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CATTLE AND BEEF MARKETING IN DELTA STATE, NIGERIA

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Abstract

This study examined cattle and beef marketing in Delta State, Nigeria. The specific objectives were to identify and describe distribution channels for beef; ascertain the factors that determine selling price at the wholesale and retail level of cattle and beef; and determine the marketing margins for cattle and beef at both wholesale and retail levels. A total of 180 respondents (60 wholesalers and 120 retailers) were selected from the three agricultural zones in the state which are divided into local government areas. Data were collected from the respondents by using two sets of structured questionnaire. Marketing channels, regression analysis and marketing margin analysis were used to analyse the data collected. The mean price per cattle was ₦130,000.00 ±27098.82 while a kilogram of beef cost ₦750.00 on the average. The wholesale margins for cattle was ₦22,850.00 while the margins for beef retailers was ₦236,156.00 weekly. The regression results showed that transport cost ($p < 0.10$), market charges ($p < 0.10$) and cost of renting land ($p < 0.10$) and buying price ($p < 0.05$) significantly affected cattle wholesale price. The regression results showed that sales price ($p < 0.05$) and transportation cost ($p < 0.05$), while tax rate ($p < 0.10$), cost of loading ($p < 0.10$) and cost of offloading of cattle ($p < 0.10$) significantly affected the retail prices. The study showed that cattle marketing in Delta State is lucrative and the government is encouraged to invest in its production to help in national development in the future.

Keywords: Marketing, Cattle and beef, Margins, Delta State, Nigeria.

Introduction

The global importance of livestock and their products is increasing with increasing consumers' demand arising from population growth, and urbanization. The rapid worldwide growth in demand for food of animal origin has been called "livestock revolution" (Delgado, *et al*, 2012). While production growth rates in industrial countries have accelerating to match the rapid growth in demand, sub-Saharan Africa (SSA) is the only region of the world that has lagged behind in livestock production, standing at about 2% per annum, while per capita livestock output has hardly increased at all in the past 30years (Ehui, *et al*, 2002). Rising populations and incomes in developing countries are likely to double demand for livestock products by 2020 (Delgado, *et al*, 1999). This strong demand has potential to improve profitability for farmers but will require improved animal feeding in both semi-intensive crop livestock and more extensive livestock systems.

The low growth rate of livestock production to meet the increasing population and productivity growth is largest in SSA which includes tropical Africa and South Africa (Ehui, *et al*, 2002). This low production raises the question of how to supply African meat markets. A key factor driving the commercialization process of livestock is demand change related to income growth and urbanization (FAO 2015). The basis of a good diet, adequate for growth, development and maintenance of health, is a variety of food products that can supply enough of the complete range of nutrients, especially from animal protein sources. Improvements in the diet depend on a knowledgeable selection of foods that complement one another in the nutrients that they supply. Meat can complement most diets, especially those dependent on a limited selection of plant foods. It is a known fact that with regard to minerals, meat is one of the most important sources of iron (Source?). Meat and meat products are concentrated sources of high quality protein and their amino acid composition usually compensates for shortcomings in the staple food. They supply easily absorbed iron and assist the absorption of iron from other foods as well as zinc, and are rich sources of vitamins in the B group. By providing such nutrients, meat consumption can alleviate common nutritional deficiencies (Bender, 1998).

Consumption of meat is also one option of reducing anaemia caused by lack of iron in the diet, particularly in young women and children. For adequate nutrition, a person's daily intake should be 1g per kilogram of body weight. In developed countries, this can be reached easily and in most cases exceeded, while in developing countries, there is a deficit. Ideally, the percent of daily protein intake from animal sources should be 30 to 50 percent in developing countries as it provides an optimal range of amino acids. However, the average protein intake in developing countries (Nigeria inclusive) is as low as 15g per person per day compared to 60g per person in developed countries (FAO, 2015).

Objectives of the Study

The broad objective of this study is to examine cattle and beef marketing in Delta State, Nigeria.

The specific objectives are to:

- i. identify and describe the distribution channels of beef in Delta State;
- ii. determine the marketing margins for cattle at wholesale level;
- iii. determine the marketing margin for beef at retail level; and
- iv. the factors that determine selling price at the wholesale and retail level of cattle and beef,

Methodology

Multi-stage sampling technique was used to collect the data used for this study, in the first stage, three agricultural zones in Delta State were used for the study. These are Delta North, where (Oshimili South L.G.A. is located, Delta Central where Ughelli South L.G.A. is found and Delta South where Warri South L.G.A. is situated. These LGAs in the three Agricultural zones of the state were purposely chosen because of the high presence of cattle wholesale markets in the locations. These markets were Oko cattle market in Asaba; Ughelli cattle market; and Ugbuwangue cattle market in Warri. In stage two, one urban area and one rural area were selected purposively from each zone making a total of three urban and three rural areas. In stage three, two

markets were selected randomly from each zone making a total of six markets selected from each L.G.A. In stage four, 10 wholesalers and 20 retailers were randomly selected from each market. Thus, a total of 60 wholesalers and 120 retailers were selected. This gave a total of 180 respondents.

Two types of structured questionnaire were used to elicit response from the two target respondents (wholesalers and retailers) and they contain questions such as where they got their supplies from, costs at which they were supplied, amount realized after sale, cost of transportation from urban to rural areas, problems encountered during storage, taxes paid on the animals either on transit or in the market and rental for land and stalls. Marketing channel diagram was used to describe the channel of meat and beef marketing while Ordinary Least Square regression model was used to achieve objective 2, and marketing margin was derived to determine the profit accruable to the marketing of the two products.

Results and Discussion

Marketing Channel for Beef

The marketing channel for beef in Delta State is shown in Figure 1. The southern wholesalers (those who buy cattle from the northern merchants and also buy directly from Chad and Niger Republics), sold to both retailers and intermediate wholesaler, who bought about five cattle daily for slaughtering. They also sold to some retailers who could not afford whole cattle daily (i. e. two or three retailers putting finances together to purchase one cattle), while some retailers bought directly from the wholesalers. The retailers, who are those that could afford one or two cattle, and the intermediate wholesalers sold beef directly to catering companies, meat shops and final consumers in the open market. The hawkers went about in the market and streets selling beef. They purchased from retailers who could not afford to slaughter more than one cattle on a daily basis. The channels revealed that there were about 16 (sixteen) middlemen involved in the sale of cattle and as transfers took place from one middleman to the other, costs were being added and this resulted in increase of purchase price at every point of sale till it got to the final consumers. Wholesalers made up 40 percent of the cattle sellers, and retailers were 60 percent each in the study area.

The northern merchants transported cattle from the Republics of Chad and Niger on foot as their governments would never allow the use of vehicles. These northern merchants (those who buys cattle from Chad and Niger) transport them from the borders to the markets with trailers. This was the same means of transportation used by the wholesalers to bring them to Delta State. The intermediate wholesalers and retailers used buses, pick-up vans and paid cattle herders who escorted the cattle by foot to their respective places of slaughtering before distributing to catering companies, meat shops, restaurants and the open market for the consumers to buy. The most frequently used channel to market beef in the study area was that from northern merchants to northern and southern merchants to retailers and finally to the ultimate consumers in the market as shown in bold in Figure 1. This is so because, consumers in Delta State preferred buying from retailers in the open market at prices which they can afford at a particular point in time e.g. ₦200.00 for about eight pieces of beef, rather than visiting meat shops, that sold in standard weights.

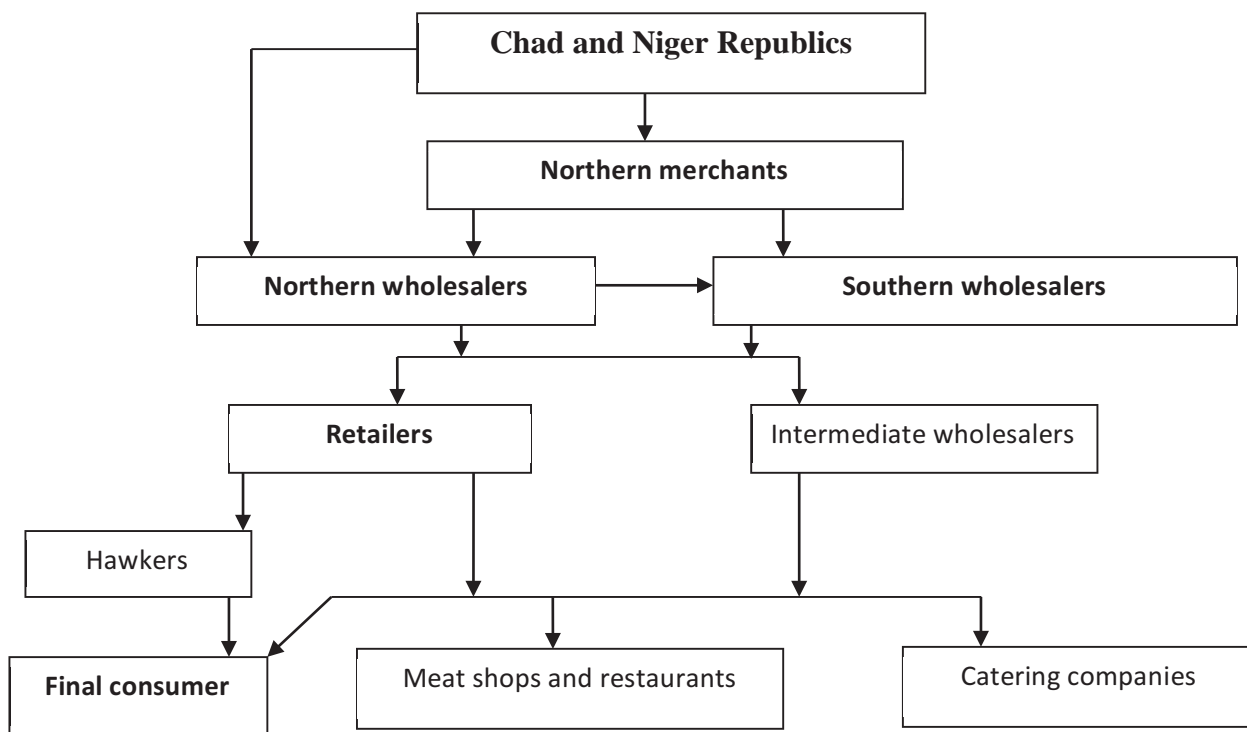


Figure 1: Marketing channel for beef in Delta State, Nigeria. **Note:** **Bold** = Major Channel

Factors Affecting Wholesale Prices of Cattle

The results of the factors affecting wholesale prices of cattle in the study area, is shown in Table 1. The R-Square (R^2) value of 0.899 or 89.9% showed the variations in cattle wholesale selling price are accounted for by the variation in the eight independent variables put together. The coefficient of buying price was positive and significantly related to selling price at 5% level. This was as expected and implied that as buying price increases, the selling price of cattle would increase also.

The coefficient of transport cost was negative and significant at $p < 0.10$. This implied that as transport cost increase, selling price of cattle would decrease and this is against *a priori expectation*. Market charges had a positive coefficient and significantly related ($P < 0.10$) to selling price. This implies that increase in marketing charges (such as rent on land among others) will increase wholesale selling price will also increase. The coefficient of commission rate was also positive and significant ($p < 0.05$), in the same manner

The marginal effect (mfx) ran on the regression to ascertain the level of percentage by which each variable affected the dependent variable showed that: 1% increase in buying price would lead to a 10% increase in selling price, and a 1% decrease in transport cost would result to a decrease in selling price of cattle by 28.78%, while market charges would increase by 22.3%. A 1% rise in cost of loading and offloading will result to a 26.7% decrease in selling price and 22.6% rise in

selling price in commission rate. The F-statistics calculated, 2.121, was greater than the F-tabulated, indicating that there was a significant impact between the dependent and the independent variables.

Factors Affecting Retail Level of Beef

The result of the factors affecting retail price of beef in the study area, is shown in Table 2. The R^2 -adjusted value of 0.979 showed that 97.9% of the variation in selling price of beef was accounted for by the joint variation in the eight variables put together. The adjusted R^2 also supported the claim with a value of 0.975 or 97.5%. The coefficients of buying price and transport cost were positive and significant at 5% level of probability. These would cause an increase in the retail selling price of beef. This was as expected and might imply that retailers went to different markets in the state to purchase cattle and different abattoirs before taking beef to the markets to be sold. The coefficient of tax rate was positive and both were significant at 10% level. The implications are that a decrease in tax rate would decrease the retail selling price, while an increase in the cost of loading and offloading would increase the retail selling price. The coefficients of market charges, costs of butchering were positive, while that of costs of renting stall was negative and not significant.

The marginal effect of the variables showed that 1% increment in buying price would increase retail selling price of beef by 9.3%, while a 1% rise in transport cost had negligible effect on selling price. A 1% increase in tax rate also had a negligible effect on the selling price of beef, but loading and offloading costs had 0.3% effect on the selling price of beef. All these could be attributed to the short distance from the wholesale markets to the retail markets as the ratio of these variables on each trip were negligible to the expenses of the retailers in the study area and also loading and offloading were mostly done by their worker who were learning the trade under them and as such they were not usually paid any amount of money. The F-calculated statistic value of 276.164 was greater than any value in the F table which implied that there was a significant relationship between the dependent and independent variables.

Marketing Margins for Cattle Wholesalers and Beef Retailers

The results of the weekly market margins in the study area showed that wholesale selling price for life cattle was ₦141,433.33, the mean purchase price was ₦118,583.33 while the weekly margin was ₦22,850.00. The percent marketing margin for cattle wholesalers was 19.3%, on the other hand, the mean weekly retail selling price for beef was ₦1,063,500.00 while the purchase price was ₦827,375.00. These gave a retail margin for beef to be ₦236,125.00 weekly. This finding was contrary to the market margins found by Waziri (2006), where the wholesalers' margin for *gari* was higher than that of the retailers. Also, Agbugba (2007) found out that the wholesalers' margin was higher than that of the retailers in a study conducted on wood charcoal marketing in Abia State of Nigeria.

Conclusion and Recommendations

The study showed that all the cattle slaughtered in Delta State were bought and brought from some northern states in Nigeria (Kano, Borno, Yobe, Jigawa, Adamawa and Bauchi) the margins obtained from both the wholesalers and retailers indicated that cattle enterprise is lucrative as the profit margins of both wholesalers and retailers were high as expected, and as such investors are encouraged to invest in it. It is also advisable for government to establish cooperatives that will

sponsor investors financially to help them meet up with the huge amount required to market cattle. The roads should be put in good condition and also the government subsidise transportation for these marketers to help in the reduction of the price of beef and as such make it affordable as required by the populace.

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Table 1: Factors affecting cattle wholesale price (₦)

Variables	Coefficients	Standard error	T	p> t	mfx
Constant	39502.928	29511.295	1.339	0.195	
Buying price (₦)	1.059	0.110	9.590*	0.000	0.1059
Transport cost (₦)	-0.288	0.218	-1.323**	0.021	-0.2878
Market charges (₦)	2.226	1.495	1.489**	0.010	0.2257
Cost of feed (₦)	0.017	0.488	0.034	0.973	0.1650
Tax rate (₦)	0.178	0.657	0.271	0.789	0.1778
Cost of renting land (₦)	0.302	0.164	1.841**	0.080	0.3021
Cost of loading and offloading (₦)	-2.669	2.686	-0.993	0.332	-0.2668
Commission rate (₦)	2.619	2.253	1.631**	0.008	0.2261

Note: * and ** = significant at 5% and 10% probability levels respectively.
 $R^2 = 0.899$, R^2 -adjusted = 0.848

Table 2: Factors affecting beef retail price (₦)

Variables	Coefficients	Standard error	t	p> t	mfx
Constant	0.578	0.403	1.434	0.159	
Buying price (₦)	0.934	0.024	38.929*	0.003	0.9344
Transport cost (₦)	0.009	0.004	2.548*	0.001	0.0092
Market charges (₦)	0.007	0.008	0.888	0.379	0.0071
Cost of butchering (₦)	0.000	0.011	0.011	0.991	0.0001
Tax rate (₦)	-0.009	0.009	-1.710**	0.009	-0.0094
Cost of renting stall (₦)	-0.005	0.008	0.606	0.548	-0.0046
Cost of loading and offloading (₦)	0.036	0.028	1.551**	0.008	0.0357

Note: * and ** = significant at 5% and 10% probability levels respectively. $R^2=0.979$, R^2 -adjusted=0.975,