Economic Analysis of Abattoir Business: The Case of Beef Processing In Delta State, Nigeria

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Abstract

This paper investigates the economic analysis of abattoir business in Delta State, Nigeria. Data were collected with the aid of a structured questionnaire in 2010. Collected data were analyzed using descriptive statistics, and profit function. Results from the study revealed that male folks accounted for about 72.50% of the total operators, and fall within the age range of 36-55 years. More than half (57.50%) of the respondents were old in the business with about 30.00% of them having spent about 6-10 years in the business. Also, about 92.5 0% of the operators had one form of formal education or the other and had a family size of between 6 and 10. An average abattoir operator made an average profit of about ₦95,725.44 monthly. Abattoir business in Delta State is therefore a profitable venture. It is faced with some constraints such as transportation, non-availability of adequate finance, poor infrastructure and basic amenities, poor sanitation, inadequate number of abattoirs, lack of government support among others. It was recommended that abattoir operators help themselves through rotational thrift savings and formation of credit associations to enable them pool their resources to finance their businesses and manage other constraints associated with the abattoir business.

Keywords: Economic analysis, Abattoir business cattle, beef processing.

Introduction

Beef commands a prominent position in Nigerians' meat supply and livestock industry. Beef is estimated to supply about 40% of total meat consumed, while the next in rank is sheep/goat with 35% and others 25% (Sharu, 2008). He further stated that the national herds contain an estimated 9.2 million heads of cattle, of which over 90% is in the hands of traditional producers in the northern part of the Nigeria.

Cattle is therefore among the important livestock reared in Nigeria. World cattle population was estimated to be 1932 million, of this figure, about 985 million are distributed in tropical countries including Nigeria (Bogoro, 2014). Cattle production in Nigeria was estimated to have grown to be about 13 million (Baba, 1994). By 2004, cattle population of Nigeria was estimated to be about 15.986 million, made up of indigenous breeds, of which the Bunaji (white Fulani), Sokoto and Adarnawa Gudali were the major breeds (Sharu, 2008). Cattle herds are owned or managed mostly by the pastoral Fulanis, rural farming households and some urban-based Hausa Fulanis.

Beef processing requires slaughtering the live cattle and cutting to pieces in the forms that consumers desire. This economic activity makes the livestock industry to operate smoothly. It is a business activity that creates jobs and means of livelihood to people.

Beef is capable of supplying protein to the body and for optimum growth and development of the food industry. Beef processing and marketing business contribute significantly to gross domestic product (GDP) of a nation. The importance of abattoirs cannot be over emphasized as it serves as the starting point of processing chain in the meat industry before it enters the market. Abattoirs in Delta State have existed as long as there have been settlements too small for individuals to rear their own stock for personal consumption. In the United States for instance, around ten billion animals are slaughtered every year in about 5,700 abattoirs and processing plants employing 527,000 Workers (Williams and Dc Mello, 2007). In 2007, 28.1 billion pounds of beef were consumed in the USA alone (USDA and NASS, 2007). In Canada, 650 million animals were killed annually (Global Action Network, 2008). In the European Union annual figure for cattle is put at 300 million cattle, sheep and pigs about four billion chickens.

In Nigeria, abattoirs are distributed all over the 36 states and the Federal Capital Territory with the largest being the Lagos State owned abattoir complex in Oko-oba Agege Local Government Area of the State where about 90% of meat consumed in the state is slaughtered. (Newswatch, 2010). In Delta State, there are Abattoirs in all major towns such as Asaba, Abraka, Agbor and Warri, with smaller ones located in almost all the local Government areas of the State.

An abattoir is also called a slaughter house, and is an industrial facility where animals are processed (properly) for consumption as food products. Abattoirs which process meat unfit for human consumption are sometimes referred to as knackers yards or knackeries. A careful analysis of abattoirs indicates that conditions and practices in the abattoirs vary due to

(a) Cultural beliefs, which influence the location of abattoirs in some parts of the State.

(b) Religion, which stipulates certain conditions for the slaughter of animal before sale and consumption.

Also, there has been criticism of the methods of preparation, herding and killing within some abattoirs, and in particular the speed with which the slaughter is sometimes conducted.

Furthermore, investigations have indicated that a proportion of the animals are skinned or gutted while apparently still alive and conscious (Eignitz, 1997). There has also been criticism of a methods of transport of the animals in which animals for slaughter are driven hundreds of miles to the abattoirs in conditions that often result in severe stress, crashes, injures and death en route (Vansickic, 2002).

The abattoir is an important sector of the livestock industry and also an important sector in the Nigerian economy. The socio-economic characteristics of abattoir operators could influence their performance. Before now, no study has been done to find out how abattoir business had influenced the socio-economic wellbeing of the operators. An important aspect of abattoir business that is worthy of investigation, is the cost structure and profitability. Abattoir business is profit oriented. Profit is the driving force behind investment in abattoir. Consequently, ascertaining the level of profitability of small-scale

abattoir business and how it impact on the standard of abattoir is worthy of investigation. Furthermore, revenue obtained by abattoir operators could be affected by some variables which need to be identified and analyzed in Delta State, Nigeria.

Objectives of the Study

The study involved an economic analysis of small-scale abattoir businesses in Delta State, Nigeria through a description of the socio-economic characteristics of the abattoir operators; analysis of the costs and returns of abattoir operations, and identification of the major constraints faced by abattoir operators in the study area.

Materials and Methods

Study Area, Sampling Procedure and Data Collection.

The study was carried out in Delta State, Nigeria. Delta State was carved out from the former Bendel State, and named after the Delta of the River Niger on August 27, 1991. It has 25 Local Government Areas and has Warri, Agbor, Ughelli, Oghara, Sapele, Ogwashi-Uku among others as the major towns, with Asaba as the capital city. It has an Area of approximately17, 011 square kilometres, and a population of 4,098,291 by the National Population Commission's official gazette (NPC, 2007). The major indigenous languages spoken in Delta State are lgbo, Itsekiri, Izon, Isoko and Urhobo. Delta State shares common boundaries with Edo, Ondo, lmo, Anambra and Bayelsa States. In the south West and South it has approximately 122 km of coast line bounded by the Bight of Benin on the Atlantic Ocean. Delta State is suitable for agricultural production such as crops and livestock. Delta people are good consumers of livestock products including beef.

A multi-stage sampling technique was adopted in selecting a sample for the study as follows:

Stage 1

In this stage, three Local Government Areas (LGAs) were selected at random from each of the three agricultural zones in the State, namely Delta North, Delta South and Delta Central, to obtain a total of 9 Local Government Areas that were used for this study. The LGAs were Oshimili North, Oshimili South and Aniocha from Delta North, Bomadi, Isoko North and Isoko South from Delta South, and Sapele, Ughelli North and Ughelli South LGAs from Delta Central.

Stage 2

This stage involved the selection of one town/city from each LGA. This gave a total of 9 towns/cities that formed the basis for this study.

Stage 3

This stage involved the selection of four or five (4 or 5) abattoirs from each of the selected towns and cities, depending on its size, to get a total of 40 abattoirs.

Primary data were collected with the aid of a structured questionnaire which was personally administered to abattoir operators (owners) in the study areas.

The questionnaire was divided into sections which included details of socioeconomic background, management practices, marketing, constraints and prospects of abattoir

business. The secondary data used were obtained from relevant texts, journals, seminar papers and statistical records/reports.

The various socioeconomic variables of abattoir operators which were relevant in influencing Net revenue were examined. These included: gender of the respondents, their age, and experience in abattoir business, level of education, family size and occupation.

Data Analysis

Data collected were analyzed using descriptive statistics (means and percentages) to analyze the distribution of socio economic characteristics in the study area. Net farm income (NH) equation was used to analyze the costs (cash outflow) and returns (cash inflow) in the abattoir businesses.

Gross Margin (GM) is given as

GM = TR-TVC

Results and Discussion

The result in Table 1 indicates that of the 40 abattoir operators studied, 26 were male (72.5%), while 11 were female (27.5%).

Table 1: Distribution of Socio-economic Characteristics of Abattoir Operators

Socio-economic Characteristics	Frequency	Percentages	Mean / mode
Gender			
Male	29	72.5	Male
Female	11	27.5	
Total	**40**	**100**	
Age			
25 years and less	0	0	
26-35 years	1	2.50	
36-45 years	9	22.50	
46-56 years	15	37.50	
56-65 ‘ears	l2	3000	51 years
65 years and above	3	7.50	
Total	**40**	**100**	
Level of Experience in abattoir business			
1-5 years	5	12.50	
6-10 years	12	30.00	
11-15 years	18	450(1	
Above 15 years	5	12.5(1	13 years
Total	**40**	**100**	
Operators Level of Education			
No formal education	3	7.50	
Primary school completed	8	20.00	
Junior secondary completed	5	12.50	Completed
Senior secondary completed	14	35.00	secondary
Higher institute completed	10	25 .00	school
Total	**40**	**100**	
Operators family size			
1-5	11	27.50	
6-10	26	65.00	8 persons
11-15	3	7.50	
Total	**40**	**100**	

Source: Field Survey 2010.

It is therefore important to note that female participants in abattoir business were fairly few. Gender is said to exert some influence on agricultural activities as male and female carry out different agricultural tasks (Mustapha, 2007).

As much as 67.50% of the operators (27) were within the age range of 36-55 years. The pattern of age distribution observed in the study suggests that the able – bodied and energetic age groups (i.e. not more than 55 years of age) were actively engaged in abattoir operations in the study area. This finding agrees with that of Musa *et al* (1988) and Bose (2008) in which majority of those engaged in cattle-related business identified in their respective studies were young and energetic. Furthermore, the results show that 2.5% of the respondents were new to the business, while about 57.50% had over 11 years of experience in abattoir operations.

Education is important because it increases the operator's awareness of improved management practices, and enables him to effectively manage his/her business. It can be seen from Table 1 that 7.50% of the respondents had no formal education, while 92.50% had one form of formal education or the other. Education might play an important role in influencing transaction activities of operators. This view is supported by Yusuf *et al*. (2007) who stated that education aids marketers in adopting improved marketing strategies. Also, Bivan (1995) reported that farmers' educational attainment is paramount in decision making, and so acts as a boost to entrepreneurial performance.

Entries in Table 1 also indicate that out of the 40 abattoir operators studied, 11 had family sizes of from 1 to 5 and they accounted for 27.5% and had a family size of 6-10 (see Table 1). The large family sizes therefore implied that the abattoir operators spent more of their income in maintaining the family and less for their abattoir business expansion. This has the consequence of poor adoption of innovations which requires finance. This view is in consonance with Ogungbile *et al*. (2002) who stated that adoption index may be positively or negatively related to family size. Household size has a statistically significant association with adoption of new practices. Suffice therefore, to conclude that socioeconomic characteristics of the respondents play an important role in determining the level of profit in the business. This opinion is in agreement with Mohammed *et al*. (2005) who opined that socioeconomic variables play an important role in creating awareness and knowledge both of which can ultimately determine profitability.

Costs and Returns in Abattoir Business

Table 2 indicates that an average abattoir operator in the study area made an average profit of about ₦95,725.44 per month from abattoir operations.

Table 2: Costs and Returns Analysis

Variables Cost Item	Amount (₦)	% of Total cost
Cost of transportation	3,240,930	44.20
Cost of labour	128,160	0.24
Cost of live cattle	3,962,700	1.75
Total variable cost	7,331,700	54.05
Total revenue	53,280,000	
Total gross margin	45,948,210	
Mean gross margin	1,148,705.25	
Gross margin per month	95,725.44	

Source: Field Survey 2010.

It then implies that Gross margin for abattoir business in Delta State is given as

₦53, 280,000 – N7,331,790

Therefore GM ₦45, 948,210

From the above, it can be seen that abattoir business in Delta State is a profitable venture indeed as the Total Revenue (TR) is higher than the Total Variables Cost (TVC) which includes mean cost of transportation. labour and purchase of live cattle.

Benefit/Cost Ratio (BCR) is given as TR/TC

Where TR Total revenue

TC = Total Cost

$$\text{BCR} = \frac{₦53{,}280{,}000}{₦7{,}331{,}790}$$

= 7.27:1

The BCR of 7.27:1 is an indication that the financial benefit in abattoir business is about 7 times higher than the amount invested in the business in the study area. This is comparable to and far better than the financial benefits reported in other livestock businesses in Nigeria (Sharu, 2008). Although abattoir business is cost-intensive even when the invested fund is borrowed, the business will be able to pay back the interest charged and still retain sufficient balance for the expansion of the business and for the personal upkeep of the operators and their families.

Constraints Faced by Abattoir Operators in Delta State

As part of the objective of this study, the challenges and constraints faced by abattoir operators in Delta State were determined and obtained and grouped into poor roads and transportation cost, lack of security, poor sanitation, poor infrastructure and basic amenities, lack of government support, and conflict among workers.

Table 3: Distribution of Constraints faced by Abattoir Operators

S/N	Constraints	Number of Respondents	Percentage (%)	Rank
1	High transportation cost	9	22.00	2nd
2	Lack of security	1	2.50	6th
3	Poor sanitation	1	2.50	3rd
4	Poor marketing infrastructure	8	20.50	1st
5	Poor storage facilities	14	35.00	5th
6	Lack of Government support	3	7.50	4th
7	Conflict among workers	4	10.00	
	Total	40	100.00	

Source: Field Survey 2010.

The distribution of constraints faced by abattoir business operators in the study area is presented in Table 3. The result shows that the first and major constraint is poor storage facilities (35%); followed by high transportation cost (22%) and the third constraint is poor marketing infrastructures (20%). Lack of Government support (10%) is the forth on the scale of constraints confronting abattoir business in the study area.

Poor storage facilities could lead to high loss by spoilage. Beef is processed and sold fresh by abattoir operators. In the event of low patronage, operators tend to lose much money as a result of spoilage. Sometimes they are faced by market situation to sell the beef at give-away prices. Poor or inadequate storage facilities are a common agricultural marketing problem in developing nations.

High transportation cost and poor marketing infrastructures are very fundamental constraints to abattoir business. High transportation cost could be attributed to high cost of petroleum product and the deplorable road network in the study area. This tends to arbitrarily raise cost of business operations and thus reduce net profit of the operator. Marketing infrastructures such as good market stores (shelter) and electricity if available, could improve abattoir business substantially

Absence of government support through regulations, control and credit most have negatively affected the abattoir business in the study area. It is the responsibility of government to create enabling physical and financial environments for abattoir business to thrive well.

Conclusion and Recommendation

Based on the findings of the study, the following recommendations were made:

The economic analysis of abattoir business, with special emphasis on beef processing in Delta State was the main thrust of this investigation. There was sufficient evidence in the study that abattoir business is a lucrative business venture that can create job and generate income to a good number of young people, including young graduate of animal science.

To make abattoir business more viable, the operators are advised to form themselves into rotational thrift savings and form credit associations to enable them pool their resources to finance their businesses and manage other constraints associated with the businesses.

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