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Economics of small-scale cashew nut marketing enterprise: the case of Ejigbo local government area, Osun state, Nigeria

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Abstract

Nigeria, a major African producer of cashew nuts, is leveraging its marketing activities to generate non-farm income, thereby enhancing the living standards of the rural population. The study undertakes the economic analysis of cashew nut marketing activities in the Ejigbo local Government area, Osun State. Two-stage sampling procedure; simple random and proportional techniques were employed in selecting one hundred and twenty (120) cashew nuts marketers as sample for the study. Primary data for the study were obtained through field surveys using a structured interview schedule. Data were analysed with both descriptive and inferential statistics. Results of the descriptive analysis show that most of those cashew nuts marketers were young, economically active married males with low formal education but vast experience in cashew nuts marketing activities. Most were members of cooperative societies and marketing associations and sourcing their cashew nuts through middlemen. The average annual total market revenue (TMR), total fixed marketing costs (TFMC), total variable marketing costs (TVMC), total marketing cost (TMC), net market margin (NMM), and gross market margin (GMM) per cashew nuts marketing enterprise were ₦4,715,768.30, ₦1,196.25, ₦4, 436, 426.39, ₦4, 437, 622.64, ₦278, 145.66, and ₦279, 341.91 respectively. The cost of cashew nuts accounted for approximately 99.97% of the TVMC. Regression results reveal that the cost of purchase of cashew nuts and market levies influenced NMM positively, while the cost of labour and TFMC impacted NMM negatively. The study concluded that the cashew nut marketing enterprise is profitable, with good returns on investment in the study area.

Keywords: Cashew nuts, budgetary analysis, Market margin, Ejigbo, Osun State

INTRODUCTION

According to Johnson (1973) and Nair (2010), the cashew (*Anacardium occidentale* L.), a tropical nut-producing tree, is believed to have originated in Central Brazil in South America. Portuguese explorers who traveled from Europe to Asia and Africa were mostly responsible for the introduction of the crop to these continents. The crop has spread throughout several continents since it was first introduced, developing into a significant agricultural export commodity for these nations. Cashew is primarily grown for its kernel, which has grown in value over the past 20 years and is now produced and sold in several countries (Adeigbe *et al*, 2015; Eze *et al*, 2023). Out of all the nuts that are consumed worldwide, cashew is the third most produced type (Agada *et al*., 2020). According to the Nigerian Export Promotion Council (NEPC) (2021), with an annual production of 220,000 tons in 2022, Nigeria ranked sixth in the world among the largest cashew nut producers, and third in Africa behind Côte d'Ivoire and Tanzania. Based on data of Cultivating New Frontiers Agriculture (CNFA) (2020) and Baseedy & Alieu (2021), Côte d'Ivoire is the world's top producer in 2019, followed by Ghana, Guinea-Bissau, Nigeria, and Benin. Cashew nuts accounted for 14.4% of Nigeria's overall export value in 2021, with a value of ₦72.8 billion. According to the

split statistics, the export of in-shell cashew nuts brought in ₦55.6 billion of the total, while the export of shelled cashew nuts brought in ₦17.2 billion (Oyekanmi, 2022).

Cashew cultivation is an important source of foreign exchange gains for producing countries, employing a large number of people and providing raw materials for the manufacturing industries (Nayar, 1995). For more than 65% of Nigerian smallholder farming families, the crop represents a significant source of income (Central Bank of Nigeria (CBN), 2005; Oni, 2022). Nigerian states have smallholder farms and plantations growing cashew, with the southern and middle belt parts of the nation producing the majority of the crop. The states that produce the most are Kogi, Oyo, Enugu, Osun, and Anambra. Nigeria's top cashew grower is Kogi State (Olife *et al*., 2013; Agada *et al*., 2020). Cashew production in West Africa faces numerous challenges, including dwindling yields from old cashew farms with old tree stocks, cashew farmers' limited financial and technical capacity to revitalize aging plantations, and a lack of improved seedlings in nurseries to increase farmers' productivity. Ineffective agricultural trade laws, that restrict cashew exports, unfavorable trade competitiveness among regional producers that results in punitive regional trade laws, and a lack of strong public-private partnerships to enhance cashew production and marketing advocacy efforts further exacerbate these issues (CNFA, 2020; Baseedy & Alieu, 2021)

The essential element of agricultural production is agricultural marketing as, up until the commodities reach the final consumer, production is inconclusive (Oluyole *et al*., 2015). Nigerian cashew prices have increased significantly on international markets. In 1993, the price of cashew nuts was ₦24,753.00 per ton, but by 2003, it had climbed to ₦180,011.00 per ton internationally (FAO, 2007; Asogwa et al., 2008). Nonetheless, the price of cashew nuts dropped dramatically on a global scale, from $833.00 per ton in 2018 to $1,100 per ton in 2019. This is a 34% decrease in price in just one year (FAO, 2017; Oluyole *et al*., 2015).

The Nigerian cashew nut market is unregulated, according to Agbongiarhuoyi *et al*. (2020), and middlemen have a big impact on prices and profit margins from cashew nut marketing initiatives. The intermediaries pressure cashew farmers to sell their nuts at exorbitant prices, which discourages cashew production. Due to the lack of marketers with specialized training in cashew nut trading, the cashew marketing system is disorganized. Low farm gate prices of cashew nuts are the product of numerous middlemen along the cashew nut marketing chain. Examining the margin accruing to cashew nut marketers along the marketing chain is necessary, even though the goal of the Nigerian government's agricultural commodities liberalization strategy is to help all stakeholders in the supply chain. The economics of small-scale cashew nut marketing in Ejigbo Local Government Area (LGA), Osun State, Nigeria was examined in this study. The study's specific goals are to describe the socioeconomic characteristics of cashew nut marketers, estimate the costs and returns associated with cashew nut marketing, identify the variables influencing net returns from cashew nut marketing, and identify the barriers to cashew nut marketing in the study area.

MATERIALS AND METHODS

Study Area

The study was conducted in Ejigbo Local Government Area (LGA). The LGA is situated in Osun State, South Western Nigeria, with its headquarters in Ejigbo town. The LGA was one of the cashew nuts production hubs in Osun State, Nigeria. The LGA is populated by cashew nut marketers with a beehive of cashew nut marketing activities. The major cashew nuts-producing towns in the LGA are Ejigbo, Isundurin, Araromi, Ife Odan, Masifa, and Ilawo. The cashew nut marketers in the study area make up the study's population.

Data collection and sampling method

Primary data employed in the study were collected through field surveys using a structured interview schedule. Data were collected on socioeconomic and cashew nuts marketing variables.

The structured interview schedule was pretested in selected area to ensure its validity and reliability of effective data collection for the study. The two-stage sampling procedure was employed in selecting a sample for the study. The first stage involved the random selection of twenty (20) percent of registered cashew nut marketers from the major cashew nuts-producing towns in the LGA; Ejigbo (40 marketers), Isundurin (30 marketers), Araromi (20 marketers), Ife Odan (50 marketers), Masifa (15 marketers), and Ilawo (25 marketers), making one hundred and eighty (180) cashew nuts marketers in total. In the second stage, proportional sampling technique was used to select one hundred and twenty (120) cashew nuts marketers from the one hundred and eighty (180) cashew nuts marketers as the sample for the study. The socioeconomic characteristics of the respondents, such as age, education level, and cashew nut marketing experience were measured in years. Family size was measured as the number of people in a family, labour was measured in man-days, and marketing costs and revenue were measured in Naira.

Analytical Technique

The data collected was analysed with both descriptive and inferential statistics. The descriptive statistics include means, percentages, and frequency counts. These were used to examine the socio-economic characteristics of the respondents. Budgetary analysis was used to determine the net returns from cashew nuts marketing activities. The multiple regression analysis was used to determine factors influencing the net returns of cashew nuts marketers. The implicit form of the model employed in the study is expressed as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5) \quad \text{(Eq. 1)}$$

Where

Y – net returns from cashew nuts marketing activities in Naira

X_1 – cost of purchase of cashew nuts in Naira

X_2 – the cost of man-days of labour in Naira

X_3 – the cost of renting the store and equipment in Naira

X_4 – the market levies paid to association and government in Naira.

Apriori expectations

The cost of purchasing of cashew nuts (X_1) is expected to have a positive relationship with the market margin from cashew nut marketing. This implies that the higher the level of purchase, the higher the market margin from cashew nut marketing.

However, the cost of labour (X_2), cost of renting (X_3), and cost of levies (X_4) are expected to have a negative relationship with the market margin from cashew nut marketing. This implies that the higher level of these variables, the lower the market margin from cashew nut marketing.

Budgetary Analysis

The cashew nut marketing enterprise budget analysis was carried out to identify marketing costs` (fixed and variable), marketing revenue, and market margin from cashew nuts marketing activities. The total marketing costs incurred by the enterprise were calculated by adding the total variable cost and total fixed costs.

$$TMC = TFMC + TVMC \quad \text{(Eq. 2)}$$

Where, TMC=total marketing cost, TFMC=total fixed marketing cost, and TVMC= total variable marketing cost.

Market margin

From the cashew nut marketing enterprise budget, the net market margin (net profit) was estimated by subtracting the total marketing costs from the total marketing revenue.

$$NMM = TMR - TMC \quad \text{(Eq. 3)}$$

Where, NMM=net market margin, TMR=total marketing revenue, and TMC=total marketing cost.

The gross market margin (income above variable costs), reveals the amount recouped by a cashew marketing enterprise toward the payment of fixed marketing costs (Ronald & Edwards, 2016), was calculated using the formula:

GMM = TMR – TVMC (Eq. 4)

Where, GMM=gross market margin, TVMC=total variable marketing cost, and TMR= total marketing revenue.

Return on investment

The return on investment (ROI) of the cashew nut marketing enterprise in the study was estimated as the ratio of the NNM to TMC. This mathematically expressed as:

ROI = NNM/TMC (Eq. 5)

RESULTS AND DISCUSSION

Socio-economic characteristics of the cashew nut marketers

The results of the socio-economic characteristics of the cashew nut marketers revealed that most (78.00%) of the respondents fall within the age ranges of 25-44 years, with a mean age of 39.26 years, implying that most of the cashew nut marketers are still within their economically active age (Table 1). Most of the marketers (96.67%) are male, indicating that the cashew nut marketing enterprise is a male-dominated enterprise in the study area. The challenges faced by female cashew nut marketers largely stem from their limited access to timely and accurate market information, making it difficult for them to make informed decisions about when and where to sell their products. They often depend on middlemen for sales, who set the market prices. Unfortunately, these middlemen usually offer lower prices, negatively impacting the livelihoods of women marketers. Moreover, women in cashew nut marketing often lack the training and resources needed to improve their marketing skills. Traditional gender roles frequently limit women's participation in various aspects of cashew nut marketing. Additionally, there is often a lack of supportive policies and regulations that address the specific needs of women in this field, including challenges related to land ownership, access to credit, and market opportunities (Enwelu *et al*. 2014; Venkataram, 2019; Gomez *et al*. 2023).

The study found that most (90.00%) of the cashew nut marketers were married. Also, the majority (60.00%) of the cashew nut marketers had between 1-3 persons in their families, with an average of three persons per family. Most (95.01%) of the cashew nuts marketers had between 6-14 years of formal education, with a mean of 8.9 years. The majority (61.67%) of the cashew nut marketers were not members of cooperative societies but most (98.33%) of them were members of their respective marketing associations. This may be attributed to the fact that membership in cooperative societies is voluntary, while that of marketing associations is compulsory.

According to the survey results, most (98.33%) of the cashew nut marketers sourced their cashew nuts from middlemen rather than directly from the farmers. Agbongiarhuoyi *et a*l. (2020) found that, in Nigeria, the cashew nut marketing is predominantly managed by middlemen, resulting in farmers receiving a smaller share of the market profits. The middlemen in this region exploit the unregulated nature of the cashew nut market and the farmers' lack of access to up-to-date market price information.

Additionally, most (91.67%) of the cashew nuts marketer have between 2 and 22 years of experience in cashew nut marketing, with an average of 12.80 years. This indicates that they are highly experienced in cashew nut marketing activities, which may have implications for the returns from their marketing efforts. This finding conforms to that of Salau *et al*. (2017).

Table 1. Socio-economic characteristics of the respondents (n=120)

Socio-economic characteristics (n=120)	Frequency	Percentage (%)
Age		
25-34	52	43.33
35-44	26	21.67
45-54	26	21.67
55-64	8	6.67
65-74	6	5.00
75-84	2	1.67
Mean = 39.26		
Gender		
Male	116	96.67
Female	4	3.33
Marital status		
Single	12	10.00
Married	108	90.00
Family size		
1-3	72	60.00
4-6	42	35.00
7-9	6	5.00
Mean = 3		
Years of formal education		
6-8	14	11.67
9-11	38	31.67
12-14	62	51.67
15-17	4	3.33
18-20	2	1.67
Mean = 12.03		
Membership of cooperative society		
Yes	46	38.33
No	74	61.67
Membership of marketing association		
Yes	118	98.33
No	2	1.67
Source of cashew nuts		
Cashew farmers	2	1.67
Middlemen	118	98.33
Years of cashew nut marketing experience		
2-8	54	45.00
9-15	32	26.67
16-22	12	10.00
23-29	6	5.00
30-36	14	13.14
Mean = 12.80		

Source: Field Survey, 2024

Market revenue, marketing costs and marketing margin from cashew nut marketing activities

The average annual total market revenue (TMR), total fixed marketing costs (TFMC), total variable marketing costs (TVMC), total marketing cost (TMC), net market margin (NMM), gross market margin (GMM), and return on investment (ROI) per cashew nut marketing enterprise is presented in Table 2. The Table shows that the cost of purchase of cashew nuts constituted 92.30% of the TMC, followed by the cost of transportation, cost of labour, and market levies, constituting7.37%, 0.15%, and 0.06% of the TMC, respectively. The TFMC constituted only 0.03% of the TMC. The TMC averaged ₦4, 437, and 622.63 per enterprise. Also, the average annual TMR and GMM were ₦4,715,768.3 and ₦279, 341.91 per enterprise, respectively. The result further revealed that on the average, cashew nut marketing enterprises realized a NMM of ₦53277.08 per annum, with an ROI of 0.630. The results revealed that cashew nut marketing is a profitable venture, with low initial capital outlay in the study area. These findings are in line with findings of Salau et al, (2017), Nmeregini *et al*. (2023), and Ojedokun et al. (2024).

Results of multiple regression analysis

The results of the regression analysis aimed at identifying the factors that affect the market margin of cashew nut marketers in the study area are shown in Table 3. The R-squared (R^2) value is 0.565, which means that approximately 56.50% of the variability in market margin can be explained by the independent variables included in the model. The adjusted R-squared value is 0.511, which refines R^2 by accounting for the number of predictors, offering a more precise assessment of the model's fit. The F value stands at 14.95, which assesses the overall significance of the model. A high F value indicates that the model is statistically significant, suggesting that at least one predictor has a meaningful relationship with the market margin.

Table 2. Average annual costs and return analysis per cashew nut marketing enterprise

S/N	Item	Amount (₦)	Scale
A	Total Market Revenue (TMR)	4,715,768.30	
	Costs		% of TMC
B	Total Fixed Marketing Costs (TFMC)	1,196.25	0.03
I	Cost of rentage of store and equipment	1196.25	0.03
C	Total Variable Marketing Costs (TVMC)	4, 436, 426.39	99.97
I	Cost of cashew nuts	4,099,706.3	92.39
Ii	Cost of labour	6,841.66	0.15
Iii	Cost of transportation	327, 397.6	7.37
Iv	Market levies	2,480.83	0.06
D	Total marketing costs (TMC)	4, 437, 622.64	100
E	Net Market Margin (NMM) (TMR-TMC)	278, 145.66	
F	Gross Market Margin (GMM) (TMR –TVMC)	279, 341.91	
G	Return on investment (ROI)	0.630	

Source: Authors Computation, 2024

The coefficient of 0.770 shows that for every unit increase in purchase cost, the market margin increases by approximately 0.77 units, assuming all other factors are held constant. This relationship is statistically significant, with a p-value of less than 0.01, which provides strong evidence that purchase cost has a positive effect on the market margin. This positive correlation suggests that higher purchase costs are linked to higher gross margins, which may seem counterintuitive. However, it could imply that higher-quality or more expensive cashews can achieve better market prices. Increased purchase costs may result from sourcing higher-quality cashews, which tend to command better prices. As noted by Salau *et al*. (2017) and Nmeregini *et al*. (2023), the quality of raw cashews plays a crucial role in determining profitability.

The negative coefficient indicates that as labour costs increase, the market margin decreases by about 29.12 units, assuming other factors remain unchanged. The p-value of 0.083 suggests marginal significance ($p < 0.10$), providing some evidence that labour costs negatively impact the market margin, although this evidence is not particularly robust. This negative coefficient also implies that higher rent costs are associated with a decrease in the market margin. Rising labour costs may stem from increased wages or inefficient labour practices. Implementing efficient labour practices and automation could help mitigate these costs. According to Ojedokun *et al*. (2024), cashew nut marketers who invest in quality labour are likely to produce and sell superior products, attract more customers, and achieve higher prices.

The coefficient of -66.05 indicates that for every unit increase in rent costs, the gross margin decreases by approximately 66.05 units. However, this relationship is not statistically significant, suggesting that rent costs do not have a reliable effect on the gross margin. The lack of a significant impact from rent costs may indicate that they are not a key cost driver in cashew marketing. This aligns with findings from Salau *et al*. (2017) and Ojedokun *et al*. (2024), which suggest that other factors, such as transport and storage costs, play a more important role.

Conversely, the positive coefficient implies that an increase in market levies is associated with a rise in the market margins. The p-value of 0.025 indicates that this relationship is significant ($p < 0.05$), providing strong evidence of a positive effect of market levies on the market margin. Higher market levies may be linked to improved market infrastructure and stability, which can lead to increased gross margins. Enhanced market infrastructure can boost profitability by minimizing losses and improving market access. This finding supports the conclusions of Ameh *et al*. (2022).

Table 3. Results of regression analysis

Variables	Coefficient	Standard error	t-value	Probability
Cost of purchase (X_1)	0.770039	0.217518	3.54	0.001***
Cost of labour (X_2)	-29.11619	16.50798	-1.76	0.083*
Cost of rentage (X_3)	-66.04905	94.17485	-0.70	0.486***
Market levies (X_4)	243.7884	106.1489	2.30	0.025**
Constant	-116419.4	239311	-0.49	0.629

Legend: R^2= 0.5648, Adjusted R^2= 0.511, F value= 14.95; ***Significant level at 1%, **Significant level at 5%, *Significant at 10% level

Source: Calculated from Field Survey 2024

The intercept term reflects the value of the market margin when all independent variables are set to zero. In this case, the constant is not statistically significant ($p > 0.05$), indicating it does not add meaningful value to the model.

In conclusion, the costs associated with purchases and market levies significantly improve the market margin, while labour costs have a marginally significant negative effect. Rent costs do not have a significant impact. Overall, the model accounts for approximately 56.5% of the variability in the market margin and is statistically significant.

CONCLUSIONS

The study's findings indicate a strong potential for the growth and sustainability of the cashew nut industry in the study area, with small-scale marketers demonstrating resilience and adaptability. It emphasizes that cashew nut marketing provides significant economic advantages to local farmers and marketers, aiding in poverty reduction and enhancing livelihoods. The enterprise has proven profitable, driven by rising demand for cashew nuts both locally and globally. However, to fully realize this potential, it is essential to address the identified challenges through targeted interventions, such as improving infrastructure, ensuring access to affordable credit, and implementing measures for price stabilization. Additionally, the study highlights the need for training and capacity-building programs for small-scale marketers to improve their business skills and knowledge. Strengthening cooperatives and associations to establish strategic warehouses throughout the area can significantly reduce storage costs. This approach would also enhance market access and bargaining power for small-scale marketers, curbing the excesses of middlemen in the marketing chain and allowing marketers to purchase directly from farmers at better prices. This would lead to improved marketing efficiency and increased net market margins. The government should regulate market levies on cashew nut marketing through authorized agencies to enhance marketers' margins.

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