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## **Effect of Marketing Cost on Marketing Margin Realizable from Beef Sales in Benin City, Nigeria**

**C. O. Emokaro<sup>1\*</sup> and J. Egbodion<sup>1</sup>**

<sup>1</sup>*Department of Agricultural Economics & Extension Services, Faculty of Agriculture, University of Benin, P.M.B. 1154, Benin City, Edo State, Nigeria.*

### **Authors' contributions**

*Author COE designed the study, performed the statistical analysis, wrote the protocol, wrote the first draft of the manuscript and managed the analyses of the study. Author JE managed the literature search and field work. The two authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** There has been a continuous problem of price and sales volume fluctuation over the years as a result of marketing inefficiencies which has led to short supply of beef and beef products as well as a threat to the livelihood of families that depend on beef business for survival. The short fall in supply of cattle has often been linked to the high cost of cattle marketing. This study therefore focused on the analysis of factors that determine the marketing margin realizable from beef marketing in Benin City Metropolis.

**Study Design:** A simple random sampling method was used in selecting 120 respondents from the sampling frame of the registered butchers in Benin. Half of this (60) were selected from the main abattoir while the remaining (60) were selected from the other slaughtering slabs and markets to give a total of 120 respondents.

**Place and Duration of Study:** Benin City Metropolis, South-South Nigeria, between March and July 2011.

**Methodology:** The primary data used in this study were generated from the random sampling of 120 respondents, through the administration of well structured questionnaire. Data collected were analyzed using descriptive statistics, tables and multiple regression analysis.

**Results:** Results from the study showed that majority of the marketers were married (85%), fairly educated with good marketing experience and still in their active age of

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\*Corresponding author: Email: [emokaro@yahoo.com](mailto:emokaro@yahoo.com);

production (87.5% were within the age bracket of 30-39 years). Result of the regression analysis indicated that marketing cost (packaging, handling, processing, and transportation costs) explained about 91% of the systematic variation in the marketing margin realized from beef marketing in the study area. It was also shown that unavailability of credit facilities, high cost of transportation, high marketing charges and perishability of beef were the most serious constraints faced by the marketers.

**Conclusion:** The study concluded that steps must be taken to ensure the survival of the beef marketing sub-sector of the economy. It therefore recommended the provision of mobile cold rooms at rentable costs for improved transportation and hence, reduced perishability of beef. This would go a long way in sustaining the business of beef marketing in the study area.

*Keywords: Beef, Benin city; constraints; livelihood; marketing cost; marketing margin.*

## **ABBREVIATIONS**

*Nigerian Society for Animal Production (NSAP).*

*National Livestock Project Division (NLPD).*

*Nigerian Association of Agricultural Economists (NAAE).*

*Farm Management Association of Nigeria (FMAN).*

## **1. INTRODUCTION**

The flesh of bovine animal that is in butchery is called beef. It is used generally to refer to the meat of a heifer, cow, bull, young bull, bullock or steer, even if the tenderness and flavour may vary greatly [1]. In Nigeria, there is high rate of spoilage of agricultural products (including beef), arising from poor storage and transportation facilities thereby hampering the total supply of food reaching the consumers' table [2]. According to the National Livestock Project Division [3], the supply of cattle and its product has been declining while the demand has been increasing.

The short fall in supply of cattle has often been linked to the high cost of cattle marketing. This is because, the cattle are brought from the Northern part of the country to the South. There is usually a high cost of transporting the cattle, considering the long distance that the traders have to travel with them. [4], attributed such short fall to the phenomenal rise in the price of animal feed, which accounts for about 60-80% of the cost of intensive production, particularly for ruminants. The researcher further opined that this has the effect of escalating the prices of animal products beyond the reach of the average Nigerian. Other factors that can also affect the marketing of beef include, market policy, marketing development, market infrastructure, market information, and enabling environments. Marketing margin also constitute a major component of the high prices of these products. It is alleged that the involvement of too many middlemen in the marketing of animal products and by-products leads to an inefficient distribution system, high marketing costs and margins [3].

There has been a continuous problem of price and sales volume fluctuation over the years [5] as a result of marketing inefficiencies [6] which has led to short supply of beef and beef

products. Also, it is known fact that most agricultural product are bulky, perishable and highly prone to microbial attack which leads to their deterioration in quality and finally results in the spoilage and wastage of these products.

A lot of families depend on the business of beef marketing for sustenance [6, 7]. Although there are many sources of animal protein, studies have shown that products from cattle are the most commonly consumed in Nigeria. Beef cattle trade provides the largest livestock market in the country. The industry provides employment for a large number of the population, including butchers, abattoir owners, meat shop owners, transporters and other marketers [7]. This is aside the millions of Nigerians who make their livelihood from beef enterprises as cattle grazers/nomads, butchers, beef producers/processors, veterinary services providers, marketers, transporters and providers of several ancillary services. Government agencies also realize a lot of revenue from the beef industry through various forms of levies, market charges and direct taxation [8,9].

There is therefore a very serious need to ensure the survival and sustainability of this important industry so as to avoid any subtle threat to the livelihood of the numerous families that depend on beef business for survival. The key research questions that come to mind are: What are those cost components that determine the margin realizable from beef marketing by the average beef marketer in Benin City? Are there serious constraints that could threaten the survival of the average marketer in the business of beef marketing in Benin Metropolis? The Specific objectives of this study were thus to examine the socio-economic characteristics of beef marketers in Benin Metropolis, determine the effect of marketing costs on marketing margin realizable from beef sales and to examine the various constraints faced by marketers of beef in the study area.

Beef forms an important aspect in the diet of people living in Benin City and those marketing it also depend on it as a source of livelihood. An analysis of the effect of beef marketing cost on marketing margin of this nature is intended to identify possible gaps that could help improve the livelihood of the persons involved in beef marketing, and as such ensure the sustainability of the business.

## **2. METHODOLOGY**

### **2.1 Area and Scope of the Study**

The area for this study is Benin City, Edo State. The study was carried out at the main abattoir in Benin City, as well as other slaughtering slabs and some major markets in the City between June and August 2011. Edo State is one of the 36 States of Nigeria and it lies within the geographical co-ordinates of longitude 05° 04` East and 06° 43` East and latitude 05° 44` North and 07°34`. It is bounded in the North by Kogi State, in the South by Delta State, in the West by Ondo State and in the East by Kogi and Anambra States. The Local Government Areas (LGAs) in Benin metropolis are Oredo, Egor, Ikpoba-Okha Ovia North-East and Uhunmwode.

The City is characterized by two climatic seasons: the rainy season between April and October, and the dry season between November and March. The vegetations identified in the State are mangrove Forest, Fresh Swamp and Savannah vegetations. The mean annual rainfall in the southern part of the State is about 252 mm - 254 mm, with average temperature ranging from a minimum of 24°C to a maximum of about 33°C.

The main occupation of the people is farming and carving. They also engage in other occupations like livestock farming, small and medium scale business and engage in jobs done by Artisans. Many of the civil workers engage in farming on part-time basis.

## 2.2 Sampling Procedure/Method of Data Collection

Primary data that were used for this study were collected through the use of well-structured questionnaire administered to respondents and through personal interviews. The sampling frame was drawn from the list of registered butchers in Benin main abattoir, other slaughtering slabs and some markets (Oba, New Benin and Uselu) in Benin City. This list was obtained from the Registered Butchers' Association in Benin City. Information gathered from reconnaissance survey indicated that there are about 300 registered butchers in Benin main abattoir and about 100 others scattered around the ten slaughtering slabs in Benin.

A simple random sampling method was used in selecting 120 respondents from the sampling frame of the registered butchers in Benin. Half of this (60) were selected from the main abattoir while the remaining (60) were selected from the other slaughtering slabs and markets to give a total of 120 respondents.

## 2.3 Data Analysis

The socioeconomic characteristics of respondents in the study area were analyzed using a table and descriptive statistics. The Linear Regression Model was used to determine the effect of marketing costs on the marketing margin realizable from the marketing of beef in Benin City. The model in explicit form was stated as:

$$MM_i = \beta_0 + \beta_1 HC_i + \beta_2 PC_i + \beta_3 PRC_i + \beta_4 TRC_i + \mu_i$$

Where: MM = Marketing Margin; PC = Packaging cost; HC = Handling cost; PRC=Processing Cost

TRC = Transportation cost;  $\mu_i$  = Stochastic error term.

The various constraints faced by marketers of beef in the study area were ranked in a five-point Likert-type scale (which is an ordinal level of measurement), as adopted from Emokaro and Erhabor [10]. Responses to the various constraints were scored in a way that the response indicating the most serious constraint was given the highest score of five. These responses were grouped into five thus: Very serious (VS) = 5; Serious (S) = 4; Moderately Serious (MS) = 3; Least Serious LS = 2; Not Serious (NS) = 1. For a given constraint, the mean was computed by summing the score on each item and then dividing by the total number of responses. Any mean was less than three ( $x < 3$ ) indicates that the particular constraint is not very serious while any mean equal to or greater than three ( $x \geq 3$ ), indicates that the constraint is serious.

## 3. RESULTS AND DISCUSSION

### 3.1 Socioeconomic Characteristics of Respondent

Data analysis suggests that beef marketing in Benin metropolis is both male and female oriented business (though, slightly dominated by women) and that majority of beef marketers

in Benin metropolis were between the ages of 30-39 years, which is an indication that most of the respondents were still in their active age.

The result presented in Table1 also suggests that majority of beef marketers were men and women with wives and husbands respectively. This is in agreement with the study carried out by Afolabi [11], an indication that beef marketing can be a source of livelihood for households. The result also implies that most of the beef marketers in Benin had small family sizes. The result contrasts with findings by Musa *et al.* [12], in a study of mutton marketing in Kano Metropolis, Nigeria, who reported family sizes of 6-10 persons for 41 percent of marketers. Again Haruna *et al.* [13], in a study on the economic analysis of fresh tomato marketers in Bauchi metropolis, Nigeria, reported family size of 1-5 persons for 32 percent of the marketers with the majority of 46 percent accounting for 6-10. The families were categorized as small and medium sizes respectively.

The result in Table1 also shows that beef marketers with secondary education had the highest proportion (62.5%) and 25.8% had primary education. This suggests that most of the beef marketers in Benin metropolis had at least primary education and could access formal sources of information that could improve their business. This is so because education improves the ability of farmers (and marketers) to make accurate agricultural (marketing) decisions and to innovate [14 and 15]. Literate traders have also been reported to be faster in adopting new marketing ideas than their illiterate counterparts, and would find it relatively easier to deal with clientele in the exchange process [16]. This result is similar to the findings by Adeoye *et al.* [17].

**Table 1. Socioeconomic characteristics of beef marketers in Benin Metropolis**

Items	Frequency	Percentage
<b>Gender:</b> Males	57	47.50
Females	63	52.50
Total	120	100
<b>Age (Yrs.):</b> 20-29	14	11.70
30-39	105	87.50
40-49	1	0.80
Total	120	100
<b>Marital status:</b> Married	102	85.00
Single	18	15.00
Total	120	100
<b>Family Size (Persons):</b> 1-5	64	53.30
6-10	42	35.00
>10	14	11.70
Total	120	100
<b>Level of Education:</b>		
No formal education	12	10.00
Primary education	31	25.80
Secondary education	75	62.50
Tertiary education	2	1.70
Total	120	100
<b>Marketing Experience (Yrs):</b>		
1-5	5	4.20
6-10	38	31.70
11-15	26	21.70
16-20	10	8.30
20-25	13	10.80
26-30	28	23.30
Total	120	100

Source: Field Survey 2011.

### **3.2 Effect of Marketing Cost on Marketing Margin Realizable From Beef Sales in the Study Area**

Results presented in Table 2 show the relationship between marketing margin and marketing cost incurred by respondents in the beef marketing effort. A critical examination of the result shows that marketing cost (packaging, handling, processing and transportation costs) explained about 91% of the systematic variation in marketers' margin. This implies that only about 9% of the variations in marketing margin were unexplained by the marketing cost incurred. The F-statistics which shows the overall "goodness of fit" of the model shows that there is a significant linear relationship between the marketing margin and marketing cost taken together at 5% level of significance. Also, all the independent variables were significant at 1% level of significance. The results showed that a unit increase in processing and packaging costs will respectively increase marketing margin by 7.64 and 12.34 while a unit increase in the handling and transportation costs will decrease marketing margin by 1.00 and 0.32 respectively. These are in line with a priori expectation. The result of the regression of marketing costs on the marketing margin of wholesalers in the study area is also indicated in Table 2. The result shows that the packaging cost, handling cost, processing cost and transportation cost explained over 81% of the variations in the marketing margin for beef in the study area. The linear model fit the variable well as indicated by the F-statistic significant level (1%). However, only the packaging and handling costs were statistically significant at 1% level. The result shows that a unit increase in packaging and processing costs will increase marketing margin by 15.36 and 1.65 while a unit increase in the handling and transportation costs will decrease marketing margin by 0.97 and 0.40, respectively. The result of the regression of marketing costs on the marketing margin realized by retailers in the study area is also presented in Table 2. The result shows that packaging cost, handling cost, processing cost and transportation cost explained over 89 % of the variations in the marketing margin realized by beef marketers in the study area. Again, the linear model fit the variable well as indicated by the F-statistic significant level (1%). Also, all the independent variables were significant at 1% level of significance. The result is an indication that a unit increase in packaging cost will increase marketing margin by 15.92 while a unit increase in the handling, processing and transportation costs will decrease marketing margin by 1.01, 2.86 and 0.24 respectively. Again, these findings are in consonance with the report by Erhabor et al. [6], that transportation and packaging costs, marketing and processing charges were the main cost components of beef marketing in Edo State. Also, Emokaro and Ekunwe (18), who reported that transportation cost and other variables, were major determinants of income realizable from snail marketing in Benin City.

**Table 2. Parameter estimates of the marketing models**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>Entire sample</b>				
PACKAGING	12.34	1.08	11.42	.000
HANDLING	-1.00	0.04	-23.80	.000
TRANSPORT	-0.32	0.11	-2.90	.008
PROCESSING	7.64	1.84	4.15	.000
Constant	35.04	19.57	1.79	.076
R-squared	0.91			
Adjusted R-squared	0.83			
F-statistic	311.00			.000
<b>Wholesalers</b>				
PACKAGING	15.36	5.17	2.97	.009
HANDLING	-0.97	0.26	-3.73	.002
TRANSPORT	-0.40	0.56	-0.71	.483
PROCESSING	1.65	6.28	0.26	.795
Constant	8.67	107.02	0.08	.936
R-squared	0.81			
Adjusted R-squared	0.76			
F-statistic	18.52			.000
<b>Retailers</b>				
PACKAGING	15.92	1.08	14.74	.000
HANDLING	-1.01	0.05	-20.20	.000
TRANSPORT	-0.24	0.14	-1.71	.091
PROCESSING	-2.86	0.38	-7.52	.000
Constant	21.07	249.41	0.84	.400
R-squared	0.89			
Adjusted R-squared	0.72			
F-statistic	204.38			.000

Source: Computed from Field Survey Data, 2011.

### 3.3 Constraints Faced by Marketers in the Marketing of Beef in the Study Area

As shown in Table 3, unavailability of credit facilities, high cost of transportation, high marketing charges and perish ability of beef were the most serious constraints faced by the marketers, since these variables had means of at least three ( $\bar{x} \geq 3$ ). The constraints of high processing cost and poor storage facilities had means less than three, and as such, were not regarded as major constraints to beef marketing in the study area. These findings corroborate earlier finding from the regression analysis on the significant effect of marketing costs on marketing margin realizable from beef sales. It is however curious to note that, despite these constraints, the marketers keep at this activity, as corroborated by the stability in the sector (as discussed under the socioeconomic sector). This may be connected with the high unemployment rate in the region, which leaves the marketers with very limited alternative sources of income for sustenance. The implication is that serious attention must be paid to these constraints if the business of beef marketing must be sustained in the study area.

**Table 3. Constraints faced by marketers in the study area**

<b>Constraints</b>	<b>Mean value (x)</b>	<b>Standard deviation</b>
Unavailability of Credit	3.59	1.41
High Cost of Transportation	3.59	1.39
High Marketing Charges	3.51	1.72
Perishability of Beef	3.10	1.70
High Processing Cost	2.79	1.50
Poor Storage Facilities	2.39	1.53

*Source: Field Survey, 2011.*

#### **4. CONCLUSION**

It has been shown in this study that beef is mainly marketed in Benin City by predominantly married, fairly educated and experienced female respondents still in their active age of production. The major factors that determined the marketing margin realizable from beef sales were shown to be packaging, handling, processing and transportation costs. It was also shown that unavailability of credit facilities, high cost of transportation, high marketing charges and perish ability of beef were the most serious constraints faced by the marketers. This is an indication that, to a large extent, improvement in the livelihood of beef marketers in the metropolis could be achieved by helping to ameliorate these constraints. Also, the amount of funds the marketers are willing to commit to these aspects of marketing cost would go a long way in determining what they would realize in terms of profit margin. These findings have policy implications with respect to age and gender perspectives, since this aspect of the economy are critical to the economic base of the individual family unit, predominantly run by the female folk [19]. The economic security of women (through increased income generation) has been advocated, based on the critical role they play in the household economy [20]. The government must therefore encourage the survival of the beef marketing subsector which, as shown in this study, is dominated by young educated females. Based on this, it is safe to recommend that:

Government and Community Based Organizations (CBOs) as well as other Non-Governmental Organizations (NGOs) should help in the provision of mobile cold rooms at rentable costs for improved transportation and hence, reduced perish ability.

Efforts should be made to make credit facilities available and sensitize marketers of beef on the need to invest wisely on critical aspects of beef marketing cost so as to ensure increased profitability and by extension, improved livelihood and sustainability of the business.

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## COMPETING INTERESTS

Authors have declared that No competing interests exist.

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