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Profitability Analysis of Yam Marketing in the Federal Capital Territory, Nigeria

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ABSTRACT

This study evaluated the profitability of yam marketing in the Federal Capital Territory (FCT), Nigeria, and examined the socio-economic factors influencing it and constraints faced by marketers. Using a multi-stage sampling technique, data were collected from 240 yam marketers across three Area Councils (Kwali, Kuje, and Gwagwalada) through structured questionnaires. Profitability measures, multiple regression analysis, and Likert scale ranking were employed to analyze profitability, socio-economic influences, and constraints. Results indicate that yam marketing is profitable, with an average net income of ₦362,367 per season, a gross margin of ₦497,018, a return on investment of 44.76%, and a benefit-cost ratio of 1.45. Gender, experience and credit access significantly enhance net income, with gender showing a negative effect, suggesting higher earnings for females. Key constraints include inadequate capital (mean = 4.24), limited credit access (mean = 4.17), and high interest rates (mean = 3.98). The study rejected the null hypotheses, confirming profitability and significant socio-economic influences. Recommendations include improving credit access, storage facilities, and market infrastructure to enhance efficiency and sustainability in the FCT's yam marketing system.

Keywords: *Yam marketing, Profitability analysis, Federal Capital Territory, Socio-economic factors, Net income and Agricultural marketing*

INTRODUCTION

Yam (Dioscorea spp.) is a cornerstone of food security and economic activity in Nigeria, the world's leading producer of this staple crop, contributing over 70% of global yam output, with an estimated 61.92 million metric tons in 2023 (FAO, 2023). In Nigeria, yam is not only a dietary mainstay providing essential carbohydrates but also a culturally significant crop integral to rural livelihoods and urban markets (Kalu et al., 2023). The Federal Capital Territory (FCT), Nigeria, serves as a critical hub for yam marketing, bridging rural production areas in neighbouring states like Benue and Niger with urban consumption centres in Abuja (Umar et al., 2021). The yam marketing system in the FCT involves a complex value chain encompassing producers, wholesalers, retailers and consumers, with periodic markets playing a pivotal role in price formation and distribution (Iroegbute et al., 2022). This study examines the profitability of yam marketing in the FCT, identifies the socio-economic factors influencing it, and highlights the constraints faced by marketers, addressing a critical gap in region-specific research.

Profitability analysis is essential for assessing the economic viability of yam marketing, as it quantifies net returns after accounting for costs such as transportation, storage, labour and market fees. Studies indicate that yam marketing can yield substantial profits under favourable conditions. For instance, in Benue State, wholesalers achieved positive gross margins and high rates of return, while retailers handling lower-grade yams often faced losses due to elevated operational costs (Akura &

Onov, 2024). Similarly, in Niger State, yam marketing demonstrated efficiency ratios exceeding 900% for producers and rural buyers, underscoring the potential for profitability when market structures are supportive (Umar et al., 2021). Investments in yam research, such as improved seed systems and pest management, have been shown to enhance market quality and yield economic returns, with net present values ranging from US$584 million to US$1,392 million across sub-Saharan Africa (Mignouna et al., 2020). In Nigeria, the adoption of positive selection techniques for seed yam production has increased net returns by 26.69%, reaching ₦1,367,192 per hectare, by improving tuber quality and reducing viral diseases (Osei-Adu et al., 2022). In Abia State, yam trading exhibited marketing efficiency, with profitability influenced by scale and access to market infrastructure (Sani et al., 2021). These findings suggest that yam marketing in the FCT could be profitable, contingent on addressing structural and operational challenges.

Socio-economic factors, including age, education level, years of experience, household size, gender and access to credit, significantly influence yam marketing profitability. Research in Taraba State shows that education, experience and gender positively affect marketing efficiency, with educated marketers better equipped to navigate market dynamics (Effiong et al., 2023). Access to credit is a critical determinant, enabling marketers to cover high input costs and expand operations, thereby increasing net income (Akura & Onov, 2024). However, limited credit access often constrains small-scale retailers, particularly women, who dominate retail segments but face barriers to capital (Kalu et al., 2023). In Niger State, household size and experience positively correlate with marketing margins, while male-dominated wholesale segments often secure higher profits due to better resource access (Umar et al., 2021). Additionally, technological interventions, such as disease-resistant yam varieties, enhance marketability and profitability by improving tuber quality, with education and extension services further amplifying these benefits (Mignouna et al., 2020). These socio-economic factors are critical for understanding variations in net income among yam marketers in the FCT.

Despite its economic potential, yam marketing in Nigeria faces significant constraints that undermine profitability. High transportation costs, driven by poor rural infrastructure, are a primary challenge, particularly in non-producing regions like Bauchi State, where wholesalers rank transport expenses as their top constraint (Ameh & Danladi, 2024). Inadequate storage facilities contribute to post-harvest losses of up to 50%, forcing marketers to sell at reduced prices during peak harvest seasons (Iroegbute et al., 2022). Limited access to credit restricts bulk purchasing and business expansion, exacerbating capital shortages (Ameh & Danladi, 2024). Other constraints include price fluctuations due to low buyer turnout in rural markets, pest and disease attacks, and inadequate market information, which reduce tuber quality and market appeal (Kalu et al., 2023). Insecurity and poor market infrastructure further hinder efficiency, with Gini coefficients ranging from 0.47 to 0.66 in neighbouring states indicating market concentration and inefficiencies (Umar et al., 2021). In the FCT, rising input costs and inflation-driven low patronage compound these challenges, necessitating targeted interventions to enhance profitability (Ibrahim et al., 2021).

While prior studies have analyzed yam marketing in states like Benue, Niger and Abia, there is a notable lack of research specific to the FCT, where unique urban-rural dynamics and proximity to national markets create distinct opportunities and challenges (Akura & Onov, 2024; Sani et al., 2021; Umar et al., 2021). This study addressed this gap by pursuing these objectives: (a) to analyze the profitability of yam marketing in FCT, Nigeria; (b) to determine the factors influencing the profitability of yam marketing in FCT, Nigeria; and (c) to ascertain the constraints facing yam marketing in FCT, Nigeria. It tested two hypotheses: (1) Yam marketing is not profitable in FCT, Nigeria; and (2) Socio-economic factors (age, level of education, years of experience, household size, gender and amount of credit accessed) have no significant effect on the net income of yam marketers in FCT, Nigeria. The study employed profitability measures, multiple regression analysis, and Likert scale ranking to provide a comprehensive empirical analysis, contributing to the literature on agricultural marketing and informing policy for sustainable yam value chains in the FCT.

RESEARCH METHOD

Study Area

The study was conducted in the Federal Capital Territory (FCT), Nigeria, located in the North Central geopolitical zone of the country. The FCT, with its capital in Abuja, spans approximately 7,315 km² and lies between latitudes 8°25'N and 9°20'N and longitudes 6°45'E and 7°39'E (Ibrahim et al., 2021). It comprises six Area Councils: Abuja Municipal, Gwagwalada, Kuje, Bwari, Abaji, and Kwali, which include both urban and rural areas, making it a critical hub for agricultural marketing due to its proximity to major yam-producing states like Benue and Niger (Umar et al., 2021). The FCT's population was estimated at 3.5 million in 2023, with a significant portion engaged in agriculture and related activities, including yam marketing, particularly in rural Area Councils such as Kwali and Kuje (National Population Commission, 2023). The region's savanna climate supports agricultural activities, with annual rainfall ranging from 1,100 to 1,600 mm and temperatures between 25°C and 30°C, conducive to yam storage and marketing (Ibrahim et al., 2021). The FCT's strategic location facilitates the inflow of yams from neighbouring states and their distribution to urban markets, making it an ideal setting for studying yam marketing dynamics (Umar et al., 2021).

Population and Sampling Procedure

The target population consisted of all yam marketers (wholesalers and retailers) operating in major markets within the FCT, including Dei-Dei, Gwagwalada and Kuje markets, known for significant yam trading activities (Umar et al., 2021). A multi-stage sampling technique was employed to select respondents. In the first stage, three Area Councils (Kwali, Kuje and Gwagwalada) were purposively selected due to their high concentration of yam marketing activities and proximity to rural production zones. In the second stage, two major markets were randomly selected from each Area Council and in the third stage, random sampling method was used to select 40 yam marketers (7 wholesalers and 33 retailers) from each market, resulting in a total sample size of 240 respondents. This sample size is consistent with studies on agricultural marketing in Nigeria, which typically use 100–250 respondents to ensure statistical robustness (Sani et al., 2021).

Data Collection

Primary data were collected using a structured questionnaire administered to yam marketers. The questionnaire was designed to capture data on socio-economic characteristics (age, education level, years of experience, household size, gender and credit access), marketing costs, revenues and constraints faced. The instrument was pre-tested with 20 marketers in a pilot study in Bwari Area Council to ensure validity and reliability, with adjustments made to improve clarity and relevance (Effiong et al., 2023). Trained enumerators conducted face-to-face interviews between January and March 2025, coinciding with the peak yam marketing season to ensure data accuracy (Iroegbute et al., 2022). Secondary data were sourced from relevant literature, including journal articles and reports, to complement the primary data (Mignouna et al., 2020).

Analytical Techniques

The study employed four analytical techniques to achieve its objectives and test the hypotheses, consistent with methodologies used in similar agricultural marketing studies (Akura & Onov, 2024; Sani et al., 2021). Profitability measures: These were used to analyze the profitability of yam marketing. The technique involved calculating Gross Margin (GM), Net Income (NI) and Benefit-Cost Ratio (BCR) as follows:

Gross Margin (GM) = Total Revenue (TR) – Total Variable Cost (TVC)
Net Income (NI) = Gross Margin – Total Fixed Cost (TFC)

$$\text{Benefit} - \text{Cost Ratio (BCR)} = \frac{\text{Total Revenue (TR)}}{\text{Total Cost (TC)}}$$

These measures assessed the economic viability of yam marketing, with a positive GM and NI indicating profitability, and BCR > 1 also indicating profitability (Sani et al., 2021).

Profitability Ratios: Ratios such as Return on Investment (ROI) and operating ratio (OR) were computed to further evaluate profitability:

$$\text{Return on Investment (ROI)} = \frac{\text{Net Income (NI)}}{\text{Total Cost (TC)}} \text{ x } \frac{100}{1}$$

$$\text{Operating Ratio (OR)} = \frac{\text{Total Variable Cost (TVC)}}{\text{Total Revenue(TR)}} \text{ x } \frac{100}{1}$$

These ratios provide insights into the efficiency and financial performance of yam marketing, as applied in previous studies (Akura & Onov, 2024).

Multiple Regression Analysis: This was used to determine the factors influencing profitability and test Hypothesis 2. The model assessed the effect of socio-economic factors on net income. The regression model is specified as:

$$\ln Y = \beta o + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + u_i$$

Where;

Y = Net Income (₦)

βo = Intercept (Number)

β_6 - β_6 = Regression Coefficients

X_1 = Age (Number)

X_2 = Gender (dummy: 1 = male, 0 = female)

X_3 = Education Level (Number)

X_4 = Years of Experience (Number)

X_5 = Household Size (Number)

X_6 = Amount of Credit Accessed (₦)

u_i = Error Term

Likert Scale Ranking: This was used to ascertain the constraints facing yam marketers. Respondents rated constraints on a 5-point Likert scale (1 = not a challenge, 2 = mild, 3 = moderate, 4 = severe 5 = very severe). Mean scores were calculated and constraints were ranked based on severity, with higher means indicating greater severity. This method is widely used for prioritizing constraints in agricultural marketing studies (Ameh & Danladi, 2024).

The mean score was calculated using the formula:

$$MS = \frac{\Sigma(f_i \times L_i)}{\Sigma f}$$

Where:

f_i = Frequency of each Response

L_i = Likert Weight

Σf = Total Number of Respondents

The t-test statistic was used for testing the hypotheses.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Yam Marketers in FCT, Nigeria

Table 1: Socioeconomic Characteristics of Yam Marketers in FCT, Nigeria

Characteristic	Frequency	Percentage (%)	Mean
Age (Years)			
< 25	26	10.8	
25 – 45	143	59.6	
> 45	71	29.6	
Total	**240**	**100.0**	**42**

Gender			
Male	66	27.5	
Female	174	72.5	
Total	**240**	**100.0**	
Household Size			
<3	34	14.2	
3 – 6	106	44.2	
7 – 10	67	27.9	
>10	33	13.8	
Total	**240**	**100.0**	**5**
Level of Education			
None	41	17.1	
Primary	56	23.3	
Secondary	107	44.6	
Tertiary	36	15.0	
Total	**240**	**100.0**	
Yam Marketing Experience (Years)			
<5	55	22.9	
5 – 15	116	48.3	
>15	69	28.8	
Total	**240**	**100.0**	**11**
Membership of Cooperative Group			
Yes	164	68.3	
No	76	31.7	
Total	**240**	**100.0**	
Access to Credit			
Yes	188	78.3	
No	52	21.7	
Total	**240**	**100.0**	
Marital Status			
Married	184	76.7	
Unmarried	56	23.3	
Total	**240**	**100.0**	

Source: Computed from Field Survey Data (2025)

The socioeconomic profile of yam marketers in the FCT, as presented in Table 1, reveals critical insights into the demographic and economic factors shaping yam marketing. The mean age of marketers was 42 years, with 59.6% falling within the 25–45 age bracket, indicating a predominantly youthful and economically active population. This aligns with findings by Effiong et al. (2023), who

noted that younger marketers (aged 20–45) dominate agricultural marketing in Nigeria due to their physical energy and adaptability to market dynamics. The youthful demographic suggests potential for innovation and technology adoption in yam marketing, such as mobile-based market information systems, which could enhance efficiency (Mignouna et al., 2020).

Gender distribution showed that 72.5% of marketers were female, reflecting the significant role women play in yam retail markets in Nigeria. This is consistent with Kalu et al. (2023), who reported that women dominate retail segments of agricultural value chains due to their involvement in small-scale trading and proximity to consumer markets. However, the predominance of women may also indicate gender-based segmentation, where men typically control higher-profit wholesale segments, as observed by Umar et al. (2021). This gender disparity warrants targeted interventions to enhance women's access to capital and market infrastructure to boost their profitability.

The mean household size of five members suggests moderate family responsibilities, which may influence marketers' income allocation. This is partly consistent with the finding of Umar et al. (2021) who reported that larger household sizes in Niger State correlated with higher marketing margins due to increased labour availability, but also strained financial resources. In the FCT, the moderate household size may balance labour contributions with financial demands, supporting marketing activities without excessive economic pressure.

Education levels showed that 44.6% of marketers had secondary education, while only 17.1% had no formal education. The result is consistent with that of Effiong et al. (2023). Education enhances marketers' ability to access market information and adopt efficient practices. The relatively high literacy rate in the FCT suggests potential for training programs to improve marketing skills, such as price negotiation and record-keeping, which could further enhance profitability as noted by Sani et al. (2021).

The average marketing experience was 11 years, with 48.3% of marketers having 5–15 years of experience. This extensive experience is a critical asset, as it enhances market knowledge and negotiation skills, leading to higher profitability. The result is consistent with that of Akura and Onov (2024). Experienced marketers are better equipped to navigate price fluctuations and build reliable supply chains, which is vital in the FCT's dynamic urban markets.

Membership in cooperative groups (68.3%) and access to credit (78.3%) indicate strong social and financial support systems. The result is in line with the finding by Kalu et al. (2023) who noted that cooperatives facilitate bulk purchasing and information sharing, which enhance marketing efficiency. Similarly, access to credit enables marketers to cover high input costs, such as transportation and storage, as highlighted by Akura and Onov (2024). The high credit access rate in the FCT suggests a relatively supportive financial environment, though the effectiveness of credit utilization requires further exploration.

Finally, 76.7% of marketers were married, which may influence their financial stability and business commitment. Effiong et al. (2023) noted that married marketers often have additional family labour but face higher financial responsibilities, impacting net income. The socioeconomic profile underscores the need for tailored policies, such as gender-specific credit programs and educational training, to maximize profitability in the FCT's yam marketing system.

Average Cost and Return of Yam Marketing Per Season in FCT, Nigeria

Table 2: Average Cost and Return of Yam Marketing per Season in FCT, Nigeria

Item	Amount (₦)	Percentage of Total Cost (%)
Total Revenue	**1,172,030**	
Variable Costs		
Acquisition cost	516,213	63.76
Transportation expenses	26,214	3.24
Storage cost	28,581	3.53

Labour cost	59,132	7.30
Fees	31,094	3.84
Miscellaneous	13,778	1.70
Total Variable Cost (TVC)	**675,012**	83.37
Fixed Costs		
Interest on Loans	39,080	4.83
Rent	44,361	5.48
Taxes	29,464	3.64
Depreciation on Assets	21,746	2.69
Total Fixed Cost (TFC)	**134,651**	16.63
Total Cost	**809,663**	
GM (TR - TVC)	**497,018**	
NI (GM - TFC)	**362,367**	
ROI (%)	**44.76**	
OR (Operating Ratio)	**57.59**	
BCR	**1.45**	

Source: Computed from Field Data (2025)

Table 2 presents the cost and return analysis of yam marketing in the FCT, revealing a profitable enterprise with a net income (NI) of ₦362,367 per season, a gross margin (GM) of ₦497,018, a return on investment (ROI) of 44.76%, an operating ratio (OR) of 57.59%, and a benefit-cost ratio (BCR) of 1.45. These metrics indicate that yam marketing is economically viable in the FCT. The result is consistent with that of Akura and Onov (2024) who reported that yam marketing was profitable in Benue State.

The total revenue of ₦1,172,030 reflects strong market demand for yams in the FCT, driven by its urban population and cultural significance as a staple food. The total variable cost (TVC) of ₦675,012 accounted for 83.37% of the total cost, with acquisition costs (63.76%) being the largest component. This aligns with findings by Ameh and Danladi (2024), who noted that procurement costs dominate agricultural marketing expenses due to reliance on distant production zones like Benue and Niger. High acquisition costs in the FCT highlight the need for improved supply chain integration to reduce dependency on external sources.

Transportation costs (3.24%) and storage costs (3.53%) were relatively low but remain significant constraints, as poor infrastructure and inadequate storage facilities lead to post-harvest losses as noted by Iroegbute et al. (2022). Labour costs (7.30%) and market fees (3.84%) further contribute to variable costs, reflecting the labour-intensive nature of yam marketing and regulatory burdens in urban markets which is consistent with the report by Sani et al. (2021). Fixed costs, including rent (5.48%) and interest on loans (4.83%), were lower but indicate the importance of access to affordable credit and market infrastructure to sustain profitability.

The positive GM and NI demonstrate that revenues exceed costs, consistent with findings by Umar et al. (2021), who reported high profitability in Niger State's yam markets. The ROI of 44.76% indicates a substantial return per unit of investment, surpassing the 30% ROI reported for yam marketing in Benue State (Akura & Onov, 2024). The OR of 57.59% suggests efficient cost management, as values below 100% indicate that variable costs are well-covered by revenue (Sani et al., 2021). The BCR of 1.45, exceeding 1, confirms that benefits outweigh costs, reinforcing the economic viability of yam marketing in the FCT.

These findings suggest that yam marketing in the FCT is a lucrative venture, but profitability could be enhanced by addressing high acquisition costs and improving infrastructure to reduce transportation and storage expenses.

Influence of Socioeconomic Variables on Net Income of Yam Marketers in FCT, Nigeria

Table 3: Result of the Multiple Regression Analysis on the Influence of Socioeconomic Variables on Net Income of Yam Marketers in FCT, Nigeria

Variable	Coef.	Std. Err.	t	P>|t|
Age	-0.0282	0.0435	-0.65	0.517
Gender	-0.1287**	0.0618	-2.08	0.038
Education	0.2347	0.0273	0.86	0.391
Experience	0.0996***	0.0148	6.72	0.000
Household Size	0.1602	0.1086	1.48	0.141
Credit Accessed	0.2758***	0.0355	7.76	0.000
Cons	0.0227***	0.0035	6.56	0.000
Diagnostic Statistics				
Number of obs.	240			
F(6, 233)	17.34			
Prob. > F	0.000			
R-squared	0.5785			
Adj R-squared	0.5445			
Root MSE	0.1421			

Legend: * p<0.1; ** p<0.05; *** p<0.01
Source: Computed from Field Data (2025)

The multiple regression analysis in Table 3 examines the influence of socioeconomic variables on the net income of yam marketers, testing second hypothesis (Ho_2: socioeconomic factors have no significant effect on net income). The model's R-squared value of 0.5785 indicates that 57.85% of the variation in net income is explained by the included explanatory variables, with a significant F-statistic (17.34, $p < 0.01$), confirming the model's robustness.

Experience ($p < 0.01$) and credit access ($p < 0.01$) had significant positive effects on net income, with coefficients of 0.0996 and 0.2758, respectively. These findings align with Akura and Onov (2024), who found that experienced marketers in Benue State achieved higher profits due to better market knowledge and supplier networks. Similarly, access to credit enables marketers to purchase in bulk and invest in quality storage, increasing profitability as noted by Kalu et al. (2023). The strong positive effect of credit access underscores its role as a critical determinant of financial capacity in yam marketing.

Gender had a significant negative effect (coefficient = -0.1287, $p < 0.05$), indicating that female marketers earn more net incomes than their male counterparts. This is in contrast with Umar et al. (2021), who reported that male-dominated wholesale segments in Niger State secured higher margins due to better access to resources and markets.

Age, education, and household size were not statistically significant ($p > 0.05$), though their coefficients suggest directional effects. The negative coefficient for age (-0.0282) implies that older marketers may face reduced physical capacity or adaptability, as noted by Effiong et al. (2023). The positive coefficient for education (0.2347) suggests that higher education may enhance marketing skills, though its insignificance in this study could reflect limited access to advanced training (Sani et al., 2021). Household size's positive coefficient (0.1602) indicates potential labour contributions, but its lack of significance may reflect competing financial demands, as observed by Umar et al. (2021).

The null hypothesis (Ho_2) is partly rejected and confirms that some socioeconomic factors (gender, experience and credit access) significantly influence net income. These findings call for targeted interventions, such as training programs for less experienced marketers and credit facilities tailored for yam marketers, to enhance profitability in the FCT's yam markets.

One-Sample t-Test on Profitability of Yam Marketing in FCT, Nigeria

Table 4: Result of the One-sample t- test on Profitability of Yam Marketing in FCT, Nigeria

Variable	Obs.	Mean	Std. Err.	Std. Dev.
NI	240	362,367.3	11,860.18	183,737.2
mean = mean (NI)				
Ho: mean = 0				
Ha: mean < 0			Ha: mean != 0	
Pr(T < t) = 1.0000			Pr(|T| > |t|) = 0.0000	
t-calc. = 30.5533			Ha: mean > 0	
t-tab (α=0.01) = 2.59			Pr(T > t) = 0.0000	
df = 239				

Source: Computed from Field Data (2025)

Table 4 presents the results of the one-sample t-test, which tested the null hypothesis, Ho_1: that yam marketing is not profitable in the FCT, Nigeria. The mean net income of ₦362,367.3, with a t-calculated value of 30.5533 ($p < 0.01$), significantly exceeds the t-tabulated value of 2.59 at $\alpha = 0.01$, leading to the rejection of the null hypothesis. This confirms that yam marketing is profitable in the FCT, consistent with the positive GM, NI, ROI, and BCR reported in Table 2.

The high t-value and low p-value ($Pr(T > t) = 0.0000$) indicate strong evidence of profitability, corroborating findings by Sani et al. (2021) in Abia State, where yam marketing yielded significant net returns due to strong urban demand. The standard deviation of ₦183,737.2 suggests variability in profitability, likely due to differences in scale, market access, and cost management among marketers (Akura & Onov, 2024). This variability underscores the importance of addressing structural constraints, such as transportation and storage costs, to ensure consistent profitability across all marketers as noted by Iroegbute et al. (2022).

The results highlight the FCT's strategic position as a marketing hub, bridging rural production zones and urban consumers, which drives profitability (Umar et al., 2021). However, to sustain and enhance these gains, investments in market infrastructure and financial support systems are essential, as recommended by Kalu et al. (2023).

Constraints Faced by Yam Marketers in FCT, Nigeria

Table 5: Likert-Scale Ranking of Constraints Faced by Yam Marketers in the Study Area

S/N	Constraints	Mean Score	Rank
1	Inadequate capital	4.24	1
2	Limited Access to credit facilities	4.17	2
3	High Interest Rates	3.98	3
4	Lack of storage facilities	3.84	4

5	Weak government support	3.69	5
6	Poor market facilities	3.45	6
7	Multiple taxation and levies	3.40	7
8	High transportation cost	3.31	8
9	Pest and disease attack	3.29	9
10	Poor road infrastructure	2.64	10
11	Unstable prices	2.51	11
12	Poor market access	2.11	12

Source: Computed from Field Survey Data (2025)

Table 5 ranks the constraints faced by yam marketers using a Likert scale, with inadequate capital (mean = 4.24) and limited access to credit facilities (mean = 4.17) as the top constraints. These findings align with Ameh and Danladi (2024), who identified capital shortages as the primary barrier to agricultural marketing in Bauchi State. Kalu et al. (2023) also noted that inadequate capital restricts bulk purchasing and investment in storage, limiting marketers' ability to capitalize on market opportunities. High interest rates (mean = 3.98) ranked third, reflecting the burden of costly loans, which reduce net income, as noted by Akura and Onov (2024). Lack of storage facilities (mean = 3.84) and weak government support (mean = 3.69) further exacerbate post-harvest losses and operational inefficiencies, consistent with Iroegbute et al. (2022), who reported up to 50% losses due to poor storage in Nigeria's yam markets.

Poor market facilities (mean = 3.45), multiple taxation (mean = 3.40), and high transportation costs (mean = 3.31) highlight structural challenges in the FCT's marketing system. These align with Umar et al. (2021), who noted that poor infrastructure and regulatory burdens reduce marketing efficiency in Niger State. Pest and disease attacks (mean = 3.29) affect tuber quality, reducing market appeal, as reported by Mignouna et al. (2020). Lower-ranked constraints, such as poor road infrastructure (mean = 2.64), unstable prices (mean = 2.51), and poor market access (mean = 2.11), suggest that while significant, these issues are less severe in the FCT, likely due to its urban proximity and relatively better infrastructure compared to rural areas as noted by Ibrahim et al. (2021). The ranking of constraints emphasizes the need for multifaceted interventions, including affordable credit schemes, modern storage facilities, and improved market infrastructure, to enhance yam marketing efficiency in the FCT.

Summary

The study investigates the profitability of yam marketing in the Federal Capital Territory (FCT), Nigeria, a key hub connecting rural production zones to urban markets. Data from 240 yam marketers in Kwali, Kuje, and Gwagwalada Area Councils were analyzed using profitability measures, multiple regression, and Likert scale ranking. Findings reveal yam marketing as economically viable, yielding a mean net income of ₦362,367, gross margin of ₦497,018, return on investment of 44.76%, and benefit-cost ratio of 1.45 per season. Acquisition costs (63.76% of total costs) dominate expenses, followed by labour and transportation. Socio-economic factors like gender, experience and credit access significantly boost net income, with female marketers outperform males, contrary to regional trends. Major constraints include inadequate capital, limited credit access, and high interest rates, with storage and infrastructure issues also notable. The t-test rejected the hypothesis of non-profitability, and regression analysis confirmed significant socio-economic impacts. The study highlights the FCT's strategic role in yam marketing but underscores the need for improved credit systems, storage facilities, and market infrastructure to mitigate constraints and enhance profitability.

CONCLUSION

The study confirmed that yam marketing in the Federal Capital Territory (FCT), Nigeria, is profitable, rejecting the null hypothesis that it is not ($t = 30.5533$, $p < 0.01$). The positive net income (₦362,367), gross margin (₦497,018), return on investment (44.76%), and benefit-cost ratio (1.45) underscore the economic viability of yam marketing, driven by strong urban demand and the FCT's strategic position as a marketing hub. The second hypothesis, that socio-economic factors have no significant effect on net income, was partly rejected. Gender experience and credit access significantly enhance profitability ($p < 0.01$), with gender showing a significant negative coefficient, indicating higher earnings for female marketers, possibly due to their dominance in retail segments. However, age, education, and household size were positive but not significant, suggesting limited influence in this context. Despite profitability, constraints like inadequate capital, limited credit access, and high interest rates persist, necessitating targeted interventions. These findings highlight the need for policies to improve credit systems, storage and other infrastructure to sustain and enhance profitability in the FCT's yam marketing system.

RECOMMENDATIONS

The following are the recommendations from the study:

i. **Enhancing Credit Access:** Low-interest credit schemes tailored for yam marketers, particularly women, should be established to address inadequate capital and high interest rates, enabling bulk purchasing and business expansion.
ii. **Improving Storage Facilities:** There should be increased investment in modern storage infrastructure to reduce post-harvest losses and to stabilize supply, thereby enhancing tuber quality and marketability.
iii. **Upgrading Market Infrastructure:** Market facilities and peri-urban roads in the FCT to lower transportation costs and improve market access, increasing marketing efficiency.
iv. **Providing Training Programs:** Training on modern marketing techniques, price negotiation and record-keeping should be provided to leverage the high literacy and experience levels among marketers.
v. **Strengthening Government Support**: Policies to reduce multiple taxation and provide subsidies for storage and transportation, mitigating financial burdens and supporting sustainable yam marketing should be implemented.

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