ANALYSIS OF BEEF VALUE ADDITION PRACTICES AMONG BUTCHERS IN DEKINA,KOGI STATE, NIGERIA

Abstract

The study analyzed beef value addition among butchers in Dekina Local Government of Kogi State, Nigeria. Specifically, it described the socioeconomic characteristics of the respondents, identified the various butchering facilities used in the area, identified the by-products and value addition practices among butchers in the area. Using random sampling technique, 71 respondents were selected for the study and primary data collected were analyzed using descriptive statistics. The results of the study showed that all the butchers in the area were male among who were youth (43%) and married (80.28%) and had primary education (49.3%) mostly. Their family size varies mostly between 1 and 5 with a percentage of 42.3 and they earn income between ₦101, 000 to ₦150, 000 annually. Majority (83%) of the butchers were experienced and were in the secondary category of the business. Slap (94%) and roof cover (87%) were the most facilities used. Bone (71%) and skin (71%) were the major by-products from beef processing in the area. Washing (100%), roasting (84.5%) and classification/sorting (83.1%) were the most value addition practiced. Butchering business in the area is characterized by poor handling, minimal value addition and little further processing*The study therefore recommends provision of adequate slaughtering and storage facilities, development of industries that use the by-products and provision of value addition that will convert less important parts of the meat to valuable products.*

Keywords: Beef, Butchering, Value Addition and Business.

1.0 Introduction

"The livestock sub-sector is an important and integral component of Nigeria's agriculture and is a major source of household wealth and food security. Cattle are the single most important livestock species in terms of outputs and capital value. The livestock sub-sector contributed about 19 per cent of the agricultural GDP in 2007"[1]. "Beef is an important agricultural commodity in the world economy"[2]. "Generally, world beef production constitutes about 40 percent of the livestock output" [2]. "The beef cattle sub-sector plays important roles in the Nigerian economy, not only in terms of its contribution to the gross domestic products (GDP) but also contributes substantially to the supply of animal protein"[3,20,21,22].

“Value chain approach presents a good picture of the process of creating value. Value chain analysis helps in understanding of connection among actors in the chain and the way trade takes place. An agricultural value chain is considered as an economic unit of analysis of a particular commodity or group of related commodities that encompasses a meaningful grouping of economic activities that are linked vertically by market relationships” [4].For sustainable and profitable farming systems, value chain analysis becomes indispensable. It is in this regards that the livestock production system is not left out.

“Fattened beef cattle have a high demand during various ceremonies and festivals particularly Christmas andSallah celebration, yearly.There has been an increasing demand for beef, the main source of domestic animal protein in Nigeria, but supply is always short and this has resulted in a domestic supply gap owing to poor production and processing of the indigenous production systems. The current economic situation in Nigeria indicates that domestic supply of animal protein is growing at 1.8% per annum while the overall demand is estimated to be rising at 5.1% annually creating unsatisfied internal demand. Though there is limited formal importation of beef into Nigeria, the national supply gap is mainly filled in by the live animals coming in from the neighboring countries. The increasing consumption trends have cost the government a substantial amount of foreign exchange to import dairy products into Nigeria” [5].

“Most butchers operating in the country are substandard and lack basic meat processing equipment. The business environment is not enabling” [6]. “Meat is also sold warm, directly from the slaughtering slab, without chilling or further processing. This leads to challenges in the areas of meat quality, and safety” [7]. “At the rural level, slaughtering is often carried out either under a tree or in poorly maintained and outdated slaughter units without any waste treatment facilities. Health hazards through contamination of the meat during slaughter

operations and from the surrounding, through uncontrolled release of waste and effluents are prevalentin the country"[8, 9].

"Also, food contamination in the food supply chain as a result of improper handling cause food losses and foodborne illnesses that result in heavy economic losses" [10,11]. In Nigeria particularly in Kogi state, such economic losses have not been adequately evaluated. There are several fragmented studies that have been conducted on beef value chain but very few attempts have been made to describe the facilities, by products and challenges of the process. Therefore, the present study aimed at assessing the value chain in the beef sub sector in Dekina Local Government Area, Kogi State where beef cattle supply is becoming increasing. It is on this note that the following research objectives were addressed;

i. Describe the socioeconomic characteristics of butchers in the study area
ii. Find the butchering facilities being used in the area
iii. Identify the various by-products and value addition practices among butchers in the study area
iv. Describe the associated challenges to successful butchering business.

2.0 Methodology

2.1 The Study Area

The study was carried out in Dekina Local Government Area of Kogi state, Nigeria. Geographically, the Local Government is located between latitude 7°43′N and 7°33′E and between longitude 7.717°N and 7.550°E of Kogi State with a population of 445,700 people, as per the 2006 census. The Local Government was chosen because of its status as one of the major settlements for cattle growers in the state. Large volume of cattle is traded in the area. Also, the prospect for value addition is promising due to the presence of emerging market and consumption of beef and cattle products. The zone is characterized by a tropical climate with distinct dry season between November and March and a wet season between April and

October. Majority of the population are predominantly farmers who are into both crops and animal farming. Farmers in the area specializes in the production of both livestock and crops, such as sheep and goat, poultry, fish, cattle, maize, cassava, yam, millet, oil palm, orange, mango among others. The major languages in the area include Igala, Bassa and Hausa.

2.2 Population and Sampling Technique

The entire registered butchers in Dekina Local Government constitute the respondents for this study. Respondents for this study were selected through a multistage random selection. First, was the identification of the various markets and abattoir in the area. Secondly, eight markets and abattoir were randomly selected. Third, was the identification of members of butchers' association in the Local Government. Last, was the random selection of ten (10) registered members from each of the market. Giving a total of 80 butchers out of 107 registered members. However, seventy-one (71) questionnaires were successfully filled hence, 71 respondents were used for the analysis.

2.3 Data Collection

Primary data were utilized for this study. Primary data were obtained through the use of a well-structured questionnaire. Information was collected from the butcher based on the stated objectives.

2.4 Data Analysis

Data collected were analyzed using descriptive statistics such as frequency, percentage and means. Specifically, objective 1, 2 and 3 were attained using descriptive statistics, objective 4 was achieved using a 3-point Likert type of scale.

2.5 Model Specification

Likert type of scale was developed by Rensis Likert in the 1930s to measure the mean scores of variables. The four point linkert type of scale will be used as specified bellow;

Opinion	Point
Very serious	3
Serious	2
Not serious	1

The mean response to each item was calculated using the following formular:

$$\overline{X} = \frac{\Sigma fx}{N}$$

Where $\overline{X}$ = means response, Σ = summation, f = number of respondents choosing a particular scale point, x = numerical value of the scale point and N = total number of respondents to item.

The mean response to each item was interpreted using the concept of real limits of numbers. The numerical value of the scale points (Response modes) and their respective real limits are as follows:

Not serious (NS) = 1 point with real limits of 1.50 - 2.49

Serious (S) = 2 points with the real limits of 2.50 – 3.49

Very serious (VS) = 3 points with real limits of 3.50 – 4.49

Decision rule: Any factor having a mean score of 2 and above constitute a serious problem to successful butchering business in the area.

3.0 Results and Discussion

This section presents the results and discussion for this study in line with the stated research objectives.

3.1 Socio-economic Characteristics of farmers

The relevant socioeconomic indices considered in this study are presented in table 1.

Table 1a: Distribution of the respondents according to their socioeconomic characteristics

Variable	Frequency	Percentage
Age (years)		
20 – 30	10	14.10
31 – 40	30	42.30
41 – 50	21	29.60
51 – 60	6	8.50
61 and above	3	4.20
Total	**71**	**100**
Sex		
Male	71	100
Female	0	0
Total	**71**	**100**
Marital status		
Single	14	19.72
Married	57	80.28
Total	**71**	**100**
Education level		
No formal education	7	9.90
Primary	35	49.30
Secondary	22	31.00
Tertiary	4	9.00
Total	**71**	**100**
Family size (number)		
≤ 5	30	42.30
6 – 10	27	38.00
11 – 15	9	12.70
16 and above	5	7.00
Total	**71**	**100**
Cooperative Membership		

Yes	71	100
No	0	0
Total	**71**	**100**
Annual Income (N)		
≤ 50, 000	7	9.86
51, 000 – 100, 000	11	15.50
101, 000 – 150, 000	44	62.00
151, 000 – 200, 000	5	7.00
201, 000 and above	4	5.63
Total	**71**	**100**

The distribution of the butchers according to their age shows that most (42 percent) of the respondents fall within the age bracket of 31-40 years, 30 percent fall within 41-50 years, 14 percent falls below 30 years. The age bracket with higher percent is 31-50 years. This implies that old people are involved in beef butchering in the study area along young people since it constitutes livelihood. By Implication, proceeds from such activities contribute to butchers welfare.

The result in Table 1 further shows that 100 percent of the respondents were male and that the butchering activities in the study area are void of female. Sex plays a very important role in this venture particularly its intensive energy requirement.Also, results in Table 1 shows that 80 percent of the respondents were married while 20 percent were single. This is an indication that majority of the responds have family responsibilities to shoulder and as such engage in income generating activities like butchering venture. The high proportion of married butchers in the study area is an indication that family labour could be available for business alongside with individuals in the household learning trade for efficient transaction and management. The butchers being married are assumed to be responsible. This is in agreement with the findings of Onwuna*et al*. [12], who observed that married people have domestic responsibilities to shoulder hence, engage in income generating activities.

The result in Table 1 further shows that the respondents were found to be distributed over a wide range of educational backgrounds consisting of 49 percent for primary education, 31

percent for secondary education, and 9 percent for tertiary education. About 10 percent accounted for those respondents who had no any form of formal education in the study area. So, it is evident that a greater percentage (90 percent) of the respondents had one or the other form of formal education. Its implication is that the respondents will be very receptive to new innovations in their methods of production. The results compare favourably with [13] who observed that education is an important factor influencing management and the adoption of any technology.

The study equally revealed that 42 percent of the respondents have a family size of less than 5 persons while 38 percent have between 6-10 persons living together in their households. The least household size is between 11 – 15 which constitutes 12 percent followed by 16 and above that accounted for 7 percent. This shows that there were enough hands that could actually assist in the operations or learn trade as such family members would see the business as one that directly or indirectly contributes to the economy of the home and so, would not work against the enterprise. This result agrees with Adebayo [14] who reported that family size can serve as source of labour.

All the butchers were members of one or other forms of cooperative societies. this attest to the fact that such membership encourages smooth running of the business and predisposes members to benefits of communal operation. It guarantees their security. This implies they are likely to be more efficient than those who are non-members of association. Membership of a cooperative enables butchers to interact with other businessmen, share their experiences and assist themselves. The implication of these results is that most of the respondents in the study area do enjoy the assumed benefits accruing to cooperative societies through pooling of resources together for a better expansion and effective management of resources. This finding is in line with Abayo*et al*. [15]who reported that cooperative groups ensure that their members derive benefits from the groups such as they could not derive individually.

The result of the study revealed that majority (62 percent) of the butchers had annual income between N301, 000 – N400, 000, followed by 15.5 percent of the respondents who had income ranging from N101,000 – N2000,000, 9 percent had annual farm income less than N50,000, about 6 percent of the respondents earned more than N401, 000 annually. It is obvious that there are proceeds attached to butchering business as such, respondents are able to shoulder their responsibilities.

Table 1b Distribution of the respondents according to their business characteristics

Category of butchery	**Frequency**	**Percentage**
Primary	12	17.00
Secondary	59	83.00
Total	**71**	**100**
Source of cow		
Farmers	9	75
Open market	1	8.30
Traders	2	16.70
Total	**12**	**100**
Butchering experience (years)		
1 – 5	11	15.50
6 – 10	19	27.00
11 – 15	31	43.66
16 and above	10	14.10
Total	**71**	**100**

The results of the study presented in table 1b indicates that majority (83 percent) of the respondents were secondary butchers while 17 percent were primary butchers. This means that few butchers acquire cow and slaughter, others get the meat from the slaughterers. And among those that slaughter, 75 percent of them acquire their cow directly from the farmers, 17 percent used traders in securing their cow while 8 percent goes to open market to get their cow. This could be as a result of price variation across these sources as getting it directly from the farmer is cheaper compared to other sources where the activities of the middlemen and tax collectors are fully activated.

From the result also, 43.66 percent of the respondents had 11 -15 years of experience in butchering business, 27 percent recorded 6-10 years of experience, 15.5 percent constitutes 1-5 years of experience while 14.1 percent accounted for 16 and above years of experience. It implies that respondents with highest number of years of experience should have good skill and better approaches to butchering business. This finding is similar to that reported by Kaliba and Engle [16] that experienced farmers were more efficient than new farmers.

3.2 Butchering facilities available in the area

Table 2 below represents the distribution of the respondent according to the butchering facilities used in the study area.

Table 2 Distribution of respondents based on butchering facilities they use

Facilities	Frequency	Percentage	Ranking
Slab	67	94.40	1st
Roof cover	62	87.30	2nd
Location (isolated)	59	83.10	3rd
Water supply (quantity and quality	29	40.90	4th
Incineration pit	17	23.94	5th
Appropriate meat carriers	8	11.00	6th
Toilet	7	9.90	7th
Effluent (drainage)	5	7.00	8th
Fencing	0	0.00	9th

The results presented in table 2 represents the various facilities used in the butchering business in the study area. The use of slaughter slab ranked first with 94 percent of the respondents who acknowledged it usage. Similarly, the use of roof cover was also acknowledged as it ranked second having a percentage of 87. The use of isolated location was also found among the butchers with a percentage of 83 and ranked third. It was obvious that water supply both in quantity and quality, incineration pit, appropriate meat carriers, toilet, drainage system and fencing were facilities that were not adequately provided and used by the butcher in the study area with the percentages of 41, 24, 11, 10, 7 and 0 respectively. This

makes them ranked least among the facilities used in the order of fourth, fifth, sixth, seventh, eighth and nineth respectively.

“This is an indication that concerning slaughtering activities in the study area, most of the facilities that can guarantee a successful slaughtering business were inadequate as it is the case in most countries in Africa” [8]. “This describes the activities of commercial butchers that operates in the rural villages at a very small scale and who pay little attention to quality and do not add value to the meat sold. Sometimes, animal slaughtering takes place on bare ground in designated or non-designated areas”. [8]

3.3 By-Products and value addition practices in beef processing

The various by-products and value addition practices in beef processing among butchers in thestudy area is presented in table 3 below.

Table 3 Distribution of the respondent based on the various by-products and value addition practices in beef processing

By-Products	Frequency	Percentage
Bone	71	100.00
Blood (food)	9	12.68
Blood (feed)	2	8.82
Skin	71	100.00
Horns	2	2.80
Feaces (manure)	2	2.80
Wool	0	0.00
Value addition practices		
Roasting	60	84.50
Salting	5	7.00
Smoking	2	2.80
Drying	0	0.00
Classification/sorting	59	83.10
Refrigeration	6	8.45
Washing	71	100.00
Weighing	2	2.8

From the results presented in table 3 the major by-products from beef processing in the study area were bone and skin which accounted for 100 percent each. Other like horn, blood (food) and blood (feed) had poor recognition as by products among the butchers with 2.8, 12.68 and 8.82 percentages respectively. Similar to the horn, feaces/manure have a very poor recognition among the butcher with a percentage of 2.8. Wool on the other hand had no recognition at all with a percentage of 0.00. This could be attributed to the species of cow slaughtered in the area which are void of wool. The study revealed insufficient utilization of by-products in the study area. The use of by-products is not sufficiently developed [7] to bring out their full economic potential.

From the result also, this poor utilization could be attributed to the very little value addition practices to beef along the chain as observed. Only beef roasting (suya) on the market day or near the highways was prevalent, recording 84.5 percent. This is followed by the practice of classification and sorting having a percentage of 83.1. Outside these, other practices of value addition like salting, smoking, drying and weighing are poorly carried out with 7, 2.8, 0.00 and 2.8 percentages respectively. Above all, washing as a way of value addition is fully practiced by the butchers in their businesses as it accounted for a 100 percent. In addition, only 8.45 percent of the butcher acknowledged the use of refrigeration to store their meat in the form of cold room which were originally put in place for fish products. This attest to the fact that this practice is not pronounce and inadequately utilized. Consequently, meat were sold hot immediately after slaughter and any further attempt to keep the meat will lead to spoilage since there is no preservation as such.

“If it must be value chain, then value addition must have a reward which serves like the incentive and motivation. The consumers must pay for value addition on beef and beef products” [17]. “But the rural consumers in this case may not be able or willing to pay for value addition on beef, hence, the poor utilization. Also, if it must be a value chain, it must

also be sustainable. Chain sustainability being assessed using the three “Ps” of profit, people and place. The economic analysis of the value chain is an important input into the decision on development objectives and the upgrading strategy” [18]. “But value chain is about transformation of the product coupled with displacement of product until it reaches the consumer far removed from production site” [19]. The findings from the study revealed a very negative impact on the environment from the activities of the rural butchers. Since the use of by-products is very minimal, disposal of the “useless” parts of the animal such as horns and feaces is a major challenge.

When cattle are slaughtered, lean makes up less than 70% of the cattle. The rest of more than 30% of the cow constitute the by-products. it is important to rescue the 30% of cattle which is the by-products to improve income.These could be attributed to insufficient knowledge, technology and the slow pace of agro-industries development which have hampered the production, handling, processing and use of livestock by-products. The use of livestock by-products such as bones, hooves, horns and blood is generally minimal in the study arae. According to MIFUGO [7], “the economic value of these by-products is high and revenue from these by-products is enormous if sufficiently tapped through agro industries development”.

4.0 Conclusion

In can be inferred that the butchering business in the area is characterized by poor handling, minimal value addition and little further processing.Also, butchers do not operate the value chain approach because consumers cannot pay for value addition on beef. Therefore, the chain that exist among the butchers is a supply chain rather than a value chain.

Based on the findings the following recommendation were made to improve efficiencies in butchering practices and improve quality:

i. Adequate slaughtering and storage facilities (with energy and water supply)

ii. Development of industries that use the by-products will improve income in the chain.

iii. Value addition that will convert less important parts of the meat to valuable products should be put in place

iv. Development of good post-harvest management system for beef

v. Good market linkages and market development should be put in place by the various actors and stakeholders.

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