ANALYSIS OF COWPEA PRODUCT MARKETING AND PERFORMANCE IN WARRI, DELTA STATE

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Abstract

Cowpeas are nutritious source of protein that can enhance diets and address the food insecurity question in many sub-Saharan African countries. While much effort has been devoted to producers and consumers of the product, the role of marketers connecting these groups is also important. Hence the study focused on the analysis of cowpea product marketing and performance in Warri Delta State. It examined the structure, conduct and performance of cowpea marketing in Delta State, Nigeria. Multi-stage sampling procedure was used to collect data from a sample of 153 cowpea marketers in Igbudu, Okere, and Pesu, Markets, using a well-structured questionnaire. The results indicate that 83.2 % of retailers and 73.9% of wholesalers were aged 33 to 56 years. Net margin is ₦44,050.00 and ₦42,800.00 per 100kg bag respectively, for retailers and wholesalers. Net margin-to-total-cost ratio are 23.2% and 31.2%; implying that for every ₦1.00 invested, net return is 23 kobo and 31kobo respectively, for retailers and wholesalers. Gini coefficients are 0.48, 0.45, while marketing efficiency are 81.2% and 76.2%, for retailers and wholesalers. Thus, while concentration is low, the market is inefficient. Inadequate working capital is the most critical challenge sellers grapple with in cowpea marketing. The authors recommend that cowpea marketers should embrace cooperative membership to improve access to financial resources, enhance market intelligence, and facilitate better information sharing, to improve their well-being.

Keywords: Cowpea product marketing, performance, net margin, market conduct**,** gini coefficient

Introduction

Agriculture is the cornerstone of Nigeria's economy, providing essential livelihoods for a significant portion of the population and driving sustainable growth across the nation. Furthermore, it provides food and raw materials for agro-based industries and employs nearly 60% of the country's adult workforce (NBS, 2023). As the clamour for the revitalisation of agricultural development heightened, grain legumes are among the high-priority crops demanded by consumers across different socio-economic groups (Abdullahi, Howieson O'Hara, Terpolilli, 2020). Among the oldest crops known to man is the cowpea (Vigna unguiculata). The crop in question is highly prized and is grown globally, mostly for its grain. This versatile crop serves multiple essential purposes: it acts as a cover crop, provides nutritious vegetables—including leafy greens, fresh and dried shelled green peas, and offers valuable fodder for livestock (Gaya, Tahir, Danladi, and Tanimu, 2020). Embracing its use can enhance agricultural sustainability and contribute to food security.

Nigeria produces cowpeas primarily for domestic consumption, thereby making them a staple food of great significance. It is a true protein source that can help correct the nutritional imbalance between protein and carbohydrates that is prevalent in the Nigerian population. In addition, it is a valuable industrial raw material, a source of income, and a component of animal feed, and it has a lot of promise for restoring and enhancing soil fertility. When processed, cowpeas can also be fried to create a cake, and the leaves and shaft are consumed directly as fodder for fattening livestock. Cowpea has a long shelf value because the seeds can be stored for use throughout the year, and as a cheap source of plant protein, is often referred to as ‘poor man’s meat’, as people who cannot afford animal protein could consume cowpea as a substitute.

Cowpea marketing plays a critical role in connecting farmers to consumers, covering vital activities such as processing, grading, storage, transportation, distribution, buying, selling, and advertising (Akecha et al., 2022). Although Nigeria stands as the world's largest producer and consumer of cowpeas, the marketing sector is hindered by numerous challenges related to its structure, conduct, and performance, resulting in significant inefficiencies. An effective marketing system is essential to ensure that seasonal products are accessible throughout the year at stable prices, minimizing variations caused by marketing expenses (Benuedi et al., 2022). Therefore, we must strengthen the cowpea marketing system to guarantee timely and convenient access for consumers, optimizing the entire process from production to purchase. According to Kaka, et al., (2020), unavailability of market channels, inadequate access to credit to facilitate effective marketing, undefined market linkages, high cost of transportation occasioned by the astronomical increase in the price of fuel are major obstacles to agricultural marketing system.

Moreover, information on cowpea production and consumption is not readily available owing to inadequate knowledge of cowpea marketing in study area. Therefore, analysis of cowpea marketing will provide insight into the market situation in Delta State, Nigeria, since an improved marketing system of agricultural products will not only increase incomes of farmers and marketers but also reduce poverty and improve household nutrition. The following research questions are addressed in this study; what are socio-demographic characteristics of cowpea marketers? what constitutes costs and returns in cowpea marketing? What structures, conduct and performance measures exist in the market? What is the net marketing margin to retailers and wholesalers? What are constraints to cowpea marketing in the study area? The study therefore, aims to ascertain the structure, conduct and performance, as well as identifying constraints to cowpea marketing in Warri, Delta State.

Literature Review

Conceptual Review

The market structure, conduct and performance (SCP) framework was derived from the neoclassical theory that has been the centre point of industrial economics (Ordofa et al., 2021). It pre-supposes that market concentration is inversely associated with the level of competition, because this encourages collusion amongst firms operating in the specified market. As indicated in Figure 1, the double arrows imply direct relationships whereby; market structure determines conduct, and conduct affect performance. Also, in a reverse manner, performance impacts conduct, which in turn influences the structure. The smaller blocks however, show independent factors that affect structure, conduct and performance.

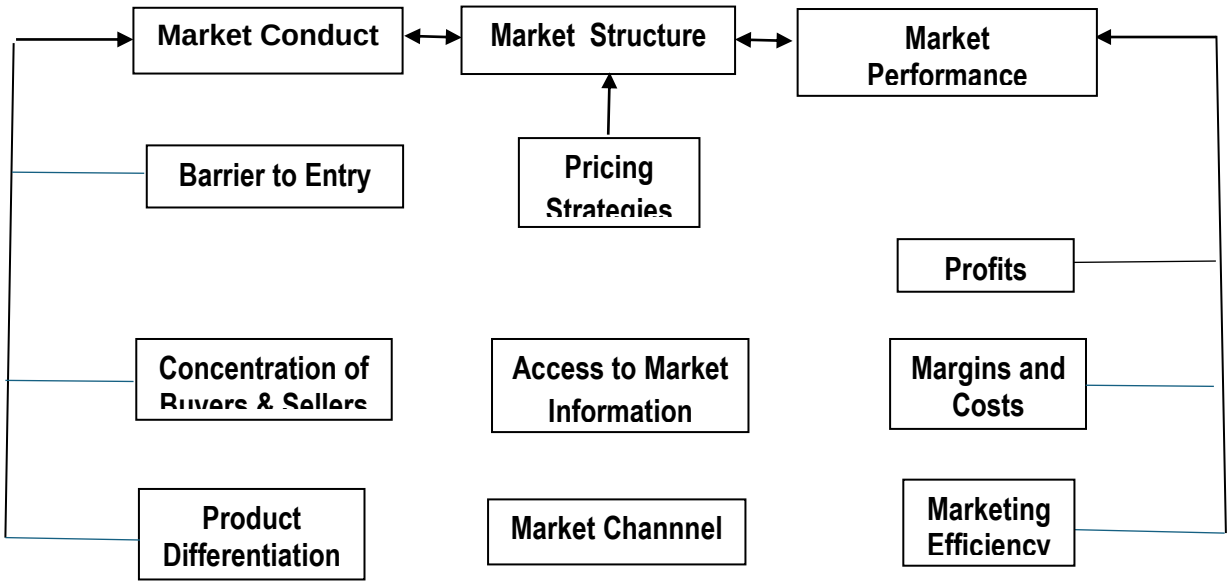

Figure 1: Conceptual Model of S-C-P
Source: Authors' Conceptualisation

Empirical Review

Joshua et al. (2019) conducted a vital study on cowpea production costs and returns in the Mubi South Local Government Area of Adamawa State, Nigeria. The research focused on the profitability of cowpea farming, collecting primary data through structured questionnaires and employing purposive /random sampling techniques for accuracy. The results showed that 64% of cowpea producers were aged between 20 and 49 years, with a predominance of males and 57% married respondents. Most households were large, and while 78% had some formal education, 86% were not part of farmers' associations, indicating a lack of community support. Notably, 61% were full-time farmers, and 92% had 6 to over 15 years' experience in cowpea cultivation. Study revealed gross margins and net farm incomes of N289128.2/ha (around $816.50) and ₦ 286976.3/ha (approximately $810.40), confirming that cowpea production is profitable. Given this, study urged the government to enhance support for farmers through revitalized extension services and agricultural development programs (ADPs), as well as ensuring access to subsidized inputs and affordable credit facilities. This approach would empower farmers and contribute to regional economic growth and food security.

In their study, Gaya et al. (2020), using a structured questionnaire, they collected data from a sample of 60 cowpea marketers in these regions. Results revealed that a significant 55% of respondents were young individuals aged 20 to 40 years, with males comprising 75% of the sample. Furthermore, 61% of participants were married, 66% had household sizes ranging from 6 to 10 people, 41.7% lacked formal education, and around 53% had over six years of farming experience. The analysis indicated a total variable cost of ₦9,130 for cowpea marketing and an average gross margin of ₦1,870 for retailers, underscoring the economic realities facing these marketers. The Hirschman-Herfindahl index for wholesalers was calculated at 0.57, suggesting an oligopolistic market structure, while the index for retailers stood at 0.026, highlighting intense competition that limits their market power. Given these insights, the study strongly advocates for government intervention to offer more incentives aimed at boosting participation in cowpea marketing. Such measures would not only enhance competition in the cowpea market but also stimulate economic growth in the Maiduguri Metropolitan Council and Jere Local Government Area of Borno State. By fostering a more competitive environment, the government can empower marketers, benefiting both the local economy and the community at large.

Kaka et al. (2020) examined cowpea marketing using a single-stage sampling technique, they collected data from 100 marketers in selected Kara markets. The study revealed that the average age of marketers was 34 years, with 69% married and 62% having formal education. Notably, 73% had not joined cooperative associations, and 79% lacked access to credit. Price analysis showed higher prices during the off-season (₦27,000 per bag in July and August) compared to the harvest season (₦15,000 in October to January). The marketing channels included farmers, village merchants, wholesalers, retailers, processors, and consumers. Key challenges noted were lack of credit access (25.69%), inadequate market information (24.59%), and poor infrastructure (22.65%). The study recommended forming cooperatives for better support and information sharing, as well as awareness campaigns to improve access to affordable credit facilities.

Odogwuu et al. (2021) studied cowpea (Vigna unguiculata L. Walp), a vital food security crop for many smallholder farmers in Africa. Although cowpea is rich in protein, carbohydrates, vitamins, and fiber, it is underutilized in Nigeria. This research aimed to identify factors limiting cowpea consumption and to assess stakeholder preferences that could enhance demand. Conducted in Ibadan and Zaria, the study involved 318 respondents from various categories in cowpea value chain: breeders (3.7%), farmers (36.0%), marketers (12.7%), food vendors (6.7%), nutritionists (2.6%), and consumers (38.9%). Survey revealed that culinary qualities (63.0% of respondents) and the need to remove dirt (37.0%) significantly affected utilization. Specifically, reducing cooking time was the top preference (42.9%), followed by improved taste (31.7%). Nearly half of the respondents preferred a cooking duration of 21-30 minutes, significantly shorter than the typical 40-60 minutes. These findings highlight that reducing cooking time and improving cowpea's qualities could boost its demand and consumption.

Anthony et al. (2023) conducted a compelling gathering data from 150 cowpea marketers through well-structured questionnaires. The research employed a combination of statistical and econometric tools, including descriptive statistics, budgetary techniques, multinomial logit regression models, and Likert scales, to effectively address the study's objectives. The findings highlighted important socioeconomic

characteristics of cowpea marketers. Average ages of those in rural, semi, and urban markets were 35, 33, and 35 years, respectively. Notably, gross margins revealed significant disparities: rural marketers achieved a gross margin of ₦680 and ₦744.91, while semi-urban marketers reported ₦539.45, and urban marketers reached an impressive ₦2,498,189.69. Moreover, the marketing efficiency levels for rural, semi-urban, and urban marketers stood at 38%, 16%, and 35%, respectively, underscoring the urgent need for targeted support to bridge the gap and enhance rural market connectivity

Methodology

The Study Area and Data Collection

Warri city with a population of 536,023 persons (Akinrinwoye, 2022) is the location of study. Multi-stage sampling procedure was used to draw samples from a cross-section of cowpea marketers, using a combination of purposive and simple random sampling techniques. A structured questionnaire is the instrument used to collect the data. Firstly, three major markets in Warri; Igbudu market, Okere market and Pesu Market were purposely selected, while the second stage randomly drew samples from the list of cowpea marketers with proportional allocation to the sizes of the target population in each market. The research instrument was administered to 168 cowpea marketers. However, due non-response and inadequate information, only 153 copies of the questionnaire were used for data analysis. The survey was conducted 1st August to 15th November, 2024. Budgetary technique, Market efficiency, Structure, Conduct and Performance framework were used to analyse data generated.

Data Analysis

Budgetary Analysis

A budgeting technique was employed to estimate costs and returns on cowpea marketing, by the net margin (NM), which is difference between the gross revenue and total fixed cost. The variable costs include the costs of transportation, labour, chemicals, loading/off-loading, commission and acquisition cost, while fixed costs are composed of security, store rent and utilities. The NM is estimated according to Kehinde et al, (2012);

$$NM = \sum_{i=1}^{n} PQ - \sum_{j=1}^{k} P_{xij} X_j - \sum_{k=1}^{k} F_k \quad (1)$$

Where,

NM= Net margin

Q=Quantity of cowpea (kg)

P=Price of cowpea (₦ /kg)

Px_j=Price per unit of variable inputs (j=1,2,3,…….m)

X_j=Quantity of variable input (j=1,2,3,……n)

F_k =Cost of fixed inputs (k=1,2,3,…….k)

Marketing Margin Analysis

The gross margin analysis for wholesalers and retailers of cowpeas in the study area was estimated separately using the formula that follows:

$$GM = TR - TC \quad (2)$$

Where

GM= Gross marketing margin

TR= Total sales revenue per bag of cowpea

TC= Total marketing cost per bag of cowpea

Net Marketing Analysis

The net margin analysis was also estimated as follows:

$$NM = GM - TMC \quad (3)$$

Where,

NM= Net margin

GM=Gross margin

TMC=Total marketing cost

Marketing Efficiency Analysis

The Shepherd's 1965, method is a valuable tool for assessing the marketing efficiency of the two categories of cowpea sellers. By utilizing this method, we can gain insightful perspectives into their performance and drive improvements across the market.

$$ME = \frac{TC}{TR} \quad (4)$$

Where,

ME = Market efficiency

TC = Total Cost

TR = Total revenue

A higher ratio means lower marketing efficiency and vice versa

Market Structure, Conduct and Performance

To evaluate the concentration levels of wholesalers and retailers, we used the Gini Coefficient, which relies on the total value of monthly sales as an index for market share.This approach provides valuable insights into market dynamics and trader distribution:

$$G = 1 - \sum_{i=1}^{k} X_i Y_i \quad (5)$$

Where,

X_i= percentage of sellers in the i^{th} class of traders

Y_i= cumulative percentage of sellers in the i^{th} class traders

k = number of classes

Gini Coefficient, ranges from 0 to 1, and serves as a powerful indicator of economic equality. A value of 0 signifies perfect equality in wealth distribution, reflecting a perfect market, with little or no restrictions in entry and exit, while a value of 1 indicates extreme inequality, characteristic of an imperfect market. As the Gini Coefficient approaches zero, it highlights a significant increase in equality, a decrease in wealth concentration, and enhanced market competitiveness. Embracing policies that move us closer to this ideal not only fosters fairness but also strengthens the market economy (Ocholi et al., 2017).

Results and Discussion

Socio-Economic Characteristics of Cowpea Marketers

Study strongly demonstrated that socioeconomic characteristics of respondents significantly impact cowpea marketing (Table 1). Notably, a substantial portion of cowpea retailers (80.4%) range between 25 to 48 years while (73.9%) of wholesalers are within age bracket of 33-56 years, who are within the economically active age group. The average age are 43 years and 51 years respectively for retailers and wholesalers. This result indicates that a majority of respondents are in their active working years, which

is crucial for effective market engagement. This finding compares with the report of Ddungu et al. (2015) on cowpea marketing and market integration

Table 1: Socio-economic Characteristics of Cowpea Marketers

Parameters	**Retailers**		**Wholesalers**	
	Frequency	Percentage	Frequency	Percentage
Sex				
Female	61	57.0	14	30.4
Male	46	43.0	32	69.6
Total	107	100.0	46	100.0
Age				
25 – 32	11	10.3	0	0.0
33 – 40	29	27.1	5	10.9
41 – 48	46	43.0	10	21.7
49 – 56	14	13.1	19	41.3
57 – 64	7	6.5	12	26.1
Total	107	100.0	46	100.0
Household Size				
1 – 4	26	24.3	9	19.6
5 – 8	62	57.9	27	58.7
9 – 12	19	17.8	10	21.7
Total	107	100.0	46	100.0
Marital status				
Single	19	17.7	2	4.3
Married	83	77.6	44	95.7
Widow/Widower	5	4.7	0	0.0
Total	107	100.0	46	100.0
Educational level				
No formal education	17	15.9	3	6.5
Primary school certificate	13	12.1	11	23.9
WAEC/NECO O'Level	61	57.0	23	50.0
ND/NCE	10	9.4	5	10.9
Degree/HND	6	5.6	4	8.7
Total	107	100.0	46	100.0
Membership, Coop Society				
Yes	61	57.0	25	54.3
No	46	43.0	21	45.7
Total	107	100.0	46	100.0
Marketing experience				
1 – 5	17	15.9	0	0.0
6 – 10	29	27.1	9	19.6
11 – 15	38	35.5	22	47.8
16– 20	23	21.5	15	32.6
Total	107	100.0	46	100.0

Source: Authors' computation, 2024

in Uganda. Their work suggests that younger farmers are more adept at adopting and transferring technology compared to their older peers, highlighting the importance of engaging this dynamic demographic in agricultural initiatives. Furthermore, the findings reveal a significant trend: approximately 69.9% of cowpea wholesalers are males while 57.0% of retailers are females. It also highlights marital status of household heads, a critical factor influencing agricultural production and marketing. Married individuals tend to provide more family labour, which is essential for successful agricultural operations. Notably, the study found that 95.7% of cowpea wholesalers and 77.6% of retailers are married. Moreover, the mean marketing experience and household size are 11 and14 years;

6 and 7 persons, for retailers and wholesalers respectively. These outcomes are different from the findings of Katanga et al. (2016), who reported that respondents had a mean age of 39.7 years, an average household size of 12, and around 10 years of experience in cowpea marketing. Membership of a cooperative society offers farmers and marketers a vital opportunity to pool their risks and gain access to essential resources and information to improve their marketing practices. This highlights the crucial role of social capital in driving productivity improvements in agricultural operations (Sabet et al., 2024). According to Oluyele et al. (2022), availability of credit is a fundamental element necessary for enterprise development, as it directly impacts production and marketing capacity. As shown in Table 1, only 57.0% of retailers and 54.3% of wholesalers are members of cooperative societies among the cowpea marketers, which may be positively influencing their access to credit.

Structure of Cowpea Market

Barriers to Entry and Product Differenciation

Table 2 reveals that 76.5% of the marketers agreed that there was no barrier to buying and selling in the cowpea market. Any entrepreneur interested could engage in the trade and quit at will; implying that the market is not concentrated and there is no collusion by sellers to earn abnormal profit. (Chipeta et al, 2024). The results further indicate the product was well differenciated, as reported by 59.5% of the marketers who affirmed the dissimilarity of cowpea in the market by either color, variety or size. The results agree with the work of Smale et al, 2023 that stated the value of cowpea grain sold is influenced by vendor and market characteristics but not by cowpea type. Thus, consumer will have the opportunity to exercise preference of one variety over another.

Table 2: Marketing Distribution of Cowpea by Structure (n=153)

Variables	Frequency	Percentage (%)
Freedom of entry		
Freedom of entry exist	117	76.5
There is no freedom of entry	36	23.5
Total	**153**	**100**
Product Differenciation		
Based on color	10	6.5
Based on variety	36	23.5
Based on size	16	10.5
All of the above	91	59.5
Total	**153**	**100**

Source: Authors' computation, 2024

Market Concentration

The analysis of the cowpea market structure for retailers and wholesalers detailed in Tables 3 and 4, reveal compelling results. A total sale of ₦14,585,157.00 was generated among the retailers on a monthly basis, while it was ₦23,885,279 among wholesalers. The Gini coefficients of 0.48 for retailers and 0.45 for wholesalers imply low concentration in the wholesale than the retail market. The findings demonstrate a highly competitive environment in the cowpea trade within the study area. This indicates that individual actions have a minimal influence on the product's pricing, affirming robust market dynamics, and the unique nature of the cowpea market. This in agreement with the work of Kyari et al, (2023), which found that a high level of

Table 3: Gini Coefficient for Cowpea Retailers

Weekly sales (₦)	Frequency	% of Retailers (X)	Cum. % of Retailers	Total value of Monthly sales (₦)	% of Monthly sales	Cum. % of Monthly sales (Y)	XY
1,250 – 101,250	35	32.7	32.7	2,781,642	19.1	19.1	0.06246
101,251– 201,251	20	18.7	51.4	1,661,905	11.4	30.5	0.05704
201,252– 301,252	16	15.0	66.4	4,518,246	31.0	61.5	0.09225
301,253 – 401,253	25	23.4	89.8	3,253,118	22.3	83.8	0.2095
401,254 – 501,254	7	6.5	96.3	1,508,300	10.3	94.1	0.06117
501,255 – 601,255	4	3.7	100	861,946	5.9	100	0.037
Total	**107**	**100**		**14,585,157**			**∑XY = 0.51942**

Gini coefficient = 1 - ∑XY
= 1 – = 0.51942 = 0.48

Source: Authors' computation, 2024

Table 4: Gini Coefficient for Cowpea Wholesalers

Weekly sales (₦)	Frequency	% of Retailers (X)	Cum. % of Wholesalers	Total value of Monthly sales	% of Monthly sales	Cum. % of Monthly sales (Y)	XY
40,000 – 440,000	2	4.3	4.3	1,581,533	6.6	6.6	0.00284
440,001– 840,001	8	17.4	21.7	2,661,684	11.1	17.7	0.03040
840,002– 1,240,002	7	15.2	36.9	4,518,905	18.9	36.6	0.05563
1,240,003– 1,640,003	21	45.7	82.6	6,753,200	28.3	64.9	0.29659
1,640,004– 2,040,004	5	10.9	93.5	5,508,844	23.1	88.0	0.09592
2,040,005– 2,440,005	3	6.5	100	2,861,113	12.0	100	0.065
Total	**46**	**100**		**23,885,279**			**∑XY = 0. 54638**

Gini coefficient = 1 - ∑XY
= 1 – 0.54638 = 0.45

Source: Authors' computation, 2024

market concentration is an indication of presence of perfectly competitive structure in the cowpea market. These findings underscore the vital characteristics of market competition that stakeholders should leverage on, to enhance their marketing strategies.

Market Conduct

The distribution of cowpea sellers by conduct is shown in Table 5. The structure of the market drives their conduct as 69.9% of them are retailers while 30.1% are wholesalers. Thus, there is the likelihood that with increased capital base, a number of retailers will expand their business by trading in larger quantities, thereby improving their standard of living. On source of capital for their operations, 57.5% of the marketers sourced their initial capital for the business from own funds, 38.6 % from cooperative loans, while 3.9% got funds from friends and relatives. Although low capital base is a constraint to sole businesses, the increased enrolment of marketers in cooperative societies, will afford them the opportunity to expand their businesses in the future. Members of the cooperatives are more likely to have better access to loans since most banks and other financial institutions are reluntant in granting

loans to individual marketers, due to lack or inadequate collateral. Cooperative societies also provide their members with important market information that enables them to make rational decision that affect their marketing activities. This is agreement with Martinez and Marilux, (2022) whose findings were that larger cooperatives with access to external financial sources, positive cash flows and operational necessities will grant trade credit. Majority (86.3%) of the sellers are non-seasonal traders while 13.7% of them engage in the trade seasonally. This makes the product available all year round

Table 5: Market Conduct of the Fish Marketers (n=180)

Variables	Frequency	Percentage (%)
Type of trader		
Retailer	107	69.9
Wholesaler	46	30.1
Source of capital		
Own savings	88	57.5
Friends and relatives	6	3.9
Loan from cooperatives	59	38.6
Cooperatives		
Membership	86	56.2
Non membership	67	43.8
Participation		
Seasonal	21	13.7
Non seasonal	132	86.3
Setting of price		
Standard fixed price	10	6.5
Haggling	87	56.9
Market determined	56	36.6
Information channel		
Telephone (GSM)	124	81.0
Personal contact	78	19.0
Total	153	100

Source: Authors' computation, 2024

round for consumers to purchase. Price setting in the market is either through haggling, standard fixed price or determined by market forces of supply and demand. This implies that sellers and buyers of cowpea respond inversely to price signal in the market; consumers will buy less quantities when price is high, but sellers will supply more of the product in an attempt to take advantage of the high price. The results also show that GSM phone is the major (81%) source of market information, in addition to personal contact among cowpea marketers.

Marketing Costs, Margins and Marketing Efficiency in Cowpea Marketing

Costs and returns of cowpea marketing were analysed and result is presented in Table 6. Total Variable Costs/100kg bag is ₦184,200.00, and Total Fixed Cost/100 kg bag is ₦5,750.00 for retailers. Acquisition cost had the highest share of the costs for retailers. The results further showed that retailers procured a 100kg bag at the rate of ₦180,000.00 and sold at a retail price of ₦9,000/paint bucket giving a sales revenue of ₦234,000.00/bag. The total marketing cost/100kg bag for wholesalers is ₦137,200.00, while the sales price is ₦180,000.00/100kg bag. The outcome of Gross margin, Net margin, Operating ratio and Marketing efficiency are presented in Table 6. The net margin-to-total cost ratio indicate that net returns are 23.2% and 31.2% for retailers and wholesalers. That is for every ₦1.00 invested, net income is 23 kobo and 31kobo respectively, for retailers and wholesalers, though wholesaling appears to be more profitable than cowpea retailing in Warri.

Return on sales is an indication of the level of operating margin that cowpea marketers have on their sales. This is calculated as the ratio of net margin to total revenue. When return on sales is low, the operating margin is low, therefore greater volume of revenue must be made in order to make an adequate return on investment (Gittinger, 1982). Return on sales for marketers of cowpea is 18.8% and 23.8% respectively for retailers and wholesalers, implying rather low operating margin in cowpea marketing; a situation that may be adduced to high production cost, and low output due to rising incidence of insurgency in the cowpea production regions of

Table 6: Marketing Costs, Margins and Marketing Efficiency in Cowpea Retailing and Wholesaling

Parameters	Retailers (₦ /100kg bag)	Wholesalers (₦ /100kg bag)
Variable Cost Items		
Cost/100kg	180,000.00	119,500.00
Transport cost	1,200.00	6,200.00
Ground/gate fees	500.00	1,250.00
Handling cost	1,500.00	950.00
Storage and preservation	500.00	500.00
Loading and off-loading	500.00	500.00
Total Variable Cost	**184,200.00**	**128,900.00**
Fixed Cost Items		
Store/shade/sanitation cost	2,400	3,800.00
Utilities (water, light)	3,350	4,500.00
Total Fixed Cost	**5,750**	**8,300.00**
Total Marketing Cost	**189,950**	**137,200.00**
Sales Revenue		
Total Revenue	**234,000**	**180,000.00**
Gross Margin	49,800	51,100.00
Net Margin	44,050	42,800.00
NM-to-TC ratio	23.2%	31.2%
Gross Margin ratio	21.3%	28.4%
Return on sales	18.8%	23.8%
Operating ratio	78.7.3%	71.6%
Marketing Efficiency	81.2%	76.2%

Source: Authors' computation, 2024

Nigeria. The results further imply that profit were only about 24% and 19% respectively, among the two categories of marketers.

The Shepherd-Futrel method was used to measure marketing efficiency in the use of financial resources, which was realised by dividing total marketing cost by total revenue. The marketing efficiency (operating ratio) gives an indication of how marketers control cost of operation. A rising ratio indicates that variable costs are increasing due to scarcity of the product or that revenue is declining due to low consumers' patronage. The marketing efficiency is 81.2% and 76.2% respectively amongst retailers and wholesalers of cowpea. The findings imply that about 81% and 76% of total revenue was spent on marketing costs. Therefore, the market is inefficient, as the higher the operating ratio, the lower the marketing efficiency, and vice versa. Agribusiness enterprises that have very high operating ratios that are as high as 90% are likely to have difficulty in making adequate returns on investment, due to the triple effects of high operating costs, inadequate supply occasioned by low output and low real income of consumers (Gittinger 1982).

Constraints in Cowpea Marketing

Table 7 identifies the major problems faced by cowpea marketers in the study area. Inadequate working capital is the most critical challenge sellers grapple with. Capital is an essential and a veritable input in micro- and small agribusiness enterprises, particularly sole proprietorship.

Table 7: Constraints faced by Cowpea Sellers

Constraints	Frequency	Percentage (%)	Rank order
Price fluctuation	98	14.3	3rd
Insufficient working capital	143	20.9	1st
Inadequate/poor storage facilities	87	12.7	4th
Pest infestation	85	12.4	5th
Insecurity	69	10.1	7th
High cost of labour	82	12.0	6th
High cost of transportation	119	17.4	2nd
Total	**683***	100	

Source: Authors' computation, 2024

This is particularly so as money is needed for the day-to-day marketing activities. Other notable constraints include high cost of transportation and price fluctuation, to mention a few. The rising cost of petroleum products such as petrol and diesel has worsened the cost transportation in all sectors of the Nigerian economy since
fuel subsidy was removed in 2023. Furthermore, the worsening incidence of insecurity in cowpea producing region, has stifled supplies of the product across the nation, which has made fluctuation in product price very erratic. The cumulative impact of these problems could severely distort the structure, conduct, and performance of the marketing process. This study underscores an urgent need to address these overwhelming impediments to enhance cowpea marketing in Delta State. This finding agrees with the study by Maimusa et al, (2023) that, insurgency had adversely affected the livelihood of the farmers in Geidam and Gujba Local Government Areas, in Yobe State, Nigeria.

Conclusion and Recommendations

The study examined the structure, conduct and performance of cowpea marketing in Warri, Delta State. The results indicate that 83.2 % of retailers and 73.9% of wholesalers were aged 33 to 56 years. The study found that Total Variable Costs/100kg bag and Total Fixed Cost/100 kg bag are ₦184,200.00, ₦5,750.00 for retailers; but ₦128,900.00, ₦8,300.00 wholesalers. Net margin is ₦44,050.00 and ₦42,800.00 per 100kg bag respectively, for retailers and wholesalers. Net margin-to-total-cost ratio are 23.2% and 31.2%; implying that for every ₦1.00 invested, net return is 23 kobo and 31kobo respectively, for retailers and wholesalers. Gini coefficients are 0.48, 0.45, while marketing efficiency are 81.2% and 76.2%, for retailers and wholesalers. While concentration appears to be low and tends towards perfect competition, the market is inefficient. The findings of this study will serve as a benchmark for developing agricultural value chains in the State, and providing valuable insights for researchers and all stakeholders focused on cowpea marketing. Therefore, cowpea marketers and government agricultural agencies should leverage on advancements in agricultural production technology to surmount impediments to wide scale cowpea production, in order to mitigate seasonal supply shocks of the product in Delta State, Nigeria. Furthermore, cowpea marketers should radically embrace membership of cooperative societies for improved access to financial resources, market intelligence, and information sharing. The aforementioned initiatives will stem rural-urban migration and promote sustainable agricultural development, and ultimately strengthen agricultural produce marketing with immense benefits to the local economy.

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