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Economic Analysis of Cattle Marketing in Gombe, Nigeria

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Abstract

The study was conducted in 2010 to assess the profitability or otherwise of cattle marketing in Gombe, Gombe state, Nigeria. Data were collected using structured interview-schedule from 40 randomly selected cattle traders and were analyzed using budgeting technique. Results showed that the net income of small, medium and large size cattle was ₦6, 438.69, ₦11, 056.25 and ₦16, 474.64 per cattle respectively. Similarly, the respective values of gross return per each Naira invested were 1.18, 1.16 and 1.14 respectively while those of gross ratio were found to be 0.845, 0.846 and 0.876. On the other hand, average net income accrued to each trader per trading cycle were ₦19, 036.09, ₦ 27, 215.39 and ₦ 56, 837.50 for small, medium and large size categories of cattle, respectively. Thus, cattle marketing in the area were profitable and therefore recommended as an economic venture.

Keywords: Profitability, net income, return per naira, gross ratio

Introduction

Economic analysis involves studying costs and returns of an activity or project with a view of determining returns to entrepreneurship or net income of that activity. Total costs in agricultural marketing consists of purchase cost and marketing cost; while the former is the cost of owning the products, the latter refers to the actual expenses incurred in the performance of marketing functions as the product moves from farm to the ultimate consumer (Olukosi and Samuel, 1990). Total returns, on the other hand, is the total or gross income realized from the sales of products and from which total costs is deducted to arrive at net income or returns to entrepreneurship.

Apart from serving as a source of food for human, animal agriculture is also important in providing non-food materials such as hide, skin, wool and feathers which are in turn used as raw materials for manufacturing other valuable products. The Nigerian livestock population was reported to be about 150 million excluding pigs, dogs, cats, rabbits and guinea pigs (Bourn *et al.*, 1994). In monetary terms, the value of Nigerian livestock resources was conservatively estimated to be approximately six billion US Dollars (Akande *et al.*, 2011). Of the Nigerian livestock population, cattle contributed about 10% while in monetary terms, they accounted for about 40% of livestock total revenue of Nigeria (Mclntyre *et al.*, 1992).

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Despite the important role being played by cattle marketing in the economy of Gombe, there is little work carried out to determine the profitability or otherwise of the enterprise in the area. Gombe metropolis was chosen for the study because it is one of the largest among its neighboring locations not only by number of buyers and sellers but also in terms of number of animals traded. Based on the aforementioned, this study attempts to determine the profitability or otherwise of cattle marketing in the area. The outcome of the research would be essential in determining whether or not investment in cattle marketing in the area is worthwhile, hence justifying the relevance of the study to all stakeholders of cattle marketing and distribution.

The study attempts to answer questions such as: What is the average net return each for different sizes of cattle and what is the average net return accrued to a trader per trading cycle in the area? A marketing cycle as used in this study is an average length of time it takes a trader to dispose-off or sale all his cattle before purchasing another batch. This length of period in the study area was found to be averagely 16 days.

Methodology

The study area

The study area lies between latitude 9^0 to $12^{0\ north}$ and longitude 8^0 to 11^0 easts with an altitude of 407 meters above sea level. It has mean maximum and mean minimum temperature of 32.8^0C and 18.3^0C respectively. The coldest months are from November to January while March to May is the hottest period. Gombe metropolis has a rainfall distribution which ranges from 970.7 mm to 1,142 mm annually, with a mean of 1,009.4 mm. The rain falls from the month of April to October. The vegetation of the area is savannah grassland (Gombe State Government, 2009) with a land mass of 1,279.62 square kilometers, a population of about 261,536 people (NPC, 2006). Most of the inhabitants of Gombe are predominantly farmers and traders with well-established regional markets for livestock and grains in the area.

The predominant cattle breed in the area is White Fulani while few other breeds are also found. A White Fulani breeds has a live weight of 250kg – 665kg (Tawa and Rege, 1996).

Sampling procedure

Simple random sampling technique was employed to select 40 cattle traders for the survey from the sampling frame of about 400 traders in the area. First, a list containing all the names of cattle traders in the study area was collected from the local cattle traders' association and then a Table of random numbers was used to select the 40 traders as explained by Pagano (1994) and many other statistical books.

Data collection and analysis

Data were collected in 2010 from cattle traders in Gombe metropolis using interview schedule method and from the data budgeting technique was employed to compute net income and returns per Naira invested as indices for measuring profitability. Earlier, a preliminary survey in Gombe livestock market revealed that for easy transactions cattle were being classified based on their sizes into small, medium and large each category weighing approximately <350kg, 350 – 480kg and >480kg, respectively as reflected by their body condition scores. This also corresponds to a classification of cattle by Zahraddeen *et al.* (2009) for small, medium and large sized as those that were 3 years or less, 3-6 years and more than 6 years old, respectively. Thus, analyses in this study were carried out for each of these categories of cattle.

Models specification

i. Total cost (₦)

The Total cost (TC) was captured as sum of Purchase cost (PC) and Marketing cost (MC). Thus,

$TC_S = PC_S + MC_S$ - - - - - - - - - - - - - - - - - - (1)
$TC_M = PC_M + MC_M$ - - - - - - - - - - - - - - - - - - (2)
$TC_L = PC_L + MC_L$ - - - - - - - - - - - - - - - - - - (3)

Where:

TC_S, TC_M and TC_L = Total costs in Naira of small, medium and large size cattle, respectively
PC_S, PC_M and PC_L = Purchase costs in Naira of small, medium and large size cattle, respectively

$MC_{S,}$ MC_M and MC_L = Marketing costs in Naira of small, medium and large size cattle, respectively.

It is important to note that marketing costs composed of market tax, storage costs, traders' union levy, loading and offloading costs, transportation costs, agent commission and cattle maintenance costs.

ii. Gross income (₦)

The Gross income was computed as total income in Naira received by traders from the sales of cattle; and for each size category, it is defined as number of cattle sold in the category multiplied by the average price of the cattle in that category. Thus,

$GI_S = Y_S \times pY_S$ - - - -- - - - - - - - - - - - - - - - (4)
$GI_M = Y_M \times pY_M$ - - - - - - - - - - - - - - - - - - - (5)
$GI_L = Y_L \times pY_L$ - - - - - - - - - - - - - - - - - - - (6)

Where:

$GI_{S,}$ GI_M and GI_L = Gross income in Naira of small, medium and large size cattle, respectively
$Y_{S,}$ Y_M and Y_L= Number of small, medium and large size cattle sold, respectively.

pY_S, pY_M and pY_L = Average price of small, medium and large size cattle, respectively

iii. Net income (₦)

This represents trader`s profit or return to entrepreneur due to cattle marketing. It is depicted as:

$NI_S = GI_S – TC_S$ - - - --- - - - - - - - - - - - - - - - (7)
$NI_M = GI_M – TC_M$ - - - - - - - - - - - - - - - - - - (8)
$NI_L = GI_L – TC_L$ - - - - - - - - - - - - - - - - - - - (9)

Where:

$NI_{S,}$ NI_M and NI_L = Net income obtained in Naira due to marketing small, medium and large size cattle respectively.

GI_S, GI_M, GI_L, TC_S, TC_M and TC_L are as defined earlier. Here, the higher the value of NI, the higher the trader's equity or profit and the better the business.

iv. Returns per Naira invested

This is represented as RNI and it is the monetary returns in Naira obtained from every single Naira invested in marketing of cattle. Thus:

$RNI_S = GI_S / TC_S$ - - - - - - - - - - - - - - - - - (10)
$RNI_M = GI_M / TC_M$ - - - - - - - - - - - - - - - - (11)
$RNI_L = GI_L / TC_L$ - - - - - - - - - - - - - - - - - (12)

Where:

$RNI_{S,}$ RNI_M and RNI_L are ratios that represent gross return per Naira invested in small, medium and large size cattle respectively.

$GI_{S,}$ GI_M, $GI_{L,}$ $TC_{S,}$ TC_M and TC_L are as earlier defined. The decision rule is that, if the value of RNI is greater than 1, the business yields profit; and if it is less than 1, it yields loss. On the other hand if it equals 1, the enterprise is said to breakeven – a situation where a business yields neither profit nor loss.

Gross ratio

This is another measure of business success and was used to determine the proportion of gross income suffice to cover total costs i.e. purchase and marketing costs put together. The model is described as:

$GR_S = TC_S / GI_S$ - - - - -- -- - - - - - - - - - - - (13)
$GR_M = TC_M / GI_M$ - -- - - - - - - - - - - - --- -- (14)
$GR_L = TC_L / GI_L$ - - - - - - - - - -- - - - -- - - - - (15)

Where:

$GR_{S,}$ GR_M and GR_L = Gross ratios in marketing small, medium and large size cattle respectively, while TC_S , TC_M , TC_L , $GI_{S,}$ GI_M and GI_L are as earlier defined. If the value of GR is greater than 1, it means total cost is more than the gross income and the business is said to be a failure; and if it is less than 1, gross income is more than the total cost and the business is said to be a successful one. On the other hand if the GR value equals 1, the enterprise is said to breakeven – a situation where a business yields neither profit nor loss. Thus, the decision rule is that the lower the ratio of GR, the better the business performance.

Results and discussion

Costs and returns analysis

Table 1 shows that the total costs involved in the purchase and marketing of small, medium and large size cattle were ₦35 076.03, ₦70 287.50 and ₦115 844.20 respectively. Further, the respective Gross and Net income values were found to be ₦41 514.72 and ₦6 438.69 for small size, ₦81 343.75 and ₦11 056.25 for medium size and ₦132 318.84 and ₦16 474.64 for large size cattle. Gross income refers to the total revenue obtained by a marketer from the sales of cattle while Net income is the actual gain or profit accrues to the marketer. Similarly, the returns per Naira invested in the respective categories of the cattle were 1.18, 1.16 and 1.14 implying that for each ₦1 capital invested in the purchase and marketing of cattle, ₦0.18, ₦0.16 and ₦0.14 or 18%, 16% and 14% of the ₦1capital were realized as returns to entrepreneurs or profits for small, medium and large sized cattle respectively. These are quite lower than the 1.67 obtained by Umar *et al*. (2008) in his study of cattle fattening in Borno State, Nigeria. The parity can be due to the fact that combining fattening and marketing requires more resource-inputs in terms of time, labor and capital investments than only marketing. The Gross ratios of the small, medium and large size cattle were 0.845, 0.846 and 0.876 respectively implying that 84.5%, 84.6% and 87.6% of the gross incomes would suffice to payback total costs in the respective categories. The results also showed that the marketing margin for the small, medium and large size cattle was 25.08%, 20.55% and 18.18% respectively of the consumers pay, indicating that the proportions of resale price taken by marketing cost and traders' profit decreased as the traders handled larger animals even though the absolute values increased. This implies that all things being equal, in situations of capital constraint traders shall concentrate more in handling smaller cattle than larger ones. Furthermore, the high proportions of the marketing margins could mean much expense was being incurred on the animals by traders before reselling probably in form of feeding costs. These proportions of marketing margin to consumers pay are much higher than the 9.8% obtained by Murtala (2008) in Kano State, Nigeria. However, the parity could be due to locational difference where Kano state is well known in receiving high supply of cattle from neighboring Niger Republic.

Table 1: Average costs and returns of cattle marketing in Gombe metropolis (₦ / cattle) categories of cattle being traded

Components	Small size	Medium size	Large size
Purchase Cost	31, 102.94	64, 625.00	108, 260.87
Marketing Cost	3, 973.09	5, 662.50	7, 583.33
Total Cost	35, 076.03	70, 287.50	115, 844.20
Gross income	41, 514.72	81, 343.75	132, 318.84
Net income	6, 438.69	11, 056.25	16, 474.64
Return per Naira Invested (RNI)	1.18	1.16	1.14
Gross ratio	0.845	0.846	0.876
Margin (%)	25.08	20.55	18.18

Exchange rate: ₦160 = 1USD
Source: Field survey, (2010)

Table 2 on the other hand reveals that in each marketing cycle of approximately 16 days as discovered by the study, the average total cost and gross income for a trader in the study area were ₦ 103, 703.04 and ₦ 122, 739.13 (small size), ₦ 173, 015.38 and ₦ 200, 230.39 (medium size) and; ₦ 399, 662.50 and ₦ 456, 500.00 (large size). These, however, resulted to the average net incomes of ₦19, 036.09, ₦ 27, 215.39 and ₦ 56, 837.50 per trader for small, medium and large size cattle in one marketing cycle. This makes the business of cattle marketing in the are profitable.

Table 2: Average costs and returns of cattle marketing in Gombe metropolis, Nigeria (₦ /Trader/Cycle)

	Categories of Cattle		
Components	**Small size**	**Medium size**	**Large size**
Purchase Cost	91, 956.52	159, 076.92	373, 500.00
Marketing Cost	11, 746.52	13, 938.46	26, 162.50
Total Cost	103, 703.04	173, 015.38	399, 662.50
Gross income	122, 739.13	200, 230.39	456, 500.00
Net income	19, 036.09	27, 215.39	56, 837.50

Note:

1. one marketing cycle among the traders was approximately 16 days
2. Exchange rate: ₦160 = 1USD

Source: Field survey, 2010

Conclusion

The study assessed the economics of cattle marketing in Gombe metropolis, Gombe State, Nigeria. It showed that the net income of small, medium and large size cattle was ₦6, 438.69, ₦11, 056.25 and ₦16, 474.64 per cattle, respectively. Similarly, the respective values of RNI were 1.18, 1.16 and 1.14 while those of gross ratio were found to be 0.845, 0.846 and 0.876. On the other hand, average net income accrued to each trader per trading cycle was ₦19, 036.09, ₦ 27, 215.39 and ₦ 56, 837.50, for small, medium and large size categories, respectively. Based on these, cattle marketing in the area can be said to be profitable and therefore recommended as a profitable economic venture.

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