



EMPIRICAL ASSESSMENT OF FACTORS AFFECTING MARKETING EFFICIENCY: A FOCUS ON SWEET ORANGE MARKETS IN KANO METROPOLIS, NIGERIA

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ABSTRACT

The study assesses the factors affecting marketing efficiency of sweet orange among wholesalers and retailers in Kano metropolis, Nigeria. A two-stage sampling technique was used in collecting cross sectional data (34wholesaler and 65retailers) by means of well-structured questionnaires used for the study. Descriptive statistics and multiple regression analysis were used to analyze the data. The result from the regression analysis reveals that the ages of the wholesalers and retailers were negatively significant ($P < 0.01$) This implies that their marketing efficiency decrease with age. Mode of operation was negatively significant ($P < 0.05$) for both marketer. Part time work decreases the marketing efficiency. Purchase cost was negatively significant ($P < 0.05$). For the wholesaler, the Household size was positively significant ($P < 0.10$). This means that the more the size of the household the more efficient they tend to be. Membership of association was positively significant for the ($P < 0.10$) for the wholesaler and ($P < 0.05$) for the retailer. This implies being a member of the association increases the efficiency of the marketers. The result also shows that the marketing efficiency of Retailers (66.36%) was higher than that of wholesaler (51.70%). The study concludes that retailing outlets are more efficient than wholesaling. Therefore, retailers should be more organised through strong cooperative societies to take advantage of scale economies to maximize profits. In addition to this it was also recommended that improving the deplorable conditions of our roads will reduce the risk of losses and theft and allow cheap flow of fruits from rural to urban centres. The youth should be encouraged through the association to be marketers.

Key words: Empirical Assessment, Factors, Marketing Efficiency, Sweet Orange, Kano Metropolis.

INTRODUCTION

The prominence of sweet orange in nutritional development and overall wellbeing of mankind cannot be underestimated. Sweet orange is an important tree crop that contributes significantly to Nigeria's Gross Domestic Product (GDP). It is a source of raw material and means of livelihood to rural farmers. The delicious and juicy orange fruit contain an impressive list of essential nutrients, vitamins and minerals for normal growth. Orange juice is used for treating kidney stones (nephrolithiasis) with high cholesterol which prevent high blood pressure, stroke as well as prostate cancer. Fruits act as a putrefying agent by treating body ailment caused by unnatural food intake. Hence, fruit is a natural medicine to man. The pulp can also be used to feed livestock.

Sweet orange is one of the most important fruit crops grown all over the world. It belongs to the citrus species which constitute the most important species of the Rutaceae family. Sweet orange constitutes the bulk of citrus fruit production accounting for more than half of the global citrus production in 2004. Sweet orange accounts for approximately 70% of citrus production in Nigeria. In 2010, 68.3 million tonnes of orange were grown worldwide particularly in Brazil and United States of America. It is considered in promoting nutritional security in Nigeria. In West Africa, the major producing areas are Ashanti in Ghana and Oyo state, southern Kwara and Benue State in Nigeria (Anochili, 1986). Sweet

orange is important because it can be produced and consumed domestically and used as industrial raw material.

There has been great concern in recent years concerning the marketing efficiency of sweet orange in Nigeria. Studies conducted on the marketing of citrus fruits in selected markets in Ibadan metropolis indicate inefficiency and non-competitiveness in the marketing system (Apata and Apata, 2003). Vansant and Namboodiri (2002) stated that the level of efficiency of the marketing system and its contribution to food security can be improved by analyzing the problem and proffering solutions to those problems militating against an efficient marketing system.

Analysis on the performance of citrus fruits markets in Kano metropolis also revealed high transaction costs and weak performance, resulting from high transportation cost, poor storage facilities and poor market infrastructure (Gyang, 2010). Muhammad-Lawal (2007), Babalola (1999), Fakayode (2010), opined that there had been a high and fluctuating consumer price in the marketing channel of sweet orange arising from poor linkages in the distribution network and poor infrastructural facilities. However, it's not in doubt that the marketing system has obviously been charged as being inefficient and disorganized, while private wholesalers and retailers have been charged with hoarding and exploitation of innocent farmers and powerless consumers. They enjoy high profit at the expense of both producers and consumers (Abu, 2003; Zakeri and Lawal, 2012).

With growing demand and the accompanying supply response of fruit in Nigeria, studies on marketing efficiency of Sweet orange will be an eye opener to solve many problems affecting the availability and affordability of fruit in Nigerian market. Hence, the need for this research study which seeks to critically evaluate the marketing efficiency of wholesalers and retailers of sweet orange in Kano metropolis. Therefore, this research work shall give answers to the following questions:

- What is the marketing efficiency of the wholesalers and retailers in Kano metropolis?
- What factors determine the marketing efficiency of the sweet orange?
- What are the constraints militating against the marketing of sweet orange?

Objectives of the Study

The main objective of the study is to empirically assess the factors affecting marketing Efficiency of Sweet Orange in Kano Metropolis. However, the specific objectives are to:

- (1) describe the socio economic characteristics of the respondents
- (2) determine the marketing efficiency of the traders
- (3) determine the factors affecting the marketing efficiency
- (4) determine the problems militating against the marketing of orange

METHODOLOGY

The study area was Kano metropolis in Kano state, Nigeria. Kano state lies between latitude $9^{\circ} 9^1S$ and $11^{\circ}44^1N$ and longitude $10^{\circ}36^1W$ and $13^{\circ}33^1E$. The land mass covers nearly 20,131 square kilometers. The estimated population of Kano was about 10 million people (NPC, 2006). The prominent linguistic groups within the metropolis consist of Hausa-Fulani, Nupe, Baburawa, Yoruba etc. The people's major economic activities are trading, fishing, craft and farming.

Primary data used for this study was collected by means of a well-structured and pre-tested questionnaire complemented with personal interview. A two-stage sampling procedure was used in this study. The first stage involved a purposive selection of eight markets out of nineteen markets namely: Naibawa, Yanlemu, Sharada, Kurna, Tarauni, Sabon gari, Yankaba and Rijiyar Lemu. This was as a result of dominance of orange sellers in these markets. The second stage involved the use of Simple random sampling to select 65 retailers and 34 wholesalers out of 300 and 140 respondents for retailers and wholesalers respectively. This made up a total of Ninety-nine respondents in all.

Data analysis

Descriptive statistics such as mean, frequency table and percentage were used to analyze objectives one and four. Multiple regression analysis was used to evaluate the factors influencing the marketing efficiency of the sweet orange sellers

The data was fitted into 3 functional forms using the ordinary least squares regression technique. The 3 functional forms are linear, double log, and semi log. The model is stated implicitly as:

$$Y = f(X_1, X_2, X_3 \dots X_{10}, \mu) \dots \dots \dots (1)$$

The estimated function in explicit form therefore is given as:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + b_{10} X_{10} + \mu \dots \dots \dots (2)$$

$$Y = b_0 + b_1 \log x_1 + b_2 \log x_2 + b_3 \log x_3 + b_4 \log x_4 + b_5 \log x_5 + b_6 \log x_6 + b_7 \log x_7 + b_8 \log x_8 + b_9 \log x_9 + b_{10} \log x_{10} \dots \dots \dots (3)$$

$$\text{Log } Y = \log b_0 + b_1 \log x_1 + b_2 \log x_2 + b_3 \log x_3 + b_4 \log x_4 + b_5 \log x_5 + b_6 \log x_6 + b_7 \log x_7 + b_8 \log x_8 + b_9 \log x_9 + b_{10} \log x_{10} + \mu \dots \dots \dots (4)$$

Where:

- Y= market efficiency
- X₁= Age (years)
- X₂= Household size (#).
- X₃= Educational qualification (number of years spent in school).
- X₄= Marital status (1=married 0=single).
- X₅= Marketing experience (years spent in trading).
- X₆= Mode of marketing operation (1=fulltime, 0= part time).
- X₇= Transportation cost in ₦ per bag
- X₈= Purchase cost in ₦ /bag
- X₉= Storage cost in ₦ / bag
- X₁₀= Membership of marketing Association (yes=1, no=0)
- U= Error or disturbance term.
- A= Intercept
- b₁- b₁₀= coefficients.

Among the 3 functional forms estimated, a lead equation was chosen to analyze both wholesale and retail markets as the basis of some econometrical considerations (criteria) such as the magnitude of the coefficient of multiple regressions (R²), number of significant variables and agreement with a priori expectation.

RESULTS AND DISCUSSION

Socio Economic Characteristics of the Respondents in the Market

Evidence from the descriptive analysis of the socio- economic characteristics of the respondents are shown in table 1. The results showed that sellers were within the active age range of 25-35 years (52.93%) and above 25years (75%) in the retail and wholesale markets respectively. This shows that the retail market in the study area is dominated more by younger people than the wholesale market. This agrees with Ajayi (2000) who found that most of the fruit traders are in their economic active age. All (100%) traders in both markets were found to be male which indicates the dominance of men in the marketing of sweet orange, this result conforms with the norms and values of the study area, where religion does not allow women especially married women unnecessary movement and exposure. Fruit marketing is very tasking and may not be convenient for the female folks in the study area. In the retail market 64.70% were married men while, in the wholesale market, a much larger percentage 80% were in this category. This shows that most of the traders were settled family men with responsibilities. These responsibilities would likely make them willing to seek more innovative marketing methods in order to improve their standard of living. The house hold size of the respondents revealed that about 55.88% of the retailers had 1-10 members, while 67.69% of the wholesalers had family size range of 11-15 household member.

With regards to educational qualification, 44.12% and 9.23% of the retailers and wholesalers respectively had primary school education. The majority of the wholesalers 68.00% had first degree and 20.59% of the retailer had first degree. This means that those involved in wholesale were more literate. The result confirms Ajayi and Mbah (2002) who observed that the literacy level of the fruit traders to a large extent

determines the strategies and skills which may be used to adopt new techniques in terms of storage and record keeping, which would increase their profit.

The experience of the marketers from Table 1 shows that, 52.94% in retail market and 80% from the wholesale market had between 1-10yrs and 11-49yrs experience respectively. This shows that sweet orange marketers are old in the enterprises and this level of experience can also determine the level of knowledge and information in the business. This result agrees with Aminu (2009) that experience is very important in the adoption of innovation.

Table 1: Socio-Economic Characteristics of Respondents

Characteristics	RETAIL MARKET		WHOLESALE MARKET	
	Frequency	Percentage	Frequency	Percentage
Age				
15 – 19	3	8.82	6	9.23
20 – 24	8	23.52	10	15.38
25 – 29	10	29.41	18	27.69
30 – 34	8	23.52	11	16.92
35 above	5	14.70	20	30.77
Total	34	100	65	100
Household Size				
1 – 4	5	14.70	10	15.38
5 – 9	3	8.82	10	15.38
10 – 14	10	29.41	12	18.46
15 – 19	11	32.35	13	20.00
Above 20	5	14.70	20	30.77
Total	34	100	65	100
Experience in years				
1 – 10	18	52.94	6	9.23
11 – 20	12	35.29	10	15.38
21 – 30	3	8.82	22	33.85
31 – 40	1	2.94	20	30.77
Above 40	0	0	7	10.77
Total	34	100	65	100
Marital Status				
Single	22	64.7	52	80
Married	12	35.3	13	20
Total	34	100	65	100
Household Size				
1 – 5	11	32.35	6	9.32
6 – 10	8	23.53	7	10.77
10 – 14	7	20.58	8	12.31
15 Above	8	23.53	44	7.69
Total	34	100	65	100
Cooperative Membership				
Yes	8	23.53	46	70.77
No	26	76.47	19	29.23
Total	34	100	65	100
Mode of Operation				
Full time	31	91.18	25	38.46
Part time	3	8.82	40	61.54
Total	34	100	65	100
Educational Qualification				
6	13	44.12	6	9.23
12	11	32.35	7	10.77
15	7	20.59	44	68.0
16 above	1	2.94	8	12.30
Total	34	100	65	100

Table 1 also revealed that 61.76% of the traders in retail markets and 78.46% of the traders in wholesale markets financed their business from personal Savings. The result clearly indicates that the majorities of these traders are small scale in nature with small capital based and were unable to get financial assistance from credit institutions.

The results of membership of cooperatives of the respondent reveals that 70% of the marketers in the wholesale markets are members of cooperative societies (Orange Marketers Association of Nigeria (OMAN)), while in the retail markets only 23.53% belong to any marketing association. This confirms the work of Gyang and Ojoko (2012) that observed and found out that most retail traders do not belong to any association because of fear of taxes, membership dues and other perceived undue financial pressure associated with unionism.

In the wholesale markets, 61.54% of the traders are into part time marketing while few (38.46%) are into full time marketing. In the retail markets, most (91.18%) of the marketers are into full time marketing. Most of the wholesalers are engaged in other paid jobs and only engaged in marketing as a means of diversifying their incomes and means of livelihood.

Determinants of marketing efficiency of wholesalers

Table 2 shows regression analysis in the study area. The semi-log functional form was selected as the lead equation because of certain economic and statistical criteria. It has a high R² value of 67.2% and a number of significant variables with a priori expectation. The R² value indicated that the variables explained 67% variability in efficiency among the wholesalers sampled. The F-ratio was highly significant at 1% indicating regression of best fit.

Table 2: Determinants of Marketing Efficiency of Wholesale Market

Determinant variables	Exponent (coefficient)	Linear coefficient	Semi-log coefficient
Intercept	2.878*** (4.001)	-15.168*** (-3.74)	-109.540*** (29.743)
Age	0.201 (0.018)	1.618 (1.28)	1.332 (0.18)
Household Size	-0.130 (-0.403)	0.900*** (4.86)	37.428*** (4.51)
Educational Qualification	0.360 (0.009)	-0.002 (-0.17)	-0.1508 (-0.30)
Marital Status	-0.652 (0.000)	-0.169 (-0.17)	-0.2515 (-0.18)
Marketing Experience	2.862 (0.005)	-4.774*** (-3.88)	-5.143*** (-3.11)
Mode of Marketing Operation	0.615** (2.505)	-0.3843** (-1.98)	-6.332* (-0.7)
Transportation Cost	0.309 (0.004)	0.0064 (1.31)	-0.319 (-0.16)
Purchase Cost	-3.609 (0.290)	-0.374 (-0.29)	-0.781 (0.41)
Storage Cost	-2.801*** (-4.001)	-0.003* (-2.32)	0.025* (1.83)
Association Membership	6.606 (0.703)	0.532 (1.25)	0.360* (1.93)
R ²	0.781	0.520	0.420
F-stat	13.69 ***	9.96 **	10.97 *

Note: figures in parenthesis represent t-ratios: * = significant at 1%, ** = significant at 5%, * = significant at 10%,**

The coefficient for age was negatively significant ($P < 0.01$). This implies that efficiency of the trader decreases with age i.e. the older the trader becomes the less efficient he tends to be. And that increase in age will lead to corresponding decrease in efficiency. Wholesalers who are younger in age may take more discrete decisions and are able to read the market situation better than those who are older.

The coefficient of mode of occupation was negatively significant ($P < 0.05$). This implies that part time work decreases the efficiency of the marketers. The reasons for this might be due to partial participation of the marketer and also the unfaithfulness of the hired workers.

Furthermore, the coefficient of purchases cost was negatively significant ($P < 0.05$). This implies that any increase in purchasing price would decrease marketing efficiency. This confirms an earlier study by Fafchamps et al (2002) that price is very pivotal in deciding the volume of sales and marketing effectiveness. The coefficient of household size was positively significant ($P < 0.10$). This implies that household size influence the marketing efficiency of the wholesaler. The more the household size the more efficient the marketers tend to be. This is in conformity with the apriori expectation because household member in African setting act as additional labour source.

The coefficient of marital status was positively and significant ($P < 0.05$). This implies that married respondents were more efficient than the single ones. This might be indicative of joint decisions, mutual effort and strength in selling activities. The coefficient of membership of Association was also positively significant ($P < 0.10$) This conforms to the apriori expectation and follows that wholesalers who belong to an association tend to dictate market output and prices due to economies of scale.

Determinants of Marketing Efficiency of Retailers

Table 3 shows the regression analysis of the determinants of marketing efficiency for retailers in the study area. Out of the three functional forms tried, linear regression was found most appropriate based on the economic criteria afore mentioned i.e. number of the significant variables and appropriateness of the apriori theoretical sign expectation.

Table 3: Determinant of Marketing Efficiency of Retail Market

Determinant variables	Exponent (coefficient)	Linear coefficient	Semi-log coefficient
Intercept	3.671*** (40.21)	40.671*** (20.21)	4.1417*** (27.03)
Age	- 0.046 * (-1.89)	-1.6702** (-2.70)	0.331 (1.200)
Household Size	-0.064 * (-1.92)	3.321 (0.111)	0.002*** (6.315)
Educational Qualification	-0.001 (0.61)	0.0003*** (6.65)	1.300 (0.033)
Marital Status	0.583*** (4.31)	0.203 (1.001)	-1.351 (-0.331)
Marketing Experience	- 1.659 ** (-2.03)	2.100*** (-3.65)	0.006*** (-3.519)
Mode of Marketing Operation	1.300 * (1.881)	-0.0005** (-2.60)	0.145 (-0.77)
Transportation Cost	0.005 ** (-2.82)	2.650 (-1.33)	0.027 (0.14)
Purchase Cost	0.156 (0.83)	-0.0038 (-1.312)	-0.1001*** (-5.500)
Storage Cost	-0.600*** (3.75)	-1.1001 *** (-5.500)	0.0311 (1.05)
Association Membership	0.693 (0.311)	-0.003*** (-4.319)	-4.725 (0.143)
R ²	0.523	0.623	0.481
R ² adj.	0.613	0.519	0.46
F-stat	51.65	59.65	49.98

Note: figures in parenthesis represent t-values: * = significant at 1%, ** = significant at 5%, * = significant at 10%,**

The R² value obtained shows that the regressands were able to explained 62% variability in the model. The F ratio was also significant at 5% indicating goodness of fit.

The coefficient of membership of association was positively significant ($P < 0.05$). This conforms to the apriori expectation and it follows that retailers who belong to associations are better informed about market prices and have a better tendency to exchange ideas in other market situations. The coefficient for education was negatively significant ($P < 0.01$). This contrary to apriori expectation but may happen when farmers education are not adequate, in such cases marketers are ill-disposed to innovation

The coefficient of age was negatively significant ($P < 0.05$). This implies that as the age of the trader increases, it reduces the marketing efficiency. This is expected and the result is in consonance with Apat

and Apata (2004) who indicated that younger traders tend to be more innovative in their marketing activities. The result may be an indication that young people tend to be much more inquisitive and innovative, thus making the flow of market information on prices and output faster among them. The coefficient of the mode of marketing operation was negatively significant ($P < 0.05$). It means that retailers who are part time are more efficient than the full time. Part-time traders who have other means of income might be financially fit to have better marketing operation. The coefficient of storage purchase cost was negatively significant ($P < 0.05$). This implies that any increase in purchasing price would decrease marketing efficiency. This is expected and in agreement to the expectation.

The coefficient of transport cost was negatively significant ($P < 0.1$). Also storage and membership of association were negatively significant ($P < 0.01$). This implies that as the cost of transportation and storage increases, the marketing efficiency decreases. This is in agreement with the study by Olukosi and Isitor (1999).

Marketing efficiency of the Wholesalers and Retailers

Table 5 shows that the wholesalers incurred a mean marketing cost of ₦2650.00 per basket while the retailers incurred a mean marketing cost of ₦1070.00 per basket. The mean marketing margin for the wholesaler and retailers were ₦1370.00 and ₦710.00 respectively. The marketing efficiency of the retailer was higher (66.36%) than that of the wholesaler (51.70%). This implies that retail outlets are

Table 4: Average Marketing Cost in Wholesale and Retail Markets

Marketing function	WHOLESALE MARKET		RETAIL MARKET	
	Cost per bag (₦)	Percentage of total cost	Cost per bag (₦)	Percentage of total cost
Transportation	650	24.50	80	7.47
On loading	50	1.88	30	2.80
Off loading	50	1.88	30	2.80
Commission fee	100	3.77	-	-
Rent for space (storage charges)	500	18.86	-	-
Labour charges	100	3.77	-	-
Packaging material (bags)	200	7.55	100	9.34
Cleaning and grading	100	3.77	150	14.01
Material used for ripening	50	1.88	150	14.01
Grading	50	1.88	-	-
Tax	200	7.55	100	9.34
Rent for push cart	100	3.77	150	14.01
Tax	150	5.66	100	9.34
Membership due	200	7.55	80	7.47
Container cost	150	5.66	100	9.34
Total marketing cost per week	₦2650.00	100.00	₦1070.00	100.00

Table 5: Marketing Efficiency in Wholesale and Retail Markets

	Wholesale Market	Retail Market
Marketing Cost	₦2650.00	₦1070.00
Marketing Margin	₦1370.00	₦710.00
Marketing Efficiency	51.70	66.36

more efficient than whole sale outlets. The higher marketing margin of the wholesalers might be due to the fact that some of the wholesalers sold their orange immediately without further storage to avoid spoilage. For the retail outlets they incurred more storage cost but they increase the unit price of the orange to compensate for all the cost incurred.

Constraints to Sweet Orange Marketing

Table 6 shows the constraints faced by the retailers and the wholesalers in their marketing activities. Most of the respondents about 27.5% had problem of transportation. Poor storage facilities imposed a challenge to about 23.5% of the respondents. The marketers that faced the problem of inadequate market infrastructure constituted were about 17.3%. Those who experienced low patronage were about 12.0%.

Information about price were the difficulties of about 7.8% respondents. About 7.8% marketers complained about problem of trading devices while those who faced problem of trading devices were about 3.9%

Table 6: Distribution of Respondents according to Constraint in Sweet Orange Marketing

Problem	Frequency	Percentage
High transportation	70	27.5
Poor storage facilities	60	23.5
Inadequate market infrastructure	44	17.3
Poor patronage	31	12.0
Lack of pricing information	20	7.8
Lack of trading devices	20	7.8
Inadequate funds	10	3.9
Total	255	100

Source: survey field, 2010.

CONCLUSION

The study revealed that in the wholesalers' sector, age, household size, marital status and membership of association were positive and significantly related to marketing efficiency. The regression results of the retailer highlighted that membership of an association, educational level and household size were significant and positively related to marketing efficiency, while age, mode of occupation, storage cost and transport cost were negatively but significant. It is therefore recommended that government policies should be geared towards reducing marketing costs incurred by marketers. Marketers are also urged to form themselves into cooperatives. The result of regression analysis revealed that the coefficient of membership of cooperative society is significantly correlated to the marketing efficiency of sweet orange in the study area. Thus producers and marketing cooperatives for input purchase is imperative.

RECOMMENDATION

Based on the findings of the study, the following recommendations were put forward:

- The formation of a very strong fruit co-operative society in the study area will help to minimize the exploitative tendencies of middlemen, give easy access to help from government and credit from financial institutions.
- Government should embark on construction of rural feeder roads and also provide good transport infrastructure. This will alleviate the transportation problem faced by marketers and allow for easy and cheap flow of fruit from the rural areas to urban markets where demand is high.
- Government and private individuals' organizations should be encouraged to establish orange juice processing industries, which will take care of excess supply of the fruits.
- Enhancement of storage techniques research for Sweet orange and mobilization of marketers to join viable cooperatives so as to organize and fund their marketing activities.

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