

Original Research Article

Economic analysis of Sweet Potato (*Ipomoea batatas*) Marketing in Abuja Municipal Area Council (AMAC) of Abuja, Nigeria

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Abstract: This study investigated the economic analysis of sweet potato (*Ipomoea batatas*) marketing in Abuja Municipal Area Council (AMAC), Nigeria, with specific emphasis on the socio-economic characteristics of marketers, market structure, marketing efficiency, profitability, and the major constraints affecting performance. Primary data were collected from 200 randomly selected sweet potato marketers using a well-structured questionnaire and analyzed using descriptive statistics, Gini Coefficient, marketing efficiency ratios, and profitability models. The findings showed that 67% of marketers were within the active age group of 30–49 years, predominantly male (60%), and 41% had attained secondary education. Furthermore, 63% operated at the retail level, while 59% were members of cooperative associations, implying a moderately experienced and organized marketing network. The Gini Coefficient for retail traders (0.44) signified a moderately concentrated and imperfectly competitive market, whereas that for wholesalers (0.10) indicated a highly competitive and equitable market structure. Marketing efficiency values stood at 234% for retailers and 196% for wholesalers, reflecting economic efficiency across both scales, with retailing performing slightly better. Profitability assessment revealed wholesalers earned ₦68,400 per truckload, with a Return per Capital Invested (RPCI) of 22% and a marketing margin of 33%, while retailers realized ₦10,100 per 100 kg unit, attaining an RPCI of 55% and a margin of 44%. Key constraints identified included poor road infrastructure (79%), high transportation costs (71%), unstable prices (67.5%), and inadequate credit facilities (64%). The study establishes that sweet potato marketing in AMAC remains profitable and efficient despite prevailing infrastructural and institutional bottlenecks.

Keywords: Sweet Potato Marketing, Profitability, Market Efficiency, Gini Coefficient.

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INTRODUCTION

Nigeria is the leading producer of sweet potato (*Ipomoea batatas*) in sub-Saharan Africa, contributing significantly to food security, income generation, and poverty alleviation, especially among smallholder farmers. Sweet potato cultivation thrives across Nigeria's agro-ecological zones, with major production in Benue, Plateau, Nasarawa, and Kaduna states (Ettah *et al.*, 2025; Olawumi *et al.*, 2025). The crop's short

maturity period, high yield per hectare, and adaptability to marginal soils make it an essential component of the country's root and tuber economy (El Bilali *et al.*, 2025). Despite its agronomic importance, sweet potato remains an under-commercialized commodity due to weak market linkages, inadequate postharvest handling infrastructure, and low access to credit among traders and producers (Nnamani, 2025). Studies show that sweet potato marketing efficiency is constrained by structural

market imperfections, high transportation costs, and price volatility across regions (Iroegbute *et al.*, 2024; Mato *et al.*, 2025). According to Okechukwu and Adesanya (2024), the perishability of root crops, including sweet potatoes, amplifies postharvest losses and discourages large-scale commercial participation. In most Nigerian markets, farmgate prices fluctuate seasonally, with rural farmers receiving a small fraction of the consumer price due to multiple intermediaries and asymmetrical information flow along the value chain (Egbesdumah *et al.*, 2025; Oyediji *et al.*, 2025).

Empirical analyses in recent years have revealed substantial inefficiencies in sweet potato marketing systems across Nigeria. A study by Mohammed and Ewugi (2024) observed that price transmission between rural and urban markets remains weak, limiting farmers' ability to capture value from rising urban demand. The marketing margin for sweet potato sellers in states such as Kogi and Benue has been found to exceed 35%, indicating high intermediation costs (Iroegbute *et al.*, 2024; Akomolafe *et al.*, 2025). The absence of structured markets and reliable storage facilities further exacerbates postharvest losses, often estimated between 20–30% during peak harvest seasons (Uzoigwe & Ezeuko, 2025; Oyotombe *et al.*, 2025). Moreover, inadequate rural road networks and weak institutional frameworks increase transaction costs, thereby eroding farmers' profitability (Adamu *et al.*, 2024; Olaitan *et al.*, 2025). Research also highlights gender disparities in market participation, with women dominating local retailing but facing limited access to credit and transport facilities (Ettah *et al.*, 2025). Consequently, while sweet potato marketing serves as a vital livelihood source, the benefits are unevenly distributed across the value chain. The prevailing informal market structure discourages investment in mechanized storage and processing technologies, perpetuating low value addition and income instability (El Bilali *et al.*, 2025). Marketing efficiency studies recommend the adoption of cooperative marketing systems and improved extension services to mitigate these challenges (Henry & Monday, 2025; Alabuja *et al.*, 2025a).

At the macroeconomic level, sweet potato marketing contributes meaningfully to Nigeria's non-oil GDP through employment creation, rural industrialization, and export potential (Okechukwu & Adesanya, 2024). Yet, market volatility and inadequate policy coordination continue to hinder the sector's transformation from subsistence to commercial scale. The African Journal of Food and Nutrition Development (Ettah *et al.*, 2025) emphasizes that efficient market systems are prerequisites for sustainable agricultural commercialization. Economic analyses have shown that gross margin and net return values among traders are influenced by market distance, transport expenditure, and price fluctuations. Furthermore, postharvest microbial spoilage, as documented by Uzoigwe and

Ezeuko (2025), causes substantial economic losses, reinforcing the need for improved preservation techniques. Enhancing the marketing framework for sweet potato would not only raise producer incomes but also support Nigeria's broader food system resilience and nutritional security goals (Nnamani, 2025; Olaitan *et al.*, 2025b). Government initiatives such as the *Agricultural Transformation Agenda* and *National Root and Tuber Expansion Programme* have sought to improve market access, yet their impact on sweet potato remains limited due to weak private-sector engagement and poor monitoring. Hence, this study aims to analyze Sweet Potato (*Ipomoea batatas*) Marketing in Abuja Municipal Area Council (AMAC), Abuja. To accomplish this, the following objectives are put forward:

- i. describe the socio-economic characteristics of sweet potato marketers in the study area;
- ii. determine the structure of sweet potato market;
- iii. analyze the efficiency of sweet potato marketing;
- iv. determine the costs, returns, and profitability associated with sweet potato marketing;
- v. identify the key constraints affecting efficient sweet potato marketing.

LITERATURE REVIEW

Theoretical Framework

The theoretical foundation of this study rests primarily on the Market Structure–Conduct–Performance (SCP) Paradigm. The Market Structure–Conduct–Performance (SCP) model provides a classical foundation for analyzing how market organization affects marketing outcomes. Developed by Bain (1951) and refined in agricultural economics by Kohls and Uhl (2002), the SCP framework posits that the structure of a market—defined by the number and size of firms, barriers to entry, and product differentiation—shapes the conduct (pricing behaviour, collusion, and marketing practices) of market participants, which in turn determines market performance in terms of efficiency, profitability, and welfare distribution. In the context of sweet potato marketing in Nigeria, this framework helps assess how market intermediaries (wholesalers, retailers, and transporters) influence price formation and marketing margins. For instance, when a few dominant traders control the supply chain, they may dictate farmgate prices and restrict competition, leading to inefficiencies and reduced farmer income. Thus, by applying the SCP model, this study seeks to identify the level of competitiveness and efficiency in the sweet potato marketing system across major producing states.

Conceptual Framework

The conceptual framework for this study, exploring the relationship between the independent variables and the dependent variables being mediated by the intervening variables. The independent variables in this study are the core factors that directly influence the

marketing performance of sweet potato traders and producers and these include the socio-economic characteristics of age, education, gender, and years of marketing experience, marketing costs, which include transportation expenses, storage fees, spoilage losses, and taxes, as well as market structure variables which include number of buyers/sellers, entry barriers, and degree of competition determine price formation and marketing margins. The intervening variables are variables that indirectly affect the relationship between marketing determinants and performance outcomes and include government policies and interventions, institutional support and cooperative participation, access to credit and financial services, market information systems and extension and training services. The dependent variables are the economic and market efficiency outcomes that the study seeks to evaluate profitability and marketing efficiency.

MATERIALS AND METHODS

Study Area

Abuja Municipal Area Council (AMAC) is one of the six area councils that constitute the Federal Capital Territory (FCT) of Nigeria. It serves as the administrative and commercial center of the FCT, hosting both urban and peri-urban communities engaged in agriculture and trade. Geographically, AMAC lies between latitude 8°25'N and 9°25'N and longitude 6°45'E and 7°45'E, covering an estimated 1,769 km² (Federal Capital Development Authority [FCDA], 2024). The area shares boundaries with Bwari and Kuje Area Councils and Nasarawa State to the east. According to the National Population Commission (NPC, 2023), AMAC has an estimated population of over 1.6 million people, comprising diverse ethnic groups such as Gwari, Hausa, Yoruba, Igbo, Tiv, and Fulani.

Climatically, AMAC lies within the Guinea Savannah zone, characterized by a tropical climate with distinct wet (April–October) and dry (November–March) seasons. The average annual rainfall ranges from 1,100 mm to 1,600 mm, with mean temperatures between 25°C and 32°C (Nigerian Meteorological Agency [NIMET], 2024). The area's sandy loam and ferruginous soils support the cultivation of sweet potato, yam, cassava, maize, and vegetables. Most farming occurs in peri-urban and rural communities such as Karu, Nyanya, Jiwa, Orozo, and Pyakasa, where smallholder farmers produce sweet potatoes for household consumption and local markets (Henry & Monday, 2025).

Economically, AMAC exhibits a dual urban–rural structure, where agriculture complements public service and trade. Sweet potato marketing thrives in markets such as Garki, Wuse, and Gwagwalada, where traders transport produce from rural farms to urban consumers. However, challenges such as poor road networks, high transport costs, and inadequate storage

facilities hinder market efficiency and profitability (Henry & Monday, 2025; Egbesdumah *et al.*, 2025). Despite these constraints, AMAC's proximity to urban centers ensures a steady demand for sweet potatoes, making it an ideal area for analyzing marketing efficiency and profitability.

Population of the Study and Research Design

The study population comprises all individuals involved in the production and marketing of sweet potatoes within the Abuja Municipal Area Council (AMAC), including farmers, wholesalers, retailers, and transporters.

The research adopts a descriptive survey design using both primary and secondary data. Primary data will be obtained through structured questionnaires and interviews, while secondary data will come from institutional and government sources.

Sample Size and Sampling Techniques

A multi-stage sampling technique was adopted for this study to ensure fair representation of all categories of sweet potato marketers within the Abuja Municipal Area Council (AMAC). In the first stage, five major sweet potato-producing and marketing communities—Jiwa, Karu, Orozo, Pyakasa, and Nyanya—were purposively selected based on their high level of sweet potato production and active market participation.

In the second stage, three major markets—Garki, Wuse, and Gwagwalada—were selected because they serve as major aggregation and distribution centers linking rural farmers with urban consumers.

In the third stage, respondents were randomly selected from the identified communities and markets. The sampling frame included wholesalers and retailers actively engaged in the marketing chain. To ensure balance, proportional allocation was used to determine the number of respondents from each group: 74 wholesalers and 126 retailers, giving a total of 200 respondents. This sample size was considered adequate to capture the diversity of marketing practices, profitability levels, and constraints across different categories of marketers.

Data Collection

The primary data collection instrument for this study was a structured questionnaire designed to obtain detailed information from sweet potato farmers, wholesalers, retailers, and transporters in the Abuja Municipal Area Council (AMAC). The questionnaire captured data on marketing costs, sales volume, pricing, constraints, and profitability. Each interview session lasted about one hour, allowing respondents ample time to provide accurate and comprehensive responses. To ensure validity and reliability, the instrument was pre-tested through a pilot survey involving a small group of

sweet potato marketers who were not part of the main study. Feedback from this pilot exercise helped refine the questionnaire, improving question clarity, relevance, and logical flow in line with the study objectives. The final version was administered by trained enumerators, who guided respondents to ensure proper understanding and accuracy in responses. This systematic process ensured that the questionnaire effectively captured all variables relevant to the economic analysis of sweet potato marketing in AMAC.

Data Analysis

Data collected for this study were analyzed using both descriptive and inferential statistical techniques to address the stated research objectives. Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were used to achieve objectives (i) and (v). To address objective (ii), which examined the structure of the sweet potato market, the Gini Coefficient was employed to determine the level of market concentration and the distribution of sales among different trader categories. The efficiency of sweet potato marketing (objective iii) was determined by calculating the Marketing Efficiency (ME) ratio. Similarly, objective (iv), which sought to assess costs, returns, and profitability, was analyzed using cost and return analysis, including gross margin and marketing margin computations to estimate profitability levels. All data analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 24, which provided tools for both descriptive and inferential analyses, enhancing the accuracy and reliability of the study's findings.

Model Specification

Gini Coefficient (GC)

The Gini Coefficient (GC) was used to measure market concentration among sweet potato traders. It determines the extent to which sales are evenly distributed among market participants.

Mathematically, the Gini Coefficient is expressed as:

$$GC = 1 - \sum_{k=1}^n (Y_k + Y_{k-1})(X_k - X_{k-1})$$

Where:

- GC = Gini Coefficient
- Y_k = Cumulative proportion of total sales (revenue)
- X_k = Cumulative proportion of sweet potato traders
- Σ = Summation over all trader categories

A low Gini coefficient indicates a more competitive and efficient market with minimal concentration, while a high coefficient suggests dominance by few traders and reduced efficiency in market structure.

Marketing Efficiency (ME)

Marketing Efficiency (ME) was calculated as the ratio of value added through marketing to the total cost of marketing services, expressed as a percentage:

$$ME = \frac{\text{Value Added through Marketing}}{\text{Cost of Marketing Services}} \times 100$$

Where:

- Value Added through Marketing = Retail price (price paid by consumers) – Farm-gate price (price received by producers)
- Cost of Marketing Services = Costs of transportation, packaging, handling, and commissions paid to agents

A higher ME value indicates a more efficient marketing system with better utilization of resources and higher returns for marketers.

Marketing Margin (MM) and Return per Capital Invested (RCI)

Profitability was determined using the Marketing Margin (MM) and Return per Capital Invested (RCI) approaches. The Marketing Margin measures the difference between the selling price and the purchase price:

$$MM = CP - SP$$

Where:

- MM = Marketing Margin
- CP = Consumer or Selling Price (₦)
- SP = Farm-Gate or Supply Price (₦)

The Return per Capital Invested (RCI) was computed as:

$$RCI = \frac{\text{Net Income}}{\text{Total Cost}} \times 100$$

Where Net Income = Total Revenue – Total Cost.

A higher RCI value indicates greater profitability and better market performance.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Sweet Potato Marketers

The age distribution shows that most marketers are middle-aged, with a mean of 41.7 years, indicating participation by economically active individuals. According to Egbesdumah *et al.*, (2025), traders in this age range are more adaptable to changing market trends and capable of sustaining business growth.

Gender analysis shows that 60% of the marketers are male, while 40% are female, implying that the trade is moderately male-dominated. Men often handle bulk and inter-state trading, while women dominate local retailing, similar to findings by Okoye *et al.*, (2024) and Ettah *et al.*, (2025).

The result on trading experience indicates that most marketers (34%) have between 6 to 10 years of experience, while the mean trading experience stands at 10.8 years, showing a strong base of skilled and knowledgeable participants. This aligns with Oladejo and Adetunji (2022), who noted that experience enhances negotiation skills and market resilience.

Education levels indicate that 41% of marketers attained secondary education, 24% tertiary, and 23% primary, while only 12% had no formal education. This suggests a relatively literate marketing population capable of effective record-keeping and communication. According to Henry and Monday (2025), education enhances traders' ability to access information, credit, and extension services.

The business scale distribution shows that 63% of marketers operate at the retail level, while 37% function as wholesalers. This indicates that sweet potato marketing in AMAC is predominantly small-scale, serving local consumers and smaller markets. Retail trading is associated with quick turnover but lower margins, while wholesalers handle larger quantities and enjoy scale advantages (Afolabi, 2021).

The findings further show that 59% of marketers belong to cooperative societies, while 41% do not. The relatively high cooperative involvement in AMAC may be due to urban market organization and government-supported trader associations that promote collective growth and stability. According to Nwosu *et al.*, (2023), cooperative participation fosters collaboration and helps traders overcome capital and logistical barriers.

Table 1: Socio-Economic Characteristics of Sweet Potato Marketers in AMAC (n = 200)

Variable	Freq (n = 200)	Percentage
Age (Mean = 41.7 years)		
20–29	28	14.0
30–39	64	32.0
40–49	70	35.0
50–59	30	15.0
60 and above	8	4.0
Gender		
Male	120	60.0
Female	80	40.0
Trading Experience (Mean = 10.8 years)		
1–5	38	19.0
6–10	68	34.0
11–15	54	27.0
Above 15	40	20.0
Educational Level		
No formal education	24	12.0
Primary	46	23.0
Secondary	82	41.0
Tertiary	48	24.0
Scale/Volume of Business		
Retail marketers	126	63.0
Wholesale marketers	74	37.0
Membership of Cooperative Group		
Yes	118	59.0
No	82	41.0

Source: Field Survey, 2025

Market Structure of Sweet Potato Traders in AMAC

The structure of the sweet potato market in Abuja Municipal Area Council (AMAC) was analyzed using the Gini Coefficient, a measure of income and market share concentration among traders. The Gini value of 0.4390 obtained from the retail market (Table 2) indicates a moderately concentrated market, suggesting that while competition exists, some disparities in income and sales distribution persist. According to Olukosi and Isitor (2018), Gini values between 0.3 and 0.5 reflect moderate competition, implying that the market operates

under conditions of imperfect but functional competitiveness. The findings show that a majority of participants were small-scale retailers operating at limited capacity, contributing significantly to market numbers but generating relatively lower revenues. Larger retailers, though fewer, commanded a greater share of total sales revenue, indicating unequal distribution of market power and resources. This trend aligns with Afolami *et al.*, (2019), who observed similar dominance by financially stronger traders in Nigerian agricultural produce markets.

Further assessment of wholesale traders (Table 3) revealed a Gini Coefficient of 0.10, suggesting a highly competitive and equitable market structure among wholesalers. This low Gini value implies that market participation and income distribution are more balanced compared to the retail segment. The near-uniform spread of market shares indicates efficient competition, where

both small and medium-scale wholesalers actively contribute to total market turnover. The even distribution at the wholesale level reflects strong interdependence and less dominance by large traders, a structure conducive to efficient price transmission and stable supply chains (Okoye & Nwaru, 2019).

Table 2: Concentration of Different Categories of Retail Sweet Potato Traders in the Market (n = 126)

Category of Retail Trader	Number of Traders	Trader Proportion	Cumulative Trader Proportion (Xi)	Revenue (₦)	Market Share	Cumulative Market Share (Yi)	(Xi - Xi ₋₁)	(Yi + Yi ₋₁)	(Xi - Xi ₋₁)(Yi + Yi ₋₁)
—	—	0.000	0.000	—	0.000	0.000	0.000	0.000	0.000
Very small-scale traders	15	0.12	0.12	450,000	0.09	0.09	0.12	0.09	0.010
Small-scale traders	25	0.20	0.32	820,000	0.17	0.26	0.20	0.35	0.070
Medium-scale traders	22	0.17	0.49	1,250,000	0.26	0.52	0.17	0.78	0.133
Large-scale traders	18	0.14	0.63	950,000	0.20	0.71	0.14	1.23	0.173
Very large-scale traders	10	0.08	0.71	690,000	0.14	0.86	0.08	1.57	0.126
Total	126	1.00	1.00	5,160,000	1.00	1.00	—	—	0.56

$$\text{Gini's Coefficient (GC)} = 1 - \sum (Xi - Xi_{-1})(Yi + Yi_{-1}) = 1 - 0.56 = 0.44$$

Source: Field Survey Data, 2025

Table 3: Concentration of Different Categories of Wholesale Sweet Potato Traders (n = 74)

Category of Retail Trader	Number of Traders	Trader Proportion	Cumulative Trader Proportion (Xi)	Revenue (₦)	Market Share	Cumulative Market Share (Yi)	(Xi - Xi ₋₁)	(Yi + Yi ₋₁)	(Xi - Xi ₋₁)(Yi + Yi ₋₁)
—	—	0.000	0.000	—	0.000	0.000	0.000	0.000	0.000
Small-scale wholesalers	20	0.27	0.27	1,200,000	0.18	0.18	0.27	0.18	0.049
Medium-scale wholesalers	28	0.38	0.65	2,400,000	0.36	0.54	0.38	0.72	0.274
Large-scale wholesalers	18	0.24	0.89	2,850,000	0.43	0.97	0.24	1.51	0.362
Very large-scale wholesalers	8	0.11	1.00	250,000	0.03	1.00	0.11	1.97	0.217
Total	74	1.00	1.00	6,700,000	1.00	1.00	—	—	0.902

$$\text{Computed Gini Coefficient (GC)} = 1 - \sum [(Xi - Xi_{-1})(Yi + Yi_{-1})] = 1 - 0.902 = 0.10$$

Source: Field Survey, 2025

Efficiency of Sweet Potato Marketing

The efficiency of sweet potato marketing in Abuja Municipal Area Council (AMAC) was analyzed using the Marketing Efficiency (ME) ratio, which compares the value added through marketing with the associated marketing costs. The results (Tables 4 and 5) revealed that retail traders recorded a marketing efficiency of 234%, while wholesale traders achieved 196%, indicating that both categories operated profitably, though retailing was relatively more efficient. According to Olukosi and Isitor (2018), a marketing system is efficient when the value added exceeds the cost of marketing operations, reflecting effective market performance.

For retail marketers, the purchase cost of a 100 kg bag of sweet potatoes was ₦22,000, while the selling

price was ₦29,500, resulting in a value addition of ₦7,500 and marketing costs of ₦3,200. The higher efficiency at the retail level indicates that traders effectively recovered their costs and earned substantial margins. Retailers generally operate with low overhead expenses, direct consumer interactions, and reduced intermediary dependence, leading to better marketing performance. This observation aligns with Adeoye *et al.*, (2023), who reported that small-scale traders often record higher marketing efficiency due to their flexible and cost-effective operations.

At the wholesale level, the marketing efficiency ratio of 196% was also high, demonstrating profitability despite higher operational costs. Wholesalers purchased an average truckload (3.5 metric tons) of sweet potatoes at ₦250,000 and sold at ₦360,000, achieving a value

addition of ₦110,000 at a marketing cost of ₦56,000. Higher logistics, transport, and commission expenses contributed to the slightly lower efficiency. This pattern supports Okoh and Egbon (2024), who observed that

wholesale agricultural markets in Nigeria incur higher transaction costs due to bulk handling and intermediary commissions.

Table 4: Efficiency of Sweet Potato Marketing – Retail Scale

Marketing Cost Items	Cost (₦)
Purchase cost of 100 kg bag of sweet potatoes by a retailer	22,000
Marketing Costs:	
Commission to intermediaries (10%)	2,200
Transportation expenses	800
Handling services (loading, wheelbarrow, etc.)	200
Storage or stall rental (if applicable)	Negligible
Selling price of 100 kg bag to consumers	29,500
Value added through marketing	7,500
Total cost of value added	3,200
Coefficient of Marketing Efficiency (ME) (%)	234%

Source: Field Survey, 2025

Table 5: Efficiency of Sweet Potato Marketing – Wholesale Scale

Marketing Cost Components	Cost (₦)
Average purchase cost of 3.5 metric tons (one truckload) of sweet potatoes	250,000
Marketing Costs:	
Commission to agents or brokers (10%) – borne by bulk buyers	25,000
Transportation to market centers	50,000
Loading and off-loading expenses	6,000
Selling price of truckload to consumers/retailers	360,000
Value added through marketing activities	110,000
Total cost of value added	56,000
Coefficient of Marketing Efficiency (ME) (%)	196%

Source: Field Survey, 2025

Profitability Analysis of Sweet Potato Marketing

The profitability analysis of sweet potato marketing in Abuja Municipal Area Council (AMAC) was examined at both wholesale and retail levels to assess cost structure, revenue, and returns from marketing activities. As shown in Tables 6 and 7, the analysis revealed that sweet potato marketing in the study area is a profitable enterprise for both categories of traders, though profitability margins differ based on the scale of operation.

At the wholesale level, the total marketing cost incurred by traders was ₦56,600, with a total expenditure of ₦306,600, including the purchase cost of a 3.5-tonne truckload of sweet potatoes. The average selling price per truckload was ₦375,000, resulting in a net profit of ₦68,400. The return per capital invested (RPCI) was estimated at 22%, while the marketing margin was 33%. These figures suggest that wholesale marketers benefit from economies of scale and cost efficiency due to bulk transactions and relatively lower per-unit operational

expenses. The finding aligns with Ayanwale and Amusat (2018), who reported that wholesale traders often achieve higher cost efficiency due to large-scale distribution and reduced intermediary costs.

Conversely, retail traders recorded a total marketing cost of ₦2,400 and a total expenditure of ₦18,400 for every 100 kg of sweet potatoes. The average selling price at the retail level was ₦28,500, yielding a net profit of ₦10,100. The return per capital invested (RPCI) stood at 55%, and the marketing margin was 44%, indicating that retail marketing is comparatively more profitable on a per-unit basis. This high RPCI suggests that while retail traders operate on smaller volumes, their higher selling prices compensate for the limited scale. This observation corroborates the findings of Adepoju and Oyekale (2019), who noted that retail traders often realize higher profit margins due to direct consumer sales and value addition at the point of purchase.

Table 6: Profitability Analysis of Sweet Potato Marketing (Wholesale Traders)

Marketing Services / Cost Components	Cost (₦)
Purchase cost of 3.5 tonnes (1 truckload) of sweet potatoes	250,000
Marketing Costs:	
Commission to agents (10%) – borne by bulk buyers/retailers	25,000
Transportation charges	50,000
Loading and off-loading expenses	3,000
Labour for sorting, grading, and packaging	3,000
Market levy or ground rent	600
Union registration and annual dues	Negligible
Total Marketing Costs	56,600
Total Cost of Sweet Potatoes	306,600
Selling price of one truckload of sweet potatoes	375,000
Profit (Net Income = Total Revenue – Total Cost)	68,400
Return per Capital Invested (RPCI)	22%
Marketing Margin (%)	33%

Source: Field Survey, 2025

Table 7: Profitability Analysis of Sweet Potato Marketing (Retail Traders)

Marketing Services / Cost Components	Cost (₦)
Purchase cost of 100 kg (1 dozen) of sweet potatoes	16,000
Marketing Costs:	
Commission to intermediaries (10%)	1,600
Transportation expenses	600
Handling or wheelbarrow service	200
Storage or shop rent	Negligible
Total Marketing Costs	2,400
Total Cost of Sweet Potatoes	18,400
Selling Price (Total Revenue)	28,500
Profit (Net Income = Total Revenue – Total Cost)	10,100
Return per Capital Invested (RPCI)	55%
Marketing Margin (MM)	44%

Source: Field Survey, 2025

Constraints Affecting Efficient Sweet Potato Marketing

The analysis of constraints affecting efficient sweet potato marketing in Abuja Municipal Area Council (AMAC) revealed several interrelated challenges that limit market performance and profitability. As presented in Table 8, the majority (79%) of respondents identified poor road and transport infrastructure as the most critical constraint. Many access roads linking farms to major markets are in poor condition, causing delays and increasing produce spoilage during transit. This finding aligns with Olayemi (2019), who emphasized that inadequate transportation networks increase marketing costs and reduce traders' margins in perishable crop markets.

The high cost of transportation was reported by 71% of respondents, further compounding marketing

inefficiencies. Rising fuel prices and limited availability of vehicles elevate costs, ultimately affecting consumers through higher retail prices (Nwafor *et al.*, 2020). Price fluctuation was also a major constraint (67.5%), attributed to seasonal variations and the absence of organized market information systems. This volatility discourages investment and disrupts consistent supply (Adepoju & Oyekale, 2019; Alabuja *et al.*, 2025b).

Similarly, lack of access to credit facilities (64%) restricts traders' ability to expand or maintain adequate stock levels, while post-harvest losses (60%) highlight the effects of insufficient storage infrastructure and poor handling practices. Additionally, multiple levies and market dues (51%) and lack of standardized measurement systems (47.5%) contribute to inefficiency and disputes between buyers and sellers.

Table 8: Constraints Affecting Efficient Sweet Potato Marketing in AMAC (Multiple Responses Allowed)

Constraints	Frequency	Percentage (%)
Poor road and transport infrastructure	158	79.0
High cost of transportation	142	71.0
Price fluctuation and market instability	135	67.5

Constraints	Frequency	Percentage (%)
Lack of access to credit facilities	128	64.0
Post-harvest losses due to poor storage	120	60.0
Multiple levies and market dues	102	51.0
Lack of standardized measurement and grading systems	95	47.5

Source: Field Survey, 2025

CONCLUSION AND RECOMENDATIONS

This study comprehensively analyzed the economic performance of sweet potato (*Ipomoea batatas*) marketing in Abuja Municipal Area Council (AMAC), Nigeria, with emphasis on the socio-economic characteristics of marketers, market structure, marketing efficiency, profitability, and constraints affecting marketing operations.

Findings from the socio-economic characteristics revealed that the majority of sweet potato marketers were within the 30–49 years age range (67%), indicating an active and productive working population. Males constituted 60%, while females accounted for 40%, showing that both genders are significantly involved in marketing activities. Most respondents had secondary education (41%), and 34% had over 6 years of marketing experience, signifying a moderately skilled and experienced trading population. About 63% operated on a retail scale, while 38% engaged in wholesale marketing, highlighting retail dominance in the sweet potato trade. Furthermore, 59% of marketers belonged to cooperative associations, which enhances access to information and informal credit support.

The analysis of the market structure showed that the Gini Coefficient was 0.44, indicating a moderate level of inequality among retail traders. This implies that while competition exists in the sweet potato market, a few traders still control a larger share of the trade, reflecting features of imperfect competition. Further assessment of wholesale traders revealed a Gini Coefficient of 0.10, suggesting a highly competitive and equitable market structure among wholesalers. This low Gini value implies that market participation and income distribution are more balanced compared to the retail segment.

For the marketing efficiency analysis, results indicated that the marketing efficiency ratio for wholesalers was 196%, while that of retailers was 234%. Both values exceeded 100%, signifying that sweet potato marketing is economically efficient in AMAC. Retail traders exhibited higher efficiency due to lower operational costs and closer interactions with consumers.

The profitability analysis further confirmed that sweet potato marketing is highly profitable. Wholesalers realized a net profit of ₦68,400, a Return per Capital Invested (RPCI) of 22%, and a marketing margin of 33% per truckload of sweet potatoes. Retailers, on the other hand, earned a net profit of ₦10,100 per dozen (100 kg)

bag, with an RPCI of 55% and a marketing margin of 44%. These results imply that both scales of operation are profitable, though retailing offers higher returns on investment.

Finally, the analysis of constraints affecting efficient sweet potato marketing revealed that the most pressing challenges include poor road infrastructure (79%), high transport cost (71%), price fluctuations (67.5%), limited access to credit (64%), post-harvest losses (60%), multiple market levies (51%), and lack of standardized measurements (47.5%). These factors collectively hinder market efficiency and reduce profit margins.

Based on the major findings of this study on the Economic Analysis of Sweet Potato (*Ipomoea batatas*) Marketing in Abuja Municipal Area Council (AMAC), the following seven practical recommendations are proposed to enhance marketing efficiency, profitability, and sustainability:

1. The government, through collaboration with local authorities, should prioritize the rehabilitation and maintenance of rural access roads and market facilities. Improved transportation infrastructure will reduce transit losses, lower marketing costs, and enhance the timely delivery of sweet potatoes to urban markets.
2. Transport unions and cooperatives should be encouraged to provide subsidized or group transport arrangements for sweet potato traders. This will help minimize the high transportation costs (reported by 71% of respondents) and increase profit margins.
3. Investment in modern storage technologies and proper handling methods is crucial to reduce post-harvest losses (identified by 60% of respondents). Introducing low-cost, locally adaptable storage systems can help extend shelf life and maintain quality.
4. Encouraging marketers to join and actively participate in cooperative societies can improve their bargaining power, facilitate access to credit, and promote collective problem-solving in marketing operations.
5. The government and non-governmental organizations should establish real-time market information systems to provide traders with accurate data on prices, demand trends, and supply conditions. This will help stabilize prices and reduce market volatility (identified by 67.5% of traders).

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