MARKETING EFFICIENCY OF RICE IN KWARA STATE, NIGERIA: A STRUCTURE-CONDUCT -PERFORMANCE MODEL APPROACH

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ABSTRACT

This study examined the marketing efficiency of rice markets in Kwara State, Nigeria using the Structure-Conduct and Performance (SCP) model approach. Primary data were used to elicit information from the marketers with the use of structured interview schedule. Data were analysed using descriptive statistics, gini-coefficient, pricing behavior and budgetary analyses. The results showed that the mean age of marketers was 44 years, 89% had formal education, , about 73% were females, and with a mean marketing experience. There exists price discrimination within the markets and a high level of inefficiency in the market structure of the marketers, with a gini-coefficient of 0.71. The financial efficiency ratios of 0.16, 0.23 and 0.08 were estimated for rural buyers, wholesalers and retailers, respectively All the marketers 'break-even' during the period while wholesalers with the highest percentage of marketing margin were more efficient than other categories of marketers. It was concluded that government should design policies that will incorporate marketing program as a developmental program to improve the overall efficiency of rice marketing in the study area.

KEY WORDS: Efficiency, performance, price, rice markets

INTRODUCTION

Globally, rice (*Oryza Sativa L.*) is a very important and ancient food crop consumed as a healthy and staple food by over 4.8 billion people in 176 countries in the world (Food and Agriculture Organization, FAO, 2011) . It is one of the major staples that provide a means of livelihood for Nigeria's teeming populace. Rice marketing entails all the activities involved in moving it from the point of production to where it is needed by the final consumer (Bassey *et al.,* 2013). While rice

production forecast is 4.5 million tonnes, an average Nigerian consumes 24.8 kg of rice per year representing 9 per cent of the annual calorie intake (IRRI, 2001). Due to its increasing contribution to the per capita calorie consumption of Nigerians, the demand for rice has been increasing at a much faster rate (7.5 million tonnes by 2013) than domestic production and more than in any other African countries since the mid 1970s (Bamidele *et al.,* 2010). Hence, importation has become inevitable in order to make for the shortfall. Therefore, there is need for an efficient rice marketing system to sustain and accelerate its production. This will promote economic growth in the country by encouraging specialization and output enhancement. It will also encourage farmers to boost their productivity thereby contributing to the improvement of rural income, ensuring adequate returns to farmers' investments, thereby enhancing the level of food security in Nigeria (Bassey *et al.,* 2013).

An inefficient marketing system could result in market failure, food insecurity, famine and lack of free flow of marketing information between markets. This is because an investment in production becomes more costly, risky and wasted (Olukosi and Isitor, 1990 and FAO, 1996). Therefore, research into the marketing efficiency of rice will help in averting these failures and could contribute significantly to the country's economic growth, aid accurate policy formulation as well as improve the welfare of an average Nigerian. It is against this backdrop that this study examined the marketing efficiency of rice with particular reference to structure-conduct-performance (SCP) in the study area. .

Conceptual framework

The approaches to the study of marketing system include the functional, institutional, commodity, system and structural evaluation approach (Fateh, 2009). The functional approach is the study of activities performed in changing the produce of the farmer into the product desired by the consumers. It involves the business activities performed by firms in the marketing system (Astewel, 2010). These activities include exchange, physical and facilitating functions. Institutional approach

identifies the business organization and managers that add utility to the farm products. These are the people often referred to as "middlemen" in agriculture. These middlemen are classified as merchant, agent and speculative middlemen. Others are processors, manufacturers and facilitators. The commodity approach simply follows one product and studies what is done to the commodity and who does it as it moves through the marketing system (Astewel, 2010). This approach is quite simple and allows both functional and institutional approaches to be combined. It is extremely useful to the person who is interested in only one product since it does allow in-depth analyses. However, this is also a disadvantage because it ignores between product and market alternative and also ignores multi-product firms.

The system approach involves the interaction of subsystems rather than on individual function or firms (Harris, 1982). It allows systems to be identified with the particular problem being addressed. Systems type include input-output, which identifies motives and means of affecting the input–output ratio. The obvious disadvantage of this method is that it is abstract in nature and the reliance on intimate knowledge of individual's firm characteristics and behavioural interactions. The last approach is the structural-evaluation approach that evaluates the ultimate performance of the marketing system by examining the level of competition existing in the industry (Giroh *et al.,* 2010). The industry structure, including the number and size of firms, is combined with firm conduct, the price behaviour, advertising and product development to denote a performance that can be evaluated as good or bad. This approach is used extensively by government regulatory agencies to achieve the goods of competition and avoid the evil of monopoly power.

Economists have focused on the efficiency of marketing system by using the Market Structure, Conduct and Performance (SCP) model that is a basic analytical framework (Harris, 1982). The SCP model deals with the organization and operation of the free enterprise sector of the industrialized economy which helps in explaining the behavior of industrial sector of an economy

(Giroh *et al.,* 2010). This paper investigates the SCP of rice marketing systems in Kwara State, Nigeria. First, because the field remains theoretically underdeveloped and therefore requires combining various types of research and information in assessing the performance criteria. Second, there is the need to combine analyses of various performance dimensions when studying a market.

METHODOLOGY

Study Area

The study was conducted in Kwara State, Nigeria. Kwara State, with a population of 2,591,555 (which is projected to reach 3,157,558 in 2014 at an annual growth rate of 2.5%) (World Bank, 2012), was created on the 27th of May 1967 and covers a total land area of 332,500 square kilometers. It lies within latitude 7˚45ʹ N - 9˚30ʹN and longitudes 2˚30ʹE - 6˚23ʹE (Fakayode *et al.* (2008). It is bordered in the north by Niger State; Kogi State in the east; Oyo, Osun and Ekiti in the south and the Republic of Benin along its north-western border. The climatic conditions of the State are divided into wet and dry seasons with the temperatures ranging from 33˚C to 37˚C. Agriculture is the predominant economic activity in the State. The major crops grown in the State are maize, yam, cassava, rice, tomatoes and okro.

Sampling technique, sample size and data collection method

A two- stage sampling technique was used to select rice marketers in the study area. The first stage involved the random selection of five major rice markets (Patigi, Owode, Oke-oyi, Odo-owa and Malete markets) from the State and the categorization of rice marketers into rural buyers, wholesalers and retailers. The second stage involved a random selection of four rural buyers, six wholesalers and 14 retailers from each major rice market in the study area, resulting in a total of 110 marketers for the study. Primary data were collected for a one-year period using structured

questionnaires. Information collected include initial capital of the respondents, marketing channels, market prices, sales revenue, and various components of marketing costs.

Method of data analysis

Data were analysed using descriptive statistics, Gini coefficient, as well as pricing and gross margin analyses. Descriptive statistics such as frequencies and means were used for the analysis of rice marketing channels in the study area. The Gini coefficient was used to determine the market structure which gives indications about competitiveness of the rice markets. Mathematically, the Gini coefficient (as a statistical dispersion to represent income distribution) as used by Iheanacho (2005) and Ojo (2014) is expressed as follows:

$$GC = 1 - \sum XY \quad \text{………………………………………} (1)$$

Where:

GC = Gini coefficient

X = proportion of sellers

Y = cumulative proportion of sales

Σ = summation sign

The Gini coefficient varies from 0 to 1, where 0 implies perfect equality in the distribution (perfect market) while 1 imply perfect inequality (imperfect market). The closer the Gini-coefficient is to zero, the greater the degree of equality, the lower the level of concentration and the more competitive are the markets. Similarly, as the Gini coefficient approaches unity, the greater is the degree of inequality, the higher the level of concentration, the more imperfect the markets are, and consequently, the lower the efficiency of such markets.

Market conduct analysis

Market conduct was analyzed using pricing behavior analysis as proposed by Scott (1995) and used by Astewel (2010). This involves the determination of who sets prices (example, market forces of demand and supply, market negotiation (higgle and haggle) and marketing cost and margin. Marketing margin analysis and profitability ratios were used to analyze the performance of rice markets.

Market performance analysis

Cost and price information were used to construct marketing costs and margins. Anuebunwa (2006) determined the marketers' gross marketing margin as the difference between cost price and the selling price. This is expressed as follows:

$$D = C – A \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. \quad (2)$$

Where,

D= Traders' gross marketing margin

C = Traders' gross earnings (in Naira, ₦)

A = Cost of purchase of rice (in Naira, ₦)

According to Anuebunwa (2006), the marketers' share was then derived as the difference between the selling price (Gross earnings) of rice and the marketers' gross marketing margin. This is expressed as percentage of selling price as stated in equation (3)

$$Marketers' \, share = \frac{C – D}{C} * 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. \quad (3)$$

Where

D= Traders' gross marketing margin

C = Sales from rice (₦)

Profitability (Net margin) analysis: The net margin is the net earnings, which a seller earns after paying all marketing costs. Net earnings of various rice marketing agencies are computed using the following formula:

Gross Margin (GM) = GI – TVC ………………………………….. (4)

Where,

GM = Gross Margin,

GI = Gross Income,

TVC = Total Variable Cost.

Therefore,

Net Profit (NP) = GM – TFC ………………………………….. (5)

Where,

NP = Net Profit,

TFC = Total Fixed Cost

RESULTS AND DISCUSSION

The socio-economic characteristics of the marketers such as age, years of experience, educational level, sex, marital status and household size are as presented in Table 1. Majority of the marketers (79%) were within the age bracket of 31-50 years. The mean age was 44±13 years which implies that the marketers were at their economically active and energetic age. This agrees with the report of Afolabi (2007) that most of the poultry egg marketers in Nigeria belonged to the middle age group. About 88.2% of the marketers had formal education and 73% of the marketers were females, suggesting that females were more involved in marketing activities. This finding corroborates that of Afolabi (2009) on *gari* marketing in South-western, Nigeria but at variance with the findings of Onu and Iliyasu (2008) on the economic analysis of food grain markets in Adamawa State of Nigeria.

The mean household size of the marketers was 5±1.3 persons per household with a mean marketing experience of 19±9.6 Standard deviation years. This suggests that marketers can substitute family labour for hired labour in situations where hired labour is scarce and where the household members are willing to participate in marketing activities. This finding is consistent with the findings of Madugu and Edward (2011). The number of years of experience of marketers (17±9.6 year average) is important to improving the performance of rice marketers in the study area because years of marketing experience reduce ignorance of averting unnecessary risk thereby improving marketers' efficiency. This is in conformity with Ali *et al.* (2008) who reported that marketing experience is important in determining the profit levels of marketers. The more the experience, the more marketers understood the marketing system, condition, trends and prices of a particular commodity.

Table 1: Socio- economic characteristics of rice marketers in Kwara State

Variables	Frequency (n=110)	Percentage
Age (years)		
21-30	8	7.3
31-40	38	34.5
41-50	45	40.9
51-60	13	11.8
Greater than 60	6	5.5
Mean	45	
Standard deviation	13.0	
Sex		
Male	32	29.1
Female	78	70.9
Marital Status		
Single	12	10.9
Married	80	72.7
Divorced	7	6.4
Widow(er)	11	10.0

Level of Education

Primary	44	40.0
Secondary	32	29.1
Tertiary	11	10.0
Adult education	10	9.1
Non-formal education	13	11.8
Standard deviation	4.7	

Years of marketing experience

1-5	24	21.8
6-10	43	39.1
11-15	30	27.3
16-20	9	8.2
Greater than 20	4	3.6
Mean	19	
Standard deviation	9.6	

Household size

1-5	62	56.4
6-10	43	39.1
11-15	5	4.5
16-20	-	
Mean	5	
Standard deviation	1.3	

Source: Field data, 2015

Market Structure Analysis

Market structure is basically a measure of the degree of competition in a particular market. The point of interest here is to find out whether the rice marketers were large, equal or dominated by a small group. Results showed that a Gini coefficient of 0.71 (Table 2). This value is an evidence of high inequality and high concentration level in the markets, and that the markets were operating at an inefficient level. This finding is consistent with the study conducted on the assessment of rice market structure in Ebonyi State, Nigeria by Anuebunwa (2008) with a gini-coefficient of 0.838.

This may be the result of the collusive practices in buying and selling as well as the differences in the degree of risk involved in sourcing for supplies by the different categories of the marketers.

Table 2: Gini-coefficient for rice marketers in Kwara State

IS (₦)	NS(Freq)	PSL(X)	CPSL	TS (₦)	PS	CPS (Y)	∑XY
≤ 50000	26	0.24	0.24	681782	0.02	0.02	0.0047
50001-100000	16	0.15	0.39	1078152	0.03	0.05	0.0073
100001-150000	7	0.06	0.45	914772	0.03	0.08	0.0051
150001-200000	15	0.14	0.59	899425	0.03	0.11	0.015
200001-250000	6	0.05	0.64	1406763	0.04	0.15	0.0082
250001-300000	5	0.05	0.69	1404585	0.04	0.19	0.0086
300001-350000	12	0.11	0.79	3949281	0.12	0.31	0.0338
> 350000	23	0.21	1.00	22708346	0.69	1.00	0.2091
Total	110	1.00		33043106	1		0.2918

Source: Field data, 2015   GC = 1- ∑XY = 1-0.2918 **= 0.71**

IS = income sales; **NS** = No. of sellers; **PSL** = Proportion of sellers; **CPSL** = Cumulative proportion of sellers; **TS** = Total sales; **PS** = Proportion of sales; **CPS** = Cumulative proportion of sales

Market Conduct Analysis

Market conduct refers to the actions taken as well as the tactics used by marketers out of their own discretion in order to adopt or adjust to the market in which they buy and sell ,for instance, determination of price and output. In the study area, prices were determined by the forces of demand and supply, cost of purchase and the bargaining power of the marketers. The result in Table 3 shows that 90% of the marketers indicated that their pricing behavior was determined by marketing cost and margin, while 87% indicated forces of demand and

supply, and 67% indicated higgle and haggle. The result on the marketers' conduct was the evidence of buyers' ability to bargain well in price determination, and an incidence of price discrimination. This validates the finding of Afolabi (2009) on the assessment of gari marketing in South-Western, Nigeria who reported that all the respondents set *gari* prices based on the forces of demand and supply, cost of acquisition and margin, the ability of the buyers to haggle as well as the quantity of *gari* available for sale/purchase.

Table 3: Determinants of pricing behavior by rice marketers

Factors	Frequency*	Percentage
Forces of demand and supply	87.0	87.0
Price bargaining (higgle & haggle)	67.0	67.0
Marketing cost and margin	90.0	90.0

Source: Field data, 2015   * = Multiple responses were allowed

Market performance assessment

Marketing margin and profitability ratios were used to determine the performance of rice marketers in the study area.

Costs and returns analysis: The cost of rice purchase for wholesalers in the State was ₦121.36/kg (Table 4) which was the highest share of the total cost while storage cost was ₦0.12/kg. Rural buyers' packaging cost was ₦0.24/kg and the cost of rice was ₦109.68/kg. Retailers in Kwara State also had the highest cost of rice of ₦143.99/kg and highest transportation cost of ₦2.52/kg compared to wholesalers' transportation cost of ₦1.21/kg. The operating costs for wholesalers aside cost of rice was low (₦3.10/kg) when compared to rural buyers and retailers. The net margin accruing to a seller/kg was ₦20.70, ₦29.35 and ₦14.22 for rural buyers, wholesalers and retailers, respectively. The profitability ratios were 0.16, 0.23 and 0.08 for rural buyers, wholesalers and

retailers, respectively. The financial efficiency ratios were 1.16, 1.23 and 1.08 by the different categories of marketers.

In analyzing the performance of the wholesalers, storage cost was small in comparison with other variable costs, this can encourage arbitraging by evening out supplies through space and time such that rice is stored with minimum cost against scarcity in the future. Since the rural buyers' packaging cost was low, it could help to improve packaging strategies thereby increasing their sales and net revenue. The low operating cost for wholesalers is an indication that they enjoyed economies of scale. Considering the profitability ratio of 0.16, 0.23 and 0.08 for rural buyers, wholesalers and retailers, respectively, implies that for every ₦100 invested in rice marketing, ₦16, ₦23 and ₦8 were realized as profit, respectively. The profitability ratios for all the category of marketers was a confirmation that rice marketing was a profitable business in Kwara State though wholesalers made the highest profit while retailers made least profit. The financial efficiency ratio showed that all the marketers 'break-even'. That is, for every ₦1 invested 16k, 23k and 8k was realized as profit which is an indication that they were all financially efficient. This is supported by a study carried out by Oguntade and Mafimisebi (2010) which revealed that a market with efficiency ratio of 1.06 could be said to be financially efficient.

Table 4: Costs and returns of different categories of rice marketers in Kwara State

| | Category of Marketers | | | | | |
| | Rural buyer (n=4) | | Wholesaler (n=6) | | Retailer (n=14) | |
Cost/Return items	Amount (₦)/kg/seller	% of Total cost	Amount (₦)/kg/seller	% of Total cost	Amount (₦)/kg/seller	% of Total cost
Variable costs						
Cost of rice	109.68	82.47	121.36	96.19	143.99	82.53
Transportation cost	1.42	1.07	1.21	0.96	2.52	1.44
Labour cost	2.63	1.98	0.90	0.71	3.07	1.76
Storage cost	0.67	0.5	0.12	0.09	0.59	0.34
Loading and off-loading	0.44	0.33	0.44	0.35	0.55	0.32
packaging cost	0.24	0.18	0.20	0.15	0.79	0.45

Miscellaneous	1.15	0.86	0.24	0.19	1.74	1
Total variable cost	123.24	92.66	124.46	98.64	161.25	92.42
Fixed cost						
Sales tools (mudu, bowls, sacks etc)						
Depreciation	2.34	1.76	0.72	0.57	5.73	3.28
Interest	2.28	1.72	0.62	0.49	1.24	0.71
Rent	5.13	3.86	0.37	0.3	6.25	3.58
Total fixed cost	9.76	7.34	1.72	1.36	13.22	7.58
Total cost	132.99	100	126.17	100	174.46	100
Returns	153.70		155.53		188.69	
Gross margin	30.46		31.07		27.44	
Net farm-income	20.70		29.35		14.2219	
Profitability-Ratio	0.16		0.23		0.08	
Efficiency-Ratio	1.16		1.23		1.08	

Source: Field data, 2015

Analysis of marketing margin pinpoints the category of marketers that will perform its marketing functions at the lowest cost possible and simultaneously ensuring time, place, form and possession utilities and invariably, marketing efficiency (Olukosi, 2005; and Madugu and Edward, 2011). This is supported by Oguntade and Mafimisebi, 2010 and Madugu and Edward, 2011.

Marketing margin analysis: Table 5 shows the relative marketing margins for the different categories of rice marketers in the State. It shows that the percentage gross marketing margin for rural buyers, wholesalers and retailers were 28.64, 21.97 and 23.69, respectively. This implies that for every hundred Naira paid by the consumers for the purchase of rice; ₦28.64, ₦21.97 and ₦23.69 covered marketing costs and profits. In essence, wholesalers had the highest share of the marketing margin of 78.03% and rural buyers had the smallest (71.36%). This suggests that wholesalers of rice were more efficient than other categories of marketers. This is in line with the

study of Oguoma (2010) on the evaluation of the distributive trade channels for selected food staples in Imo State, Nigeria.

Table 5: Relative marketing margins for rice marketers in Kwara State

Variables	Rural buyer (n=4)	Wholesaler (n=6)	Retailers (n=14)
Gross earnings from sales (₦/kg)	153.70	155.53	188.69
Purchase cost (₦/kg)	109.68	121.36	143.99
Gross marketing margin (₦/kg)	44.02	34.17	44.70
Percentage Gross marketing margin (%)	28.64	21.97	23.69
Marketers' share of Gross marketing margin (%)	71.36	78.03	76.31

Source: Field data, 2015

CONCLUSIONS AND RECOMMENDATION

The study examined the marketing efficiency of rice marketers in Kwara State, Nigeria. Marketing conduct analysis indicated the existence of price discrimination within the markets and the Gini-coefficient of 0.71 indicated a high level of inefficiency in the market structure. In analysing the marketers' performance, the financial efficiency ratio of the different categories of marketers showed that all the marketers 'break-even'. That is, for every ₦1 invested 16k, 23k and 8k were realized as profit for rural buyers, wholesalers and retailers respectively, which is an indication that all the marketers in the study area were financially efficient. The result of the marketing margin showed that wholesalers had the highest percentage of marketing margin and were more efficient than other categories of marketers. Government should therefore design policies that will

incorporate marketing programmes in her developmental strategies to improve the overall

efficiency of rice marketing in the study area.

REFERENCES

Afolabi, J. A. (2007). Evaluation of poultry egg marketing in South-Western Nigeria. *International Journal of Poultry Science,* 6 (5), 362-366

Afolabi, J. A. (2009). An assessment of gari marketing in South-Western Nigeria. *Journal of Social Science,* 21 (1), 33-38

Ali, E. A., Gaya, H. I .M., & Jampada, T. N. (2008). Economic analysis of fresh fish marke-ting in Maiduguri Gamboru Market and Kachallari Alau Damlanding site of   North-eastern Nigeria. *Journal of Agricultural and Social Science,* 4, 23-6

Anuebunwa, F. O. (2006). An assessment of the rice market structure in Ebonyi State of   Nigeria. Proceedings of the 40th conference of the Agriculture Society of Nigeria   Asumugha, G. N. Olojede A.O, Ikeorgu J.G., Ano A.O., Herbert U. (eds) National   Root   Crops   Research Institute, Umudike Abia State, Nigeria, 16-20th October, 2006, p. 90.

Anuebunwa, F. O. (2008). Marketing of fresh okra in Ebonyi State, Nigeria. National Root Crops Research Institute, Umudike, Umuahia Abia State. *Journal of Production Agriculture and Technology (PAT),* 4 (1), 71-81

Astewel, T. (2010). Analysis of rice profitability and marketing chain in Fogera Woreda, South Gondar Zone, Amhara National Regional State, Ethiopia. An M.Sc Thesis Presented to the School of Graduate Studies of Haramaya University, pp. 8-23

Bamidele, F. S., Abayomi, O. O., & Esther, O. A. (2010).   Economic analysis of rice consumption patterns in Nigeria. *Journal of Agricultural Science Technology,* 12, 1-11

Bassey, N. E., Okon, U. E. & O. W. Ibok (2013). Intermarket performance and pricing efficiency of imported rice marketing in South-South Nigeria: The case of Akwa Ibom State traders. *Agricultural Science* 1(2): 53-63.

Fakayode, S. O., Babatunde, R. O., & Ajao, R. (2008). Productivity analysis of cassava- based   production system in the quinea savannah: Case study of Kwara State, Nigeria.   *American-Eurasian Journal of Scientific Research,* 3 (1), 33-39

Fateh, M. M. (2009). Structure and efficiency analysis of vegetable production and   marketing in Sindh, Pakistan. A Ph.D Thesis submitted to Sindh Agriculture University   Tando Jam, pp. 15-17

FAO (1996).   Technical Background Document for the World Food Summit. Food and Agriculture Organisation, Rome, Italy.

FAO (2011). Rice markets monitor. Trade and markets division 16(1), 5- 9, Food and Agriculture Organisation, Rome, Italy. Website: http://www.fao.org/economic/est/publications/rice-publications/rice

Giroh, D. Y., Umar, H. Y., & Yakub, W. (2010). Structure, conduct and performance of farm gate marketing of natural rubber in Edo and Delta States, Nigeria. *African Journal of Agricultural Research,* 5 (14), 1780-1783

Harris, B. (1982). Agricultural Marketing in the Semi Arid Tropics of Africa. East Anglia Development Studies paper, 45-50pp

Iheanacho, A. C. (2005). Structural characteristics and performance of retail marketing of eggs in Maiduguri metropolis of Borno State, Nigeria. *Journal of Sustainable Development of Agricultural Environment,* 1, 70-76

IRRI (2001). Rice Statistics, International Rice Research Institute (IRRI). Accessed Online at http://oryza.com/africa/nigeria/index.shtml

Madugu, A. J., & Edward, A. (2011). Marketing and distribution channel of processed fish in Adamawa State, Nigeria. *Global Journals of Management and Business Research,* 11 (4), 20-24

Oguntade, A. E., & Mafimisebi, T. E. (2010). Pricing and operational efficiencies in the livestock feed market in Ondo State, Nigeria. *Revista De Economia E Agronegócio,* 8 (2), 280

Oguoma, N. N. O. (2010). Evaluation of the distrbutive trade channels for selected food staples in Imo State, Nigeria. *Academia arena,* 2 (6), 72-79

Olukosi, J. O., & Isitor, S. N. (1990). *An introduction to agricultural marketing and prices, Principles and Application.* Abuja: Living Books Series G.M. Publications, pp. 15-20

Olukosi, J. O., Isitor, S. U., & Ode, M. O. (2005). *Introduction to agricultural marketing and prices: Principles and applications* (2nd ed.) Abuja: Living Books series G.M. Publications, p. 15

Ojo, A. O. (2014). Analysis of spatial and temporal marketing efficiency of rice marketing in kwara and Niger States, Nigeria. An unpublished Ph.D Thesis submitted to the Department of Agricultural Economics and Extension Technology, Federal University of Technology, Minna, Niger State, 52-53pp

Onu, J. I., & Iliyasu, H. A. (2008). An economic analysis of the food grain market in Adamawa State, Nigeria. *World Journal of Agricultural Sciences,* 4 (5), 617-622

Scott, G. J. (1995). *Prices, products and people: Analyzing agricultural markets in developing countries.* Boulder, London: Lynne Reinner Publishers, p. 498

World Bank (2012). World Bank indicators-Nigeria-Population. http://www.tradingeconomics.com/nigeria/population-growth-annual-percent-wb- data.html