



**MARKETING EFFICIENCY OF PROCESSED CASSAVA RETAILERS AND
WHOLESALEERS IN BENUE STATE, NIGERIA**

Bogbenda Aungwa, Aye Goodness C and Okereafor Vincent U.

**Department of Agricultural Economics, Federal University of Agriculture, Makurdi,
Nigeria**

Corresponding author's email: aungwabogbenda@gmail.com

ABSTRACT

Marketing efficiency is a measure of the ratio of output employed in marketing of a commodity to the input used in a given marketing channel. This study therefore analyzed the marketing efficiency of processed cassava retailers and wholesalers in Benue state. Specifically the study described the socio-economic characteristics of marketers of processed cassava products; determined the marketing margin of processed cassava retailers and wholesalers, examined the marketing efficiency of the wholesalers and retailers of processed cassava products and assessed the effects of socio-economic characteristics of the marketers on their marketing efficiency. The study concluded that females participate more in processed cassava enterprise than their male counterparts, there is a significant difference in the marketing efficiency of retailers and wholesalers, both retailers and wholesalers are efficient in their marketing system. The study finally concluded that socio-economic characteristics of retailers have significant effects on their marketing efficiency, while those of wholesalers do not.

1. INTRODUCTION

Cassava (*Manihot esculentus*) is widely cultivated in Nigeria. Its popularity could be attributed to its capacity to yield under marginal soil conditions and its tolerance of drought (Ezedimma, 2006) and the fact that it is widely consumed throughout the country. Nigeria is the world's largest exporting country of dried cassava with a total of 77% of world export in 2005. The second largest exporting country is Vietnam, with 13.6% followed by Indonesia 5.8% and Costa Rica 2.1%. Worldwide cassava production increased by 12.5% between 1900 and 1988 (FAO, 2007). According to Nyerhovwo (2004), 80% of Nigerians reside in the rural areas and they eat cassava meal at least once a day. When compared with rice and maize, cassava has a carbohydrate content which is about 40% higher than rice and 25% more than maize. Hence, cassava plays a major role in the country's food security.

Processed cassava is traded locally and internationally in different forms such as chips, broken dried roots, meal, flour and tapioca starch. Dried cassava roots and meal are used as raw materials for compounding animal feeds, while cassava starch is used for industrial purposes; grocery tapioca is used solely for human consumption (FAO, 2003). The demand for processed cassava products is increasing because it is one of the cheapest for low income consumers. However, supply of the products is lagging behind demand probably due to marketing constraints such as high purchase price of the products, high cost of transportation, inadequate and poor storage facilities and other marketing problems (Kohls and Uhl, 2001).

Marketing of processed cassava in Nigeria has been characterized with a lot of deficiencies (Adekanye, 1970; Abdullahi, 1983). These deficiencies have constrained sustainable agricultural development in one way or the other. According to Awoyinka (2009), the inadequacy of transport services in rural Nigeria is palpable. Rural feeder roads are either absent or in very poor conditions. The entire rural communities rely mainly on human transport and the high cost of human portage apart from being too slow results in high marketing costs, high consumer prices and low producer prices.

Further, according to Enete (2009), exploitation of one marketing agent by another could contribute to increased marketing costs and hence inefficiency. Raju and Von Oppen (1982) and Mahoo (2011) noted the need to find out the degree to which the existing value chain can be

“efficient” before formulation and implementation of new policies. Increased efficiency is in the best interests of farmers, traders, processors, wholesalers, retailers, consumers and the society as a whole.

In Nigeria, several policy studies (Mayong *et al.*, 2003; Presidential Initiative on Cassava, 2003) have been commissioned to identify potential contributions of agricultural marketing policy to agricultural development. These studies, however, have failed to incorporate strategies for combating perennial constraints to effective and efficient cassava marketing in Nigeria. In Benue State, the proposed study area, for poverty reduction programmes to yield the desired results, they should be based on agriculture and this depends on the value chain of the crops being produced and their relative importance to incomes (Fefa *et al.*, 2014). It is also important to state that in addition to the common problems faced in cassava processing and marketing such as price fluctuation among others, processors often differ in the extent to which they experience the constraints.

Despite the fact that there are large demand for cassava and its products in large quantities, some of the products do not yield desired economic benefits. The reasons for this could be partly attributed to either lack of adequate or faulty marketing systems and strategies and probably the exploitative tendencies of middlemen who seem to be more actively involved in marketing cassava and cassava products and marketing inefficiency.

According to Kohls and Uhls (2001), marketing efficiency is the ratio of market output (satisfaction) to marketing input (cost of the resources used in the marketing). Efficiency in general has three components: technical, allocative and economic. Technical efficiency refers to input-output relationship. A firm is said to be technically inefficient when it fails to achieve the maximum output from the given inputs. A marketer is said to be allocatively inefficient if it is not using marketing inputs in optimal proportions (e.g., use of labour for loading, transportation, storage, marketing space, utilities etc) given their observed prices. Economic efficiency is the product of technical and allocative efficiency.

Some studies have been conducted on cassava as a crop in general. For instance, Ani *et al.* (2013) investigated the processing and marketing of cassava products in Uzo-Uwani Local Government Area of Enugu State. They considered returns per naira on investment of marketing

of the selected cassava products (flour, chips and garri), the marketing channel, and constraints. Rahman and Aworije (2014, 2015) examined efficiency and profitability of cassava farmers/processors from three regions of Delta State, Nigeria by applying two-stage Data Envelopment Analysis and stochastic profit frontier, respectively. Saediman *et al.* (2015) examined the profitability and value addition in cassava processing into 'kaopi' in Buton district of Southeast Sulawesi province, Indonesia based on the type of grater (mechanical versus manual) being used. Fefa, et al. (2014) examined determinants of adoption of cassava processing technologies in Benue State. Okereafor et al. (2018) analysed the efficiency of cassava product traders in Imo State.

From the foregoing, while some studies have examined the profitability of one processed cassava product or the other none has examined the efficiency of the processed cassava marketing with exception of Rahman and Aworije (2014, 2015) for Delta State and Okereafor et al. (2018) for Imo State. Also the current study unlike all the previous studies will make a comparison of the efficiency of retailers and wholesalers of processed cassava products to aid policy makers prioritize their effort towards enhancing marketing efficiency of the least efficient segment in the marketing channel and analysed separately the determinants of marketing efficiency for each segment. This vital information is lacking at the moment and has created a vacuum in knowledge. It has, therefore, become imperative to carry out this study in order to fill this void, with a view to providing information about efficiency of processed cassava marketing simultaneously while separating these performance measures for retailers and wholesalers.

OBJECTIVES OF THE STUDY

The broad objective of the study is to determine marketing efficiency of processed cassava retailers and wholesalers in Benue State. The specific objectives are to:

- (i) describe the socio-economic characteristics of marketers of processed cassava products in the study area;
- (ii) determine the marketing margin of the wholesalers and retailers of processed cassava products in the study area;

- (iii) examine the marketing efficiency of the wholesalers and retailers of processed cassava products in the study area;
- (iv) assess the effects of socio-economic characteristics of the marketers on their marketing efficiency in the study area;

Based on the specific objectives of the study, the following null hypotheses were tested:

H₀₁: There is no significant difference in the marketing efficiency of wholesalers and retailers of processed cassava in the area.

H₀₂: Socio-economic characteristics of processed cassava marketers have no significant effect on their marketing efficiency.

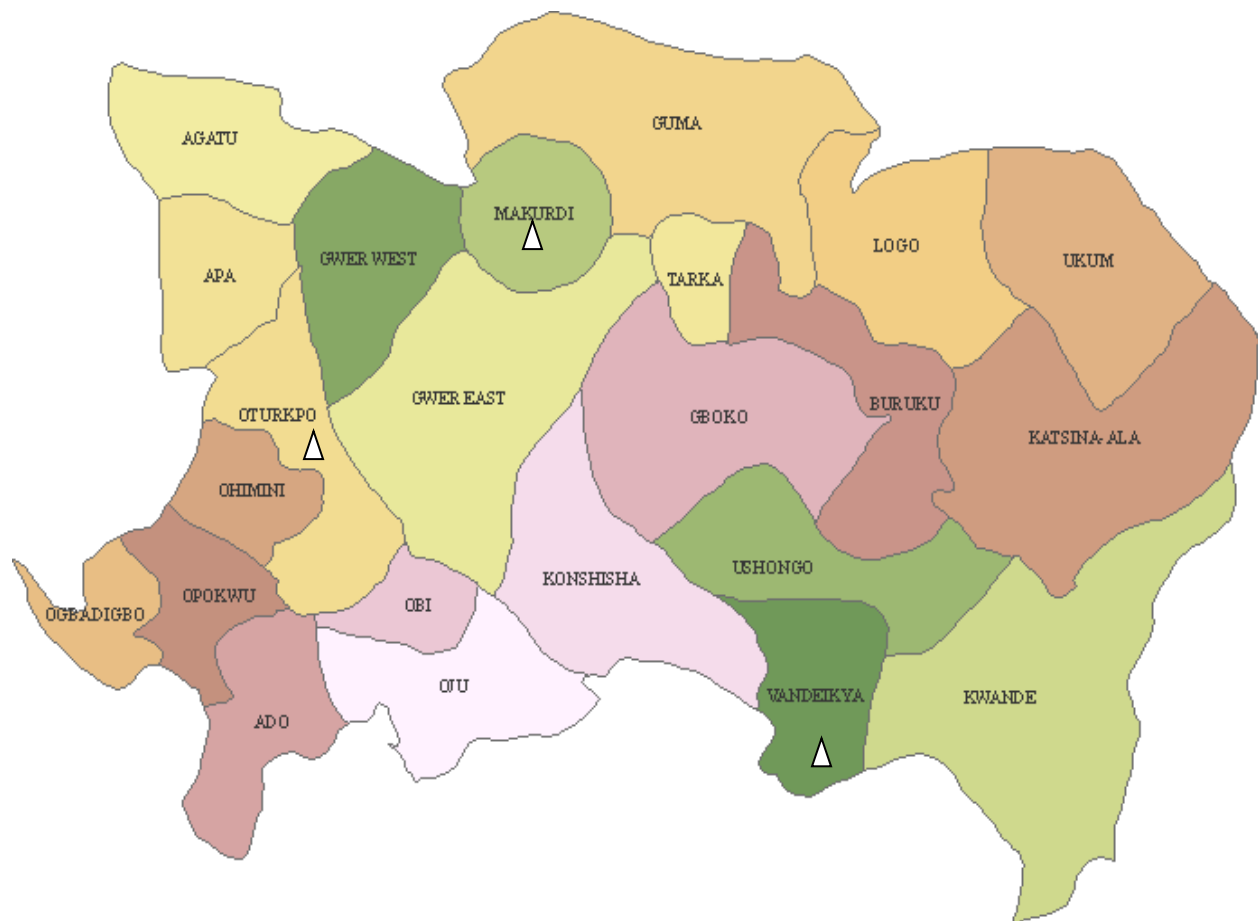
METHODOLOGY

The Study Area

This study was conducted in Benue State (See Figure 1). Benue State was created on the 3rd day of February, 1976 by the General Murtala Mohammed-led military regime. Benue was carved out of the former Benue-Plateau state and part of the present Kwara state. It derived its name from the Benue river. It is located in the middle belt zone of Nigeria with 23 local government areas and Makurdi as its capital. The state falls between longitudes 6° 35'E and 10°E and between latitudes 6°30'N and 8°10'N. It has a population of about 4,219,244 people (NPC, 2006). The state shares boundaries with six (6) states namely; Nassarawa state to the north, Taraba state to the north east, in the south by Cross River state. It is also bound by Enugu and Ebonyi states in the south west while Kogi state lies to the west. A short international boundary with the Republic of Cameroon is shared by Kwande local government area.

Benue is blessed with a lot of resources which include its rich soil and a climate that is suitable for growing nearly all kinds of crop and for breeding almost all kind of animals, thus 80% of the population is engaged in agriculture. Benue farmers are engaged in the production of almost all crops produced in Nigeria, some of the major crops grown in the state include cassava, yam, rice, maize, soybean, sesame, citrus, mangoes e.t.c. The state enjoys both the dry and wet

seasons. The rains set in properly from April terminating in November thus giving room for the dry season to start immediately running through March. Temperatures are consistently high averaging 28°C - 32°C with intermittent increases up to 37°C especially in Makurdi the state capital. It is administratively and agriculturally divided into three zones namely zones A, B and C. The major ethnic groups within the state are Tiv, Idoma, and Igede (in decreasing order). However, others such as Etulo, Abakwa, Jukun, Hausa, Nyifon exist but on a small scale.



Key

△ = Study Area

Figure 1: Map of Benue State Showing Location of the Study Areas

Population and Sample Size Selection

The population consists of all processed cassava marketers (retailers and wholesalers) in the study area. The study area is divided into three agricultural zones namely zone A, zone B, and zone C. Since it is uneconomical to obtain information from the entire population, a sample was selected using a multistage sampling technique. Stage one involves a purposive selection of all the three agricultural zones for wider coverage. In the second stage, one local government area was purposively selected from each of the zones due to the predominance of cassava processing centers in these areas. These are Vandeikya (in Zone A), Makurdi (in Zone B) and Otukpo (in Zone C) local government areas as confirmed by a pre-survey by Fefa et al. (2014). These three local government areas respectively have 386, 182 and 245 cassava processing centers respectively, each owned by an individual household who are both operators and marketers (Fefa, et al., 2014). In the third stage, simple random sampling technique was used in the selection of processed cassava marketers from each local government area. A proportion of 40% from each local government was selected giving a total of 325 marketers for the study as shown in table 1.

Table 1: Sample Size Selection Plans

S/N	Zone	L.G.A	Sampling frame	Proportion	Sample size
1	Zone A	Vandeikya	386	0.40	154
2	Zone B	Makurdi	182	0.40	73
3	Zone C	Otukpo	245	0.40	98
Total			813		325

Method of Data Collection

Primary data were used for the study. The primary data were obtained through the use of structured questionnaire, oral interview and personal observation. Data on the socio-economic characteristics of respondents such as their age, sex, education, household size, occupation and years of experience in the major processed cassava marketing as well as associated costs and returns of the processed cassava enterprise were collected. These data were collected on the two major categories of processed cassava marketers in the area, that is, from the wholesalers and retailers.

Validation and Reliability of Instrument

The research instrument for the study was validated by pilot testing and by passing it through experts in the College of Agricultural Economics and Extension, University of Agriculture, Makurdi to ensure that it possesses both face and content validity.

The reliability of the instrument was conducted using a test-retest method. In doing this, thirty (30) questionnaires were administered twice to a section of the respondents within the interval of two weeks. The response from each respondent at the two time periods was correlated to verify the consistency of the data provided by the respondents. The instrument is adjudged reliable given that a high correlation coefficient of 0.75 was obtained.

Method of Data Analysis

Simple descriptive statistics such as mean, frequency and percentage were used to achieve objective 1. Objective 2 was analyzed using the marketing margin model. Objective 3 was analyzed using the marketing efficiency index while objective 4 was achieved using the Logit regression model. The hypothesis was tested using t-tests.

The marketing margin model is expressed as:

$$MM(\%) = \frac{P_c - P_p}{P_c} \times 100$$

where

MM=Marketing margin

P_c = Consumer price (price paid by the consumer)

P_p = Purchase price (Price paid by the retailer or wholesaler)

The marketing efficiency index used to obtain the efficiency level of the various soybeans marketing agents identified by the study is given as

$$\text{Marketing Efficiency} = \frac{\text{Value Added by Marketing}}{\text{Marketing Costs}} \times 100$$

Objective 4 was analyzed using the Logit regression model. The Logit model was estimated with the maximum likelihood estimation technique. To use this model the dependent variable needs to be binary or ordered. In this study the dependent variable marketing efficiency is defined such that traders who have values above the average marketing efficiency are classified as high efficiency and given a value of one (1). Those whose efficiency values are equal or below the average value are classified as low efficiency and given a value of zero (0). The Logit model is specified as:

$$\frac{P_i}{1-P_i} = \frac{1+\exp(Z_i)}{1+\exp(-Z_i)}$$

To linearize the above model, we take the natural log. This gives the following linear Logit model:

$$\text{Li} = \ln \left[\frac{P_i}{1-P_i} \right] = Z_i = \beta_0 + \beta_1 X_{i1} + \dots + \beta_{11} X_{i11} + e \quad (7)$$

where $\frac{P_i}{1-P_i}$ is the ratio of the probability that a cassava product trader has high marketing efficiency and hence assumes a value of 1 to the probability that a trader has low marketing efficiency and hence assumes a value of 0.

$$\beta_0 = \text{Constant}$$

$\beta_1 - \beta_{11} =$ Logistic regression coefficients

$X_{i1} - X_{i11} =$ Independent variables, where

$X_{i1} =$ Age (in years)

$X_{i2} =$ Gender (dummy variable, male = 1, 0 otherwise)

$X_{i3} =$ Marital Status (Single =1; divorced/separated =2; married =3; widow/widower =4)

$X_{i4} =$ Household size (Number of persons)

$X_{i5} =$ Education (years of schooling)

$X_{i6} =$ Experience (years of cassava marketing experience)

$X_{i7} =$ Market access

$X_{i8} =$ Credit (dummy variable, received credit = 1, 0 otherwise)

$X_{i9} =$ Market information (Access to market information, dummy variable 1, 0 otherwise)

$X_{i10} =$ Makurdi (market located in Makurdi, dummy variable 1, 0 otherwise)

$X_{i11} =$ Oturkpo (market located in Oturkpo, dummy variable 1, 0 otherwise)

$e =$ Error term

RESULTS AND DISCUSSION

Socio-economic Characteristics of Marketers of processed Cassava Products

Socio-economic characteristics of retailers

The result in table 1 shows that 14.72 % of the retailers of processed cassava products were single, 68.53 % married, 7.61 % either divorced or separated and 9.14 % were widows or widowers. Married people as shown in table 1 have the highest percentage (68.53 %) participation in the retail marketing of processed cassava products in the study area. This find is in line with the findings of Asogwa et al. (2013) that married people (59.8%) were mostly involved in the marketing of cassava in and Nzeh and Ugwu (2014) also found that majority (60%) of cassava are married. Married people receive assistance from their spouses for other human activities thereby availing them more time to concentrate on the rigorous activities of marketing.

Also indicated in table 1 is distribution of the retailers by sex. The table shows that 93.91% of the retail marketers were female and only 6.09% of them were male. This finding agrees with Asogwa et al. (2013) that majority (57%) of the cassava marketers were female. This wide difference in gender participation is not surprising as processed cassava marketing activities are typically considered as women's job in the study area. It can also be seen in table 1 that the highest percentage (31.47%) of the retailers falls within the age bracket of 31-40. This age bracket deemed to be an active age bracket as people within this range still has the physical energy required to carry out the rigorous marketing activities of processed cassava products. This bracket is closely followed by 41-50 (with 28.93%), while those above 50 years of age have the least participation of 8.63%. This contrasts Nzeh and Ugwu (2014) who found that majority (64%) of cassava marketers were above 45 years of age. At above 50 years, most people do not have the needed physical energy for marketing activities and are gradually becoming dependent upon the younger generation for most human needs.

The household size of 6-10 as shown in table 1 is the highest (51.78%) for retail marketers. Household size plays a very significant role in marketing activities, basically, the higher the household size, the cheaper the labour required in marketing, as family labour serve as a cheap

source of labour. It has been observed that large family size may imply more supply of labour hence reducing money spent to hire labour (Nwaru, 2006; Okolo, 2007).

The levels of educational attainment of the retailers of processed cassava products in the study area as shown in table 1 indicates that 23.86% of respondents have no form of formal education, 36.04% had formal education between 1-6 years, 37.06% spent between 7-12 years in school, while only 3.05% of the retailers had more than 12 years of formal education. This implies that most retailers of processed cassava products in the study area had less than higher education qualification, this is large because people with higher qualifications tend to look for white collar jobs. This finding is in contrast with that of Nzeh and Ugwu (2014) that majority (54%) of the cassava marketers had higher level of education. The experience of the retailers in the marketing of processed cassava products as indicated in table 1 shows that number of participants increase from 29.44% to 37.06% from between 1-5 years and 6-10 years of experience respectively, however the number of retailers starts decreasing from 21.83% to 11.68% from between 11-15 years of experience and above 15 years of experience respectively. This implies that people tend to withdraw from retailing of processed cassava products to hand over to the younger generation as they grow older in the business. This is because age is a significant factor in this business (older people have less physical energy) and experience is a function of age.

The result in table 1 indicates that 71.57% of the retailers of processed cassava products in the study area travel less than 10km to access the market for marketing of their products, 23.86% travel between 10-20km to access market and 5.57% travel above 20km before accessing market. This shows that most retailers of processed cassava products reside close to their markets. Table 1 also shows that 51.78% of the retailers belong to a market association, while 48.22% did not belong to any market association. This agrees with Asogwa *et al.* (2013) that Majority of the respondents (92.5%) belongs to cassava marketing association. Membership of market associations helps marketers to collectively protect their welfare against harsh policies by government, again some market associations give loans at low interest rates to their members through money realized from individual contributions thereby serving as a good source of capital. 73.10% of the retailers have access to credit while 26.90% had no access to credit. Access to credit plays a vital role in marketing process since capital is the backbone of any business. It is shown in table 1 that 91.37% had access to market information while 8.63% had

no access to market information. High access to market information is made possible basically through the use of mobile phones which are now very common in the study area irrespective of the age, experience and education of the retailers.

Table 1: Socio-economic Characteristics of Retailers (n= 197)

Variable	Frequency	Percentage
Marital Status:		
Single	29	14.72
Married	135	68.53
Divorce/Separated	15	7.61
Widow/widower	18	9.14
Gender:		
Male	12	6.09
Female	185	93.91
Age (years):		
≤ 20	24	12.18
21-30	37	18.78
31-40	62	31.47
41-50	57	28.93
>50	17	8.63
Mean	36.96	
Household size (#):		
≤ 5	79	40.1
6-10	102	51.78
>10	16	8.12
Mean	6.56	
Education (years):		
None	47	23.86
1-6	71	36.04
7-12	73	37.06
>12	6	3.05

Mean	6.70	
Experience (years):		
1-5	58	29.44
6-10	73	37.06
11-15	43	21.83
>15	23	11.68
Mean	9.46	
Market Access (km):		
<10	141	71.57
10-20	47	23.86
>20	9	4.57
Market Association:		
Yes	102	51.78
No	95	48.22
Credit:		
Yes	144	73.1
No	53	26.9
Market information:		
Yes	180	91.37
No	17	8.63

Source : Field survey 2018

Socio-economic characteristics of wholesalers

The result of table 2 below shows that 14.06% of the respondents (wholesalers of processed cassava products) were single, 70.31% were married, 9.38% were either divorced or separated and 6.25% were widows/widowers. It can be seen clearly from the table (table 2) that married people have the highest percentage (70.31%) of participation in the wholesale marketing of processed cassava products in the study area.

Also table 2 shows that 34.38% of the wholesalers were male while 65.63% were female. This is because the nature of marketing activities associated with processed cassava like selling fufu are basically considered as women's job in the study area. The highest number of wholesalers (42.19%) falls within the age range of 41-50, which is considered an active age bracket.

The household size as shown in table 3 indicates that 28.13% of the respondents have household size of less than or equal to 5 (≤ 5), 59.38% have a household size range of 6-10 and 12.50% have household size of above 10. Most African homes consist of the nuclear family and other extended family members. The result on education in table 2 shows that people with more than 12 years of formal education (higher certificates) constitute the least percentage (10.16%) in this business. This is because highly educated people tend to focus on more skillful and white collar jobs in the society.

The experience in years of wholesale marketers of processed cassava products in the study area as presented in table 2 shows that 32.03% of the wholesalers have marketing experience of 1-5 years, 34.38% have 6-10 years of experience, 21.09% have 11-15 years of experience and 12.5% of the wholesalers have more than 15 (>15) years of experience in the marketing of processed cassava products. Experience is very crucial in marketing, the more experienced one is, the less the chances of incurring losses in the business just as the saying goes "experience is the best teacher". The result on accessibility (proximity to market) in table 2 indicates 66.41% of the wholesalers travel less than 10km ($<10\text{km}$) to access a market, 19.53% travel between 10-20km while 14.06% travel more than 20km ($>20\text{km}$) before accessing a market for their products. Proximity to market has a direct relationship on total marketing cost; this is because the transportation cost naturally increases with distance covered in moving products.

The result in table 2 also indicates that 77.34% of the wholesalers belong to a market association while 22.66% of them belong to no market association. 86.72% have access to credit while 13.28% have no access to credit facilities. Access to credit facilities may likely increase profitability as this may increase the volume of the product being marketed, and the more the quantity sold, the more the profit made. Lastly table 2 shows that 94.53% of wholesalers have access to market information while only 5.47% had no access to market information. Market information is very easy to access in the present era due to easy availability of GSM and radio

stations in the study area which provide an affordable means of communication regardless of one's social and educational status.

Table 2: Socio-economic Characteristics of Wholesalers (n= 128)

Variable	Frequency	Percentage
Marital Status:		
Single	18	14.06
Married	90	70.31
Divorce/Separated	12	9.38
Widow/widower	8	6.25
Gender:		
Male	44	34.38
Female	84	65.63
Age (years):		
≤ 20	12	9.38
21-30	20	15.63
31-40	30	23.44
41-50	54	42.19
>50	12	9.38
Mean	38.70	
Household size (N):		
≤ 5	36	28.13
6-10	76	59.38
>10	16	12.5
Mean	7.70	
Education (years):		
None	29	22.66
1-6	38	29.69
7-12	48	37.5
>12	13	10.16
Mean	7.72	

Experience (years):		
1-5	41	32.03
6-10	44	34.38
11-15	27	21.09
>15	16	12.5
Mean	9.62	
Market Access (km):		
<10	85	66.41
10-20	25	19.53
>20	18	14.06
Market Association:		
Yes	99	77.34
No	29	22.66
Credit:		
Yes	111	86.72
No	17	13.28
Market information:		
Yes	121	94.53
No	7	5.47

Source: Field survey 2018

Marketing Margin of the Retailers and Wholesalers of Processed Cassava Products

The marketing margin of marketers of processed cassava products in the study area is summarized in table 3 below. The table shows that retailers have a higher (63.57%) marketing margin than wholesalers (53.74%).

The t-test of equality of marketing margin between retailers and wholesalers is presented in table 4. The result shows significant t-value of 4.478 (0.000). This implies that there is a significant difference (9.828% mean difference) in the marketing margin of retailers and wholesalers of

processed cassava products in the study area. This finding rejects the null hypothesis that there is no significant difference in the marketing margin of wholesalers and retailers of processed product in the study area and its alternative accepted.

Table 3: Marketing Margin of the Retailers and Wholesalers

Statistics	Purchase price (Pp)	Selling price (Ps)	Marketing Margin%
Retailers			
Mean	3011.675	6429.188	63.571
Std. Dev.	3327.85	4692.36	22.849
Wholesalers			
Mean	3096.484	7495.313	53.743
Std. Dev.	1950.320	11346.410	12.037

Source: Field survey 2018

Table 4: T- Test of Equality of Marketing Margin

	Type of marketer	Mean	Std. Error	Mean Difference	T-value	df	Sig.
Marketing margin	Retailers	63.571	1.628	9.828	4.478	323	0.000
	Wholesalers	53.743	1.064				

Source: Field survey 2018

Marketing Efficiency of the Retailers and Wholesalers of Processed Cassava Products.

The result of table 5 below gives information on the marketing efficiency of the retailers and wholesalers of processed cassava products in Benue State. The result shows that retailers have a mean marketing efficiency of 70.14% from a mean value added by marketing of ₦3417.51 and a mean marketing costs of ₦9634.77. While wholesalers in the study area have a mean marketing efficiency of 19.04% with a mean value added by marketing of ^ 4398.83 and a mean marketing costs of ₦7510.81. This result indicates that retailers of processed cassava products have a higher marketing efficiency than their wholesale counterparts. this contradicts the findings of Osman et al (2018) that cassava root have a higher marketing efficiency than the other (processed) cassava products

Moreover, the result of the t-test of equality of marketing efficiency between retailers and wholesalers of processed cassava products as presented in table 6 below reveals a significant (0.000) t-value of 6.302, implying that, a significant difference exist between the marketing efficiency of retailers and wholesalers of processed cassava products in the study area. This finding therefore rejects the null hypothesis earlier stated that, there is no significant difference in the marketing efficiency of wholesalers and retailers of processed cassava products in the study area and therefore adopts its alternative.

Table 5: Marketing Efficiency of Wholesalers and Retailers

Item	Retailers		Wholesalers	
	Mean	Std. Dev.	Mean	Std. Dev.
Value added by marketing	3417.513	1638.982	4398.828	10702.37
Marketing costs	9634.772	17084.37	75107.81	67846.84
Marketing efficiency	70.137	82.046	19.035	50.870

Table 6: T- Test of Equality of Marketing Efficiency

	Type of marketer	Mean	Std. Error	Mean Difference	T-value	df	Sig.
Marketing Efficiency	Retailers	70.137	5.846	51.101	6.302	323	0.000
	Wholesalers	19.035	4.496				

© GSJ

Effects of Socio-economic Characteristics of Retailers and Wholesalers on their Marketing Efficiency.

Table 7 below shows the result of effects of socio-economic characteristics of retailers of processed cassava products on their marketing efficiency. The result indicates that of all the socio-economic characteristics, only age and market information are shown to have significant effects on marketing efficiency of retailers of processed cassava products in the study area. Age of retailers is seen to have a significant effect at 5% ($p\text{-value} = 0.018$) on marketing efficiency, this implies that, if age increases by one unit (one year), then the probability of the odds of increasing their marketing efficiency will increase by 1.078%. This result is practical in that, age is linked with experience, as one ages, the more experience one acquires in any field of human endeavor and the less the chances of inaccuracy, hence the more the chances of accuracy in decision making based on guided prediction of market behaviours. This means that retailers with higher experience (experience is linked with age) tend to be more efficient in marketing as experiences (knowledge) acquired over the years are brought forward for effective market performance which give rise to efficiency. Market information is also significant at 1% ($p\text{-value} = 0.009$) on marketing efficiency of retailers of processed cassava products in the study area. This means that as retailers get more access to market information, the probability of their odds of increasing their marketing efficiency increases, in other words, the more informed the retailers are on marketing activities in their markets, the more efficient they become in marketing. Access to market information greatly reduces the chances for inaccurate decision making, the result of which reduces marketing efficiency. This finding rejects the null hypothesis that Socio-economic characteristics of processed cassava marketers have no significant effect on their marketing efficiency.

However the result of table 8 below indicates that none of the socio-economic characteristics of the wholesalers have significant effects on their marketing efficiency. This implies that the marketing efficiency of wholesalers of processed cassava products in Benue State does not depend in anyway on the socio-economic characteristics of the wholesalers. This finding therefore accepts the null hypothesis that socio-economic characteristics of processed cassava marketers have no significant effect on their marketing efficiency.

Table 7: Effects of Socio-economic Characteristics of the Retailers on their Marketing Efficiency

Variable	Odds ratio	Std. Err	Z	P-value
Age	1.078	0.034	2.370	0.018
Gender	0.415	0.424	-0.860	0.390
Marital Status	0.544	0.296	-1.120	0.263
Household size	0.967	0.067	-0.480	0.628
Education	1.004	0.060	0.060	0.949
Experience	0.927	0.044	-1.590	0.112
Market access	0.651	0.336	-0.830	0.406
Credit	1.897	1.386	0.880	0.381
Market information	10.410	9.333	2.610	0.009
Makurdi	149.061	143.696	5.190	0.000
Oturkpo	9.153	6.974	2.910	0.004
Constant	0.001	0.003	-3.110	0.002
LR (Chi2)	100.11			
Prob.	0.000			
N	197.000			

Table 8: Effects of Socio-economic Characteristics of the Wholesalers on their Marketing Efficiency

Variables	Odds ratio	Std. Err	Z	P-value
Age	0.973	0.048	-0.550	0.582
Gender	1.333	1.124	0.340	0.733
Marital Status	1.018	0.630	0.030	0.977
Household size	0.916	0.110	-0.730	0.465
Education	1.054	0.086	0.650	0.518
Experience	1.002	0.063	0.040	0.969
Market access	0.360	0.291	-1.260	0.206
Credit	0.699	0.956	-0.260	0.793
Market information	2.855	4.419	0.680	0.498
Makurdi	116.794	175.480	3.170	0.002
Oturkpo	0.787	0.852	-0.220	0.825
Constant	0.283	0.706	-0.510	0.613
LR (Chi2)	59.870			
Prob.	0.000			
N	128.000			

CONCLUSION

This study was carried out to in Benue State to determine marketing efficiency of processed cassava retailers and wholesalers. Based on the findings, the study concludes that; female participate more in processed cassava enterprise than their male counterparts in the study area, there is a significant difference in the marketing margin of retailers and wholesalers with retailers having a higher marketing margin than wholesalers. Both retailers and wholesalers are efficient in their marketing system; however retailers have a higher marketing efficiency than wholesalers. The study finally concludes that socio-economic characteristics of retailers have significant effects on their marketing efficiency, while those of wholesalers do not.

REFERENCES

- Abdullahi, M (1983). The role of agriculture in reversing the present economic crisis in Nigeria, A public lecture organized by Nigerian Institute of Social and Economic Research (NISER) delivered at University of Calabar, 25th November, 1983.
- Adekanye , T.O. (1970). The markets for food stuffs in Western Nigeria, *Journal of African Studies*, 3(1):71-76.
- Ani, S.O., Agbugba, I.K.and Baiyegunhi, L.J.S. (2013) Processing and marketing of selected cassava products in South-east Nigeria. *Journal of Economics*, 4(2): 105-111.
- Asogwa, B. C., Ezihe J.A.C., and Ater, P.I. (2013). Socio-economic Analysis of Cassava Marketing in Benue State, Nigeria. *International Journal of Innovation and Applied Studies*, 2(2):384-391.
- Awoyinka, Y.A (2009).Cassava Marketing: option for sustainable agricultural development in Nigeria, *Journal of Applied Science*, 3(2):13-14
- Enete, A.A. (2009). Middlemen and Smallholder farmers in cassava marketing in Africa. *Tropicultural*, 27(1), 40-44.
- Ezedinma, C., A.G.O, O.Dixon, L. Sanni, R. Okechukwu, M. Akoroda, J. Lemchi, F.Ogbe and E. Okoro (2006). Trends in cassava production and commercialization in Nigeria. International Institute of Tropical Agriculture.
- FAO (2003): Food and Agriculture Organization (FAO). www.fao.org.
- FAO (2007) Development of cassava processing industry and its future. Food and Agriculture Organization, Rome.

- Fefa, J., Obute, C.O. and Ucherwuhe, S.I. (2014) Cassava processing technology adoption and poverty reduction among operators in Benue State, Nigeria. *International Journal of Science and Research*, 3(10), 309-317.
- Kohls, L, and Uhl, J.N. (2001). Marketing of agricultural products (9th ed.). London: Machillian Publishing Company.
- Mayong, V.M.N.; A.E. Ikpi; J.K Olayemi; S.A. Yusuf; B.T. Omonona; and V.O. Okoruwa (2003): Agriculture in Nigeria: Identifying opportunities for increased commercialization and investment. Research Report Commissioned by USAID/IITA/UI.
- National Population Commission (NPC) (2006). Population census, official gazette. Also available on www.nigerianstat.gov.ng.
- Nwaru J.C. (2006). A Technical Efficiency Differentials on Cooperative and Non Cooperative Firms: Implication for Food Security in Nigeria. *Nigerian J. of Agri., Teachers Educ.*, **19** (1), 21-29
- Nyerhovwo, J.I (2004): 'Cassava and the future biotechnology issues for developing countries'. *Electronic Journal of Biotechnology*. Pontificia Universal al Catolica de Valparaiso Chile, 7(1): 22-32.
- Nzeh, E.C and Ugwu, J.N. (2014). Economic analysis of production and marketing of cassava in Akoko North- West Local Government Area of Ondo State, Nigeria. *International journal of Agricultural Policy and Research* 2 (6), pp.234-237.
- Okereafor, V.U., Aye, G.C. and Ezihe, J.A.C. (2018) Marketing efficiency of retailers and wholesalers of processed cassava products in Imo State, Nigeria. *Journal of Agricultural Economics, Extension and Science*, 4(1): 131-145
- Okolo O.E. (2007). Economic analysis of broiler production in Jos Plateau State. Dissertation submitted to Amadu Bello University, Nigeria.
- Rahman and Aworije (2015). Technical and scale efficiency of cassava production system in Delta State, Nigeria: an application of Two-Stage DEA approach. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, 116(1): 59-69.
- Raju, V. T. and Von Oppen, M. (1982). *Marketing efficiency for selected crops in semi-arid tropical India*. International Crops Research Institute for the Semi-Arid Tropics, Hyderabad, India. 50pp.
- Saediman, H., Amini, A., Basiru, R. and La Ode Nafiu, L-O. (2015). Profitability and value addition in cassava processing in Buton District of Southeast Sulawesi Province, Indonesia. *Journal of Sustainable Development*, 8(1), 226-234.
- Scott, G.J., R. Best, Rosegrant, M. and Bokanga, M. (2000). Roots and tubers in the global food system: A vision statement to the year 2020. A co-publication of the International Potato

Center (CIP), Centro Internacional de Agricultura Tropical (CIAT), International Food Policy Research Institute (IFPRI), International Institute of Tropical Agriculture (IITA), and International Plant Genetic Resources Institute (IPGRI). Printed in Lima, Peru: International Potato Center.

© GSJ