

## Profitability and Marketing Efficiency of Ware Yam Trading in Umuahia North Local Government Area of Abia State, Nigeria

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**Abstract:** This study focused on the analysis of profitability and marketing efficiency of ware yam trading in Umuahia North Local Government Area of Abia State, Nigeria. The broad objectives was to analyze the profitability and marketing efficiency of ware yam trading in Umuahia North Local Government Area of Abia State, Nigeria. The specific objectives were to estimate the level of profit realized by the ware yam traders and their marketing efficiency, ascertain the socio-economic factors that influences the profitability of the marketers and establish the challenges associated with the ware yam marketing. Primary data used in the study were obtained through the administration of a well structured questionnaire to the yam marketers. Five autonomous communities were purposively selected for reason of availability of yam and relevant respondents for data collection. One major market from each community making a total of five (5) markets. Eight (8) ware yam retailers and four (4) ware yam wholesalers were drawn from each market to form a sample size of sixty (60) respondents (40 retailers and 20 wholesalers). Data collected were analyzed using market budgetry analysis estimated using profitability ratios. Profitability ratios computed were; Profitability Index (0.71), Rate of Return on Investment (238.5%), Rate of Return on Variable cost (1101.53%), and Operating Ratio (0.07). The ratios showed profitability to both traders. Result of marketing efficiency showed that yam marketing is efficient with the value of 238.50% across the markets in the area. Regression results identified of the significant variables that affect the dependent variables to include gender, age, education, and marital status, number of dependency, market charges and selling price. Recommendations were that organized markets should be created for the ware yam marketers with provisions for storage facilities and that trader unions should be functional to enable them have access to credit to expand their businesses since it is profitable.

**Keywords:** yam trading, profitability, marketing efficiency, Variable cost

### INTRODUCTION

Yams (*Dioscorea species*) are starchy staples in the form of large tubers produced by annual and perennial vines grown in Nigeria. There are hundreds of wild and domesticated *Dioscorea* species. White yam, *Dioscorea rotundata*, is the most important species especially in the dominant yam production zone in West and Central Africa. It is indigenous to West Africa. Yams are primary agricultural commodities and major staple crops in Nigeria. In Nigeria, they are major sources of income and have high cultural value. They are used in fertility and marriage ceremonies, and a festival is held annually to celebrate its harvest [1].

Consumer demand for yam is generally very high in this sub-region. The major processed forms in which yam tubers are utilized are as yam flour, yam flakes, and yam chips [2]. In addition to traditional dried yam products, 'new' processed yam product like pouno yam have entered the market in recent years and

are consumed due to convenience factors as affluence rises among certain sectors of the population

Ware yam being the marketable weight-range yam, it is gaining popularity as an insurance against hunger and has evolved to be a major commodity crop more than other food crops. Marketing in high yielding and improved varieties of yam has resulted in higher cash income especially in areas with access to improved production technology and market [3].

Marketing depends greatly on getting the goods to final consumers and in this process of movement, ware yams due to their bulkiness incur additional costs like 'transaction costs'. Transaction costs are the costs associated with the time and effort needed to search out, negotiate and consummate an exchange [4]. Trading is referred to as the activities necessary to bring goods and services from the place of their production to the place of consumption. Ware yam trading therefore is the process by which ware yams

flow through the system from the farmer producing ware yams to the final consumers. This is the flow of ware yams from the farmer to the wholesaler to the retailer and finally to the consumers. Though, marketing plays a dual role in the economy, ware yam trading has been affected with several macro and micro-economic problems, mostly imposed by intermediaries.

The channels of distribution of ware yam include the producers, the agents, wholesalers, and retailers. The producers in the North (Nassarawa, Niger, Abuja) and some eastern states (Anambra, Ebonyi and Abia state) are traders. They supply to the agents who also engage themselves in yam trading for they purchase yam directly from the bulk producers at farm gate prices. The wholesalers buy from the agents in bulk and sell to the retailers.

Marketing efficiency is the ratio of market output (satisfaction) to marketing input (cost of resources used in the marketing) Kohls and Uhl[5]. A higher value of this ratio indicates improved marketing efficiency and lower value denotes reduced efficiency. According to Asumugha *et al.*[6], there is insufficient knowledge regarding the efficiency of the yam marketing system in Nigeria, however, over recent years there has been an increased focus on research to identify issues in yam marketing.

Profitability is a state of yielding financial gain or profit. It can be estimated using financial ratios [7]. Financial ratio further defined as a class of financial metrics that are used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred a specific period of time.

This study will benefit the marketers in making decisions and adopting strategies to improve profitability and marketing efficiency in the ware yam business. The primary objective of this study was to analyze the profitability and marketing efficiency of ware yam trading in Umuahia North Local Government Area of Abia State, Nigeria. The specific objectives are to; estimate the level of profit realized by ware yam traders and their marketing efficiency in the study area;

ascertain the socio-economic factors that influences the profitability of yam marketing in the study area; establish the challenges associated with ware yam trading.

## METHODOLOGY

The study was conducted in Umuahia North Local Government area. Umuahia North Local Government is part of the metropolitan area of Umuahia capital territory in Abia state. The study area comprises of ten autonomous communities which are Umuhu, Nkwoegwu, Ofeme, Isingwu, Ibeku, Afaranta, Afaraukwu, EmedeOssah, Ndume and Amafo, the urban areas are Ibeku and Afara communities. This study employed multi-stage random sampling and purposive sampling techniques. First, five autonomous communities that make up Umuahia North Local Government Area were selected. Secondly, one major market was purposively selected from each of the five communities. A list was compiled, consisting of yam sellers (wholesalers and retailers) in these markets. From the list, 8 ware yam retailers and 4 ware yam wholesaers were randomly selected from each of the 5 major markets to give a grand sample size of 60 (40 ware yam retailers and 20 wholesalers. Data collected were analyzed using marketbudgetry analysis estimated using profitability ratios in line with Kay [8], Ordinary Least Square Regression and descriptive statistics.

Objective one was analyzed using the following ratios obtained from the result of the budgetary analysis, Profitability Index (PI) or Return on Sale = NI/TR.

The Rate of Return on Investment (RRI) =  $NI/TC * 100$   
The Rate Return on Variable Cost (RRVC) =  $TR - TFC/TVC * 100$

Operating Ratio (OR) =  $TVC/TR$

Where ; TVC = Total Variable Cost (₦)

TC = Total Cost (₦)

TR = Total Revenue (₦)

NI = Net Income (₦)

TFC = Total Fixed Cost (₦)

Marketing efficiency ratio was realized using a simplified marketing efficiency formula as specified by Olukosi and Isitor[9] and Ibeagwu[10].

$$M.E = \frac{\text{Value added by marketing (Net profit)}}{\text{Total marketing cost (TMC)}} \times \frac{100}{1}$$

Where,

M.E = marketing efficiency

Net income (NI) or profitability level =  $TRS - TMC$

Profitability Index =  $(NI / TRS)$

Where;

TRS = Total revenue from sales

TMC = Total marketing cost

NI = Net income

Objective two which considered socioeconomic factors influencing profitability of ware yam marketers was achieved using the ordinary least

squares multiple regression. The model is implicitly represented in equation as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, e_i)$$

Where:

- Y= Marketing Efficiency (measured as a percentage),
- X<sub>1</sub> = Gender (1= Male, 0 = Female),
- X<sub>2</sub> = Ages (Years),
- X<sub>3</sub> = Educational Qualification (Number of Years Spent in School),
- X<sub>4</sub> = Marital Status (1 = Married, 0 = Single),
- X<sub>5</sub> = Dependents (Numbers),
- X<sub>6</sub> = Marketing Experience (Years),
- X<sub>7</sub> = Selling Price (₦),
- X<sub>8</sub> = Transport Cost (₦),
- X<sub>9</sub> = Mode of Operation (1=Full-Time, 0 = Part-Time),
- X<sub>10</sub> = Marketing charges (₦), and
- e<sub>i</sub>= Error term

Four functional forms were applied to the data. The model that provided the best fit was chosen as the lead equation on the basis of the magnitude of the coefficient of multiple determinants (R<sup>2</sup>), the magnitude and statistical significance of the regression coefficients, and signs of the regression coefficients as they conform to a priori expectations.

Objective three analyzed using simple descriptive statistics such as frequency and percentages.

## RESULTS AND DISCUSSIONS

Profitability and Marketing Efficiency of Ware Yam Marketing in Umuahia Abia State. The profitability and marketing efficiency of ware yam marketing among the traders in the study area is presented in table 1

**Table 1: Profitability and marketing efficiency of ware yam marketing among the traders in the study area**

Variables	Value (₦)	Percentage of total cost
Rent on shop	2,348.33	10.8
Depreciated Value of trading Equipments	1,805.27	8.3
Twine/rope	1,040.83	4.8
Total Fixed Cost (TMFC)	5,194.43	23.8
Yam tubers purchased	2,015.0	9.2
Transportation	10,091.67	46.3
Labour	555.00	2.5
Storage	1,986.67	9.1
Levies /tax	1,234.17	5.7
Water	736.00	3.4
Total Variable Cost (TMVC)	16,618.50	76.2
Total Cost (TMC)	21,812.93	
Revenue	73,836.67	
Net Profit= (TRS-TMC)	52,023.73	
BC-Ratio = (TR/TC)	3.39	
Profitability Index =(NI/TR)	0.705	
Rate of Returns on Investment(%) = (NI/TC*100)	238.5	
Rate Of Returns On Variable Cost (%) = (TR-TFC/TVC*100) =	1101.53	
Operating Ratio (OR) = TMVC/TR	0.07	
Marketing efficiency =(Net profit/TMC)*100	238.50	

Source: Field Survey, 2014

Table 1 showed that the variable costs items comprised of the cost of yam tubers, labour, storage, levies, water and transportation, while the fixed cost components were cost based on land rent, purchase of twine/rope and depreciated values of trading equipments, transportation, rent on shop, Yam tubers purchased and storage with (46.3%), (10.8%), (9.2%) and (9.1%) respectively constituted the bulk of average total cost of ware yam trading. The average total variable cost constituted 76.2% while the average fixed cost constituted 23.8% of the average total cost of ware yam trading in the study area. The average total variable cost of ware yam trading amounted to about ₦16, 618.5 while the average total fixed cost (TFC) was found to be ₦5,194.43. The average total cost incurred per month of ware yam trading in the study area was ₦21, 812.93. The average revenue from ware yam trading was found to be ₦73, 836.67. The enterprise had an average net income of ₦52, 023.73 per trader per annum.

The profitability ratios computed to establish profitability levels of the enterprise included profitability Index (PI), Rate of Returns on Investment (RRI), Rate of Returns on Variable Cost (RRVC) and Operating Ratio (OR). The average PI for all trades was 0.71, indicating that out of every naira earned; about 71 kobo accrue to the traders as net income. The Rate of Returns on Investment was 238.5%, indicating that a trader makes about ₦239 profit on every naira spent on ware yam trading. The Rate of Returns on Variable Cost (RRVC) was estimated to be about 1101.53%, indicating that every ₦1 cost incurred on variable inputs generates about ₦1,101. This suggests that improvement in the profitability of ware yam trading in the study area was made possible through increased efficiency in the use of variable inputs. Moreover, the Operating Ratio (OR) of 0.07 indicates greater total revenue over total variable cost. The Benefit-Cost Ratio

(BCR) was estimated to be 3.39, indicating that ware yam trading in the study area was highly viable as it returns ₦34 for every ₦1.00 spent. It can therefore be concluded that ware yam trading in the area is profitable. People should take up ware yam trading as a means of livelihood.

The result of the marketing efficiency analysis revealed high marketing efficiency for the traders, According to Scarborough and Kydd[11], marketing efficiency ranges from zero (0) to infinity, 100% indicates perfectly efficient market, and less than 100% indicates market inefficiency and above 100% indicates excess profit. Based on this, the traders were efficient. This was because they may have reduced marketing cost and to make more profit from a unit of the commodity relative to cost. Therefore the yam market was efficient and is optimal in performance. This result is in consistent who reported higher efficiency among sweet potato retailers than wholesalers in south eastern Nigeria.

Socio-Economic Factors Influencing the Profitability of Ware Yam Trading in the Study Area. The regression results of the socioeconomic factors that influenced the profitability of ware yam farmers in the study area is shown in table 2

The exponential function was chosen as the lead equation based on the number and signs of the significant variables. The overall goodness of fit of the equation, as indicated by the coefficient of multiple determinations ( $R^2=0.883$ ), showed that the independent variables included in model explained about 88.3% of the variations in ware yam profitability (dependent variable) in the study area. The F-statistic was significant and confirms the significance of the entire model.

**Table 2: Regression results for the factors influencing output of ware yam**

Parameters	Beta coefficient	T values
Constant	6.193	22.632***
Gender	0.238	3.210***
Age of respondent	0.010	2.221**
Education	0.003	2.576**
Marital status	0.004	2.349**
Dependency	0.201	1.717*
Marketing Experience.	-0.009	-0.977
Marketing charges	-0.009	-2.539**
Selling Price	0.003	8.996***
Transportation Cost	-0.004	-3.927***
Mode of Operation	-0.101E-06	-1.100
$R^2$		0.883
Adjusted $R^2$		0.851
F -statistic	32.934***	26.830***

Source: field survey, 2014

\*\*\* = significant at 1% level; \*\* = significant at 5% level; \* = significant at 10%

Evidence from the result in table 2 indicated that gender, age, education, marital status, number of dependency, market charges and selling price were significant factors that influenced the profitability of ware yam marketers in the study area.

The coefficient of age of the respondents was found to be positively signed and significant at 5% level in its relationship with profitability of ware yam trading. Thus, the *a priori* expectation was met, a suggestion that profitability of yam traders increased as their age increased. Umoh[12] stated that the age of the farm manager may be an indication for experience. As a traders experience increases due his/her age, he/she will have a better understanding of to reduce cost and increase the net profit of his yam marketing business.

The coefficient for education was positive and significant at 5% in its relationship with profitability of ware yam trading. This indicated that profitability increased with increase in educational qualification of yam traders. Education will predispose the marketers to take right marketing decision and set realistic cost and profit target that will lead to better profitability for the marketers.

The coefficient for marital status was positive and significant at 5% level with its relationship with profitability of ware yam trading. This showed that married marketers were more efficient than the single ones. This might be because married marketers gave full attention to their business and were motivated by family pressures of providing the needs of their family members.

The coefficient for number of dependents was negative and significant at 10% with its relationship with profitability of ware yam trading. This was expected. It implied that profitability of yam traders increased with increase in number of dependents. It might be because respondents would have more hands to be utilized as labourers from the family and thereby reduce the cost of hiring labour and hence increase the profit level of their trading business.

The coefficient for marketing charges was negative and significant at 5%. This indicated that profitability of yam marketers decreased with increase in marketing charges. This might be due to the fact that market charges increases cost of marketing and thereby reduce the profit level that would have been achieved with reduced marketing cost.

The coefficient for selling price was positive and significant at 1%. This indicated that increase in selling price brought about a corresponding increase in profitability of ware yam trading. This was expected because increase in selling price would mean more profit for the traders of yam in the study area.

The coefficient of transport cost was negative and significant at 1% level for both marketers. This indicated that efficiency increased with decrease in transport cost. This would boost efficiency and profit and was expected. The distribution of the marketers by constraints to a profitable trading of ware yam is shown in table3.

**Table 3: Constraints in Profitable Trading of Ware Yam in Umuahia North L.G.A.**

Nature of problem	*Frequency	Percentage
High cost of transportation	60	100
High cost of labour	32	53.3
Low price of ware yam in the market	29	48.3
Lack of access to adequate loan credit	50	83.3
Inadequate storage facilities	36	60.0
Ware yam price fluctuation	55	91.7
Theft	25	41.7
Lack of government policies to empower ware yam traders	25	41.7
High cost of shop	52	86.7
perishability of ware yam on storage	60	100.0

Source: Field survey data, 2014

\* multiple responses recorded.

The result showed that the major problems encountered in ware yam trading activities of yam marketers in the study area were high cost of transportation, easy perishability of ware yam on storage, ware yam price fluctuation, high cost of shop, lack of access to adequate loan/credit among others which accounted for 100.0%, 100.0%, 91.7%, 86.7%,

and 83.3%, respectively of the factors that constrained the profitable trading of ware yam in the study area.

## CONCLUSION

Based on the findings of this study, the following conclusions were made. Ware yam trading is viable and profitable in the study area; however the

marketers were efficient in their marketing of ware yam in the studied area.

There is need for an organized markets created for the ware yam marketers with provisions to cater for storage need of ware yams and that trader unions should be functional to enable them have access to credit to expand their business since its a profitable venture.

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