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Edited Book
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Book Chapter
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ECONOMICS OF COWPEA MARKETING AMONG SMALLHOLDER FARMERS IN LERE LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

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Abstract

The study analysed cowpea marketing among small-scale farmers in Lere LGA of Kaduna State. A total of one hundred and thirteen (113) cowpea farmers constituted the population for the study. The objectives was to determine the degree of market concentration, marketing margins, and efficiency, and identify factors influencing marketing efficiency in the study area. Data were collected using a structured questionnaire and analysed with descriptive and inferential statistics. Findings revealed that the mean age of cowpea marketers was 33 years, with about 75% being male and 25% female. Household sizes ranged from 1–5 members for 65% of marketers and 6–10 members for 35%. Most marketers (75%) had 1–10 years of marketing experience. The average selling price of cowpea across markets was ₦745 per kg. Net return to investment was ₦5.09, implying that for every ₦100 invested in cowpea marketing, a net return of ₦5.09 was realized. Marketing efficiencies of the four markets were positive, indicating that cowpea marketing in the study area is economically efficient. Marital status of marketers was positive and significant at the 1% probability level. Access to marketing agents was positive and significant at the 10% level, *while selling price was also significant at 10% and positively related to marketing efficiency, meaning efficiency improves as prices increase. The coefficient of determination (R^2) was 0.67, while adjusted R^2 was 0.58, explaining 58% of variability in marketing efficiency. Inadequate transportation facilities ranked as the most severe constraint (40%). The study recommended that government and non-governmental agencies provide microcredit facilities to support marketers and encourage wider participation in cowpea marketing.*

Keywords: Economics, Cowpea, Marketing, Smallholder, Farmers, Kaduna State.

Introduction

Cowpea (*Vigna unguiculata*) is a vital legume extensively cultivated across sub-Saharan Africa, especially in Nigeria, where it serves as both a food and income source for millions of smallholder farmers. Typically grown alongside cereals such as maize, millet, and sorghum, cowpea is valued for its multiple uses ranging from its nutritious leaves and green pods to its grains, mature pods, and stover. With its significant role in enhancing food and nutritional security, cowpea contributes meaningfully to rural livelihoods, income generation, and the broader socio-economic development in West Africa. Nigeria stands as the world's largest producer and consumer of cowpea, accounting for approximately 50% of global production and over half of Africa's output. Despite this, domestic demand still surpasses supply, compelling the country to rely on imports from neighboring nations (FAO, 2015).

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Cowpea marketing, much like the marketing of other agricultural products, encompasses a chain of activities that extend from farm production to the final consumer. This crop is particularly attractive to produce merchants due to its high market value and consistent demand, making cowpea trading a lucrative enterprise (Debaniyu *et al.,* 2011). As emphasized by Sallawu *et al.* (2013), a functional and efficient marketing system facilitates the smooth transfer of cowpea from surplus-producing zones to deficit areas, ensuring mutual benefit for producers, intermediaries, and consumers alike. A robust marketing chain also provides employment opportunities along its various nodes. Thus, an effective marketing infrastructure plays a key role in boosting the efficiency of cowpea distribution (Amaechi, 2013).

According to Olukosi *et al.* (2005), a sound marketing system accelerates economic growth by fostering specialization, generating foreign exchange, promoting a trade-based economy, and creating income and job opportunities for various actors within the marketing framework. Marketing encompasses the legal, physical, and financial services required to move products from producers to consumers (Ikudayisi & Salman, 2011). The overall effectiveness of the marketing system hinges on how well these functions are executed. A more efficient system ensures better outcomes for farmers, agribusiness firms, end-users, and society as a whole. Mishra *et al.* (2000) define marketing efficiency as the optimal ratio of marketing output to input, while Amaza *et al.* (2015) note that marketers must also balance consumer satisfaction with profit margins and social responsibility. Notably, cowpea marketing in West Africa is characterized by a well-organized and hierarchical network of trade routes, particularly between Nigeria and its neighboring countries (Katanga *et al.*, 2016).

In Lere Local Government Area, recent increases in cowpea productivity and profitability present both promising prospects and significant hurdles. While higher yields could enhance farm incomes through market sales, several constraints may limit these gains. Cowpea remains susceptible to environmental risks such as drought and excessive rainfall, which are likely to intensify with ongoing climate change (Veeranagappa *et al.,* 2022). The availability of quality seeds remains uneven, potentially compromising both yield and product quality. Post-harvest losses, often resulting from substandard storage conditions, also reduce the market value of harvested cowpea (Gerrano *et al.,* 2022). Smallholder farmers, who typically operate with limited financial capital and market access, may struggle to secure profitable trading channels. Furthermore, price volatility poses a risk to income stability, highlighting the need for greater market resilience. This study, therefore, seeks to identify strategies for improving cowpea market access, locating high-demand zones, and optimizing supply chain performance to ensure sustainable economic returns for stakeholders.

Review of literature

Concept of Market Structure

Tiku *et al.* (2012) note that tools like the Gini coefficient and the Lorenz curve are often used to evaluate market structure. The Gini coefficient offers a numerical indicator of how concentrated or competitive a market is, with values ranging from 0 to 1. A score of 0 reflects perfect equality among market players suggesting a highly competitive environment while a value of 1 indicates total concentration, which is typical of monopolies or monopsonies. On the other hand, the Lorenz curve serves as a visual tool, mapping how income or market share is spread across different groups within the market (Fajar & Iriawan, 2024).

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In addition to these quantitative methods, market structure is shaped by factors such as product differentiation and barriers to entry and exit. Product differentiation involves tailoring goods or services to meet specific consumer tastes, helping firms carve out a niche and reduce the direct competition they face (Sahi *et al.*, 2022). When products are distinctly different from one another, firms often enjoy greater pricing power because customers are less likely to switch to alternatives. However, in markets where products are largely uniform and interchangeable, firms have little influence over pricing characteristic of perfect competition (Hitt *et al.*, 2007). Barriers that restrict entry into or exit from a market also play a significant role in determining its structure. These obstacles can be structural such as cost advantages or economies of scale or strategic, like aggressive marketing and brand loyalty campaigns used by existing firms to discourage newcomers (Phuu, 2013). When entry barriers are high, existing players can maintain their dominance, reduce competition, and potentially lead to inefficiencies. Especially in agricultural markets, understanding these structural elements is key to evaluating competitiveness, ensuring fairness, and designing sound market policies.

Market Performance

The Structure-Conduct-Performance (SCP) framework suggests that as a market shifts away from the ideal of perfect competition, competitive behaviour tends to weaken. This decline in competition often results in reduced output, lower allocative efficiency, and higher prices (Farida & Setiawan, 2022). In essence, market performance can be evaluated by examining how competitive and efficient the market is.

Giroh *et al.* (2013) describe market performance as the extent to which marketing processes are effectively implemented and how well they meet their intended objectives. A widely used method for analysing market performance is the SCP framework, which emphasizes the link between the structure of a market and the conduct of its participants such as farmers, traders, and consumers. According to Scarborough and Kydd (1992), the behaviour of these stakeholders, influenced by the underlying market structure, plays a key role in shaping the overall performance of the market.

Measurement of Marketing Efficiency

Evaluating marketing efficiency involves examining how well the supply chain operates from the point of production all the way to the final consumer and identifying areas that could be optimized. This is particularly important in sectors like agricultural marketing, where transportation, storage, and distribution significantly impact performance (Park & Cho, 2021). One widely used approach to assess marketing efficiency is marketing margin analysis. This method looks at the gap between the price paid by consumers and the amount received by producers. When this margin is small, it often signals a more efficient marketing system, as it suggests fewer intermediaries or limited value additions along the chain.

Importance of Agricultural Marketing

Agricultural marketing plays a vital role in not only boosting production and consumption but also in driving overall economic growth. Its active and dynamic functions are central to promoting national development (Xiao *et al.*, 2021). When agricultural marketing systems operate efficiently, they help optimize how resources are used and how outputs are managed. They also help increase the volume of marketable produce by minimizing losses related to poor processing, storage, and transport (Urugo *et al.*, 2024).

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A well-functioning marketing system benefits farmers directly by reducing the influence of intermediaries or limiting the commissions and unfair practices often associated with them. This enables farmers to receive better prices for their goods, encouraging them to reinvest in modern farming tools and technologies that can improve productivity and yield (Urugo *et al.*, 2024). Moreover, an effective marketing network expands the reach of agricultural products, making them available even in distant and remote markets both locally and internationally. This market expansion supports steady demand growth, which in turn helps secure better earnings for producers. A more advanced agricultural marketing system also promotes the development of agro-industries and fuels broader economic progress.

Additionally, agricultural marketing supports job creation for countless individuals involved in related services such as packaging, transportation, storage, and processing (Guixia *et al.*, 2024). These marketing activities not only enhance the value of farm products but also contribute significantly to the country's Gross National Product (GNP) and Net National Product (NNP).

Socio-economic Characteristics of Cowpea Marketers

Debaniyu *et al.* (2011) examined cowpea marketing and consumer preferences in Magama Local Government Area of Niger State. Their findings showed that 83.75% of the marketers were aged between 26 and 47 years, with the average age being 43. This suggests a strong involvement of youth in cowpea marketing, who are typically energetic and capable of managing the physical demands and mobility required in marketing activities across different locations.

In a related study, Girei *et al.* (2013) assessed the challenges influencing the structure, conduct, and performance of cowpea marketing in Yola North and South LGAs of Adamawa State. They found that 76% of the marketers were male, while only 24% were female. This gender disparity may be attributed to cultural norms that limit women's participation in certain economic activities, including marketing.

Gaya (2014) conducted research on the structure and performance of soybean markets in Borno State and reported that wholesalers had an average of nine years of formal education, while retailers averaged about twelve years. Similarly, Adejobi (2005), in a study of cowpea marketing in Maiduguri, Borno State, discovered that most marketers had formal education, with many attaining post-secondary qualifications. He concluded that a high literacy rate among marketers could enhance their ability to adopt better marketing strategies, potentially leading to increased profitability.

In contrast, Katanga *et al.* (2016), studying cowpea marketing channels in Kiyawa LGA of Jigawa State, found that 51.5% of respondents had received non-formal (Qur'anic) education, indicating that this form of learning was most common in the area.

Abah and Tor (2012), in their analysis of costs and returns in cowpea enterprises in Lafia LGA, Nasarawa State, noted that 78.3% of the marketers were married. This high percentage suggests that family labour could be a key resource for cowpea marketers in the region. Supporting this, Gaya (2014) observed that the majority of participants in his soybean market study 97% of wholesalers and 91.3% of retailers were also married.

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Materials and Methods

Methodology

The study was conducted in the Lere Local Government Area of Kaduna State. The LGA is located geographically at 10° 36[1] N to 10.33° N and longitudes 8° 57[1] to 7.75° E (Kaduna State Government, 2010). It has headquarters in Saminaka and shares a common border with Kubau, Kauru, Zangon-Kataf and kaura LGA's in Kaduna State, it also shared a common border with Plateau, and Bauchi State in the south-east. With a population of 338,740, (NPC, 2006), based on an annual growth rate of 1.3%, the project population is about 458,600 in 2024. In the LGA Saminaka, Abadawa, Kayarda, and Ramin-Kura. These are the prominent cowpea-producing and marketing areas in the LGA (Lawal, 2017). They are considered on the basis of economic comparative advantage and soil suitability, especially in the area of cowpea production and marketing. It's also an area where cowpea can be found available almost throughout the year.

MAP OF THE STUDY AREA.

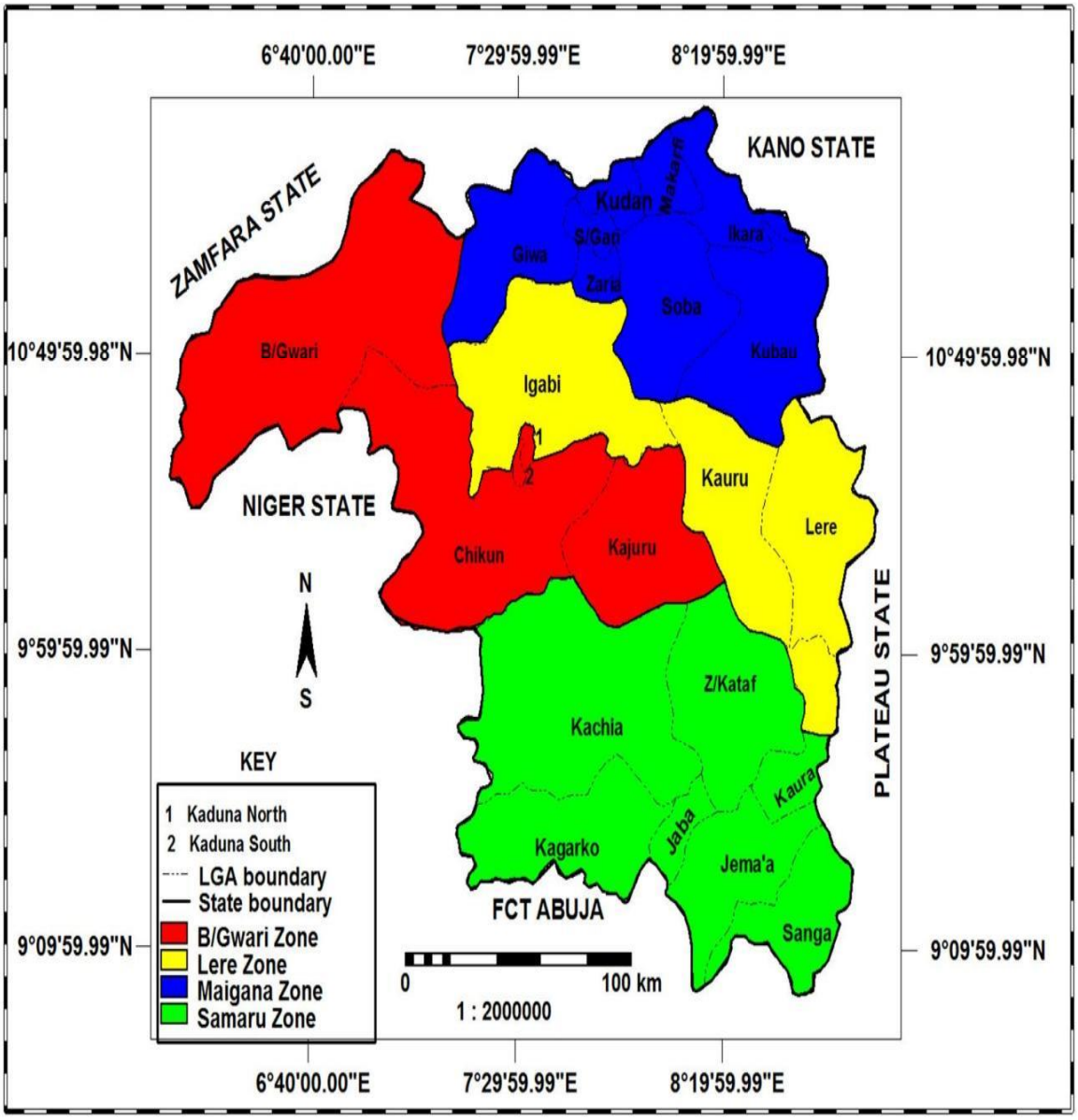

Fig: 1 MAP of the study area, *Source: Kaduna State Government, 2023*

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Sample size and Sampling Technique

A multistage sampling procedure was used. Firstly, the purposive sampling technique was employed in the selection of 4 district markets, namely, Saminaka, Abadawa, Kayarda, and Ramin-Kura, based on their significant involvement in cowpea production and marketing. Secondly, simple random sampling techniques was used in selecting cowpea marketers from each district. Finally, fifty percent (50%) of the sampling frame (225) was used as the sample size. Thus, 113 respondents were randomly selected. Data was collected from both marketers and producers. Data was also be collected on the socio-economic characteristics of cowpea marketers, such as educational background, age, household size, degree of seller's concentration on cowpea marketing, market performance, as well as the profitability of cowpea marketing, and the factors influencing the marketing efficiency of cowpea marketing, as shown in Table 1 below:

Table 1: Sampling Frame and Sample size of the respondents

Districts	Sampling frame	Sample size(50%)
Saminaka	60	30
Abadawa	70	35
Kayarda	50	25
Ramin-Kura	45	23
Total	225	113

Source: Reconnaissance Survey, 2024

Methods of Data Collection

Primary data was used for the study, with the aid of a well-structured questionnaire to gather information on socio-economic characteristics such as age, sex, marital status, educational level, farming and marketing experience, performance and structure in the market, inputs and output relationships, challenges and constraints of cowpea marketing, total land area under cultivation, farm size and method of extension services, etc. Other information was gathered through secondary sources of data such as journals, textbooks, libraries, statistical bulletins, etc.

Analytical Techniques

Descriptive statistics

Descriptive statistics such as mean, percentage and frequency distribution were used to examine the socio- economic characteristics of cowpea marketers and the problems encountered in cowpea marketing. This was used to achieve objectives i.

Gini Coefficient

Gini coefficient was used to analyze the structure of the market (objective ii). This helps to determine the degree of market concentration. The Gini Coefficient is a measure of statistical dispersion most prominently used as a measure of inequality of wealth or product distribution. It has values between 0 and 1 (Zhang, et al., 2022). A low Gini Coefficient indicates more equal incomes, wealth or product distribution and a high Gini Coefficient indicates more unequal distribution. Zero corresponds to perfect equality and 1 (one) corresponds to perfect inequality (Zhang, *et al.*, 2022)

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Standard Formula:
G = A / (A + B)
Using the Trapezoidal Rule Approximation:

$$G = 1 - \frac{\sum (Y_i + Y_{i-1}) \times (X_i - X_{i-1})}{100}$$

Where:
Xi: Cumulative % of sellers in market i
Yi: Cumulative % of sales in market i
i =1, 2, 3, 4

Marketing Margin

Marketing margin and efficiency were assessed to address Objective iii of the study. The marketing margin was calculated as the difference between the price paid by the final consumer and the net price received by the producer for an equivalent quantity of cowpea, including the net return on investment. To determine this margin, the average marketing costs incurred by each marketer were computed across the different stages involved in cowpea marketing transactions (Ahamefule *et al.,* 2024). The analysis focused on marketing margins for key actors in the cowpea value chain wholesalers, retailers, and consumers measured on a per-tonne.

$$\text{Marketing margin (MM)} = \frac{CP - PP}{CP} X 100 \quad \ldots\ldots (1)$$

Where:
MM = Marketing margin
CP = is the consumer price and
PP = is the producer price.

Marketing efficiency

Marketing efficiency can be defined as the ratio of the total value added by marketing divided by cost of marketing services (Olukosi *et al*., 2005). It is usually expressed in percentages as.

$$\text{Marketing efficiency (ME)} = \frac{\text{Value added by marketing per tonne}}{\text{Cost of marketing services per tonne}} X 100 \quad \ldots\ldots (2)$$

The value added by cowpea marketing was computed using the formula:

$$VA = C_{PT} - C_{PU} \quad \ldots\ldots (3)$$

Where:
V_A = value added;
C_{PT} = cost of purchasing cowpea plus storage cost/commission charges;
C_{PU} = cost of purchasing cowpea.

3.4.5 Multiple Regression Model

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Regression analysis was used to achieve objective iv. The model specification of the regression coefficient variable are as follows;

$\ln Y = \alpha + \beta_1 Inx_1 + \beta_2 Inx_2 + \beta_3 Inx_3 + \beta_4 Inx_4 + \beta_5 Inx_5 + \beta_6 Inx_6 + \beta_7 Inx_7 + \beta_8 Inx_8 + \beta_9 Inx_8 + \ldots\ldots\ldots + Ui$

Where:
Y= Cowpea
α = constant
β_1- β_{11} = Coefficients
X_1= Age
X_2 = Gender
X_3 = Household size
X_4 =Marital Status
X_5 = Level education
X_6 = Years of experiences
X_7 = Cooperative society
X_8 = Access to marketing agent
X_9 = Selling price
U_1 = Error term

Results and Discussion

Socio-Economic Characteristics of Cowpea Marketers.

The results presented in Table 2 show the age distribution of cowpea marketers in the study area. The findings indicate that approximately 53% of respondents fell within the age bracket of 21–30 years, with an average age of 33 years. This aligns with the study by Adejobi (2005), which revealed that traders in Maiduguri were within the age range of 32–42 years. Furthermore, about 75% of the cowpea marketers were male, while the remaining 25% were female. This finding is consistent with Langyintuo *et al.* (2004), who reported that 100% of cowpea traders in the humid coastal areas of Ghana, Togo, and Benin Republic were female. Regarding marital status, approximately 62% of cowpea marketers were single, while 38% were married. This suggests that marital status is moderately distributed among the marketers in the study area.

The results also indicate that about 60% of the cowpea marketers did not have access to formal education, while 40% had attained some level of formal education. Household size distribution among the marketers revealed that approximately 65% had a household size ranging from 1 to 5 members, while 35% had between 6 and 10 members. In terms of marketing experience, the majority of the marketers (75%) had between 1 and 10 years of experience. Additionally, it was found that about 83% of cowpea marketers did not belong to any cooperative association, while only 17% were members, with an average membership duration of two years. This implies that only a few farmers have access to credit facilities, as lending agencies often prefer to extend credit to cooperatives rather than individual farmers. Regarding consumer preferences, the results show that 50% of consumers preferred the freshness of white cowpea, while 41% favoured the taste of brown cowpea. Additionally, 7% of consumers prioritized high quality, and 2% considered medicinal benefits as their main preference.

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Table 2: Socio - Economic Characteristics of Cowpea Marketers in the study area

Variables	Frequency	Percentages	Mean
Age			
< 20	0	0	33
21-30	60	53	
31-40	20	18	
41- 50	26	23	
51-60	7	6	
Total	113	100	
Sex			
Male	85	75	
Female	28	25	
Total	100	100	
Marital Status			
Married	43	38	
Single	70	62	
Total	113	100	
Educational Status			
Formal education	45	40	
Non-Formal education	68	60	
Total	113	100	
Access Marketing Agent			
Yes	46	41	
No	67	59	
Total	113	100	
Household Size			
1-5	75	65	
6-10	40	35	
Total	113	100	
Marketing experience			
1-10years	85	75	
>10	20	25	
Total	113	100	
Cooperatives Association			2years
Non – Members	94	83	
Members	19	17	
Total	113	100	
Selling Price			
Higher Price	57	50	
Moderate Price	46	41	
Low price	8	7	
Very low price	2	2	
Total	113	100	

Source: Field Survey, 2024

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GINI COEFFICIENT MODEL SPECIFICATION BASED ON FOUR (4), MARKETS

This research presents the model specification and computation of the Gini Coefficient based on four selected cowpea markets: Saminaka, Abadawa, Ramin-Kura, and Kayarda. As shown in table 2 below:

Table 2 show the cumulative percentage of sales/sellers in 4 markets

Market	Sales (₦'000)	% of Total Sales	Cumulative % of Sales	Cumulative % of Sellers
Saminaka	5	5%	5%	20%
Abadawa	10	10%	15%	40%
Ramin-Kura	15	15%	30%	60%
Kayarda	30	30%	60%	80%

Source: field survey, 2024

GINI COEFFICIENT COMPUTATION USING TRAPEZOIDAL RULE

The Gini Coefficient (G) is a measure of inequality in a distribution, such as income or market share. It is calculated based on the Lorenz curve.

Table 3 Show the inequality in cowpea sales distribution among the 4 markets

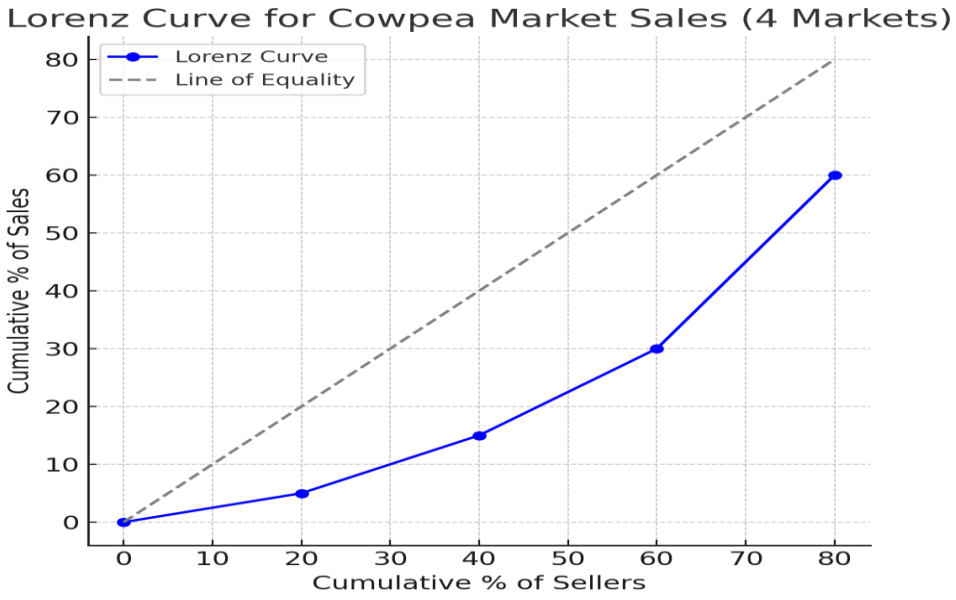
MARKETS	X_i (%)	Y_i (%)	$X_i - X_{i-1}$	$Y_i + Y_{i-1}$	Product
Saminaka	20	5	20	5	100
Abadawa	40	15	20	20	400
Ramin-Kura	60	30	20	45	900
Kayarda	80	60	20	90	1800

Source: field survey, 2024

Sum of products = 3200

G = 1 - (3200 / 10000) = 1 - 0.32 = 0.68

The result reported that the Gini coefficient of 0.68 indicates a high level of inequality in cowpea sales distribution among the four selected markets.



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The result shown in Figure 2, which presents the Lorenz Curve, reveals that the Gini coefficient of 0.68 reflects a high degree of inequality in cowpea sales across the selected markets. The result is similar with Kyari *et al.* (2023) analyzed cowpea marketing in Borno State and reported a Gini value of 0.390, reflecting moderate inequality in the distribution of marketing income.

This high Gini value indicates that cowpea sales are disproportionately concentrated in a few markets, particularly Kayarda. The initial segments of the curve rise slowly, which means that the first 60% of sellers (Saminaka, Abadawa, and Ramin-Kura) together account for only 30% of total sales. This slow rise shows that a large number of sellers have limited sales contributions, confirming their low market share and weaker economic participation.
In contrast, the curve bends sharply upward near the end, representing Kayarda, where a smaller percentage of sellers (20%) account for a much larger share (30%) of total sales. This steep rise is a classic indicator of market dominance by a few.

Marketing Margin of Cowpea Marketing

The results presented in Table 3 show the average unit price of cowpea across four different markets in the study area: Saminaka, Abadawa, Kayarda, and Ramin-Kura markets in Lere LGA. The table also outlines the selling price (consumer price), producer price, marketing margin, and net return of cowpea marketing in the study area. The findings indicate that the average unit price per kilogram (kg) of cowpea sold by farmers across all markets was ₦745. Additionally, the study reported the selling prices of cowpea in the four district markets as follows: Saminaka (₦65,000) per bag, Abadawa (₦78,000) per bag, Kayarda (₦80,000) per bag, Ramin-Kura (₦75,000) per bag. The overall mean selling price across all markets was ₦74,500 per bag, while the average producer price was ₦70,750 per bag. The average marketing margin was ₦3,750, with a net return on investment of 5.09%.

This implies that, on average, for every ₦100 invested in cowpea production, there is a net return of ₦5.09 after selling the cowpea in the various markets. From a business perspective, a positive net return indicates a profitable venture, and the percentage provides insight into the efficiency of the marketing and sales strategy.

Table 3: Marketing Margin

Markets	Units Price per (kg)	Consumer price (₦) or selling price	Producer price (₦) or production cost	Marketing margin (₦)	Net return (₦)
Saminaka	₦650	65000	62000	3000	4.62
Abadawa	₦780	78000	73000	5000	6.41
Kayarda	₦800	80000	76000	4000	5.21
Ramin-Kura	₦750	75000	72000	3000	4.11
Total Mean Average of all the markets	₦745	₦74500	₦70750	₦3750	₦5.09

Source: Field Survey, 2024

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The results of consumer prices (in naira) from the four different markets were represented in Figure 2 below, illustrating the marketing margin for each market in the study area.

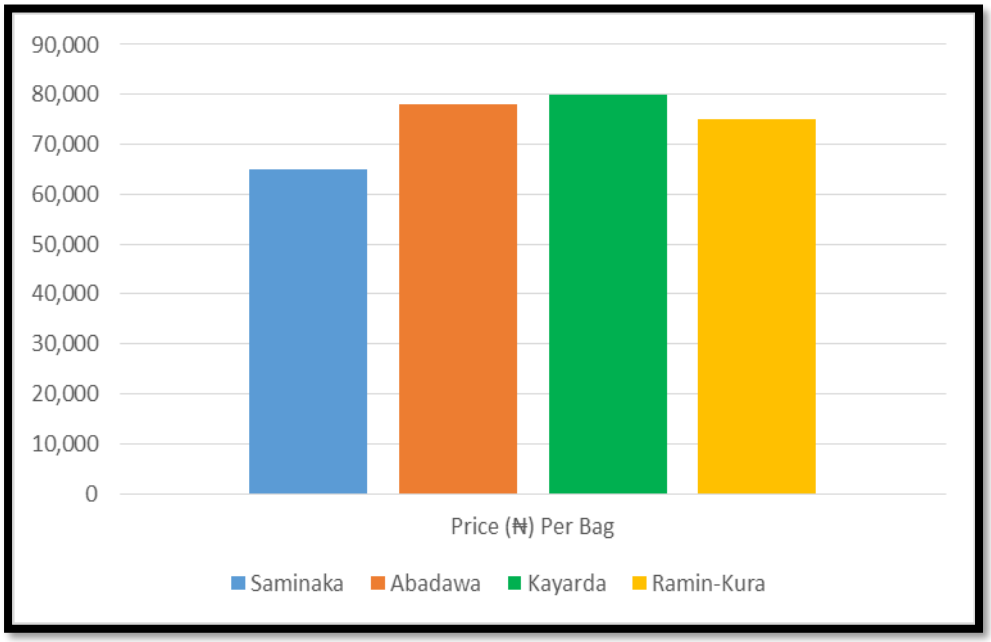

Fig. 2 Consumer selling price from the 4 different markets.

Marketing Efficiency of Cowpea Marketing

Marketing efficiency was used to measure market performance, where low marketing efficiency indicates an inefficient marketing channel. The results presented in Table 4 show the marketing efficiency of cowpea farmers in the study area. The table indicates that value-added output was measured in tons. In Saminaka district, the value-added output was 4,000 tons, with the cost of marketing services amounting to ₦346,514 and a marketing efficiency of 1.15%. This means that for every ₦100 spent on marketing services in Saminaka, the market generates ₦1.15 in value-added output. The overall cost of marketing services in the four markets was as follows, Saminaka (₦346,514), Abadawa (₦325,434), Kayarda (₦302,345), and Ramin-Kura (₦125,641) respectively. The results further revealed that the marketing efficiency percentages for the four markets were calculated as Saminaka (1.15%), Abadawa: (0.92%), Kayarda (1.65%), and Ramin-Kura (1.59%) respectively.

These results imply that since the Saminaka, Kayarda, and Ramin-Kura markets had marketing efficiency values greater than 1 (i.e., ME > 1), they can be considered highly profitable markets for cowpea in the study area. On the other hand, Abadawa market, with a marketing efficiency of less than 1 (i.e., ME < 1), indicates inefficiency, suggesting that a considerable loss is being recorded in the trade. However, a moderate level of efficiency is also observed across the markets, as shown in Table 4 below.

Table 4. Marketing Efficiency

District Markets	Value added output in tones	Cost of marketing services (₦)	Marketing efficiencies (%)
Saminaka	4000	346,514	1.15%
Abadawa	3000	325,434	0.92%
Kayarda	5000	302,345	1.65%
Ramin- Kura	2000	125,641	1.59%

Source: Field survey, 2024

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The results of marketing efficiency across the four different markets, indicating varying costs of marketing services, are presented in Figure 3 below.

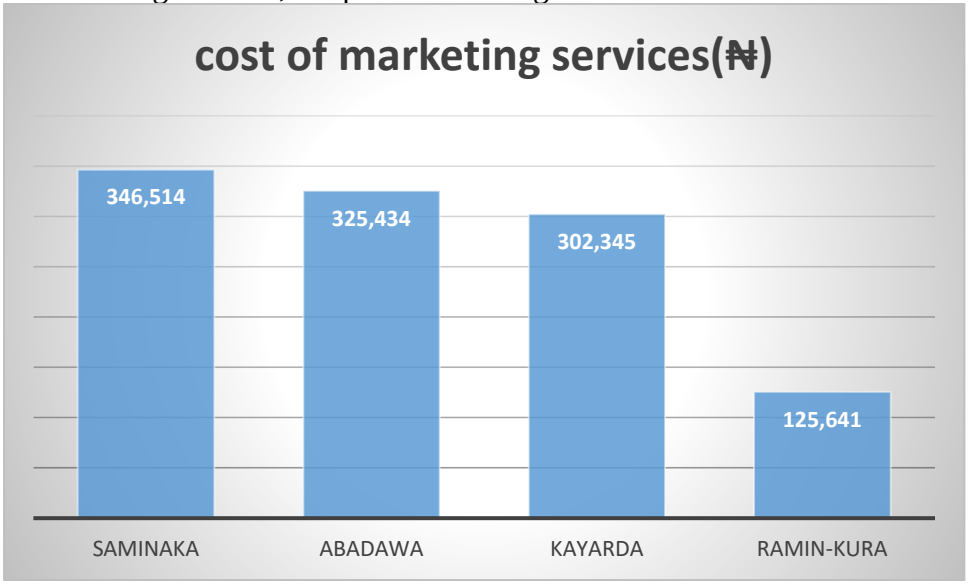

Fig. 3: Cost of marketing services

Factors Influencing Cowpea Marketing

The results presented in Table 5 highlight the gender distribution of cowpea marketers in the study area. The findings show a positive and statistically significant relationship at the 1% probability level, indicating that gender distribution positively contributes to the marketing efficiency of cowpea in the region.

Marital status was also found to have a positive and significant influence at the 1% probability level, suggesting that being married plays a notable role in enhancing marketing efficiency among cowpea farmers. Additionally, access to marketing agents was significant at the 10% level and positively related to marketing efficiency. This implies that farmers who interacted more frequently with marketing agent's experienced greater efficiency in cowpea marketing compared to those with limited or no such interaction. This observation aligns with Reddy *et al.* (2010), who noted that older or more experienced farmers tend to be better connected and more effective in agricultural production and marketing decisions.

The coefficient for cooperative society membership was positive and highly significant at the 1% level, indicating a strong and direct relationship with marketing efficiency. This finding is consistent with Agyemang et al. (2000) in Northern Nigeria and supports the general expectation that cooperative members have better access to market information and resources, leading to improved production and marketing outcomes. While marketing experience in cowpea trading showed a positive relationship with efficiency, it was not statistically significant. However, the selling price was found to be significant at the 10% level and positively correlated with marketing efficiency. This suggests that higher selling prices may encourage better performance and efficiency among marketers, likely due to the motivation provided by more favorable market conditions.

The coefficient of determination (R^2) was 0.67, indicating that the independent variables collectively explain 67% of the variation in marketing efficiency. The adjusted R^2 value of 0.58 further suggests that, after accounting for degrees of freedom, approximately 58% of the total variability in marketing efficiency is explained by the variables included in the model.

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Table 5: Factors Influencing the Marketing Efficiency in the study area.

Variables	Coefficients.	Std. Err.	Z	p>|z|
Sex	0.0271	4.023	2.69	0.008***
Marital status	0.0643	0.0226	3.29	0.001***
Education level	0.20009	0.0552	0.35	0.931
Access to marketing agents	0.07897	0.044	1.79	0.073*
Households size	0.0051	0.0141	0.29	0.78^{NS}
Marketing experience	0.0145	0.0125	1.25	0.815^{NS}
Cooperative association	3.027	0.450	6.79	0.0001***
Selling price	4.021	0.531	7.57	0.063*
R^2=0.67				
N= 113	R^2 Adjusted=0.58			

Source: *Field survey, 2024.* ***= 1% significant, **=5% significant, *=10% significant

Conclusion and recommendations

The study concludes that cowpea markets in Lere Local Government Area face several challenges, one of the most significant being limited access to credit facilities. This is largely due to the preference of lending institutions to offer credit to cooperatives rather than to individual farmers. Additionally, the study found that the majority of marketers (75%) had between 1 and 10 years of experience in cowpea marketing.

It was also concluded that, on average, for every ₦100 invested in cowpea marketing, there is a net return of approximately ₦5.09 after sales across various markets in the study area. From a business perspective, a positive net return indicates that cowpea marketing is profitable. This return also reflects the effectiveness of the current marketing and sales strategies. Furthermore, the findings reveal that markets in Saminaka, Kayarda, and Ramin-Kura had marketing efficiency scores greater than 1 (i.e., ME > 1), suggesting that these markets are highly profitable for cowpea trading. In contrast, the Abadawa market recorded a marketing efficiency of less than 1 (i.e., ME < 1), indicating inefficiency and suggesting that marketers in this location are likely incurring losses.

The study also reports a coefficient of determination (R^2) of 0.67, meaning that the independent variables explain 67% of the variation in marketing efficiency. The adjusted R^2 value of 0.58 further indicates that, when all variables are considered, they collectively account for approximately 58% of the total variability in marketing efficiency within the study area.

Based on the findings of this study, the following recommendations were provided:

i. Government and non-governmental agencies should empower the marketers through the provision of micro credit facilities to encourage more people to go into cowpea marketing.
ii. Infrastructure development, market information system and capacity building, present viable pathway to addressee the identified constraints.
iii. The stakeholders in the cowpea sector can enhance the efficiency of the marketing chain, and reduce losses, create a more sustainable and resilient economic environment.
iv. Government support policies, adherence to quality standards, and promotion of value addition can collectively contribute to the overall growth and competitiveness of the cowpea market in the study area.

References

Ahamefule, B. A., Offor, E. I., Efedua, J. C., & Ukaigwe, B. C. (2024). Higher Margin or Loss? Orange- Fleshed Sweet Potato (OFSP) Marketing in Abia State, Nigeria. JORMASS| Journal of Research in Management and Social Sciences, 10(2), 64-72.

Fajar, M., & Iriawan, N. (2024). The lorenz-extended rohde function for asymmetric lorenz curve (Application in income data). Procedia Computer Science, 245, 65-76.

Farida, I., & Setiawan, D. (2022). Business strategies and competitive advantage: the role of performance and innovation. Journal of Open Innovation: Technology, Market, and Complexity, 8(3), 163.

Guixia, X., Samian, N., Faizal, M. F. M., Mohd, M. A. Z., As'ad, M. F. M. F., Abdullah, A., & Hermadi, I. (2024). A framework for blockchain and internet of things integration in improving food security in the food supply chain. J. Adv. Res. Appl. Sci. Eng. Technology, 34(1), 24-37.

Park, H. H., & Cho, S. J. (2021). An analysis of the effect of logistics efficiency on the export of korean agricultural products to new southern countries. Journal of Korea Trade, 25(1), 169-183.

Sahi, G. K., Devi, R., Gupta, M. C., & Cheng, T. C. E. (2022). Assessing co-creation based competitive advantage through consumers' need for differentiation. Journal of Retailing and Consumer Services, 66(2), 102-911.

Urugo, M. M., Yohannis, E., Teka, T. A., Gemede, H. F., Tola, Y. B., Forsido, S. F., & Abdu, J. (2024). Addressing post-harvest losses through agro-processing for sustainable development in Ethiopia. Journal of Agriculture and Food Research, 101316.

Xiao, J., Wang, W., & Tsai, S. B. (2021). Coupling of agricultural product marketing and agricultural economic development based on big data analysis and "Internet". Mobile Information Systems, 2021(1), 3702064.