

Analysis of Beef Marketing in Oshimili South Local Government Area, Delta State, Nigeria

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Abstract

This study examined the marketing of beef in Oshimili South Local Government Area of Delta State. The specific objectives of this study were to: describe the socio economic characteristics of beef marketers, determine the profitability of beef marketing in the study area, examine the factors affecting marketing margin of beef. Twenty (20) sellers were randomly selected from each of the five markets randomly composed in Oshimili South local government area of Delta State. The markets selected were Ogbeogonogo, Cable point, Okwe, Abraka, and Oko. Well-structured and validated questionnaires were administered to get information from beef sellers. Descriptive statistics was used to analyze the social economic characteristics of beef marketers in the various markets; the profit function (estimated by gross margin since fixed cost was negligible) was used to determine the profitability of beef market and regression analysis was used to determine the factors affecting marketing margin of beef. The results showed that the marketing of beef in the area was profitable. The result further showed that cost of purchase, cost of transportation, packaging and middlemen profit had significant effects on marketing margin of beef in the study area. From the findings, it is recommended among others, that government should site more abattoirs close to major beef markets to reduce transportation cost and consumer price.

Keywords: Beef marketing, Profitability, Profit function, marketing margin, Oshimili South,

1. Introduction

Livestock are those animals which man has domesticated and multiplied for his benefits. The importance of the livestock sub-sector to the Nigerian economy derives not only from its substantial contribution to the Gross Domestic Product (GDP), but also from its supply of animal protein of value in human nutrition (Njoku, 1998).

The importance of animal protein in man's diet as a source of essential amino acid cannot be overemphasized. Animal sources supply valuable amount of protein to man for his well-being. The Food and Agriculture Organization (FAO, 1986) recommended that daily protein intake for an individual should be 65g, of which 35g should be obtained from animal source (Onwuka *et al*, 1995). Cattle are one of the domesticated livestock from which protein can be obtained. Beef is the culinary name for meat from bovine especially domestic cattle. Beef can be obtained from cows, bulls, heifers or steers. It is one of the principal meats used in the cuisine of the Middle East, Australia, Argentina, Brazil, Europe and North America and is also important in Africa, part of East Asia and Southeast Asia. Beef muscle meat can be cut into steak, roast or short ribs.

Beef is the third most widely consumed meat in the world, accounting for about 25% of meat production worldwide, after pork and poultry at 38% and 30% respectively. In absolute numbers, the United States, Brazil and the People Republic of China are the world's three largest consumers of beef. On a per capita basis in 2009, Argentina eat the most beef at 64.6kg per person, people in the US eat 40.2kg, while those in the European Union (EU) are 16.9kg. The world's largest exporters of beef are Brazil, Australia and the United States.

Statistics show that Nigeria's per capita meat consumption is approximately 6.4 kg per person per year, China is about 23kilogram, but Canadians consume an average of 65 kilogram a year and the citizen of the US eat 95 kilogram. This shows the meat centrality of Western Society. However Nigeria is not just only one of the largest meat producing countries in Africa but also one of the largest meat consumers in this region of the world (Business Day, 2011).

Data support that around 75% of the national cattle herd is concentrated in Borno, Bauchi, Kano, Katsina, and Sokoto States with serious overstocking in some of these areas, although in general terms, Nigeria is under-stocked (National Livestock Project, Department, 1992).

The problem of malnutrition, particularly protein intake, is a real one in most developing countries of the world. Ogbonna and Adebawale (1993) reported that an average Nigerian consumed 7.5g of animal protein per day, as

against 25g consumed by the average Briton. The ability of the average Nigerian family to sustain animal protein consumption (beef) has become a sensitive barometer for assessing not only the physical, but also the economic well-being of the nation.

The livestock industry is beclouded with limitations ranging from inadequacies of production inputs, poor management and inefficient marketing. The rapid expansion of the industry needs to be matched by equivalent development in management and technical expertise to guide the industry. Increase in population and per capital incomes, relative prices and availability of substitutes, greatly expanded taste preference, and nutritional education (Okaiyeto, 1999).

Animal scientist, economist and policy makers are of the opinion that the development of the beef industry is the only option for bridging the generally known protein deficiency gap in Nigerian diets. The attainment of this objective is vital to Nigerian economic revival and sustenance. The economic importance of beef increases as societies evolve from subsistence agriculture to cash based economy

Prices of beef and meat products, availability, cultural factors, religious prohibits of time trend, and level of educational are the major factors determining the demand for various livestock products in Nigeria. It has been observed from a large number of failures, that the entrepreneurs approached their business with more enthusiasm than actual knowledge of the business (Nwosu, 1990).

Marketing involves the skillful utilization of information for the purpose of achieving desirable marketing objectives. Ineffective marketing is a major constraint with beef marketing development in Nigeria. An unfortunate feature of beef marketing in Nigeria is the role of middlemen. Depending on the location of the producer, the animal may pass through several middlemen before reaching the consumer. Generally, the larger the market the greater the number of middlemen. Livestock development and marketing will make the greatest contribution to domestic welfare if the government established free market for livestock products and inputs, and strive to develop complimentary research infrastructure and animal health programs.

The shortage of animal protein is severe in Nigeria probably because of the failure of livestock sub-sector to expand to meet current demands in the southern part of Nigeria. Current estimate indicate that the average daily per capital supply of animal protein for Nigeria is less than 35% of the recommended level. For beef to get to the consumer, just as other agricultural products, there must be a well organized marketing system.

Beef purchasing and consumption patterns vary substantially among the people. Factors like characteristics of the consumer, characteristics of the products, buying practices and trade practices motivate people in making purchasing decision. Consumer preferences and consumption pattern are the main determinants of the demand for the various quantities and qualities of meat products. Such preference and consumption pattern change time, geographical location and the age of the consumer (Ikeme, 1990). This however depends on the returns to management analysis in the marketing of beef. Not much has been known about the pricing efficiency in the marketing of beef in the study areas. Moreover not much research work has been done on the determination the cost of marketing of beef and the consequent benefit to the marketers in the study areas.

Despite her better endowed ecological zone with abundance of green pasture nearly all the year round, Delta State is reported to hold a small population of cattle compared with some other states. It is therefore important to investigate the efficiency of the marketing of beef in the study areas. This is because marketing stimulate production and consumption of agricultural product. The major aim of marketing is profit making. Profitability of any product depends on its acceptability.

The broad objective of this study is to analyze the marketing of beef in the study area. The specific objectives of this study are to:

1. describe the socio economic characteristics of beef marketers;
2. determine the profitability of beef marketing in the study area;
3. examine the factors affecting marketing margin of beef

This hypothesis was tested: H_0 : There are no significant factors (transportation cost, market charges, middlemen profit, storage cost, packaging) affecting the marketing margin of beef in Oshimili South Local Government

With economic down turn in Nigeria, many people have suffered malnutrition. This is because of insufficient cheap source of animal protein in the markets. With over 55 million Nigeria living below poverty line, and 18 million living in households that are food insecured (Abubakar, 1998) any attempt to increase food production and availability will be a welcome development.

The beef that human consume should be of high quality as it relates to issues of public health and consumer acceptability. It should also have good marketing channel to ensure proper distribution of animal protein. Shortage in protein supply may be attributed to short supply or insufficient production or perhaps as a result of high prices of the animal.

Inefficient beef marketing services is a major constraint associated with beef marketing development in Nigeria. Beef marketing is the link between production and consumption. Thus the performance of beef marketing is a good yard stick for measuring how well the sector is satisfying the aspirations of the entire citizenry. There is therefore the need to obtain information on the performance of beef marketers in the study area.

2. Research methodology

2.1 Area of the Study

Oshimili South Local Government Area of Delta State Nigeria is the chosen area of this study. It has an area of 603km² and a population of 150,032 people (NPC, 2006), who are mainly farmers and fishermen. The area is made of cities, towns and communities which include Asaba Oko, Cable point, Central Core area, Isieke, Ezenei, Umuagu, Umuezie, Umunaji and Zappa.

The area lies roughly between latitude 6°10'N and longitude 6°45'E. The area has an average annual rainfall of about 8667mm in the coastal area and 1905mm in the north area. The rainfall is heaviest in July with a short break in August. It has an average temperature range of 39 – 44°C. Crops grown include Root and Tuber crops (cassava, yam, cocoyam), cereal (maize and swamp rice) like crops (palm and rubber) and a variety of vegetables.

2.2 Sampling Technique and Sample Size

A multi – stage sampling procedure was used. The first stage involves the random selection of five (5) markets out of the 51beef markets in the study area. The second stage involved the selection of 20 sellers from each market giving a total of one hundred (100) respondents.

2.3 Method of Data Collection

Data for the study was collected from primary and secondary sources. Primary data was collected with the aid of a well structured questionnaires and interview schedule. The secondary sources were textbooks, journal, reports and internet.

2.4 Data Analysis Technique

The data collected were analyzed using descriptive and inferential statistics such as frequency counts, percentages and regression analysis. Descriptive statistics was used to achieve objective one, profit function was used to achieve objective two. Multiple regression analysis was used to determine the factors affecting marketing margin of beef marketers. Below are the implicit and explicit postulations of factors affecting beef marketing model.

$$Y = F(X_1, X_2, X_3, X_4, X_5, X_6)$$

Or more explicitly,

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + \mu$$

Where: Y = Magnitude of the marketing margin of beef

b₀ = Intercept

X₁ = Transport cost

X₂ = Packaging

X₃ = Marketing changes

X₄ = Storage cost

X₅ = Middle men profit

X₆ = Cost of purchase

μ = Stochastic error term

The profit function will be used to determine the profitability of beef marketing of marketers. It is given by

$$\pi = TR - TC$$

Where:

π = Profit function

TR = Total revenue

TC = Total cost (which include cost of transportation, Packaging, market charges, storage and middlemen profits)

3. Result and discussion

3.1 Socio–Economic Characteristics of Beef Marketer in Oshimili–South LGA

3.1.1: Gender of Respondents

The result of the study in Table1 showed that 55% of beef marketers were male while 45% were female. This showed that men dominated in beef marketing in the study area.

3.1.2: Age Distribution of Respondents

The result of age distribution of respondents showed that most of them 21 – 30 years representing 95%. This means that most of the respondents are still in their economically active age group.

3.1.3: Marital status of Respondent

The marital status of respondent showed that 58% were never married, 32% were married, while 10% were either widow or widower. The high percentage of those who were not married was due to the fact that they derived enough income from beef marketing to support themselves.

3.1.4: Educational level of Respondent

The result in Table1 showed that 17% of respondent had no primary education, 10% had primary school education while 58% acquired secondary education. It shows that most beef marketer in the study area had acquired secondary education. This is an indication of some level of literacy among the beef marketers.

3.1.5: Household Size of Respondent

The result in Table1 also showed that the household size of respondent belong to small household of 1-5 people representing 72% while 6-10 represent 38% of the respondents in the study area.

3.1.6: Marketing Experience of Respondent

The study revealed that 70% of the respondents have been in the business for less than five years, 30% of the respondents had 6-10 years of marketing experience.

3.1.7 Level of Beef marketing of Respondents

From Table1, it can be seen that 68% of the respondents were retailers, 17% were both retailer and wholesaler while 15% of them were wholesaler. The findings showed that retail marketing of beef is the commonest form of beef marketing in the study area.

3.2 Profitability of Beef Marketers

3.2.1 Profit level of the respondents

From the result presented in Table 2, the beef marketers incurred a total variable cost which include cost of purchase, transportation cost, packaging, storage and middle men profit of N465.00 and generated a revenue of N626.00 per kilogram of beef. A profit margin of N161.00 per kilogram of beef was obtained showing that beef marketing is profitable in the study area.

Profit function (π) = Total Revenue – Total Cost

$$\begin{aligned} \text{Profit function } (\pi) \text{ or Gross margin} &= \text{Total Revenue} - \text{Total Cost} \\ &= \text{N} 626.00 - \text{N} 465.00 \\ \pi &= \text{N} 161.00 \end{aligned}$$

Since items of beef marketers are variable (i.e negligible fixed cost), gross margin was estimated to be the profit. The total cost as used here excludes fixed costs.

3.3 Constraints Faced by Beef Marketers

The study revealed several problems militating against the effective and efficient marketing of beef in the study area. These constraints are presented in Table 3.

- (a) High transportation cost: This is the most serious constraint ($\bar{X}=4.52$). If the cost of transportation is high, this will increase the marketing margin of a kilogram of beef on the sellers side while a kilogram of beef is increase, the consumers tends to purchase a lower quantity of beef
- (b) Risk of spoilage- This is the second most serious problem of beef marketing ($\bar{X}=4.32$). There is high risk of spoilage of beef due to the erratic power supply. This facilitates spoilage of what is not sold.
- (c) Inadequate storage facilities- The beef marketers are unable to afford good storage facilities in storing beef. This can lead to quick deterioration of the beef.

However, high transportation cost was the major problem among beef marketers. The constraints are ranked using the rank of mean with; transportation ($X=4.52$), risk of spoilage ($X=4.32$) and inadequate storage facilities ($X=4.21$)

3.4 Determinants of Marketing Margin of Beef

Table 4 showed the result of the regression analysis of factors affecting marketing margin of beef. The linear function was selected as the best fit. The adjusted R^2 was 0.765 indicating that the independent variables accounted for 76.5% variation in the marketing margin. The F_{cal} (47.062) was significant and indicated that the model is a good fit. Some of the explanatory variables were significant at 5%, that is, they have significant effect on the marketing margin. These were cost of purchase, cost of packaging and middlemen profit. The implication of this is that increase in middlemen profit, cost of purchase leads to increase in the marketing margin of marketers.

The result in the Table 4 gives the following equation:

$$Y = 375.843 - 0.784X_1 + 17.737X_2 + 2.174X_3 + 0.324X_4 - 1.946X_5 - 0.513X_6$$

(0.515) (2.459) (1.819) (1.454) (0.566) (0.096)

The values in parentheses are the standard errors.

From Table 4, transportation has a negative coefficient (-0.784). This implies that transportation had a negative impact on the marketing margin. The packaging coefficient is positive (17.737) implying that when a kilogram of beef is well packaged, it increases the purchasing power, thereby increasing the marketing margin. Market changes and storage cost has positive coefficient (2.174) and (0.324) respectively. This means that when market change and storage cost are high, they lead to increase the margin.

Middlemen profit and cost of purchase has negative coefficients of -1.946 and -0.513 respectively. An increase in middlemen profit and cost of purchase will reduce the marketing margin in that what was supposed to accrue to the marketers will be paid to the middlemen and this will adversely affect the consumers; so they are likely to pay more for one kilogram of beef.

5.0 Conclusion and Recommendation

The study was able to establish that beef marketing is profitable in the area. The profit per kilogram of beef in the study area is ₦161.00. This was in spite of some constraints which included risk of spoilage ($X = 4.32$), inadequate storage facility ($X = 4.21$), and transportation cost ($X = 4.52$) confronting the beef marketers in the study area. Based on the findings the following recommendations were suggested:

- (1) The Government should ease transportation and storage facilities problems, as to facilitate quality of the product which attracts buyers.
- (2) Government should site more abattoirs close to major beef market to reduce transportation cost and consumer price, it will also provide quicker and more efficient service at reasonable cost.
- (3) Efforts should be geared towards making provision for good storage facilities in cooperation with the power holding company for constant power supply to avoid spoilage and increase the shelf life of beef.
- (4) Producers and marketers alike should encourage forming co-operative for the purpose of helping members both morally and financially in terms of capital contribution.
- (5) Appropriate policies that will assist to weaken the activities of those involved in the collection of excessive market charges paid by the marketer should be provided.

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Table 1: Socio-economic characteristics of beef marketers in Oshimili-South LGA

| S/No | Variables | Frequency (100) | Percentage (%) |
|-----------|-------------------------------------|-----------------|----------------|
| 1 | Gender | | |
| | Male | 55 | 55% |
| | Female | 45 | 45% |
| 2. | Age (years) | | |
| | Less than 30 | 5 | 5% |
| | 31 – 30 | 53 | 53% |
| | 31 – 40 | 37 | 37% |
| | 41 – 50 | 5 | 5% |
| | 51 and above | Nil | - |
| 3 | Marital status | | |
| | Never married | 58 | 58 |
| | Married | 32 | 32 |
| | Widow/widower | 10 | 10 |
| 4 | Educational level | | |
| | No formal education | 17 | 17 |
| | Primary school | 10 | 10 |
| | Secondary | 58 | 58 |
| | OND/NCE | 15 | 15 |
| | HND/University | Nil | |
| 5 | Household size | | |
| | 1- 5 | 72 | 72 |
| | 6 -10 | 28 | 28 |
| | More than 10 | Nil | Nil |
| 6 | Marketing Experience (years) | | |
| | Less than 5 | 70 | 70 |
| | 6 – 10 | 30 | 30 |
| | 11 – 15 | Nil | - |
| | 16 and above | Nil | - |
| 7 | Type of Beef Marketer | | |
| | Whole seller | 15 | 15 |
| | Retailer | 68 | 68 |
| | Both | 17 | 17 |

Source: survey data, 2012

Table 2: Gross Margin Analysis

| Variable(kg) | Value ₦(per kg) |
|---------------------|-----------------|
| Cost of purchase | 360.00 |
| Transportation cost | 18.00 |
| Packaging | 6.00 |
| Market charges | 9.00 |
| Storage costs | 7.00 |
| Middlemen profit | 65.00 |
| Total variable cost | 465.00 |
| Total Revenue | 626.00 |

Source: Survey data, 2012

Table 3: Constraints faced by beef Marketers

| Constraints | Standard deviation | Mean | Rank of mean | Remark |
|-------------------------------|--------------------|------|--------------|------------------|
| Transportation cost | 0.56 | 4.52 | 1 | Very Serious |
| Risk of spoilage | 0.44 | 4.32 | 2 | Serious |
| Inadequate storage facilities | 0.47 | 4.21 | 3 | Serious |
| Market charges | 0.52 | 2.34 | 4 | Not very Serious |
| Inadequate capital | 0.38 | 2.11 | 5 | Not Serious |

Likert scale coded: 1= not serious, 2= not very serious: 3= undecided: 4= serious: 5= very serious

Source: Survey data, 2012

Table 4: Determinants of the Marketing Margin of Beef: Linear Regression Function

| Variables | Coefficients | Standard error | t-value | Significant level |
|------------------|--------------|----------------|---------|-------------------|
| Constant | 375.843 | 45.462 | 8.267 | 0.000 |
| Transportation | -0.784 | 0.515 | -1.523 | 0.131 |
| Packaging | 17.737 | 2.459 | 7.214 | 0.000 |
| market charges | 2.174 | 1.819 | 1.195 | 0.235 |
| Storage cost | 0.324 | 1.454 | 0.223 | 0.824 |
| Middlemen profit | -1.946 | 0.566 | -3.440 | 0.001 |
| Cost of purchase | -0.513 | 0.096 | -5.334 | 0.000 |

Adjusted $R^2 = 0.765$

Fcal = 47.062

Significant at 5%

Source: Survey data, 2012

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