ASSESSMENT OF THE STRUCTURE, CONDUCT AND PERFORMANCE OF TOMATO MARKETINGAMONG RETAILERS IN LAGOS STATE, NIGERIA

BY

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Abstract
The study assessed the structure, conduct and performance of tomato marketing among retailers in Lagos State. Specifically, the study described the socioeconomic characteristics of tomato retailers in the study area, analyzed the structure of tomato retail marketing, examined the conduct of tomato retailing, determined the performance of tomato retailing and identified the constraints facing retailing in Lagos State. A two stage sampling technique was employed in the selection of 100 tomato retailers for the study. Descriptive statistics, Gini-Coefficient, marketing margin analysis, marketing efficiency analysis and 3-point Likert-type scale were employed. The study revealed that the retailers operate in a highly concentrated market due to theGini coefficient (GC) of which was given as 0.72. Tomato were majorly sourced from the wholesalers with price being largely determined by thequantity of tomato supplied, marketing information were revealed to be sourced majorly (70%) from other marketers. Furthermore, the marketing margin of 25% revealed that tomato retailing is a profitable enterprise. The marketing efficiency of 1.3 further revealed that that for every naira invested, 1.3 naira is realized. Therefore, tomato retailing in Lagos State is efficient. Inadequate storage facilities, high taxation, high rate of commodity deterioration and high cost of transportation were revealed as the most severe constraints facing tomato retailing in the study area. It is therefore recommended that Lagos state government should channel the taxes generated from the retailers to visible project that will drive the industry grow. Project like construction of storage facilities and purchase of vehicle for transporting tomato, all at a subsidized.
Keywords: *Tomato, Retailers, Market Structure, Conduct, Performance, Marketing efficiency*

Introduction
Vegetable refers to those edible plants and plant parts most especially leafy or fleshy parts that are eaten in raw forms or cooked (Ajibade *et al.,* 2021). Its production forms a substantial percentage of the major food crop cultivation in Nigeria. Vegetables contain vitamins, minerals and other essential minerals, thus, plays an overwhelming importance in human nutrition (Food and Agriculture Organization, FAO, 2016). According to Usman & Bakari (2013), tomato is the most significant vegetable crop commonly grown all over the country in both rainy and dry season. Tomato is the edible berry of the plant *Solanum lycopersicum*, commonly known as a tomato plant (Mark, 2018). It is considered a "culinary vegetable" because it has a much lower sugar content than culinary fruits, and typically served as part of a salad or main course of a meal, rather than as a dessert (Burton &Sesso 2014). Babalola *et*al.,(2010), noted that out of 100% of the average daily consumption of vegetables in Nigeria, tomato accounts for about 18%, making it a significant vegetable for an average Nigerian. According to World Atlas report (2017), Nigeria is ranked the leading tomato producing country in Sub Saharan Africa with an annual output of 4.2 million tonnes and the 11th in the world. However, the demand for tomato which is on a geometric progression rate is yet to equate the supply due to corresponding increase in the country's population growth and high perishable nature of tomato.

Agricultural marketing is an important aspect of marketing that deals with the interchange of agricultural goods (Sulaimon and Nofiu, 2021). According to Kiruthiga *et al.,*(2015), it deals with all the activities, agencies and policies involved in the purchase of farm inputs by the farmers and movement of agricultural products from the farm to the consumers. The success of tomato marketing depends on how the market is organized in terms of inter relationship between buyers and sellers. This relationship involves competition between many buyers and sellers, influences information and pricing system operating in the market. Tomatoes marketing requires transportation from the place of surplus (farm) to the place of deficit (nearest assembly market) for the consumers or wholesalers who

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assemble them to a big city market and sell to other wholesalers, retailers or consumers. Its unique characteristics of high perishability, bulkiness and seasonality makes its marketing sensitive resulting in effect on market price. Losses of 40-50 percent occur for many vegetables mainly due to spoilage, inadequate transportation, sorting, improper packaging and handling and lack of storage facilities. Sadly, tomato wastage and postharvest losses are extremely high due to poorly develop marketing. Worst still, in the past, the government paid more attention to production with little attention to the marketing of vegetables such as tomato, pepper, onions, garden eggs, okra and leafy vegetables despite the fact that they need marketing facilities. Consequently, the wastage coupled with unpredictable prices accentuates variability in farm income which discourages small scale farmers from growing tomatoes for marketing which result to low productivity and high prices of both fresh and processed tomato products. Despite the unique characteristics of tomatoes, very little have been done in literature with regards to market conduct, structure and performance in the study area. Osundare & Adedeji, (2020) evaluated the Structure, Conduct and Performance Paradigm of Fresh Tomato Marketing in Ondo State, Nigeria. Egbeadumah *et al.,*(2016) assessed the Structure, Conduct and Performance of Tomato Retailers in Abeokuta South, Ogun State, Nigeria. Obaleyu *et al.,* 2014 focused economics of fresh tomato marketing in Kosofe local government area of Lagos State, Nigeria. Thus, the study advance on exiting knowledge in literature in the study area thereby analyzing the structure, conduct and performance of tomato marketing among retailers in Lagos State.

Methodology

The study was carried out in Lagos state. Lagos State is located in southwestern Nigeria, bordered in the north and east by Ogun State, in the west by the Republic of Benin and in the south by the Atlantic Ocean. The state has an area of approximately 3,345 square kilometers, which is about 0.4% of the total land area of Nigeria. The climate of Lagos State is the wet equatorial type influenced by its nearness to the equator and the Gulf of Guinea. It contains twenty local governments which are; Agege, Alimosho, Ifako-jaye, Ikeja, Kosofe, Mushin, Oshodi-isolo, Somolu, Apapa, Eti-Osa, Lagos island, Lagos mainland, Surulere, Ajeromifelodun, Amuwoodofin, Ojo, Badagry, Ikorodu, IbejuLekki, Epe. The state is divided into 5 administrative divisions, which are further divided into 20 Local Government Areas and 37 Local Council Development Areas for administrative convenience. However, Kosofe Local Government Area(LGA) has its headquarters in the town of Kosofe, occupies a land area of 81km 2 and a population of 665,393 (NPC, 2006). This LGAhasfour major markets namely Ojodu Berger Retail Market, Ogba Sunday Market, Ketu Retail Market and Mile 12 International Market. Tomatoes are brought to the state mostly by the Hausas from the northern part of the country. It is also brought from some other neighboring states like Oyo, Ogun etc.

Primary data was used and collected through interview scheduled designed in line with the objectives of the study. The population for this study comprises of all tomato retailers in Lagos. A two stage sampling technique was used to select the respondents for the study. The first stage involved purposive selection of one (1) LGA (Kosofe) from the 20 LGA's in Lagos State due to the preponderance commercial hub of agricultural marketing activities of in the LGA. The second stage involved random selection of 100 respondents from the lists of registered tomato retailers in the selected LGA provided by Tomato Sellers Association, Lagos Branch. This involved the use of percentage and frequency count to describe the socioeconomic characteristics of the tomato retailers and the conduct of tomato retail marketing in the study area. The constraints facing tomato retailers in the study area was determined using 3 point likert-type scale. A list containing major constraints was provided and the respondents were asked to select their response on Likert scale of 0-3, where 3 = very severe' '2 = severe,' 'severe,' '1 = not severe. The structure of tomato marketing among retailers in Lagos State was analyzed using Gini coefficient (GC). The formula adopted for this study is that specified by Ekunwe and Alufohai (2009).

Mathematically, the Gini Coefficient is represented as:

$$GC = 1 - \sum L * CE \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where:

GC = Gini coefficient,

L= Cumulative percentage of retailers

CE = Cumulative percentage of total sales.

The value of GC ranged from 0-1 and the higher the value of GC, the higher the level of market imperfection

Marketing Efficiency and Marketing Margin Analysis

The market performance of tomato retail marketing in the study area was achieved using the marketing margin (MM) and marketing efficiency (ME) analysis. Where marketing margin is the difference between the price paid by consumer and that received by the producers. It can be expressed in cash or in percentage of the retail cost (Abbot &

Makeham, 1986; Adegeye & Dittoh, 1982). The formula adopted for this study is that specified by Olukosi & Isitor (1990) and as used by Ali et al., (2008) and Nwaru et al., (2011) as follows:

$$MM = \frac{Selling\ Price - Purchase\ Price}{Selling\ Price} * 100 \dots\dots\dots\dots\dots\dots\dots.(2)$$

$$ME = \frac{Total\ Revenue}{Total\ Cost} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(3)$$

A market is efficient when marketing efficiency equals to or is greater than one and a market is inefficient if the marketing efficiency is less than one. According to Egbeadumah*et al.,* 2016, efficiency value that falls below 1 is considered inefficient, while values equals or above 1% is efficient.

Results
Socio-economic characteristics of the respondents
Table 1: Socioeconomic Characteristics of Tomato Retailers in Lagos State

Variable	Frequency	Percentage	Mean
Gender			
Male	12	12.0	
Female	88	88.0	
Age (Years)			
21-30	11	11.0	
31-40	27	27.0	50
41-50	47	47.0	
51-60	09	09.0	
Above 60	06	06.0	
Marital Status			
Singled	29	29.0	
Married	59	59.0	
Divorced	07	07.0	
Widow	05	05.0	
Religion			
Islam	38	38.0	
Christianity	49	49.0	
Traditional	13	13.0	
Level of Education (Years)			
No formal education	17	17.0	
Adult education	12	12.0	
Primary	39	39.0	
Secondary	29	29.0	
Tertiary	03	03.0	
Marketing Experience (Years)			
1-5	04	04.0	
6-10	24	24.0	22
11-15	63	63.0	
Above 15	09	09.0	
Total	100	100	

Source: Field Survey, 2021

Market Structure of Tomato retail marketing in Lagos State
Table 2: Average Weekly sales of Tomato Retailers in Lagos State, Nigeria

Category of sales (₦)	Number of Tomato Retailers	Proportion of Retailers (Y)	Cumulative proportion of Retailers	Total value of weekly sales (₦)	Proportion of weekly sales (Z)	Cumulative proportion of weekly sales	Y.Z

1 - 5,000	56	0.56	0.56	236,208	0.30	0.30	0.17
5,001– 10,000	23	0.23	0.79	211,002	0.27	0.57	0.06
10,001 – 15,000	12	0.12	0.91	169,440	0.22	0.79	0.03
Above 15,000	9	0.09	1	161,010	0.21	1	0.02
Total	100	1		777,660	1		0.28
Mean				7,776.6			
GC							0.72

Source: Field Survey, 2021

Market Conduct of Tomato Retailers in Lagos State

Table 3: Market conduct of tomato retailers in Lagos State.

Variables	Frequency	Percentage
Source of tomato purchase		
Assemblers	23	23.0
Wholesalers	77	77.0
Determination of price		
Consumers bargaining power	4	4.0
Quantity of tomato Supplied	75	75.0
Texture of the tomato	21	21.0
Marketing association		
Member	100	100.0
Type of information required		
Price	54	54.0
Availability	35	35.0
Demand	11	11.0
Source of marketing information		
Friends	21	21.0
Other marketers	25	25.0
Market association	54	54.0
Total	100	100

Source: Field Survey, 2021

Market Performanceof Tomato marketing among Retailers in Lagos State
Table 4: Market Margin and Efficiency Analysis for Tomatoretail per Week

Average quantity of basket purchased per week = 0.60 basket
Average price of tomato per basket = ₦ 9,700
Average Purchase Price, PP per week = ₦ 5,820
Average Selling Price, SP per week = ₦ 7,776.6

$MM = 25\%$
$TR = ₦ 777,660$
$TC = ₦ 603,617$
$M.E = 1.3$

Source: Field Survey, 2021

Constraints affecting tomato retail marketing in Lagos State
Table 5: Constraints affecting tomato retail marketing in Lagos State

Constraints	Mean Score	Standard deviation	Rank
Inadequate storage facilities	4.45	0.69	1
High taxation	4.14	0.81	2
High cost of transportation	4.00	1.04	4

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High rate of commodity deterioration	4.05	2.42	3
Inadequate quantity	3.09	1.27	8
Poor sales	3.57	1.44	5
Theft	3.19	1.50	7
Bulkiness	3.56	1.22	6

Source: Field Survey, 2021

Discussion

The result from Table1 revealed that majority (88.0%) of the tomato retailer were female which implies that tomato retailing in the study area is highly dominated by women. This findings concurs with that of Agbagwa et al., (2021) and Harunaet al., (2012), who reported that women-folks are major actors of agricultural produce or products marketing. 50 years was reported as the mean age of the tomato retailers, implying that tomato retailers in the study are still in their active age. This findings agrees with Obayelu et al., 2014 who reported that a larger percentage (56.2%) fresh tomato marketers in Kosofe Local Government area of Lagos State falls with the age bracket of 31-50 years. A larger proportion (59%) of the retailers were married, this finding is not surprising as it widely known that marriage confers some level of responsible on an individual. The results coincides with Obayelu et al., 2014. Furthermore, larger percentage of the tomatoes retailers in the study area were reported to exhibit some level of literacy which definitely will make simple arithmetic needed in the business easier for them. This finding agrees with Egbeadumah *et al.,*(2016) who reported that about 63% of the tomato retailers in Ogun State had formal education.

Table 2 shows the Gini coefficient of the cumulative proportion of weekly tomato retail sales and the cumulative proportion of the tomato retailers. It is evident from the result that there was high level of inequality in the distribution of tomato among the retailers. The first cumulative proportion (0.56) of the retailers accounted for just only 30% of the proportion of weekly sales of tomato implying that the remaining cumulative proportion (0.48) of them accounted for about 97% of the proportion of weekly sales. More than half (56%) of the retailers fell within the sale category of 1- 5,000 while the 23%, 12% and 9% of them fell within 5,001- 10,000, 10,001- 15,000 and above 15,000 respectively. Furthermore, less than half 44% of the retailers handled about 70% of the proportion of weekly sales. The sum of ₦7,776.6was revealed as the mean sales per week. Also, the Gini coefficient (GC) of 0.72 shows the result of inequality in sales shares. This indicates that the retailers operate in a highly concentrated market since the GC value is more than 0.50. In other words, the tomato marketing among retailers in Lagos State is competitive. The inequality in the market could also be as a result of variation in the investment level of the respondents. There is free entry and exist in the market with no restriction.

Table 3 shows that majority (77%) of the tomato retailer source their purchase directly from the wholesalers while only 23% source from assemblers. Tomato prices are determined largely (75%) by the quantity of tomato supplied, also the texture (21%) of the tomato with regards to how hard or soft the tomato helps determine the price. Also, bargaining power of consumers was revealed to slightly determine the retail prices of tomato in the market. All (100%) the retailer were found to belong to association, this is not surprising as the retailers made it known that non-member are over-taxed and most time frustrated out of the business. More than half (54%) of the tomato retailers required information on the price of tomato while others (35% and 11%) required information on availability and demand. Marketing information were largely (54%) sourced from market association while others (46%) sourced their information from friends, and other marketers.

Table 4 revealed 0.60 basket as the average quantity of basket of tomato weekly purchased, at an average cost of ₦ 9,700 per basket. The average purchase price of tomato by per week by the retailers was revealed as ₦5,820with an average selling price of ₦7,776.6per week. The marketing margin of 25% per week with marketing efficiency of 1.3 were reported from tomato marketing among retailer in the study area. This infers that tomato retailing is a profitable enterprise. Furthermore, the M.E of 1.3 revealed that that for every naira invested, 1.3 naira is realized, and thus, tomato retailing in Lagos State is economically efficient.

Using the mean score to rank constraints faced by the tomato retailers, the more severe constraints were "Inadequate storage facilities" ($\overline{X}$=4.45) was ranked the highest, "High taxation" ($\overline{X}$=4.14) ranked second while "High rate of commodity deterioration" ($\overline{X}$=4.05) and "High cost of transportation" ($\overline{X}$=4.00) were ranked third and fourth

respectively as revealed in Table 5. Furthermore, "Poor sales ($\overline{X}$=3.57)", "Bulkiness ($\overline{X}$=3.56)", "Theft ($\overline{X}$=3.19)", and "Inadequate quantity ($\overline{X}$=3.09)" were the least constraints affecting tomato retailing in the study area. These constraints are in line with the finding of Egbeadumah *et al.,* 2016.

Conclusion
Conclusively, the market structure of tomato retailing is highly concentrated with no restriction on neither the buyer nor the sellers. The retailers majorly source from the wholesalers and selling price were mainly determined by quantity of tomato supplied. Tomato retailing is one of the most efficient and profitable ventures in Lagos State. Inadequate storage facilities, high taxation, high rate of commodity deterioration and high cost of transportation were some of the constraints faced in the industry.

Recommendations
It is therefore recommended that:
1. Storage facilities for tomato should be ventured into by individual who are willing and able to do business. This will contribute to employment as individual will be employed into sector.
2. Also, Lagos state government should channel the taxes generated from the retailers to visible project that will drive the industry grow.
3. Project like construction of storage facilities and purchase of vehicle for transporting tomato, all at a subsidized rates.

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