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Analysis of Beef Marketing in Lafia Metropolis of Nasarawa State, Nigeria

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Abstract

Purpose: The study analysed the marketing of beef in Lafia metropolis. Specifically, the study described the socio-economic characteristics of beef marketers in the area, analysed the market structure for beef, assessed the marketing cost and profit, and estimated the operational efficiency of beef marketing and its determinants. It also identified the constraints faced by beef marketers in the area.

Methodology: Data used for the study were generated through administration of well structured questionnaire to 60 respondents made up of 20 wholesalers and 40 retailers randomly selected from 4 major beef markets in the study area. Data were analysed using descriptive statistics, budgeting, concentration ratio, Gini coefficient, operational efficiency and regression technique. Results showed variation in marketing cost, marketing margin and marketing profit for both wholesale and retail beef markets. Results also indicated that wholesale beef market operated at a monopoly level while the retail beef market showed perfect competition. The Gini coefficient for wholesalers of 0.47, which is above 0.35 indicates high level of market concentration and high inequality in wholesale beef market, while retail market with a value of 0.29 shows low level of market concentration and low level of inequality. But wholesalers were also more operationally efficient than retailers. Only transportation cost had significant effects on efficiency at both wholesale and retail market levels, while record keep, level of education and packaging cost had significant effect on operational efficiency in retail market.

Results: Results also indicated that marketers both wholesalers and retailers complained of inadequate capital as a very serious constraint; transportation cost and inadequate storage facilities, as serious constraints; risk of spoilage, low patronage as not serious constraints, and market charges as not very serious constraints.

Keywords: *Beef, market structure, marketing costs, marketing margins, performance*

INTRODUCTION

Background of the study

Livestock are a group of domesticated animals raised by man for his consumption and to satisfy some needs and derive some economic benefits, which include, livestock products, traction, savings, prestige, etc. Livestock products comprise meat, milk, hide, wool, chicken, eggs, etc. Beef is the flesh or skeletal meat derived from cattle. It is an important source of nutrients, such as high quality protein, vitamins B_{12}, iron, Niacin, iron, calcium, magnesium, phosphorus, potassium, zinc (USDA, 2018). It's the third most consumed animal product in the world, after pork and poultry (Raloff, 2003). Despite this nutritional value, moderation is advocated on health grounds while consumption is even forbidden in some places on cultural or religious grounds. Though grading is being introduced in countries such as US and EU, generally the quality of beef could be said to be a function of age and sex of the animal, feeding conditions, breed type and body parts, while tenderness, fat and bone contents, flavor, colour are quality characteristics that are most valued by consumers.

In the developing countries, beef is the most widely consumed animal product. This is reflected in its all time high demand and high market price, an indication of demand - supply gap in the market. Beef consumption increases as income increases, with access almost limited to rich and middle income class groups in society, making it a luxury competing with other red meats. Taking beef at a gathering is highly regarded as a honour and privilege among the Yorubas in SW Nigeria, though Nigeria is classified among countries with low beef consumption in the world and supply of animal protein per capita per day is put at 13.26g (Okuneye, 2002) far below recommended minimum level of 35 g (Oyenuga, 1987).

In Nigeria beef is consumed by all social groups irrespective of tribe, gender, culture, religion, region, income, etc. This makes it an easy source of protein whose access is thought could be increased thru an efficient distribution system. Also, escalating prices of animal products as a result of high costs of feeds has put animal products beyond the reach of average Nigerian (Afolabi, 2002). Ikpi (1990) stated that over the period 1970 – 1989, beef contributed more than 70 percent of the total meat supply in Nigeria, sowing its importance at improving people's living standard.

Marketing is the process of moving a commodity from its point of production till it reaches the consumer's table and a marketing system is expected to ensure sustainable production while providing consumer with maximum satisfaction. Olukosi *et al.* (2007) viewed marketing as a bridge between production and consumption through the creation of form, place, time and possession utilities. Poor marketing system as a result of poor storage and transport infrastructure are limiting the total quantity of food products reaching the consumer's table (Okuneye, 2002). The National Livestock Project Division (NLPD, 1992) had stated that for some time the supply of cattle products has been declining while demand is fast increasing. The shortfall in supply is often as a result of high cost of cattle marketing; including transportation, market infrastructure and poor market information. Inefficient system could also be as a result of the presence of too many middlemen in the marketing of animal products, leading to high marketing costs and margins (Ekunwe et al., 2008).

In Nigeria markets are shrouded in secrecy. Olukosi *et al.* (2007) reported that the exact number of agents in the markets is difficult to determine and various charges and commissions are thereby imposed on cattle buyers. While butchers and merchants are registered officially, brokers are not, making them to operate unlicensed. In order to close the protein gap beef cattle needs be slaughtered on daily basis and distributed using an efficient marketing system, which also means sustainability in production while keeping constant consumer's demand and satisfaction.

Statement of the Research Problem

The current per capita animal protein intake in Nigeria is estimated at 62% below recommended level. The challenge before the country is how to close this deficit especially from beef cattle consumption. Several strategies are used to achieve this, including: expanding production and reduce spoilage so as to improve beef supply (NLPD, 2002), improving the system of distribution and marketing, improving product characteristics, or stimulating consumer's demand and preferences. The marketing system strategy involves improving the efficiency of the distribution system, that is the institutions and channels involved, the nature of the market structure, the pricing system, the market infrastructure, and the product presentation. Also not much research has been done to improve beef consumption in the area using marketing system. This study, thus intends to analyse beef distribution system, find out how efficiently is it performed; the distribution channels used; the nature of the competition and the problems encountered by the marketing firms. Specifically, the study: (i) describes the socio- economic characteristic of beef marketers in the area; (ii) analyses the market structure for beef; (iii) estimates marketing cost, marketing margin and marketing profit for beef in the area; (iv) assesses the determinants of operational efficiency in beef marketing; and (v) identifies the constraints in beef marketing in the study area.

Methodology

The study area

The area of the study is Lafia Metropolis of Nasarawa State. The study was carried out at the main abattoir of the city as well as major markets between the months of April and May 2015. Lafia metropolis shares boundaries with Nasarawa Eggon in the North, Obi Local Government Area in the South, Doma Local Government Area in the west and Quanpaan Local Government Area of plateau in the west. Lafia is located between latitude 8^0.33 "N", longitude 8^0. 32 "E" and has altitude of 181.53 meters with annual rainfall of about 150m, with the highest rainfall in the months of August and September. The rainy season usually lasts from late April to late October and the dry season spanning from November to March.

The study area has an average temperature of 32^0c. The area consists of the following tribes: Eggon, Gwandara, Alago, Migili; Hausa, Fulani, Kambari and Rendre. The major occupation of the inhabitants of the area is predominantly farming which involves crop production and rearing of animals.

Sampling and sample size

A two-stage random sampling procedure was used to select the respondents. The first stage involved the random selection of four beef markets in the Metropolis. The second stage involves the random selection of 15 beef marketers from each market making a total of sixty (60) respondents for the study.

Methods of data collection

Data were collected from beef marketers with the aid of a well structured questionnaire and through interview schedule. Data collected include the respondents socio-economic characteristics, marketing channels, quantity of beef marketed, beef buying and selling price, transportation cost, etc.

Analytical techniques

Descriptive statistics

These comprise mean, standard error, frequency, total, etc. The market structure was analysed using concentration ratio and Gini coefficient analysis. The marketing cost, marketing margin and marketing profit were analysed using budgeting approach. The determinants of operational efficiency were assessed using regression analysis.

Marketing margin analysis

Marketing margin, marketing cost, marketing profit were estimated as follows.

$MM = SP - PP$

$MC = LC + PC + TRP + PK$

$Profit = MM - MC$

MM= marketing margin; MC= marketing cost; SP= selling price;
PP= Purchase price; LC = labour cost; TRP = transportation cost;
PK = packaging cost.

Concentration ratio analysis

Two largest, four largest and 8 largest firms were used as follows.

$$CR_2 = \frac{\sum_i^2 Q_i}{\sum_i^n Q_i} \quad Q_1 + Q_2 \times 100$$

$$CR_4 = \frac{\sum_i^4 Q_i}{\sum_i^n Q_i} \times 100$$

$$CR_8 = \frac{\sum_i^8 Q_i}{\sum_i^n Q_i} \times 100$$

Where, Q_i =quantity of beef sold by i^{th} marketer (in kg)

$\sum_i^n Qi$ = Total quality of beef marketed by all marketers (kg)

CR_2; CR_4; and CR_8 all are concentration ratios of 2 largest, 4 largest and 8 largest firms.

Gini coefficient (GC) analysis

This was captured using the following formula.

$$GC = 1 - \sum XY$$

Where, GC = Gini Coefficient

X= percentage of beef marketers by range

Y= cumulative percentage quantity of beef sold

Operational Efficiency (OE) analysis

The Operational Efficiency (OE) of beef marketer was assessed as follows.

$$OE_i = \frac{TS}{TC}$$

$$OE_0 = \text{Max } [OEi]$$

$$OE_{(Overall)} = \frac{OE_i}{OE_o} \times 100$$

Where OE_i = local efficiency

OE_o = local optimum

$OE_{(overall)}$ = Overall operational efficiency

TS =total sales

TC = total market cost

Determinants of operational efficiency

The model is specified as follows.

$$OE = f(X_1, \ldots, X_n, e_i)$$

Specifically,

$$OE = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Where,

OE = level of operational efficiency of beef market

b_o = intercept

X_1 = experience

X_2 = record keeping

X_3 = education level

X_4 = packaging cost

X_5 = transportation cost

X_6 = household size

e_i = randomly distributed error term

Results and Discussions

Socio-Economic Characteristics of the Respondents

Gender of respondents

The result of the study in table 1 shows that all beef marketers were male. That is there is no female among the beef marketers. This showed that beef marketing is only a male business in the area. This may be as a result of cultural barriers.

Age distribution of respondents

The result of age distribution of respondents as presented in Table1 shows that most of the wholesalers (40%) are between ages 31-35, making the 40% of the respondents while retailers are of the between 25-30 making 32.5% of the respondents. This means that most of the beef marketers in the study area are still in their economically active age group. The average age was 36 for wholesaler and 35 for retailers.

Marital status of respondents

Table 1 shows that 100% of wholesalers are married against 75% only for retailers. While 22.5% and 2.5% are singles and divorcees respectively. The result means that most of beef marketers in the study area derived enough income from the business to support their families' needs.

Educational level of respondents

The result in the table 1 showed that 60% of the wholesalers undergo non-formal education, 35% went to primary schools. For the retailers 47% undergo non-formal education, 25% went to primary school, 12.5% went to secondary school, 2.5% had

HND/University certificate. This result shows that most beef marketers in the area do not have formal education especially the wholesaler.

Household size of respondents

The result in table 1 also showed that 30% of wholesalers have household Size of between 1-5, 40% between 6-10, 25% between 11-15 and 5% have between 16-20; while this is 45%, 20%, 27.5% and 7.5% respectively for retailers.

Marketing experience of respondents

The study revealed that 10% of the wholesalers have been in business between 1-5 years; 35% between 6-10 years, 25% between 11-15 years, 5% between 16-20 and 25% between 21 years and above. On the other hand 27.5% of the retailers have being in business between 6-10 years, 17.5% between from 21years and above. The average experience of wholesalers was 13 years while that of retailers was 11.This implies that the wholesalers had more experience than the retailers.

Records keeping by respondents

The study showed that 45% of the wholesalers keep record and 55% do not keep records. On the other hand 75% of the retailers keep record while 25% did not. This implies that the retailers keep record of marketing beef more than the wholesalers.

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Table1: Socio-economic characteristics of beef marketing in Lafia

	Variable	Frequency		Proportion	
		Wholesalers	Retailer	Wholesalers	Retailer
1	**Gender**				
	Male	20	40	100	100
	Female	0	0	0	0
2	**Age** (years)				
	25-30	3	13	15	32.5
	31-35	8	7	40	17.5
	36-40	6	12	30	30
	41-45	2	3	10	7.5
	46-50	-	2	0	5
	51 and above	1	3	5	7.5
3	**Marital status**				
	Single	1	8	5	20
	Married	19	30	95	75
	Window	-	-	-	-
	Divorce	-	1	-	5
4	**Educational level**				
	Non-formal education	12	19	60	47.5
	Primary school	7	8	35	20
	Secondary school	-	5	-	12.5
	Primary school	7	8	35	20
	Secondary school	-	5	-	12.5
	OND/NCE	1	5	5	12.5
	HND/University	-	3	-	7.5
5	**Housing cold size**				
	1-5	6	18	30	45
	6-10	8	8	40	20
	11-15	5	11	25	27.5
	16-20	1	3	5	7.5
6	**Marketing experience** (year)				
	1-5	2	11	10	27.5
	6-10	7	10	35	25
	11-15	5	11	25	27.5
	16-20	1	1	5	2.5
	21 and above	5	7	25	17.5
7	**Record keeping**				
	Yes	9	30	45	25
	No	11	10	55	25

Source: Field Survey, 2015 * Multi responses were recorded

Analysis of Market Structure of beef

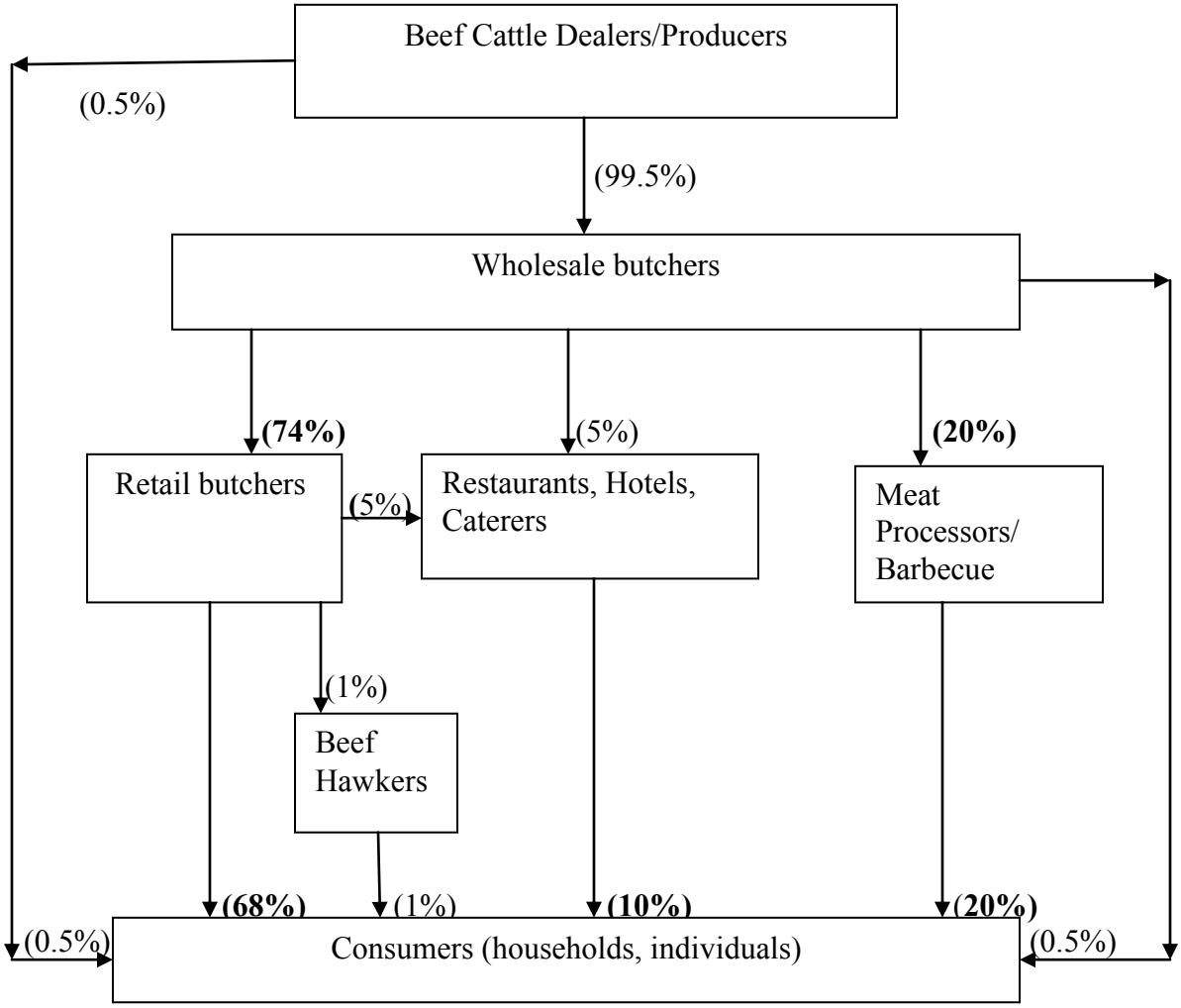
Marketing channels for beef in the study area

Beef distribution channels in Lafia involve beef cattle dealers who produce or supply live cattle to the market, wholesale-butchers who generally buy live cattle from dealers and convey them to the slaughterhouse or abattoir to produce the beef, which they distribute mainly to retail-butchers (75%), meat processors/barbecue (20%), Hotels & Restaurants (10%). Others are beef hawkers (1%) who get supply from retailers, and households getting directly their supply from live cattle dealers or wholesale butchers, 0.5% and 0.5% respectively, most especially during social festive or wedding ceremonies.

Retailers get their supply mainly from wholesalers (74%) and distribute to consumers (68%), Hotel & Restaurants (5%) and beef hawkers (1%). Hotel & Restaurants also get another 5% supply from wholesalers, while meat processors make their supply mainly from wholesalers, mostly competing with fresh beef retailers. Beef marketing occurs in the areas in the open market both at retail and wholesale levels, which afford consumer with more freedom of choice unlike the case of meat shop refrigerated system, but whose disadvantage resides in the poor hygiene conditions at retail stores level (Emokaro and Amadasun, 2012). Unlike what obtains in some other parts of the country, where you find females at the retail segment, beef marketing is all male dominated in the area.

In sum the bulk of beef is channeled mainly through wholesalers (99.5%) and retailers (75%), followed by processors and lastly restaurants and caterers.

Figure1: Beef Marketing Channels and percentage distribution of flows in Lafia Metropolis



Source: Field survey, 2015

Concentration ratio

From result presented in table 2, the two-firm concentration ratio for wholesalers of beef in the area showed 17.97% while that of retailers showed 8.9%, for four firm concentration ratio the wholesalers showed 39.24% while the retails showed 16.64%. The eight firm concentration ratios for wholesalers had 48.81% and retails 30.19%. The two, four and eight firm concentration ratio for wholesale also indicated a perfectly competitive market (when getting towards zero). The eight firm concentration ratio for wholesale was 48.8% which was above 35% and moving towards monopoly (single seller with considerable control over supply and price).

Table 2: Measure of concentration ratio of beef marketing in Lafia LGA

Concentration ratio	CR_2	CR_4	CR_8
Wholesalers	17.99	39.24	49.81
Retailers	8.90	16.64	30.19

Source: Data Analysis, 2015

Gini Coefficient

From the result presented in the study area as 0.4678 and 0.2985 for wholesale and retails respectively indicating or implying a high level of inequality in sales of wholesalers and hence high level of concentration This is a reflection of inefficiency in the market structure for wholesale beef while the retailer showed low level of inequality in sales and low concentration in the study area as shown in table 3.

Table 3: Computation of Gini coefficient for beef markers in Lafia metropolis

	No of seller (f)		% of No of seller(s)		Cumulative frequency		Total quantity sold		% of total quantity sold		xy	
QS	WS	RR	WS	RR	WS	RR	WS	RR	WS	RR	WS	RR
1-100	-	26	-	65	-	26	-	1943	-	5047		0.4281
101-201	15	14	75	35	15	40	2602	1902	65.23	49.53	0.4892	0.2734
202-302	3	-	15	-	18	-	670	-	16.80	-	0.0250	
303-403	2	-	10	-	20	-	717	-	19.97	-	0.01797	

WS = Wholesaler; RR = Retailer; Wholesaler: ∑XY (WS) = 0.5322; Retailer: ∑XY (RR) = 0.7015

Source: Data analysis, 2015

Analysis of Marketing cost, Marketing Margin and Marketing Profit

The analysis showed that retailers incurred higher marketing cost ₦170.67/kg as against ₦ 97.17/kg for wholesalers. Wholesalers realized margin of ₦ 228.00/kg (40.35%), while retailers had ₦ 337.55/kg (59.65%). These results agreed with the findings of Erhabor *et al.* (2008) who reported high margin for retail beef marketing (4.89%) as against (1.82%) for wholesale market.

The marketing profit per kilo of beef retails (₦ 167.88) was higher than wholesaler beef market with ₦130.83 profit. The mean daily sales of 199.45 kg for wholesaler and 96.825 kg for retailer were recorded respectively. The marketers could earn decent income in present days, Nigeria, where monthly minimum wage is still below ₦ 20,000. However, this can only be realized if the market for beef in Lafia metropolis is stable enough to ensure regular sales. The marketing cost incurred by wholesalers and retailers was highest in the labour cost component, but highest in retail market. This may be as a result of employment of labour which was highest in retail market.

Table 4: Marketing cost, marketing margin and marketing profit per kg of beef in Lafia Metropolis

	Purchase price	Marketing cost	Selling price	Marketing margin	Percentage	Marketing profit
Wholesalers	433.00	97.17	661.00	228.00	(40.35%)	130.83
Retailers	639.95	170.67	977.50	337.55	(59.65%)	167.88

Source: Data analysis, 2015

Table 5: Major components of beef marketing cost in Lafia Metropolis

	Transportation cost	Packaging cost	Processing cost	Labor wage	Total
wholesalers	28.95(29.79%)	8.20(8.45%)	21.37(21.99%)	38.65(39.33%)	97.17
Retailers	65.18(38.19%)	15.48(9.07%)	21.37(21.52%)	68.64(40.21%)	170.67

Source: Data analysis, 2015

Analysis of beef marketers' Operational Efficiency (OE)

Distribution of Operational Efficiency of Beef Marketers

Table 6, shows that 75 percent of wholesalers had efficiency between 71 – 80 percent, against 65 percent of retailers who had it between 50-70 percent. The mean OE was 94 percent and 79 percent for wholesalers and retailers, respectively. This indicates higher operational efficiency for beef in wholesale than retail. The implication is that for wholesalers having 6% inefficiency and retailers 21%, there is need to increase their capacity to deliver beef to consumers in the most cost effective way.

Table 6: Operational Efficiency distribution of beef marketing in Lafia Metropolis

Range	Frequency		Proportion	
	WS	RR	WS	RR
50-70	-	26	-	65
71-80	15	14	75	35
81-90	3	-	15	-
91-100	2	-	10	-

Source: Field analysis, 2015
WS=wholesalers, RR=Retailers,

Determinants of Operational Efficiency of beef marketing in the study area

Table 7 shows the result of the regression analysis of the determinants of beef marketing operational efficiency at both wholesale and retail markets. The F-test values of 5,186*** and 5.188*** significant at 1% for both marketers, indicate a significant estimation, and that at least one of the explanatory variables in both had significant effect on OE. Variables including packaging cost, transportation cost, educational level and record keeping were significant, while neither experience nor household size show any significant influence on OE for both wholesalers and retailers. Transportation system had negative impact on OE at both wholesale (-0.36) and retail markets (-0.26), while record keeping, educational level and packaging cost had significant positive impact on OE at retail level only, with 7.20; 1.69 and 0.48 respectively. The implication was that the higher the education level, the regular the record keeping and investment in packaging, the higher the operational efficiency of retailers.

Table 7: Determinants of operational efficiency of beef marketers in Lafia

	Coefficient		Standard Error		t-value		Significance level	
Variable	**WS**	**RR**	**WS**	**RR**	**WS**	**RR**	**WS**	**R.R**
Constant	107.14***	77.13***	3.957	5.402	27.07	14.27	0.00	0.000
Experience	-0.006	-0.201	0.191	0.149	-0.03	-1.34	0.630	0.188
Record keeping	2.553	7.20**	1.730	2.701	1.476	2.668	1.416	0.012
Education level	-1.191	1.69**	0.285	0.835	-1.516	2.032	1.516	0.050
Packaging cost	-1.109	0.48**	0.169	0.182	-0.646	2.662	0.646	0.012
Transpor-tation cost	-0.36***	-0.26***	0.091	0.057	-3.984	-4.605	0.000	0.000
Household size	-0.287	0.182	0.267	0.299	0.299	-1.072	0.608	0.548
R^2	0.60	0.61						
F-test	5.186***	5.188***						

WS=wholesalers, RR=Retailers;
Source: Data analysis, 2015

Constraints faced by beef marketers in the study area

Beef marketers in the study area identified are ranked as presented in table 8. The wholesalers are faced with inadequate capital as the most serious followed by inadequate capital as the most serious, followed by inadequate storage as facilities, risk of spoilage are the serious constraints on the other land retailers are faced with inadequate capital as the most serious transportation cost and inadequate storage facilities.

Table 8: Constraints faced by beef wholesalers and retailers in Lafia

Constraints faced by beef wholesalers in Lafia			
Constraint	Score	Rank	Remark
Inadequate capital	18	1	Very serious
Inadequate storage facilities	28	2	serious
Risk of spoilage	39	3	serious
Low patronage	48	4	serious
Transportation	58	5	Not very serious
Market charges	86	6	Not serious

Constraints faced by retail beef marketers in Lafia metropolis			
Constraint	Score	Rank	Remark
Inadequate capital	30	1	Very serious
Transportation cost	68	2	serious
Inadequate storage facilities	82	3	serious
Risk of spoilage	99	4	Not very serious
Low patronage	122	5	Not very serious
Market charges	165	6	Not serious

Source: Data analysis, 2015

Conclusion and Recommendation

Beef is mainly marketed in Lafia metropolis by wholesalers and retailers. Analysis showed difference in marketing cost, marketing margin and marketing profit between wholesalers and retailers. The marketing cost component incurred by the marketers showed that both the wholesalers and retailers paid highest cost on labour. This is an indication of high employment of labour in retail and wholesale. Analyses show a market structure is of monopoly type in wholesale market and perfect completion in retail market.

The mean operational efficiency of 94.70% and 79.08% for wholesalers and retailers respectively, means wholesaler delivers beef to retailer in most cost-effective manner while still ensuring the high quality of its product and service delivery.

Constraints faced by wholesalers are identified as inadequate capital, inadequate storage facilities, risk of spoilage and those encountered by retailers are: inadequate capital, transportation cost, and inadequate storage facilities.

Based on the findings, the following recommendations were suggested:

i. Marketers should be encouraged to forming co-operative for the purpose of accessing loans or credits.
ii. Government and Community based organization (CBO) as well as other non-government organizations (NGOs) should provide mobile cold-rooms for easy transportation of beef. This would reduce the constraint of high perishability of beef and result in quality enhancement.
iii. Efforts should be geared towards making provision for good storage facilities to reduce spoilage and increase the shelf-life of beef, to be supported with steady power supply.

iv. Government should ease transportation and storage facilities as to facilitate quality of the product which attracts buyer.
v. Government should site more abattoirs close to major beef market to reduce transportation cost and consumer price, which will also provide quicker and more efficient service at reasonable cost and increase access to quality beef. There is also the need to improve hygiene conditions most especially at open beef retail stores.

References

Afolabi, J.A. (2002). An Analysis of Poultry Eggs marketing in Ondo state, Nigeria. Proceeding of the 27th Annual conference of the Nigeria society for animal production (NSAP). Federal University of technology, Akure. 17-224p.

Ekunwe, P. A., Emokaro, C. O. O. Ihenyen, J.O. Oyedeji and Alufohai, G. O. 2008. An Analysis of Egg Marketing in Benin City, Edo State, Nigeria. *Farm Management Association of Nigeria (FMAN) 22nd Annual National Conference Proceedings,* held in Markurdi between 8th-11th Sept., 2008. Pp. 331-337.

Emokaro, C. O. and Amadasun, O. J. (2012). Analysis of beef marketing in Benin city, Nigeria. Nigerian journal of Agriculture, Food and Environment. 8(3):26-31.

Erhabor, C.O, Ahmadu, J. and Ingawa, S.A. (2008). Efficiency of Beef marketing in Edo State, Nigeria. In: Aiyedun, E.A.; Idisi, P.O. and Nmadu, D. N. (eds) proceedings of the 10th Annual National Conference of the Nigeria Association of Agricultural Economist (NAAE). University of Abuja Pp. 570-577.

Ikpi, A.E. (1990). Livestock marketing and consumption in Nigeria from 1970-1989. An Unpublished Research in the Department of Agricultural Economics, University of Ibadan, Nigeria page 36-39.

National Livestock Project Division (1992). NLPD Surely in Kaduna Nigeria Vol.58:175-177.

Okuneye, B. (2002). Livestock sub-sector in Nigeria., challenges and prospects. In: Diversification of the Nigeria Economy: policies and programmes for increasing Agricultural output, mordi C.N.O, Nnanna, O.J., Ukpony, G.E. and A depegba, A (eds), Central Bank of Nigeria Billion 26 (3): 16-22

Olukosi, J.O. Isitor, S.U. and Ode, M.O. (2007). Introduction to Agricultural marketing, principle and Application. 3rd Edition. G.U. publisher, Abuja, Nigeria Pp. 47-57.

Oyenuga, V. A. (1987). Fundamental strategy for livestock production in nigeria journal of animal production. 14 (I): 20-25.

Raloff, J. (2003). Food for Thought: Global Food Trends. *Science News*.

USDA (2018). USDA Food Composition Databases. Agricultural Research Service. Available at: https://ndb.nal.usda.gov/ndb/search/list (Accessed, 10th June, 2018).