply push)	-	-	11	13.7
Fix price by garden egg fruit union	-	-	-	-
Total	80	100	80	100
PURCHASE STRATEGIES FROM SUPPLIER				
Brim full bag of garden egg fruits	-	-	45	56.3
Early arrival garden egg fruits	-	-	35	43.7
Total	80	100	80	100
SELLING STRATEGIES TO BUYERS				
Big balls of garden egg fruits	80	100	37	46.3
Well-arranged and displayed garden fruits	-	-	19	23.7
Cleanness of garden egg fruits	-	-	24	30.0
Total	80	100	80	100
STRATEGIES USED IN ATTRACTING CUSTOMERS				
Neat environment	-	-	39	48.7
Good rapour with customers (mannerism)	-	-	41	51.3
Total	80	100	80	100

Source, field survey, 2023. WHs= wholesalers, RTs= retailers.

Market structure of garden egg fruits marketers

Market structure depicts the degree of products concentration among the marketing agents. It shows the level of competition among marketing agent a particular commodity Ugwumba, Obiekwe and Ozor (2016). Onu (2015) defined market structure as hoe market is organized with particular emphasis on the characteristics that determine the relationship among the various sellers in the market. Results of the analysis of market structure using gini coefficient is shown in Table 4 and 5 for wholesalers and retailers respectively. The result revealed a gini coefficients of 0.7155 and 0.7488 for wholesalers and retailers

respectively. This implies a high level of income inequalities (sale margin) in the distribution of income among the marketers and high concentration of sales in the hands of few marketers hence existence of imperfect competition in the market. The result revealed that some marketers can influence price of the commodity. The variation is high among the retailers (0.7488) which implies that some of the retailers maybe monopolizing the market. This agrees with Idris *et al.* (2016) and Mahummad, Rahila, Goni and Bukar (2019) who reported a gini coefficients of 0.47 and 0.52 and 0.813 and 0.466 for wholesalers and retailers respectively.

Table 4: Estimated Gini coefficient of the marketing agents (Wholesalers)

Monthly Sales (N)	F	Pro of WTs X_i	Cum. Of WTs (N)	TMS (N)	Cum. Pro of TMS Y_i	$X_i Y_i$
200,000- 800,000	11	0.1375	0.1375	3731000.00	0.1428	0.0196
801,000- 1300,000	16	0.200	0.3375	6308,000.00	0.1904	0.0380
1301,000- 1900,000	23	0.2875	0.6250	8,673,500.00	0.2619	0.0752
1901,000 and above	30	0.3750	1.000	13,404,500.00	0.4047	0.1517
	80			33,117,000.00		0.2845

Key Note: WTS= Wholesalers. Pro= Proportion. Cum=Cumulative. TMS=Total monthly sales.

Source: Field survey, 2023.

$$GC = 1 - \sum X_i Y_i, 1 - 0.2845 = 0.7155$$

Table 5: Estimated Gini coefficient of the marketing agents (Retailers)

Monthly Sales (N)	F	Pro of RTs X_i	Cum. Of RTs (N)	TMS (N)	Cum. Pro of TMS Y_i	$X_i Y_i$
250,000-350,000	21	0.2625	0.2625	3,757,000.00	0.2046	0.0537
351,000-450,000	12	0.1500	0.4125	3,816,000.00	0.2078	0.0311
451,000-550,000	30	0.3750	0.7875	4,714,000.00	0.2567	0.0962
551,000-650,000	17	0.2124	0.9999	6,073,000.00	0.3307	0.0702
	80			18,360,000.00		0.2512

Key Note: RTS= Retailers. Pro= Proportion. Cum=Cumulative. TMS=Total monthly sales

Source: Field survey, 2023.

$$GC = 1 - \sum X_i Y_i, 1 - 0.2512 = 0.7488$$

Constraints to garden egg fruits marketing

Constraints associated with garden egg fruits in the study area were shown in Table 6. The findings showed that have wholesalers and retailers have some come challenges but some were perceived as most serious at some levels. High cost of the commodity was perceived as the most serious in the marketing of garden egg fruits at both wholesale (M=3.20) and retail levels (M=3.30). This is followed by high cost of transportation (M=3.05), seasonality (M=3.00) and exploitation by middlemen (M=2.60) while at retail levels over ripe

fruits (M=2.95), seasonality of the produce (M=2.90) and perishability of the commodity (M=2.70) were among the most serious constraints to garden egg fruits marketing in the study area. Other constraints to garden egg fruits marketing but were not among the perceived serious constraints were perishability of commodity (M= 2.40), perishability of commodity, inadequate storage facilities, over ripe fruits and credit facilities at wholesale level while at retail levels were high cost of transportation, credit facilities, exploitation, inadequate storage facilities and perishability of commodity.

Table 6: Constraints to garden egg fruits marketing

Constraints	Wholesalers mean score	Rank	Retailers mean score	Rank
Perishability of commodity	2.40	5 th	2.70	4 th
High cost of the commodity	3.20	1 st	3.30	1 st
Perishability of commodity	2.35	6 th	1.80	9 th
Inadequate storage facilities	2.20	7 th	2.00	8 th
Exploitation	2.60	4 th	2.10	7 th
Seasonality	3.00	3 rd	2.90	3 rd
High cost of transportation	3.05	2 nd	2.45	5 th
Over ripe fruits	1.90	8 th	2.95	2 nd
Credit facilities	1.45	9 th	2.31	6 th

Source, field survey, 2023.

SUMMARY AND CONCLUSION

The study examined Market structure and market conduct of garden egg fruits marketing in Onitsha agricultural zone, Anambra State, Nigeria. Findings from socioeconomic characteristics indicates that majority of the marketers are within the age limit of 30-49 years. This implies that the marketers are relatively young. Garden egg fruits market is dominated by female (85.62%) implying that it is gender sensitive in the study area with large number of married marketers (49.37%). From the result of market conduct, size of garden-egg fruits (31.3%) is the major criteria for purchase for the wholesalers while colour and specie of garden-egg fruits (32.5%) is also the major criteria for purchase for the retailers. The analysis revealed that both the wholesalers and retailers used common pricing techniques of fixing prices after consideration of purchase price and other expenses incurred in the enterprise. The result revealed a gini coefficients of 0.7155 and 0.7488 for wholesalers and retailers respectively. This implies a high level of income inequalities (sale margin) in the distribution of income among the marketers and high concentration of sales in the hands of few marketers hence existence of imperfect competition in the market. The result revealed that some marketers can influence price of the commodity. The variation is high among the retailers (0.7488) which implies that some of the retailers maybe monopolizing the market. Constraints to garden egg fruits were high cost of the commodity, high transportation, seasonality and exploitation by middlemen at wholesale level while at retail level were found high cost of the commodity, over ripe

fruits, seasonality of the produce and perishability of the commodity were the most perceive constraints to the commodity at the study area. It is expected that profitability will improve is adequate attention is taken by various stake holders to address the necessary market constraints.

Recommendation

Based on the findings of this study the following recommendation were made:

- i. There is a need for government to address bad conditions of our road to minimize the cost of transportation.
- ii. Government and relevant stakeholders should provide irrigation system to farmers for all year availability of the commodity.
- iii. Hawking among the children of under aged should be tackled and discouraged.

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