ANALYSIS OF CASSAVA TUBER MARKETING IN RURAL AND URBAN MARKETS IN EDO SOUTH AGRO-ECOLOGICAL ZONE, EDO STATE, NIGERIA

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ARTICLE INFO

ABSTRACT

Cassava farmers and marketers are faced with problems bothering on poor pricing of the product locally, with attendant negative implications on their profitability. Hence, this study focused on the profitability of cassava marketing in rural and urban markets in Edo South Agro-Ecological Zone, Edo State, Nigeria. A three-stage sampling procedure was used in drawing up a sample of 161 cassava marketers from seven purposely selected major cassava markets. Data collected with the aid of a well-structured questionnaire were analyzed using descriptive statistics, budgetary analysis and regression analysis. Cassava tuber marketing was shown to be profitable in the study area with a monthly gross margin of ₦29,061.4 and a return per Naira invested of 0.29 (29%) for rural marketers. Urban marketers had a mean monthly gross margin of ₦19, 961.3 per marketer and a return per Naira invested of 0.32 (32%). Rural markets were found to be more efficient (576.78%) than urban markets (168.84%). The major factor militating against the farmers and marketers in their adopted management practices was having little money to spend. It is concluded that in order to improve the profitability of cassava tuber marketers in the study area, measures should be taken to cut down on the cost of transportation.

INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is an important crop widely cultivated in Sub-Saharan Africa. Although the crop is grown virtually in all parts of the sub-continent, production is specific in the humid tropics. Cassava plays a major role in efforts to alleviate Nigeria's food crisis because of its efficient production of food energy, all year round availability, and tolerance to extreme stress conditions and suitability to various farming and food systems (Ezeh, Anyiro, Obioma, & Maduagwu, 2012). Cassava is currently undergoing a transition from a mere subsistence crop found on the field of subsistence farmers to a commercial crop grown in plantations. This unprecedented expansion on the crop is attributed to its discovery as a cheap source of edible carbohydrate that could be processed into different forms of human delicacies and animal feeds (Onyenwoke & Simonyan, 2013). According to the Food and Agriculture Organization (FAO, 2013), not only is cassava a very important staple food for the urban and rural populace in Nigeria, it is also a part and parcel of the rural livelihoods of the people. As a food crop, cassava fits well into the farming systems of the smallholder farmers in Nigeria because it is available all year round, thus ensuring household food security (Oladejo, 2016).

Aside from its food security and famine reserve role, cassava also possesses high economic potential when exploited as raw material/feedstock for different feed and non-feed industrial applications through import substitution and export market opportunities. Most of the developing tropical countries value cassava not only because it provides food security but because of its ability to be converted into a large number of products ranging from traditional and novel food products, livestock feed, ethanol and starch and its numerous derivatives (Sewando, 2012). According to the United Nations Industrial Development Organization; globally, the five largest cassava producing nations are Nigeria, Thailand, Indonesia,

Brazil and Democratic Republic of Congo (DRC). In Sub-Saharan Africa (SSA), the major cassava producing countries include Nigeria (53 million tonnes in 2013), DRC (16 million tonnes), Angola (16.4 million tonnes), Ghana (15.9 million tonnes) and Mozambique (10 million tonnes). This means that Nigeria is the largest producer of cassava in the world and with such a large volume of production, it would be expected that cassava and its products would be abundant and available for domestic use and export. That however, is not the case. According to Ogisi, Begho, and Alimeke, (2013) despite the fact that Nigeria is the world's largest producer of cassava, its output is way below the total demand for the crop as food, for industrial raw materials and for export. Although Nigeria occupies the leading position as producer, the country still imports significant quantities of cassava products such as starch, flour and sweeteners (Olakunle, 2012).

Statement of the Problem

Fresh root cassava cannot be stored for long because they rot within 3 – 4 days. This exerts pressure on handling, packaging, transportation and sales with negative effect on market prices (Ugwumba & Ukoh, 2010). This perishable nature of cassava leads to substantial qualitative and quantitative losses and in a bid to sell their products as quickly as possible to avoid deterioration and losses due to transportation difficulty and inadequate storage materials, cassava tuber marketers tend to sell their products locally and at reduced prices to encourage purchasing which leads to reduced profit margin.

Objectives of the Study

The broad objective of this study was to analyse cassava tuber marketing in Rural and Urban markets in Edo South Agro-Ecological zone. The specific objectives were to;

- Describe the socio-economic characteristics of cassava tuber marketers in Rural and Urban markets in the study area
- Compare the profitability of cassava tuber marketing in rural and urban markets in the study area
- Describe the market structure, conduct and assess the performance of cassava tuber markets in the study area
- Outline the management practices carried out by the marketers and farmers to prevent post-harvest losses in the study area
- Identify the constraints militating against the marketing of cassava tubers in the study area
- Identify the sources of information to cassava marketers on methods of preservation and management in the study area.

Justification

According to Adejumo, Abass, Okoruwa, and Salman (2015), Food security has persisted as a major issue in the world today especially in developing countries. Availability and access to food are negatively affected by many factors, prominent of which is post-harvest loss (which could either be physical loss or economic loss) with its attendant negative effect on product prices, and profitability.

This study is justified in that though the research community has extensively explored the marketing of cassava tubers such as research works carried out by Ogisi, Begho, and Alimeke (2013), Oladejo (2016) and others, very little research work has been done on the analysis of cassava tuber marketing in rural and urban markets in the study area and much less has been conducted to compare the profitability of rural and urban marketers in the study area. This is the gap in knowledge this study is designed to fill. This research work will provide the Government and policy makers with information on the determinants of the profitability of urban marketers of cassava in the study area and their effect on the economy as a whole which will assist in the formulation of policies and decisions that will improve the profitability of the marketers and the general wellbeing of the economy. The study will also provide information to cassava tuber marketers in the study area on different management practices to prevent post-harvest losses which will also help to increase their profit margin.

MATERIALS AND METHODS

Area and scope of study

The study was carried out in Ikpoba-Okha, Ovia North-East, Uhumwonde and Egor LGAs of Edo State. Edo State comprises 18 LGAs, three agro ecological zones and shares boundaries of three other states of the federation.

The choice of Edo State for the study was deemed suitable because of its precedence in agriculture and its related activities. The state is mainly agrarian, producing crops like cassava, yam, rubber, plantain, maize, oil palm, cocoyam, etc.

Sample Size and Sampling Procedure

A three-stage sampling procedure was adopted in the study. The first stage involved a purposive sampling of four out of the seven LGAs that make up Edo South, based on the preponderance of cassava marketing activities in these LGAs. The second stage involved a purposive sampling of eight markets (four urban markets and three rural markets) based on the high prevalence of marketing activities in cassava tuber. The third stage involved a simple random sampling of 36 marketers from Obaretin, 21 from Obagie, 28 from Ugbojiobo, 15 from Ehor, 28 from Enyai, 23 from Oregbeni and 10 from Uselu. This made a total of 161 cassava tuber marketers from 4 LGAs (Ikpoba –Okha, uhumwonde, Egor and Ovia North-East).

Table 1. Sample size and sampling procedure

Markets	Frequency	Percentage
Rural		
Obaretin	36	22.36%

Obagie	21	13.04%
Ugbojiobo	28	17.39%
Ehor	15	9.32%
Total	**100**	**62.11%**
Urban		
Enyai	28	17.39%
Oregbeni	23	14.29%
Uselu	10	6.21%
Total	**61**	**37.89%**

Data collection

Primary and secondary data was used for the study. The primary data was generated through the use of questionnaires administered through scheduled interviews. Secondary data was collected from relevant journals, literature, articles, textbooks and the internet.

Measurement of variables

Variable used for the study was measured as follows:

Age: was measured in years
Sex: was measured in males or females
Marital Status: single, married, divorced, widow/widower
Level of Education: informal, formal (school certificate, junior secondary school, senior secondary school and tertiary)
Household Size: was measured by the number of individuals in the family
Marketing Experience: was measured in years
Analytical techniques: The data generated was analyzed using the following:

Objective One: The socio-economic characteristics were analyzed using descriptive statistics such as mean, frequency counts, table percentages and standard deviation.

Objective Two: Budgetary analysis such as gross margin and Return Per Naira Invested (RNI) were used to analyze the profitability of the cassava tuber marketing enterprises.

Gross Margin (GM) was used in estimating the profit earned from the enterprise. It is calculated as the difference between Total Revenue (TR) and Total Variable Cost (TVC). TR is quantified as the quantity of cassava tuber sold × price per unit. TVC is quantified as the total cost of all variable inputs like purchase at farm gate, transportation, labor, etc.
$$GM = TR - TVC$$

Where;
GM = Gross Margin
TR = Total Revenue
TVC = Total Variable Cost.
The RNI on Variable Cost was used in assessing the profitability of the enterprises.
The RNI was computed by the equation;
$$RNI = \frac{GM}{TVC}$$
The profits were compared using the student t-test which is given as;
$$t = \frac{X_R - X_u}{\frac{S_R + S_U}{}} \qquad = \frac{X_R - X_u}{S_R + S_U}$$

Where;
X_u = mean of urban marketers' profit
X_R = mean of rural marketers' profit
S_U = standard deviation of urban marketers' profit
S_R = standard deviation of rural marketers' profit
n = Number of respondents Sample size

Objective Three: Market conduct was analyzed using descriptive statistics such as number of buyers and sellers, free entry and exit, homogeneity of product etc.
Market structure was analyzed using descriptive statistics and Gini-coefficient.
Gini coefficient is expressed thus;
$$G.C = 1 - XY$$
Where;
G.C = Gini-coefficient
X = proportion of sellers
Y = cumulative proportion of total sales
Market performance was analyzed based on marketing efficiency
$$M.E = \frac{Net\ profit}{Total\ market\ cost} \times 100\%$$

Objective Four: A three point Likert-type scale was used in the identification of the management practices carried out by marketers and farmers in order to prevent post- harvest losses in the study area. The responses to the management practices were scored in such a way that the response indicating the most serious constraint will be given the highest score of 3. The responses were grouped into; very serious = 3, serious = 2, and not serious = 1. The mean was computed by summing up the scores on each item and dividing by the total number of responses.

Objective Five: A three point Likert-type scale was used in the identification of constraints faced by the marketers. The responses to the constraints were scored as described in objective five procedure

Objective Six: Descriptive statistics such as frequency and percentages were used to identify the sources of information to cassava marketers on the methods of preservation and management in the study area.

RESULTS AND DISCUSSIONS

Socio-economics characteristics of the marketers

Sex Categorization

The results presented in Table 1 showed that the majority (87.6%) of the cassava marketers from the selected markets were female while 11.8% were males. This shows that there is a dominance of females in cassava marketing in the study area.

Age distribution of the cassava marketers

The result shows that many of the cassava marketers were within the age range of 41 - 50 (42.2%) which was followed by those in the age range of 31 – 40(24.8%) and then, the next age range of 51 and above (21.1%). This corresponds to the findings of Nzeh and Ugwu (2014) who stated that most of the marketers were over 45 years of age. The age range with the least population was for cassava marketers who were less than 30 years of age. The mean age of the cassava marketers in the study area was about 43 years with a standard deviation of 8.7294. This implies that a large number of people who were into cassava marketing in the study area were those who were way past their youth and tending towards old age.

Marital status of the cassava marketers

Table 1 Shows that the majority (67.1%) of the cassava marketers were married (67.1%), with the next ranking population being those who were widowed (20.5%). This category of people is followed by those who were divorced (5.6%), and this in turn is followed by those who were separated (7%). The category of cassava marketers with the least population is those who were single (2.5%).

Educational status of the cassava marketers

Based on educational status, cassava marketers who attended secondary school had the most population (35.4%), with the next population being those who had no formal education (29.8%), who are also followed by those who had just primary education (26.1%) and the category with the least being those who had tertiary education (8.7%). This implies that cassava tuber marketers in the selected areas were largely literates.

Household size of the cassava marketers

Over half (67.7%) of the population had household size ranging between 4 – 7 persons, while 22.4% of the population had household size of eight persons and above. A few of the population (9.9%) had a household size of less than three persons. The Table also shows the mean household size of respondents to be six persons with a standard deviation of 2.65849.

Marketing experience

A good number (35.4%) of the population had marketing experience of less than five years and this showed the influx of marketers into cassava tuber marketing in the last decade and also implies the significance of cassava tuber marketing as an important source of income while twenty-six percent of the cassava marketers had marketing experience of 16 years and above. Twenty-four percent of the marketers had experience of between 6 – 10 years. Few (14.3%) of the population had marketing experience of between 11 – 15 years. The marketers had a mean marketing experience of 11 years with a standard deviation of 7.97504. The result on the Table shows that majority (82.6%) of the population were from monogamous families while very few of the marketers were from polygamous families.

Source of capital

Majority (68.9%) of the marketers generated their capital from personal savings which suggests that marketing of cassava tubers in the selected markets may not be capital intensive. This result supports the findings of Oladejo (2016). A sizable (22.4%) number of the marketers sourced their capital from cooperatives and a lesser (8.1%) population of them got their capital from family and friends. A very small (0.6%) number of the population acquired their capital from the bank and this suggests very poor participation of the banking sector in financing cassava tuber marketers in the selected markets.

Occupational distribution of the marketers

It is shown on Table 1 that for most (59%) of the cassava marketers, cassava tuber marketing was their major occupation and this implies that cassava tuber marketing is profitable enough if not for anything else, to provide their basic needs and those who did not have cassava marketing as their major occupation were 42.2% of the population.

Table 1. Distribution of cassava marketers based on their Socio-Economic characteristics

Description	Frequency	Percentage	Mean	Std. Deviation
Sex				
Female	141	87.6		
Male	19	11.8		
Age				
<30	19	11.8		
31 – 40	40	24.8	43.0559	8.72944
41 – 50	68	42.2		
51 and above	34	21.1		
Marital status				
Single	4	2.5		
Married	108	67.1		
Divorced	9	5.6		
Widowed	33	20.5		
Separated	7	4.3		
Educational status				
No formal education	48	29.8		
Primary education	42	26.1		
Secondary education	57	35.4		
Tertiary education	14	8.7		
Household size				
<3	16	9.9		
4 – 7	109	67.7	6.1813	2.65849
8 and above	36	22.4		
Marketing experience				
<5	57	35.4		
6 – 10	39	24.2	10.5155	7.97504
11 – 15	23	14.3		
16 and above	42	26.1		
Nature of homestead				
Monogamy	133	82.6		
Polygamy	28	17.39		
Source of capital				
Banks	1	.6		
Cooperative society	36	22.4		
Personal savings	111	68.9		
Family and friends	13	8.1		
Major occupation				
Other occupation	66	42.2		
Cassava tuber marketing	95	59.00		

Profitability analysis of cassava tuber marketing

From the result shown on Table 2 an average rural marketer sold a mean volume of 97.8 bags (of 50 kg each) of cassava tubers and incurred an average variable cost of ₦100, 228.6 per month, earning an average monthly revenue of ₦129, 290. This high amount could largely be attributed to the unequal distribution of income. Also the average monthly gross margin was estimated as ₦29,061.4. Dividing this value by four results in a mean weekly gross margin of ₦7,265.35. The estimated average rate of return was 0.29% which means that an estimate of ₦ 0.29 was realized for every ₦1.00 spent on the business. Since the return per Naira invested, (RNI) on variable cost is less than 1 (0.29), it suggests that although cassava tuber marketing in the selected rural market is profitable, it is not a viable business enterprise. On the other hand, the result of an average urban marketer sold a mean volume of 56.78 bags of 50kg each and incurred an average variable cost of ₦62,314 with average revenue of N82, 275.4 per month. The rate of return per Naira invested on variable cost was 0.32% which means that an estimate of ₦0.32 was realized for every ₦1.00 spent on the business. Since the RNI was also less than 1 (0.32) it implies that although cassava tuber marketing in the selected urban markets is profitable as corroborated by Oladejo (2016) and Nzeh and Ugwu (2014), it is not a viable business enterprise. Also from the Table, the mean monthly gross margin was ₦19,961.3. This amounts to a mean weekly margin of ₦4990.325 per cassava tuber marketer.

Table 2. Analysis of profitability of cassava tuber marketing in the study area

	RURAL				URBAN			
	Quantity	unit cost	Amount	%contribution of TVC	quantity	unit cost	Amount	%contribution of TVC
TOTAL REVENUE			129290				82275.41	
Average quantity purchase/market day (Bags)	97.08				56.78			

Average quantity sold/market day(bags)	97.8				56.78			
Average weight/bag (kg)	50				50			
Average purchase price/bag(₦)		955				924.5902		
Average selling price/bag (₦)		1344				1544.754		
Cost of cassava tubers	97.08	955	95190	95.0	56.78	924.5902	50491.8	81.0
marketing market charges			272	0.3			1000	1.6
marketing transportation			2674.6	2.7			10540.33	16.9
marketing packaging cost			2092	2.1			281.9672	0.5
Total Variable Cost TVC			**100228.6**				**62314.1**	
GROSS MARGIN TR – TVC			**29061.4**				**19961.31**	
RNI = GM/TVC			**0.289951**				**0.320334**	

Comparison of the profitability of rural and urban marketers of cassava tubers

The result (Table 3) shows that there exists a significant difference in the mean profitability of rural and urban marketers of cassava tubers at 5% confidence interval. This implies that the profitability of rural marketers of cassava tuber is significantly higher than the profitability of urban marketers of cassava tuber in the study areas.

Table 3. Analysis of the comparison of profitability between rural and urban cassava markets in the study area

t-Test: Two-Sample Assuming Unequal Variances		
	RURAL	***URBAN***
Mean	29061.4	19961.31148
Variance	854223280.9	158056904.9
Observations	100	61
Hypothesized Mean Difference	0	
Df	146	
t Stat	2.727301075	
P(T<=t) one-tail	0.003584368	
t Critical one-tail	1.655357345	
P(T<=t) two-tail	0.007168737	
t Critical two-tail	1.976345655	

Market Structure, Conduct and Performance

Market structure

The market structure was analyzed using the Gini coefficient. Table 4 shows the estimated Gini coefficient to be 0.33. This implies a lower level of concentration and inequality in the distribution of income across the marketers in the study area. This result is similar to the findings of Egwuma et al. (2019) who found the existence of high variation of income distribution of cassava marketers. The implication of this is that no single trader was exercising control and as a result, cannot influence supply of the tubers by decreasing or increasing the quantity they sell. The output of each marketer accounts for an insignificant volume of trade in the market such that it could not affect prices. This semblance of perfect competition is a sign of efficiency in the market.

Table 4. Computation of Gini coefficient for cassava tuber marketers

Sales	Freq.	Proportion X	Cumulative proportion	Total value of sales	Proportion of total sales	Cumulative proportion of total sales Y	∑XY
less than 50,000	139	0.86	0.86	2887072.5	0.64	0.64	0.55
50,001 - 100,000	20	0.12	0.98	1411150	0.31	0.95	0.11
100,001 and above	2	0.01	1	221050	0.05	1	0.01
Total	**161**	**1**		4501272.5	1		**0.67**

Gini coefficient = 1-∑**XY** = **1-0.67 = 0.33**

Market conduct

Market conduct was analysed using descriptive statistics such as number of buyers and sellers, free entry and exit and homogeneity of product price determination, among others. The results on Table 5 shows that there was no product differentiation.

Source of cassava tuber supply

From the results shown on Table 5, it is observed that a little over half (51.6%) of the cassava marketers got their cassava from their farms and this goes to say that majority of the farmers market their commodity by themselves. This population is followed by a large (41.0%) percentage of the marketers who got their supply of cassava tuber from other farmers while 7.5% of the cassava marketers got their supply from wholesalers.

Position of the cassava marketers in the market chain
From the result on Table 5, it is shown that on the basis of purchasers, over half of the marketers were processors (59%) who are closely followed by retailers (29.8%) and wholesalers accounting for very few (11.2%) of the population, implying that wholesalers would rather buy at the farm gate that at the market. The table also shows that on the basis of sellers, a large proportion (77.6%) of the marketers are sellers (wholesalers) while 22.6% are buyers (retailers).

Factors that affects sales of cassava tuber
Table 5 shows that the major factor that affected the sale of cassava tubers was size (38.5%) and this is because the buyers would always go for tubers that were large in size and this factor is followed by selling price (32.9%) and this in turn, is followed by experience (19.9%) of the marketers. This implies that the level of experience a particular marketer has in marketing cassava influences the volume of his /her sale of the commodity because such marketer would have been well known by buyers who will always patronize them based on past business dealings. Although transportation (5.0%), supply (1.9%) and season (1.9%) are factors that affect the sale of cassava tubers in the selected markets, their influence is small compared to that of tuber quality and selling price.

Factors That Determine the Selling Price of Cassava Tuber in the selected Markets
Table 5 shows that the cost price of the marketers is the major factor (29.8%) that determines the selling price of the tubers and next after this is the bargaining power (20.5%) of the buyers while season is the next important determinant of the price of cassava tuber and this could be because, the ground is usually dry during the dry season; making harvesting of the tubers more difficult and hence, an increase in price to compensate for their labour. Trade unions determined the selling price of 8.1% of the marketers and this is because very few (27.1%) of the marketers belonged to trade unions. Market costs (7.5%) also determined the selling price of the tubers. The least determining factors were supply (1.9%) and demand (1.2%).

Means of Transportation to the Market
It is shown on Table 5 that 55.9% of the marketers make use of public transport to transport their commodity to the market and this population is above half of the population, suggesting that cassava tuber marketing is not capital intensive, neither is it asset dependent for its survival. A good number of the marketers employed the use of wheel barrows in transporting cassava to the market. About 17% of the marketers had their own personal means of transportation to the market while very few (0.6%) of the marketers employed head portage in their transportation. The bulky nature of cassava tuber discourages such means of transportation and this also suggests that such marketers who used head portage are those whose source of purchase are not far from the market.

Occurrence of Trade Union in Cassava Tuber Markets and Their Effects
From the results shown (Table 5), a very large population (78.3%) of the marketers reported that there was no trade union for cassava tuber marketers and as a result, they did not belong to any union for the marketing of their commodities. About 22% of the marketers reported that there was a trade union for cassava tuber marketers and as such, they belonged to the association and this may be attributed to the fact that they help to protect the interest of the sellers by fixing a general price level for sale of a particular quantity of the cassava tuber. As shown (Table 3.2), 21.7% of the marketers reported that the trade union influences the marketing and price of cassava tubers.

Strategy to attract customers to purchase leftovers
Many (47.2%) of the marketers employed the giving out of discount as their strategy to attract customers to buy leftovers as there is no means of storing them and so, because of the perishable nature of cassava tubers, these marketers sold at very reduced prices as an incentive to encourage purchase. About 20% of the marketers applied persuasive efforts towards their customers, followed by open display (9.3%) and the strategy which was employed by the least population of marketers was giving of gifts/ additional commodities (1.2%).

Table 5. Marketing Information of Cassava Tuber Marketers

Description	Frequency	Percentage
Source of cassava supply		
Your farm	83	51.6
Other farmers	66	41.0
Wholesaler	12	7.5
Commodity Sold to		
Wholesaler/Dealer	18	11.2
Retailer	48	29.8
Processor	95	59.0
Nature of marketing		
Sellers	125	77.6
Buyers	36	22.36
Frequency of purchase		
Every 4 days	68	42.2
Weekly	50	31.1
Twice monthly	27	16.8
Monthly	16	9.9

What affects your sale?		
Selling price	53	32.9
Season	3	1.9
Quality	62	38.5
Transportation	8	5.0
Experience	32	19.9
Supply	3	1.9
What determines the price at which you sell		
Cost price	48	29.8
Bargaining power	33	20.5
Demand	2	1.2
Supply	3	1.9
Quality	19	11.8
Market cost	12	7.5
Trade union	13	8.1
Season	31	19.3
What do you use to transport your commodity		
Head portage	1	.6
Wheelbarrow	37	23.0
Public transport	90	55.9
Private transport	28	17.4
Is there a trade union for cassava tuber marketers		
No	126	78.3
Yes	35	21.7
If yes, do you belong to their association		
No	126	78.3
Yes	35	21.7
If yes, does the trade union influence marketing and price		
No	126	78.3
Yes	35	21.7
Is the influence on price subject to changes		
No	126	78.3
Yes	35	21.7
What do you do to keep and attract customers to buy leftovers		
Discount	76	47.2
Gifts/additional commodity	2	1.2
Persuasive effort	32	19.9
Open display	15	9.3
Personal delivery	36	22.4

Market Performance

The market performance of cassava tuber marketing was analysed using marketing efficiency and marketing cost. The efficiency analysis (Table 6) shows the marketing efficiency of rural markets to be 576.78% and that of urban markets was 168.84%. It could be inferred that this higher rural market efficiency than that of the urban markets is because of the lesser marketing cost incurred by the rural marketers. The high efficiency ensures a fair amount of return to the marketers and this will encourage them to invest more in the business. The higher efficiency of rural markets accounts for the higher returns earned by the rural marketers as shown earlier, where mean monthly gross margin of rural marketers was shown to be ₦29, 061.4 as against ₦19, 961.3 for urban marketers. Table 3.3 also shows the marketing cost of rural marketers to be ₦5, 038.6 and that of urban marketers to be ₦11822.3. This implies that for every bag of cassava tuber bought from the rural market on the average, about 5% of the price paid by the customers covers the marketing cost and profit of the seller while the remaining 95 % goes to the cost of the cassava tuber itself. The same applies for urban markets in that for every bag of cassava tuber bought in the urban market, 19% of the price paid covers the marketing cost and profit of the seller while the remaining 81% goes for the cost of the cassava tuber. The cost component that accounts for the high marketing cost of urban marketers is transportation which constitutes 16.9% of the TVC as shown in table 6. In order to improve the marketing efficiency of the urban markets therefore, attempts should be made to cut down on transportation cost.

Table 6. Analysis of Marketing Efficiency

Variable	**Mean value for Rural markets (₦)**	**Mean value for Urban markets(₦)**
Net income	29, 061.4	19, 961.3
Marketing cost	5, 038.6	11, 822
Marketing efficiency	576.78%	168.84%

Constraints Faced by Cassava Tuber Marketers in the Study Area
General constraints faced by cassava tuber marketers in the study area
From the result shown in Table 7, bad weather (rainfall) is the major constraint faced in marketing cassava tubers in the markets selected. This could be attributed to the fact that Edo State is largely characterized with high annual rainfall as stated by Godwin et al. (2010) that rainfall is usually of high intensity with double maxima and a dry little spell in August

usually referred to as "August Break"; With the rainfall amount ranging from 1800 to 2780mm. This could also be attributed to the fact that there is no structure for stalls where the marketers stay to sell their commodity which also affects sales.

Table 7. General constraints faced by cassava tuber marketers in the study area

	MEAN	RANK
Bad weather	2.093167702	1st
Lack of technical know-how	1.770186335	2nd
Lack of storage facilities	1.757763975	3rd
Distance to the market	1.732919255	4th
high cost of transportation	1.726708075	5th
bad roads	1.714285714	6th
type transportation means	1.325	7th
Overload	1.310559006	8th
low patronage	1.30625	9th
pest/diseases	1.273291925	10th
Container	1.204968944	11th
High cost of storage	1.105590062	12th

Management practices carried out by the marketers to prevent postharvest loss
Table 8 shows that the most important method to prevent PHL is timed buying (98.1%) due to the highly perishable nature of tubers. The table also showed that about half (50.3%) of the marketers did not prefer to sell cheap while the other half would rather sell cheaply to prevent loss than to allow complete spoilage; leading to reduced profit margin. Furthermore, it is shown that 80.7% of the marketers did not process leftovers because of the stress involved and their lack of modern processing facilities.

Table 8. Analysis of management practices carried out by farmers to prevent post-harvest loss

	HP		P		NP			
Constrain	Frequency	%	Frequency	%	Frequency	%	Mean	S.D
Harvest on demand	76	47.2	7	4.3	78	48.4	1.9876	0.98099
Leave open for fresh air					161	100.0	1.0000	0.00000
Leave un-harvested in the ground	81	50.3	2	1.2	78	48.4	2.0186	0.99669
Process all on purchase	3	1.9			158	98.1	1.0373	0.27130
Timed Buying	158	98.1	3	1.9			2.9814	0.13565
Sell Cheap	45	28.0	35	21.7	81	50.3	1.7764	0.85860
Buy Little	94	58.4	7	4.3	60	37.3	2.2112	0.95793
Processed leftovers	11	6.8	20	12.4	130	80.7	1.2609	0.57578

HP = highly preferred, P = preferred, NP = not preferred

Constraints faced in reducing post-harvest losses
Table 9 shows that having little money to spend in order to improve their status is a major constraint in preventing losses because as shown in Table 9, over half (58.4%) of the marketers prefer to buy less quantity than they would have wanted which results in less profit.

Another constraint faced is lack of modern processing facilities. This further supports the findings of Nzeh and Ugwu (2014). As a result of the stress and time involved in processing the tubers locally, the marketers would rather sell raw tubers than processed cassava as shown in table 9 where processing of tubers is ranked 7th with 98.1% of the marketers not preferring to process.

Table 9. Constraints faced in reducing post-harvest loss

CONSTRAINT	MEAN	RANK
Little money to spend	2.35	1ST
Lack of modern processing facilities	1.94375	2ND
Bad weather	1.9125	3RD
poor information on quantity demanded	1.20625	4TH
method to stop spoilage is not working	1.0375	5TH

Source of Information on method of preservation/management
From table 10, it is shown that the majority (83.9%) of the respondents got to know about the management practices they adopted from their fellow marketers while 15.5 % of them got theirs from their relatives and friends and just 0.6 % got to know about their chosen method of management from extension agents. This value of 0.6 implies the near absence of the activities of extension service agents.

Table 10. Source of Information on method of preservation/management

Source of information	Frequency	Percentage
Fellow marketers	135	83.9
Extension agents	1	0.6
Relatives/friends	25	15.5

CONCLUSIONS

Cassava tuber marketing is a profitable business for rural and urban marketers in the study area. In recent years, more people have gone into the business despite the many challenges and limitations associated with the business. Improved marketing and processing conditions will go a long way to encourage participation of more people, even youths, which will in the long run lead to increase in per capita income, low unemployment rate and general development of the country at large.

This study recommends the following: 1. Efforts should be made to eradicate the problem of bad roads which will ensure ease of transportation during marketing. 2. Funds should be made available to marketers along with provision for infrastructures and credit facilities which should be easily accessible to the marketers by different financial bodies. Loans should be given to marketers at a low interest rate to encourage participation. 3. Modern processing and storage facilities should be made available to the government to the marketers to encourage value addition and as a result, increase in income. 4. Cassava tuber marketers in the study area should form cooperative society's trade unions which will enable them to market their commodities at better prices than they would get as individuals.

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