Analysis of Marketing Margin and Efficiency of Garri in Selected Markets of Akwa Ibom State, Nigeria

Aniekan J. Akpaeti[1], Essien A. Antia-Obong [1], Samuel J. Udoka[1] and Daniel N. Archibong[1]
Department of Agricultural Economics, Akwa Ibom State University, Obio Akpa Campus, P.M.B. 1167, Uyo, Aka Ibom State, Nigeria
Corresponding Author's email: aniekanakpaeti@aksu.edu.ng

ABSTRACT
Understanding the specific factors contributing to inefficiencies within the cassava value chain is crucial for designing targeted interventions aimed at improving market access and overall sector performance. The study analysed marketing margins and efficiency of garri in Selected Markets of Akwa Ibom State, Nigeria. The specific objectives were to: describe the socio-economic characteristics of garri marketers; identify the main distribution channel for garri; determine the levels of marketing margin and marketing efficiency among garri marketers; and estimate the determinants of marketing efficiency in the study area. Simple random sampling techniques were used to select one hundred (100) respondents for this study. Data were collected from the garri traders using structured questionnaires. The data were then analysed using descriptive statistics, market margin analysis, marketing efficiency analysis, an OLS regression model, and an ANOVA test. The result indicated that 69% of respondents are female and about 54% are between the ages of 30 and 40 years. The result showed that garri traders had gross margins per bag of ₦10,378.58 (Ikot Okoro Market), ₦22,161.12 (Itam Market), ₦10,710.00 (Akpan Andem Market) and ₦12,857.14 (Obo Annang Market) with a mean marketing efficiency of 82.86. The results of Anova test showed that there exists a significant difference in the market margin across the four markets. The regression analysis showed that the cost of garri negatively influenced marketing efficiency, while cost of bags positively influenced the marketing efficiency of garri. Based on the findings of the study, the following recommendations were suggested; Marketers should strategically invest in high-quality bags, as the cost of bags positively and significantly influences marketing efficiency. This investment can enhance the garri's perceived quality and value, leading to better revenue capture. Government agencies and trader bodies should provide targeted training and support programs focusing on marketing functions and cost management for traders in markets with lower efficiency, specifically, Itam Market.

Keywords: Marketing, Margin, Efficiency, Market, and Marketing Margin

1.0 Introduction

The burgeoning global population and increasing demand for food security necessitate a critical examination of agricultural value chains, particularly for staple crops like cassava. Cassava (*Manihot esculenta* Crantz) is a vital root crop that provides sustenance for millions across the tropics and subtropics, offering versatility as both a food source and an industrial raw material (Food and Agriculture Organisation of the United Nations, 2023). However, the full potential of cassava is often hampered by inefficiencies within its marketing channels, leading to reduced returns for producers and potentially higher costs for consumers. Understanding the marketing margins at each stage of the value chain and identifying areas for efficiency enhancement are crucial for optimising the economic and social benefits derived from cassava-based products.

Marketing margins, defined as the difference between the price paid by the consumer and the price received by the producer, represent the costs and profits associated with various intermediaries involved in the movement of agricultural commodities from farm to final consumption (Kohls & Uhl, 2019). Analyzing these margins for cassava products, which can range from fresh roots to processed goods like flour, starch, and chips, reveals the distribution of value added along the supply chain. High marketing margins can indicate inefficiencies such as excessive transportation costs, inadequate storage facilities leading to spoilage, or the presence of numerous intermediaries with limited value addition (Shepherd, 2013). Conversely, understanding efficient marketing channels with lower margins can provide insights into best practices that can be replicated to improve the overall performance of the cassava sector.

Enhancing the efficiency of cassava-based product marketing involves streamlining the supply chain, reducing transaction costs, and improving the quality and consistency of products. Investments in infrastructure, such as better roads and storage facilities, can significantly reduce post-harvest losses and transportation expenses (World Bank, 2022). Furthermore, fostering direct linkages between producers and processors or consumers can minimize the role of unnecessary intermediaries, thereby increase price transmission and return for farmers. The adoption of improved processing technologies and quality control measures can also enhance the marketability of cassava products, potentially leading to higher prices and increased demand.

1.1 Statement of Problem

Inefficiencies within agricultural value chains, particularly for staple crops crucial for food security in developing regions, present a significant impediment to economic development and poverty reduction. Cassava (*Manihot esculenta* Crantz), a vital root crop supporting the livelihoods of millions in the tropics and subtropics, often experiences suboptimal market performance due to high marketing margins and logistical challenges. These elevated margins, representing the difference between producer and consumer prices, can disproportionately reduce the income of smallholder farmers while potentially increasing the cost of essential food products for consumers (Organisation for Economic Co-operation and Development & Food and Agriculture Organization of the United Nations, 2020). Understanding the specific factors contributing to these inefficiencies within the cassava value chain is crucial for designing targeted interventions aimed at improving market access and overall sector performance.

The complexities inherent in cassava marketing are multifaceted, encompassing issues ranging from post-harvest losses due to inadequate storage and transportation infrastructure to the presence of fragmented and often informal market structures. High transaction costs, limited access to market information, and a lack of value addition at the farm level further exacerbate these challenges (Da Silva et al., 2021). Consequently, smallholder farmers, who constitute the majority of cassava producers, often face limited bargaining power and are compelled to sell their produce at depressed prices. This lack of profitability can disincentivise investment in improved farming practices and hinder the overall growth and modernisation of the cassava sector, ultimately impacting food security and rural livelihoods. Therefore, a critical need exists to investigate and address the inefficiencies prevalent in the marketing of derived products (garri).

The study specifically focused on the analysis of marketing margins and efficiency of garri in the study area, with the following specific objectives:

i. Describe the socio-economic characteristics of garri marketers in the study area;
ii. Identify the main channel of distribution of garri in the study area;
iii. Determine levels of marketing margin and marketing efficiency of garri marketers in the study area; and
iv. Estimate the determinant of efficiency in garri marketing.

2.0 Literature Review

Obekpa et al. examine the analysis of garri marketing among wholesalers in three selected markets in Kaduna metropolis. Purposive and random sampling techniques are used to select the 45 garri wholesalers used for this study. Data is collected from the garri wholesalers using structured questionnaires. The data is then analyzed using descriptive statistics, market margin analysis, and marketing efficiency analysis. The result indicates that about 55.6% of wholesalers are female and about 97.8% are between the ages of 21–60 years. The market margin analysis values that range 16.00–16.13% show that garri marketing among the wholesalers has fair profitable margins in the study area. The result of marketing efficiency coefficient that ranges between 4.0% and 5.0% reveals that the garri marketing among the wholesalers in the study area is highly inefficient.

Ettah et al. analyzes marketing margins and efficiency of cassava-based product in Cross River Central Agricultural Zone Nigeria. The study employs primary data which is obtained directly from garri marketers and is analyzed with the use of descriptive statistics and a marketing efficiency model. A three-stage (multi-stage) sampling technique is used in the selection of respondents and uses 10% proportionality. A sample size of 196 respondents is obtained from the sample frame of 1960. Analysis of the result shows that garri marketing in the area is greatly influenced by the socio-economic characteristics of garri marketers. The result also shows that marketers in Ofodua and Ochon markets record the lowest margin of ₦200 per bag of garri. This is against the ₦300 margin recorded by marketers in Apiapum, Okuni, Nko and Akparabong markets, ₦400 for markets in Ugep and Ikom Urban, and ₦600 for the market in Agoi respectively. The average marketing margin for garri in the markets is ₦378.

Okereafor et al. analyzes marketing efficiency of retailers and wholesalers of processed cassava products in Imo state, Nigeria. A total of 269 marketers were selected for the study using a simple random technique. Primary data is collected through the administration of structured questionnaires. The analytical tools employed are simple descriptive statistics and the stochastic frontier profit function. The results reveal that the mean age of the marketers is 36.44 years, and processed cassava marketing is dominated by females (65.8%) in the study area. Also, marketers have a mean household size of 6, a mean year of schooling (education) of 8.6 years, and a mean agricultural marketing experience of 9 years. The overall mean efficiency for the marketers is 0.1864, with retailers having 0.1849 and wholesalers having 0.1887.

Egwuma et al. analyse the structure and efficiency of cassava marketing in Ado-Ekiti Local Government Area of Ekiti State, Nigeria. Primary data is obtained using structured questionnaires, and a multistage sampling method is employed to select 183 respondents comprising 93 farmers and 90 marketers. The Herfindahl-Hirschman Index and Gini Coefficient are used to measure the degree of market concentration and the nature of competition in the market. The Herfindahl-Hirschman indices are 0.323, 0.346, and 0.316 for farmers, wholesalers, and

retailers, respectively, suggesting that the market is uncompetitive at all levels. The computed values of the Gini coefficient for cassava farmers, wholesalers, and retailers are 0.532, 0.465, and 0.569, respectively, indicating uneven distribution of income and uncompetitive market conditions.

3.0 Methodology

3.1 Description of Study Area

The study was carried out in Akwa Ibom State, Nigeria. Akwa Ibom is one of the states in Niger Delta of Nigeria located in the South-South geopolitical zone lying between latitudes 4°32′N and 5°33′N, and longitudes 7°25′E and 8°25′E with a land area of 6,900 sq Km. The state is in the rain forest belt and is prone to oil spillage, acid rain and increasing ocean encroachment. Some of the common food crops grown in the area are cassava, plantain, waterleaf, fluted pumpkin, white yam, cocoyam, maize and banana. The areas fall under the rainforest zone with a mean annual rainfall of about 2484mm, annual temperature range about 27^0C and relative humidity ranges from 70 – 80 per cent. Two distinct seasons are discernible; the dry season (November –March) and the rainy season (April – October). Economic activities of the inhabitants are farming, trading, fishing, crafts, hunting, transportation, artisans and civil service.

3.2 Sampling procedures and Sample Size

Multi-stage sampling technique was used for this study. In stage one, two senatorial districts (Uyo and Ikot Ekpene) were randomly selected out of the three senatorial districts (Uyo, Eket, and Ikot Ekpene). In stage two, two major markets were randomly selected from each of the selected senatorial districts, making a total of four markets (Itam Market, Akpan Andem Market, Obo Annang Market and Ikot Okoro Market). Stage three; twenty-five (25) marketers of garri were randomly selected. This procedure produced a total of one hundred (100) respondents for the study.

3.3 Model Specification

3.3.1 Cost and Returns

Budgetary technique was used to estimate the cost and returns in each of the markets. The formula was given as;

Gross Margin = TR– TVC

Where;

TVC – Total variable cost such as cost of garri, transportation cost, market levy, bags, and storage

TR – Total revenue generated from sales

3.3.2 Marketing efficiency model (Shepherd model of marketing efficiency)

This model as used by Ettah et al. (2019), is concerned with the productivity of the resources used in the production and marketing process (in quantitative terms) by computing the coefficient of marketing efficiency (CME) this is the ratio of estimated costs incurred by marketing agencies and producers combined, to the value of product sold and expressed in percentage, it is given as:

$$\text{CME} = \frac{Total\ Cost\ of\ marketing}{Total\ Reevue\ from\ marketing} \text{ x } \frac{100}{1}$$

Where:

CME = Coefficient of Marketing Efficiency

The higher the coefficient obtained, the higher the marketing efficiency (Ettah et al., 2019).

Marketing Margin was calculated using the formula below

$$\text{Marketing margin} = \frac{Selling\ price - Cost\ price}{Selling\ price}.$$

3.4 Determinants of Marketing Efficiency in Garri Marketing

The determinant of marketing efficiency was analyzed using Ordinary Least Square (OLS) model. The explicit form of the model is below

$$Y = \beta_0 + COG\ X_1 + TC\ X_2 + ML\ X_3 + COB\ X_4 + SC\ X_5 + e_i$$

Y = Marketing efficiency (%)

COG = Cost of garri (₦)

TC = Transportation cost (₦)

ML = Market levy (₦)

COB = Cost of bags (₦)

SC = Storage cost (₦)

B_0 = Constant

e_i = Error term

4.0 Results and Discussion

4.1 Socioeconomic characteristics of garri marketers in the study area

The socioeconomic characteristics of garri marketers presented in Table 1 shows that the majority (69%) of the garri traders in the study areas are females. This supports the previously works of Akpaeti and Umoh (2013); Akpaeti and Archibong (2022) that the females supplement the family income and lessen the family's reliance on its male counterpart. This also implies that females generally dominate the marketing of garri in Akwa Ibom State, and this may be a result of the fact that garri marketing is not a tedious work (Ojedokun and Akinyode, 2023). A greater percentage (54%) is within the age range of 30–40 years. The average age of the garri traders is 40 years, which implies that most people who are engaged in garri marketing in the study area are in the active age bracket just like most agricultural activities (Akpaeti et al., 2019). The result obtained equally reveals that most (79%) of the garri traders are married with an average household size of four persons. This indicates that married people are more interested in garri marketing than unmarried people. The reason for this could be that unmarried people are moving about a lot, while married people are trying to find work to pay for their children's education, medical expenses, food, and housing. The outcome is consistent with a study by Obekpa et al. (2022) that finds that married people make up the majority of garri traders in Kaduna city.

Based on the years of educational attainment, the result shows that the majority of the garri traders spend between 6–12 years in formal education. This

implies that most of the garri traders are literate enough to understand the basics of marketing principles. The result also shows that the garri traders have an average trading experience of 5 years, while most of the respondents have between 4–8 years of trading experience. The result implies that the respondents have fewer years of experience, which may translate to poor decision-making in terms of addressing marketing problems. The majority (56%) of the garri traders make an income of ₦100,000–₦200,000, with a mean income of ₦161,249.5. This result shows that the income received from garri trading in the study area is poor. This result corresponds with that of Ojedokun and Akinyode (2023), who find out that small-scale garri traders earn low income. On the number of bags of garri (100kg bag), the majority (74%) have a business size of 10–15 bags per month. This result means that the majority of the traders are small-scale garri traders. This finding agrees with the findings of Ojedokun and Akinyode (2023), whose study shows that the majority of the garri traders examined are small-scale traders, with no large warehouses

Table 1. Socioeconomic Characteristics of Respondents

Socioeconomic characteristics	Frequency	Percentage (%)
Gender		
Male	31	31.0
Female	69	69.0
Age (Mean = 40 years)		
Below 30	2	2.0
30 – 40	54	54.0
Above 40	44	44.0
Marital Status		
Single	9	9.0
Married	79	79.0
Divorced	12	12.0
Household size (Mean = 4 persons)		
Below 6	8	8.0
6 – 12	89	89.0
Above 12	3	3.0
Education (Mean = 8 years)		
Below 6	8	8.0
6 -12	89	89.0
Above 12	3	3.0
Trading Experience (Mean = 5 years)		
Below 4	10	10.0
4 – 8	88	88.0
Above 8	2	2.0
Annual Income (Mean = ₦161,249.5)		
Below N100,000	25	25.0
N100,000 – N200,000	56	56.0
Above N200,000	31	31.0
Number of bags (100kg) (Mean = 15 bags)		
Below 10	25	25.0
10 – 15	74	74.0
Above 15	1	1.0

Source: Field Survey, 2025.

4.2 Channels of Distribution

Marketing channel of garri in the area indicates the process of making garri available and accessible to the consumers. Fig. 1 shows the marketing channel of garri traders in the study area. Further, Fig. 1 shows that the producers produce the garri and sell it to the wholesalers in bulk sometimes through intermediaries like the rural buyers and commission agents or directly to them. Retailers obtain the product from wholesalers and commission agents then sell directly the final consumers. Ojedokun and Akinyode (2023) in their study, found a similar channel of movement of garri from the producers to the consumers.

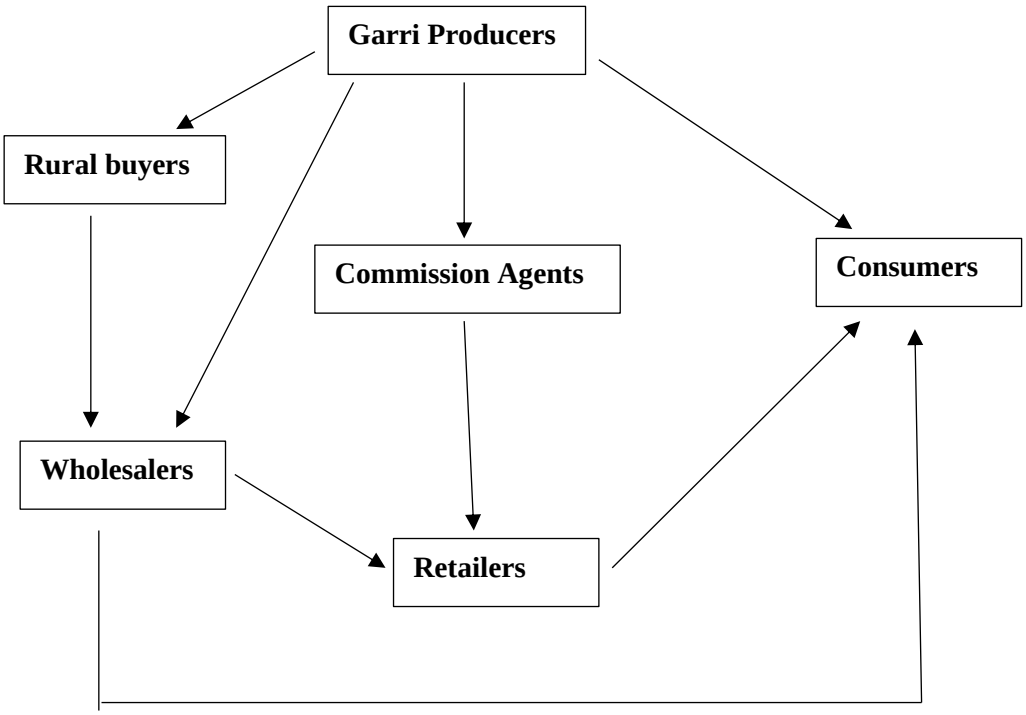

Fig 1. Channel of Distribution of Garri Marketing in the Study Area.

4.3 Cost and Returns, and Marketing Efficiency of Garri Marketing in the Study Area

The variable cost incurred during the marketing of garri in the respective markets is displayed in Table 2. The result shows that garri traders in Ikot Okoro, Itam, Akpan Andem, and Obo Annang Markets incur variable costs of ₦68,621.42, ₦57,338.88, ₦76,790, and ₦71,142.86, respectively. Total revenue obtained in the respective markets is ₦79,000 (Ikot Okoro Market), ₦74,000 (Itam Market), ₦80,000 (Akpan Andem Market), and ₦79,500 (Obo Annang Market), with gross margins per bag of ₦10,378.58 (Ikot Okoro Market), ₦22,161.12 (Itam Market), ₦10,710.00 (Akpan Andem Market), and ₦12,857.14 (Obo Annang Market).

Table 2 also shows the marketing efficiency values across the selected markets studied. The mean marketing efficiency for garri across the study area is 82.86. This is slightly lower than the average efficiency level for Obo Annang, Akpan Andem, and Ikot Okoro markets (86.86, 87.76, and 84.69, respectively). Itam Market has the least marketing efficiency value of 72.12. This low marketing efficiency value may be attributed to the inability of garri marketers in this area to carry out effectively the various marketing functions which could help to strengthen their marketing efficiency. Garri is efficiently marketed in Obo Annang, Akpan Andem, and Ikot Okoro, hence the highest marketing margin of 86.86, 87.76, and 84.69, respectively. The high average marketing efficiency could be attributable to the long trading experience. This result is similar to that of Ojedokun and Akinyode (2023), who also find efficient garri marketing in Oyo State, Nigeria. Furthermore, the result is in variance to that of Obekpa et al. (2022), who find a low marketing efficiency in their study of marketing analysis of garri among wholesalers in three selected markets in Kaduna metropolis, Kaduna state, Nigeria.

Table 2.Cost and Returns, and Marketing Efficiency of Garri Marketing

Variables	Ikot Okoro Market (₦)/Bags	Itam Market (₦)/Bags	Akpan Andem Market (₦)/Bags	Obo Annang Market (₦)/Bags
Garri	58114.29	50222.22	69965.00	62414.29
Transportation	4357.14	3638.89	3200.00	4392.86
Market levy	2564.29	1250	1265.00	1107.14
Bags	3335.7	2033.33	1885.00	3228.57
Storage	250	194.44	475.00	-
Total Variable Cost (TVC)	68621.42	57338.88	76790	71142.86
Revenue				
Garri	75000	74000	80000	79500
Bags	4000	5500	7500	4500
Total Revenue (TR)	79000	79500	87500	84000
Gross Margin	10378.58	22161.12	10710.00	12857.14
Marketing Efficiency (%)	86.86	72.12	87.76	84.69
Mean Marketing Efficiency	82.86			
Average Number of bags (100kg)	14	18	20	14

Source: Field Survey, 2025

4.4 Marketing Margin and Level of Marketing Efficiency

Marketing margin measures the share of the final selling price that is obtained by a particular agent in the marketing chain. It is the difference between the price paid by the consumer and that received by the producer. Table 3 shows the marketing margin for garri across the selected markets studied. The analysis shows variations in the marketing margin of garri across these markets. Itam market exhibits the highest marketing margin at 0.32. This suggests that for every Naira spent by consumers on garri in Itam Market, 32 Kobo accounts for marketing costs and profits. This higher margin could be attributed to several factors specific to the Itam Market. It might indicate higher transportation costs to this market, greater involvement of intermediaries adding value through various marketing functions (like packaging, storage, or bulking), or potentially a higher level of market power among sellers in the Itam market, allowing for larger markups. In contrast, Ikot Okoro and Obo Annang show moderately lower marketing margins of 0.23 (23%) and 0.21 (21%), respectively. These figures imply a smaller proportion of the selling price is attributed to marketing costs and profits compared to Itam markets. This could suggest more efficient marketing channels in these locations, lower operational costs for marketers, or more competitive pricing pressures. The relatively similar margins in Ikot Okoro and Obo Annang Market might indicate similar market structures and operational efficiencies for garri marketing in these areas. Akpan Andem Market records the lowest marketing margin at 0.13 (13%). This indicates that the smallest share of the final selling price in this market goes towards marketing costs and profits. This could be a sign of a highly competitive market environment with lower markups, shorter marketing channels with fewer intermediaries, or potentially lower costs associated with bringing garri to this market. This result is supported by the findings of Mukaila et al. (2021) and Ojedokun and Akinyode (2023), who reported that marketing activities involved in garri and a poor marketing system caused low marketing margin.

The significantly lower margin in the Akpan Andem market compared to the Itam market suggests substantial differences in the marketing dynamics of garri across these locations. The findings could imply that there exists some form of heterogeneity in garri marketing efficiency across different markets within the study area. The results of Anova test presented in Table 3 show that there exists a significant difference in the market margin across the four markets. The higher marketing margin in the Itam market could translate to higher prices for consumers or greater profitability for marketers operating in that market. Conversely, the lower margin in the Akpan Andem market might benefit consumers through potentially lower prices but could also indicate lower returns for marketers.

Table 3. Marketing Margin Analysis

Market	Cost Price/Bag	Selling Price//Bag	Market Margin	Anova Test
Ikot Okoro	58114.29	75000	0.23	0.00**
Itam	50222.22	74000	0.32	
Akpan Andem	69965.00	80000	0.13	
Obo Annang	62414.29	79500	0.21	

Source: Field Survey Data, 2025. Computed using SPSS 24. ** - 5% level of significance.

4.5 Determinants of Marketing Efficiency

The regression analysis investigated the specific cost components that influence marketing efficiency. The model's R-squared value of 0.318883 indicates that approximately 31.89% of the variation in marketing efficiency is explained by the included variables. The model is significant, as shown by the F-statistic of 8.801735. The analysis reveals that the Cost of bags is a highly significant determinant of marketing efficiency. The positive sign indicates a direct relationship: for every unit increase in the cost incurred on bags, marketing efficiency is expected to increase by 0.00736789, holding other factors constant. This finding suggests that investing in bags is not merely an unavoidable cost but a strategic decision that enhances the overall effectiveness of the marketing process. This may be due reasons such as durable, well-branded bags can enhance the perceived quality and value of the garri, allowing traders to command better prices and improve revenue capture, which boosts the efficiency ratio.

The Cost of garri had a negative coefficient and was significant at 10% level of probability. This inverse relationship signifies that an increase in the initial cost of the garri product leads to a corresponding decrease in marketing efficiency. This result is logical and aligns with the fundamental principles of cost and revenue analysis. Marketing efficiency is heavily impacted by the raw product cost (Farris, Bendle, Pfeifer and Reibstein, 2021). As the cost of acquiring the garri increases without a proportional increase in the selling price, the marketer's gross margin shrinks. A smaller margin means a lower return for the efforts and costs expended in the marketing process, thereby decreasing efficiency.

Table 4. Estimates of Factors influencing marketing margin in the study area

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*P-values*
Constant	75.0311	6.22524	12.05	8.89e-021 ***
Cost of garri	−0.000165414	8.49722e-05	−1.947	0.0546 *
Transportation cost	0.00124590	0.00120006	1.038	0.3018
Market levy	0.00295901	0.00282761	1.046	0.2980
Cost of bags	0.00736789	0.00198526	3.711	0.0003***
Storage cost	0.00209031	0.00155048	1.348	0.1808
Diagnostic Statistics				
R-squared	0.318883	Log-likelihood	−382.4277	
Adjusted R-squared	0.282654			
F(5, 94)	8.801735			
P-value(F)	7.03e-07			

Source: Computed by author, 2025. ***, * indicates 1% and 10% level of significance, respectively.

5.0 Conclusion

The analysis confirms that garri marketing in Akwa Ibom State is primarily carried out by active-age women, operating mostly as small-scale traders. The average marketing efficiency is 82.86, with Akpan Andem Market (87.76%) showing the highest efficiency and Itam Market (72.12%) the least. The study found a significant heterogeneity in market margins, with Itam Market (0.32) having the highest margin and Akpan Andem Market (0.13) the lowest. Critically, the cost of bags acts as a strategic investment, positively and significantly enhancing marketing efficiency, likely by increasing perceived value. Conversely, an increase in the cost of garri acquisition has a significant negative impact on marketing efficiency.

Recommendations

Based on the findings of the study, the following recommendations are suggested:

1. Cost of bags had a positive coefficient; this suggests that better packaging acts as a form of non-price competition that enhances the product's marketability and revenue generation. Marketers should view expenditure on bags as a strategic investment, not just a cost. They should focus on using high-quality, durable, and well-branded bags for packaging.

2. Marketers must prioritize sourcing strategies that minimize the initial acquisition cost of the garri without compromising quality.
3. Government agencies and trader bodies should provide targeted training and support programs focusing on marketing functions and cost management for traders in markets with lower efficiency, specifically, Itam Market.

References

Akpaeti, J. A., Okon, U. E., & Ekpo, U. E. (2019). Value addition and its effect on the stages of cassava production in Uyo agricultural zone, Akwa Ibom state, Nigeria. 2(2), 41-50.

Akpaeti, A. J., & Umoh, G. S. (2013). Farm resource productivity in conflict communities: Evidence from the Niger Delta region, Nigeria. Sky Journal of Agricultural Research, 2(3), 28-39.

Akpaeti, A. J., & Archibong, M. N. (2022). Factors influencing the use of digital credit systems among farmers in Akwa Ibom State, Nigeria. AKSU Journal of Agriculture and Food Sciences, 6(3), 168–179.

Da Silva, C. A., Kuivanen, K. S., Stein, A. J., & Lähteenoja, S. (2021). Smallholder farmers' access to markets: A global analysis and policy implications. *Food Policy*, *101*, 102097

Egwuma, H., Muhammed, A. E., Ojeleye, O. A., Oladimeji, Y. U., & Hassan, A. A. (2019). Analysis of the structure and efficiency of cassava marketing in Ado-Ekiti Local Government Area of Ekiti State, Nigeria. *Nigerian Journal of Basic and Applied Sciences*, *27*(2), 62-69.

Ettah, I. O., Emmanuel, E. A., Ikutal, A., & Ubi, G. M. (2019). Analysis of marketing margins and efficiency of cassava-based products in Cross River Central Agricultural Zone, Nigeria. *Annual Research & Review in Biology*, *34*(5), 1-7.

Farris, P. W., Bendle, N., Pfeifer, P., & Reibstein, D. (2021). Marketing metrics: *The manager's guide to measuring marketing performance*. FT press.

Food and Agriculture Organization of the United Nations. (2023). *Cassava: A staple crop in the tropics*. [https://www.fao.org/]

Kohls, R. L., & Uhl, J. N. (2019). *Marketing of agricultural products* (9th ed.). Pearson Education.

Minten, B., Reardon, T., & Swinnen, J. F. M. (2022). Transforming food value chains in developing countries: Promise and reality. *Annual Review of Resource Economics*, *14*, 261-282.

Mukaila, R., Obetta, A. E., Awoyelu, F. E., Chiemela, C. J., & Ugwu, A. O. (2021). Marketing analysis of vegetables: The case of carrot and cucumber marketing in Enugu State, Nigeria. *Turkish Journal of Agriculture-Food Science and Technology*, *9*(2), 346-351.

Obekpa, N. B., Okechalu, S. O., Adeogun, T. T. A., Oni, B. O., Essien, J. E., Adedapo, J. O., & Olukotun, O. Marketing analysis of garri among wholesalers in three selected markets in Kaduna metropolis, Kaduna state, Nigeria (2022). *Australian Journal of Science and Technology*, 6(2); 125-130.

Ojedokun, I.K. & Akinyode, A.E (2023). Analysis of Garri Marketing in Atiba Local Government Area, Oyo State, Nigeria. *International Journal of Social Sciences and Management Research*. 9(5); 101-112.

Okereafor, V. U., Aye, G. C., & Ezihe, J. A. C. (2018). Marketing Efficiency of Retailers and Wholesalers of Processed Cassava Products in Imo State, Nigeria. *Journal of Agricultural Economics Extension & Science (JAEES) vol*, *4*, 131-145.

Organisation for Economic Co-operation and Development, & Food and Agriculture Organisation of the United Nations. (2020). *OECD-FAO agricultural outlook 2020-2029*. OECD Publishing.

Shepherd, A. W. (2013). *Market analysis and food security*. Food and Agriculture Organisation of the United Nations. [Ihttps://www.fao.org/]

World Bank. (2022). *Investing in rural infrastructure for agricultural development*. [https://www.worldbank.org/]