

Intermarket Performance and Pricing Efficiency of Imported Rice Marketing in South-South Nigeria: The Case of Akwa Ibom State Traders

Bassey, Nsikan Edet^{1*}, Okon, Uwemedimo E¹ and Ibok, Otu William¹

¹Akwa Ibom State University, Ikot Akpaden, Mkpato Enin, Akwa Ibom State, Nigeria

*Correspondence: Nsikan Edet Bassey, Department of Agricultural Economics and Resources Management, Akwa Ibom State University, Ikot Akpaden, Mkpato Enin, Akwa Ibom State, Nigeria. Tel: +2348187133582. E-mail: nebass20-05@yahoo.com

Abstract: The paper examines the market performance and pricing efficiency of rice uses primary data from a sample of 60 rice traders selected from four markets in Akwa Ibom State, Nigeria. Data were analyzed using simple descriptive statistics, t-test, gross margin and bivariate correlation coefficient. From the findings of the study, married (70%) and educated (85%) female (63.3%) rice traders with average marketing experience of 11.6 years dominated the study area. Average Gross return and margin across the markets were #8852.5 and 27.67%, indicating that rice marketing was profitable in the study area. Rice prices were higher in the rural than the urban markets. The correlation coefficient between the urban market pair was higher (0.81) than those between the urban and the rural market pairs which ranged from 0.21 to 0.46. This shows that the flow of marketing information was higher among the urban market pairs and lower between the rural and urban market pairs. This implies that the urban market pair was highly integrated than the other market pairs that were poorly integrated. There were significant differences in the mean wholesale prices between the urban and rural market pairs as well as within the rural market pair, while there were no significant differences in the mean wholesale prices between the two urban market pair. Also, high cost of transportation, high rent and taxes, lack of credit facilities and rampant incidence of theft were among the perennial marketing problems identified as major challenges in the study area. Series of recommendations have been offered.

Keywords: Marketing margin; correlation Coefficient; market pairs; marketing information

1. Introduction

The pivotal role of marketing in enhancing rural income and in the overall development of any economy of the world cannot be overemphasized. In fact, one of the major functions of Agricultural marketing is to bring items of trade from surplus to deficit areas.

Rice, *Oryza sativa* is one of such items of trade in the Nigerian Agricultural sector. Rice marketing entails all the activities involve in moving rice from the point of production to where it is needed by the final consumer. It involves series of transaction costs which are reflected in the size of the marketing margin. These margins vary among brands, types, location and over time. For instance, local and imported rice margins are not likely to be the same, since their marketing involves different set of transaction costs. This is so because, import tariffs and taxes are from time to time imposed on imported rice while such are not associated with local rice. Also, differences in transportation and other handling costs account for differences in margin between locations.

A knowledge of marketing margin(which is a measure of performance) and pricing efficiency enable us determine the mark up earnings accruing to marketing intermediaries as well as determining the extent of marketing efficiency (Oladapo *et al.*, 2007). Efficient marketing system promotes economic development by encouraging specialization and leading to output enhancement (Olukosi & Isitor, 1990; Tura *et al.*, 2010). It encouraged farmers to boost their productivity thereby contributing to the improvement of rural income in developing countries. Beyond this, it reduces post harvest loses, ensure adequate returns to farmers investment and stimulate expansion in food productivity, thereby enhancing the level of food security in Nigeria (ladele & Ayoola, 1997). The reverse constitutes an impediment to food security, as investment in production becomes more costly, risky and wasted (FAO, 1996), while free flow of marketing information between markets are hindered.

However, in spite of the central position occupied by rice in addressing rural hunger, Nigerian government and other stakeholders continue to pay less attention to its marketing system. The marketing system is still undeveloped and lack institutional support. This coupled with weak infrastructure, bad trade policies and inefficient pricing translates into low margins and renders the system malfunctioning and uncompetitive. Few policy initiatives on rice by successive government of Nigeria have been focused on the supply side (intensive production) with little emphasis on marketing and distribution. But increasing production without a corresponding efficient marketing strategy being put in place to ensure its accessibility would not stimulate farmers to enhance production since the excess would be wasted through post harvest loses.

Much research has not been done on market performance and pricing efficiency of rice. Few available marketing studies carried out in different parts of Nigeria such as Oladapo *et al.* (2007), Orubu (1991), Dittoh (1994), Anthonio (1968), Jones (1969), Okoh and Akintola (2005), Nuhu *et al.* (2009), Obayelu and Salau (2010), and Ugwamba and Okoh (2010) concentrate on Pineapple, other staple foods, cowpea, vegetable and animal products respectively. Majority of these studies have concluded that the marketing and pricing information transmission are inefficient. Other marketing studies such as Tura *et al.* (2010), Enete (2009), and Raphael and Eniola (2005) all lend credence to the importance of adequate marketing system. Hence, this study would contribute to the pool of knowledge on marketing margin and pricing efficiency of rice in Nigeria.

Beyond this, to ensure proper and prompt dissemination of rice marketing information and price signals within markets, a knowledge of spatial price analysis of the Nigerian rice markets become indispensable and warrant this study. Consequently, this study examine the market performance, pricing efficiency, marketing cost structure as well as identify the major rice marketing problems in the study area.

2. Materials and Methods

2.1 The Study Area

The study was carried out in Akwa Ibom State, Nigeria. The State is one of the few States that made up the South- South region and lies between Latitude $4^{\circ} 32'$ and $5^{\circ} 33'$ North and Longitude $7^{\circ} 25'$ and $8^{\circ} 25'$ East. It has a total population of 3,920,208 people (NPoC, 2006). The state is an agrarian and is well suited for the production of both permanent and arable crops due to her favorable climatic condition.

2.2 Sampling Procedure and Method of Data Collection

The study made use of primary data that were collected through a multistage sampling in the 2012/2013 marketing year. First, Akwa Ibom State was selected from the nine States that made of the South- South region. Next, Four Local Government Areas were covered by the study; these were

Uyo, Itu, Uruan and Mbo . One market each was taken from each of the Local Government Area for the study. Akpan Andem market was chosen in Uyo, Itam in Itu, while Ekpene Ukim and Ibaka markets were chosen in Uruan and Mbo Local Government Area respectively. Primary data were collected on a weekly basis from 60 purposively selected rice traders based on their willingness to divulge market information. The field study covered 50 weeks which spanned from January, 2012 to February, 2013. Specifically, 15 traders each were selected from each of the markets making a total of 60. Data series of interest were weekly wholesale buying and selling prices and quantities of imported brands of rice.

2.3 Method of Data Analysis

The data collected were subjected to both descriptive and inferential statistical analysis. Socioeconomic characteristics of respondents and constraints to marketing were analyzed using simple percentages. Other analytical techniques used include.

2.3.1 Gross Margin Analysis

This is used to measure the profitability or loss of rice marketing. The formula was:

$$GM = GR - TVC$$

Where GM is Gross margin in naira per 50kg bag

GR is the Gross revenue in naira per 50kg bag

TVC is the total variable cost in naira per 50kg bag

2.3.2 Correlation Analysis

Pearson Product Correlation coefficient (cr) was computed for the urban and rural markets in line with the method of Oladapo *et al.* (2007). The formula used was:

$$r_{ij} = \frac{\sum_{i-j}^n (P_{it} - \overline{P_{it}})(P_{jt} - \overline{P_{jt}})}{\sum_{i-j}^n \sqrt{(P_{it} - \overline{P_{it}})^2} \sum_{i-j}^n \sqrt{(P_{jt} - \overline{P_{jt}})^2}} \quad (1)$$

Where I = rural markets (Ekpene Ukim or Ibaka)

j = Urban market (Akpan Andem or Itam)

P_{it} and P_{jt} are the prices of rice in the two markets and I and j are measured at time t.

$\overline{P_{it}}$ and $\overline{P_{jt}}$ = means of each rice price

n = number of observation

r_{ij} = Correlation between market I and market j

2.3.3 T-Test for Difference of Means between Markets

The formula for computing a t-test which was used to compare the mean wholesale prices between urban markets (each taken at a time) and rural market in the three local government Areas is given as:

$$T_{cal} = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{S_1^2 + S_2^2}{n_1 + n_2}}} \quad (2)$$

Where t_{cal} = calculated value of t distribution

\bar{X}_1 = mean of wholesale price for rural markets (Ekpene Ukim and Ibaka each taken at a time)

\bar{X}_2 = mean of wholesale price for the urban markets (Akpan Ndem and Itam each taken at a time)

S_1 = Standard deviation of sample mean of urban market in a given Local Government Area

S_2 = Standard deviation of sample mean of rural market in a given Local Government Area

n = number of data points for the market (n= 60)

Note: in computing t values for the urban markets, one market was taken at a time. From the computed t test, the null hypothesis was tested against the alternative at the 5%, 1 and 10 % level of significance.

3. Results and Discussion

3.1 Demographic Characteristics of Respondents

Table 1. Demographic characteristics of respondents

Variable	Frequency	Percentage
Marital Status		
Married	42	70.0
Single	18	30.0
Age		
0-20	0	0.00
21-30	4	7.0
31-40	32	53.3
Above 40	24	40.0
Marketing Experience		
0- 5 years	10	16.6
6-10 years	22	36.7
More than 10 years	28	46.7
Sources of Finance		
Personal savings	30	50.0
Friends and Relatives	21	35.0
Commercial banks	0	0.00
Other financial houses	9	15.0
Educational background		
No formal Education	9	15.0
Primary school	15	25.0
Secondary school	31	51.7
Post Secondary	5	8.3
Gender		
Male	22	36.7
Female	38	63.3

Source: Authors Field Survey 2012/2013

From Table 1 which presents the demographic characteristics of traders in the study area shows that female marketers (63.3%) dominated the study area. About 70% of respondents were married. This high percentage of married traders agreed with Ekong (2002) who in his findings reported that most Nigerian rural people are married at the age of twenty five years. Age wise, majority of the marketers were within the age bracket of 41-50 years. This implies that rice marketers were at their youthful age, a situation which can promote market efficiency. In terms of marketing experience, rice traders were quite experience with average experience of 11.6 years. This is likely to impact positively on rice marketing, since experience farmers have accumulated enough marketing knowledge through several years of marketing trials and errors.

Also, majority of respondents (50%) financed their business through personal savings, 35% borrowed from friends and relatives while 15% borrowed from other financial Institution such as LAPO. No respondent was able to secure commercial bank loan. The presence of cheap source of credit from financial Institution like LAPO and through personal effort as well as friends and relative account for the reason why lack of credit was not considered a severe constraint by rice traders in the two urban markets. Educationally, 85% of respondents were able to read and write. This percentage comprises of 25% primary school, 51.7% secondary school, 8.3% post secondary school while 15% did not have formal education. This high percentage of literate marketers dominating rice marketing in the study area is likely to impact positively on rice marketing. This is so because marketing information disseminated to them by extension agents through leaflets and other information media could easily be read, understood and put into practice.

3.2 Rice Price Trend Analysis

From Table 2, the maximum selling prices of rice attained in the area were #14000 and #12900 recorded by Ibaka and Ekpene Ukim markets. The minimum prices for both were #8635 and #7700 respectively. In Akpan Andem and Itam markets (Urban), the highest selling prices were 12900 and 12600 while the minimum were# 6950 and #6730 respectively. The average prices were Akpan Andem (#8200) Itam (#8120), Ekpene Ukim (#8840) and Ibaka (#9050). This implies that the prices in the rural markets (Ekpene Ukin and Ibaka) were higher than the two urban markets. The plausible explanation for this might be because few quantity of rice is supplied in the area due to transportation cost, since the area is located several kilometers away from the other markets. This finding contradict that of Olapado (2007) who reported that prices in the urban markets were higher than rural markets in his study on marketing margin and spatial pricing efficiency of pineapple in Nigeria.

Also, rice prices were not stable across the four markets; apart from higher selling prices in Ibaka and Ekpene Ukim markets, higher prices were attained towards April and December (first and last quarter). This can be attributed to festivities as these are the Easter and Christmas periods of Christians that dominate the study area. Previous findings by Simister and Chanda (2009), Okunnneye (2010) and Nuhu *et al.* (2009) carried out in Northern Nigeria had documented an alarming increase and instability in staple food prices in Northern Nigeria. In Cross River State, Akpan and Aya (2009) reported fluctuating market prices in selected food items among different markets. Taru (2012) documented that such prices variations among markets in Nigeria is necessary for the existence of a market, as it create incentives that attract market actors to engage in trade. In his opinion, excessive variability and in most cases, no variability of staple food prices should rather be a point of concern.

Table 2. Summary statistics of prices in the selected markets

Parameter / markets	Akpan Andem (Urban)	Itam (Urban)	Ekpene Ukim (Rural)	Ibaka (Rural)
Mean Price	8200	8120	8840	9050
Median	7115	6900	7720	8400
Maximum	12900	12600	13100	14000
Minimum	6950	6730	7700	8635

Source: Computed from market survey data (2012/2013). All values is in Nigerian naira

3.3 Market Performance

This was measured using Cost and return as well as marketing margin. Table 3 presents the average marketing cost and returns associated with imported rice per 50kg measure in the four case study markets. From the Table, the average gross return for rice in Ekpene Ukim and Ibaka (rural) were #8840 and #9050. Buying prices had the highest cost of 92.2% and 90.7% followed by transportation cost which constituted 7.8% and 9.2% in both markets respectively. The Gross margin for both were #1,972.5 and #2,382 representing 28.4% and 33.2% marketing margin respectively. Average gross revenue for Akpan Andem and Itam markets were #8200 and #8120, with buying prices constituting the highest marketing costs of 93.7% and 94.3%. The Gross margin of #1690.3 and #1,532.8 was recorded for both markets with marketing margin of 25.6% and 23.8%.

The average Gross margin across all the markets was #1,894.4 representing 27.67% of the average marketing margin. This implies that rice marketing in the study area was profitable. Beyond this, imported rice marketing was found to be more profitable in rural than urban markets. The high gross margin associated with Ibaka market was due to location, since the market is located in the interior, about four kilometers from the other markets. It can also be attributed to lower handling costs such as lower buying prices and rents. Unarguably, Ibaka market is located at the foot of a river bank that is prone to illegal activities of rice smugglers from the neighboring Cameroun. Rice sellers do patronizes these rice sellers from time to time. Olapado (2007) in his study on pineapple also reported a higher marketing cost in urban that rural markets in Nigeria.

Table 3. Average marketing cost and return per 50kg bag of imported rice in the study area

Cost variable/ markets	Akpan Andem	Itam	Ekpene Ukim	Ibaka	Across markets
Buying Price	6100	6210	6330	6050	6172.5
Transportaion cost	400	373	530	610	478.5
Rent charges	6.60	7.50	3.10	2.80	5.0
Security fee	3.00	4.20	4.40	5.10	4.18
Total cost	6,509.60	6,587.20	6867.50	6,667.90	6658.05
Total Revenue	8200	8120	8840	9050	8852.5
Gross margin	1690.30	1532.80	1972.50	2382.10	1894.40
Marketing margin	25.61%	23.52%	28.39%	33.15%	27.67%

Source: Computed from Field survey data (2012/2013). All figures are in Nigerian naira

3.4 Inter Market Price Relationship Analysis

This was measured using the static bivariate correlation coefficient. The result as presented in Table 4 shows a mixture of high and weak correlation, ranging from 0.21 to 0.81. The correlation between

the two urban markets was high (0.81) while that between the two rural markets was 0.48. This shows there was a perfect flow of market information between the urban market pairs. This comovement of prices within this market pair (urban market pair) shows that there was a high degree of integration within them. This can be attributed to size since these two markets are larger with huge volume of sales than the rural markets. Bhat (1980) documented higher r values in bigger markets than in smaller markets, indicating the influence of traders' participation in determining the degree of market integration. Also, the correlation between the urban and rural market pairs ranges from 0.21 to 0.46 indicating there was slow flow of information between the rural and urban market pairs, hence, low market integration between them. This can be likened to distance since both markets are located several kilometers away from the two rural markets. In East Pakistan, Farooq (1970) reported that the lesser the distance the higher the correlation and greater the degree of market integration. The slow flow of information among the rural market pairs (Ekpene Ukim and Ibaka) as indicated by the low r value of 0.48 can also be attributed to distance, since both markets are located farther away from each other. Also, as evidenced in Table 5 which summarizes the price correlation coefficient result, while about five market pairs (83.3%) shows weak correlation, only one market pair (16.7%) was highly correlated. This is an indication that there was low flow of rice marketing information as well as market integration across the study area. This finding corroborates Olapado (2007) who also documented a weaker correlation across the rural and urban markets pairs in his study on pineapple in Nigeria.

Table 4. Correlation matrix of rice market pairs in the study area

Market / Markets	Akpan Andem (Urban)	Itam (Urban)	Ekpene Ukim (Rural)	Ibaka (Rural)
Akpan Andem	1.00	0.81	0.32	0.21
Itam	0.81	1.00	0.46	0.28
Ekpene Ukim	0.32	0.46	1.00	0.48
Ibaka	0.21	0.28	0.48	1.00

Source: Computed from market survey data (2012/2013).

Table 5. Summary of rice price correlation result for the study area

Correlation Coefficient	Number of Market Pairs	Percentage	Comment
$0.01 \leq r < 0.50$ correlation	5	83.3	weak
$0.51 \leq r < 1.00$ correlation	1	16.7	strong
Total	6	100	

Source: Computed from Appendix Table 4

3.5 Comparative Mean Wholesale Prices of Imported Rice between Rural and Urban Markets

Table 6 above shows that there were significant differences in the mean wholesale prices of rice between the urban and rural market pairs, while there was no significant difference in the mean wholesale prices of rice between the two urban markets. This shows that there is high degree of integration and free flow of marketing information between the urban market pairs. It further indicates that there is low flow of marketing information between the rural and urban market pairs as well as among the rural market pair. This finding is in agreement with Oladapo *et al.* (2007) who reported a significant difference between the mean retail prices of pineapple in rural and urban markets of Edo and Oyo States in Nigeria. Studies such as Nuhu *et al.* (2009), Akpan and Aya,

(2009) and Okunneye, (2010) also documented variation in prices of agricultural produce across different markets in Nigeria.

Table 6. Computed t-values of inter-market rice market pairs

Market Pairs	No	Tabulated t-values			Calculated t-values
		0.01	0.05	0.10	
Akpan Andem-Itam	30	2.76 ^{ns}	2.0 ^{ns}	1.69 ^{ns}	1.66
Akpan Andem-Ibaka	30	2.76 ^{ns}	2.04 ^{ns}	1.69***	1.98
Akpan Andem- Ekpene Ukim	30	2.76 ^{ns}	2.04**	1.69***	2.14
Itam-Ibaka	30	2.76 ^{ns}	2.04**	1.69***	3.32
Itam- Ekpene Ukim	30	2.76 ^{ns}	2.04**	1.69***	2.63
Ekpene Ukim-Ibaka	30	2.76 ^{ns}	2.04 ^{ns}	1.69 ^{ns}	1.42 ^{ns}

Source: Computed from market survey data,2012/2013.

Note: ***significant at 10%; **significant at 5%; ^{ns} not significant

3.6 Constraints to Rice Marketing in the Study Area

Table 7. Constraint to rice marketing in the study area

Constraint/ Market	Akpan Andem			Itam			Ekpene Ukim			Ibaka			Across Markets		
	No	%	Rank	No	%	Rank	No	%	Rank	No	%	Rank	%	Rank	
High transport cost	8	53.3	1 st	5	33.3	1 st	9	60.0	1 st	10	66.7	1 st	53.3	1 st	
Lack of credit	4	26.7	2 nd	3	20.0	2 nd	2	13.3	3 rd	2	13.3	2 nd	18.3	2 nd	
High rate of thief	0	0	0	1	6.7	3 rd	4	26.7	2 nd	1	6.7	3 rd	6.7	5 th	
High cost of Rent	1	6.7	4 th	3	20.0	2 nd	0	0	0	0	0	0	10.0	4 th	
High Taxes	2	13.3	3 rd	3	20.0	2 nd	0	0	0	2	13.3	2 nd	11.7	3 rd	

Source: Market Survey Data 2012/2013

From Table 7 which presents the rice marketing problems in the study area, high transportation cost ranked first across the markets (53.3%), followed by lack of credit (18.3%), high taxes (11.7%), high cost of rent (10%) and high incidence of theft (6.7%). The high transport cost associated with Ibaka is because the market is located several kilometers away from the other markets. This finding support Lele and Adu Nyako (1991), and Madhin-Gabre (1991) who reported that transport cost account for a large portion of marketing margin in Africa and Sub Saharan Africa respectively.

Lack of credit ranked second across all the markets except in Ekpene Ukim where it ranked third with 13.3%. The reason is because of low volume of sales at Ekpene Ukim compared to others. With such lower volume of sales, lesser amount of capital is required.

Also, high incidence of theft ranked second in Ekpene Ukim and third in both Itam and Ibaka. This justifies the high charges in Ekpene Ukim market. High cost of rent ranked second and fourth in Itam and Akpan Andem markets with 20 and 6.75% respectively. In Ekpene Ukim and Ibaka, high cost of rent were not severe since less volume of sales are often carried out. Beside, rent charges were minimal at these markets.

Taxes and other forms of extortion were more severe in Ibaka and Itam where it ranked second, followed by Akpan Andem market where it ranked third.

4. Summary and Conclusion

The study examined the pricing efficiency, market performance and identifies the rice marketing challenges in the four case study markets. From the findings of the study, married (70%) and educated (85%), female (63.3%) with high level of experience dominated the study area. Average Gross Return and margin across the markets were #8852.5 and 27.67% indicating that imported rice marketing was profitable in the study area. Average gross margin and marketing margin was higher in the rural markets than the two urban markets.

Beyond this, there was low flow of marketing information between the two urban and rural markets while the flow of marketing information between the two urban markets was high. This implies high market integration between the urban market pairs as well as absence of market integration between the rural and urban market pairs. On the average, there was absence of market integration in about 83.3% of market pairs. Also, there were significant differences in the mean wholesale prices between the urban and rural markets pairs while there was no significant difference in the mean wholesale prices of rice between the two urban markets. High transportation cost, high cost of rent, high taxes and extortion, lack of credit facility and high incidence of theft were among the major perennial challenges identified by rice marketers in the study area.

5. Implication for Future Research

Numerous researches conducted in performances of various combinations of Nigerian foodstuff markets have recorded fluctuating prices due to poor market integration and inefficient pricing. Few studies have actually considered the behavior and conduct of rice markets as well as market participants (individual traders). This study has examined the inter-market performance and price behavior in the selected markets. The result of the study has implication for adequate transmission of price signals and other marketing information from food deficit to surplus area. Further studies should be directed towards examining the rice market structure and conduct in the study area with view to improving efficiency.

6. Recommendation

If marketing margin and pricing efficiency is to be improved in the study area:

- (1) There is need to provide credit facilities in the form of soft loans to rice marketers. This would enable small volume traders especially in Ekpene Ukim increased their sales volumes and hence, enjoy economic of scale.
- (2) Effort should be directed towards reducing transportation costs. This can be achieved by evolving a well coordinated transport facilities throughout the State e.g floating a low fare internal Sate transport Scheme.
- (3) Emphasis should be directed towards minimizing taxes, rampant incidence of extortion and theft.
- (4) Also, there is need to reduce the disparity in the flow of rice marketing information between rural and urban rice markets. This can be achieved by improving upon the information environment.

References

- [1] Akpan, S. B., & Aya, E. A. (2009). Variance in consumer prices of selected food items among markets in cross River State. *Global Journal of Social Sciences*, 8(2), 49-52.
- [2] Anthonio, Q. B. O. (1968). *The marketing of staple foodstuffs in Nigeria: a study in pricing efficiency*. (Unpublished doctorate dissertation) University of London.
- [3] Babatunde, R., & Oyatoye, E. (2005). *Food security and marketing problems in Nigeria: the case of maize marketing in Kwara State*. Retrieved from <http://www.tropentag.de/2005/abstracts/full/102.pdf>.
- [4] Bhat, V. S. (1980). Temporal and spatial variations in arrivals and prices of paddy and groundnut in selected markets of Karnataka: an economic analysis. (Unpublished Master's thesis), University of Agricultural Sciences, Bangalore
- [5] Dittoh, J. S., (1994). Market Integration: The case of dry season vegetable in Nigeria. *Issues in African Rural Development* 2 (p. 89-101).
- [6] Enete, A. A (2009). Middlemen and small holders Farmers in Cassava Marketing in Africa. *Tropicultura*, 27(1), 40-44.
- [7] FAO (1996). *Technical Background Document for the World Food Summit*. Rome, Italy.
- [8] Farooq, M. C. (1970). *Structural and performance of rice marketing system in East Pakistan* (p. 80-85). Department of Agricultural Economics. Cornelio University Ithaca, New York.
- [9] Jones, W.O (1969). Structure of staple food marketing in Nigeria as revealed by price analysis. *Food Research Institute Studies*, 8(2), 95-123.
- [10] Ladele, A. A., & Ayoola, G. B. (1997). *Food marketing and its roles in Food security in Nigeria: Strategies and Mechanisms for Food Security* (p. 88). Proceedings of the National Workshop on Nigerian position at the World Food Summit, Abuja, Nigeria.
- [11] Madhin-Gabre, E. Z. (1991). *Transfer costs of cereal marketing in Mali: Implications for Regional Trade in West Africa*. M.S. Thesis. East Lansing, MI: Michinmngan State University.
- [12] Nuhu, H. S., Ani, A. O., & Bawa, D. B. (2009). Food grain marketing in Northern Nigeria: a case study of spatial and temporal price efficiency. *American Eurasian Journal of Sustainable Agriculture*, 3(3), 473-480.
- [13] Obayelu, A. E., & Salau, A. S. (2010). Agricultural response to prices and exchange rate in Nigeria; application of co-integration and vector error correction model (ECM). *J. Agric. & Sci.*, 1(2), 73-81.
- [14] Okoh, R. N., & Akintola, J. O. (2005). Oligopolistic pricing and market integration of cassava roots and products in Delta and Edo State, Nigeria. *Journal of Economics and Rural Development*, 14(2), 21-54.
- [15] Okunneye, P. A. (2010). Rising cost of food prices and food insecurity in Nigeria and its implication for poverty reduction. *CBN Economic and Financial Review*, 39(4), 23-38.
- [16] Oladapo, M. O., Momoh, S., Yusuf, S., & Awoyinka, Y. (2007). Marketing Margin and Spatial Pricing Efficiency of Pineapple in Nigeria. *Asian Journal of Marketing*, 1(1), 14-22.
- [17] Olukosi, J. O., & Isitor, S. V. (1990). *Introduction to Agricultural Market and Price: Principles and Applications* (p. 34). Agitab Publishers, Zaria.
- [18] Orubu, C. O. (1991). Integration of the Nigerian goods market. A Rural- Urban analysis. *J. Art Soc. Sci.*, 4, 108-116.

- [19] Simister, J., & Chanda, R. (2006). *Using food prices to predict harmful effect of drought: Northern Nigeria as a case study*. Development ideas and practices working paper DIP-06-01. Retrieved from http://www.development-ideas-and-practices.org/sitebuildercontent/sitebuilderfiles/dip-06-01_drought_in_n_nigeria.pdf.
- [20] Taru, B. (2012). *Price Fluctuation and Market Integration of selected cereal grains in North-Eastern, Nigeria*. (Unpublished Doctorate Dissertation), University of Nigeria, Nsukka, Nigeria.
- [21] Tura, V. B., Johnathan, A., & Lawal, H. (2010). Structural Analysis of paddy rice markets in Southern part of Taraba State, Nigeria. *J. of agriculture and Social Sciences*, 6(4), 110-112.
- [22] Ugwumba, C. O. A. & Okoh, R. N. (2010). Price spread and the determinant of catfish marketing income in Anambra State, Nigeria. *J. Agric. & Soc. Sci.*, 6, 73-78.