COST AND RETURN OF BEEF CATTLE BUTCHERY ACTIVITIES IN KANO KADUNA AND KATSINA STATES, NIGERIA

Rekwot, G. Z.,Anosike, F.U., Achi, P.N., Atiku, J.A Owoshagba, O. B and Ibrahim, O.A.
National Animal Production Research Institute, Ahmadu Bello University, Shika, Zaria Nigeria
Corresponding Author's Email and Phone No.: zrekwot@gmail.com+2348038013957

ABSTRACT
The objectives of this study were to determine the profitability of beef cattle production, A multi-stage sampling procedure was employed in the selection of a sample size of 72 beef cattle butchers used in the study. The study made use of primary data which were obtained through the use of computer-aided personal interview software. Descriptive statistics and Net income analysis was used for the data analyses. The results of the profitability of beef cattle butchery activities shows that the total cost incurred in beef cattle butchery was ₦4,093.77 per 10 slaughtered cattle, the total revenue was ₦33,185.15, resulting in a net revenue or profitability of ₦29,091.38 per 10 slaughtered cattle. The results of the constraints confronting the beef cattle butchering activities showed that most (95.5%) of the abattoirs lack facilities. It can be concluded that beef cattle butchery activities was a profitable agribusiness activity. Lack of facilities in the abattoirs was one of the major constraints encountered by majority of the butchers in the study area as such it was recommended that private sector should participate in the provision of better slaughtering facilities such as modern abattoirs.
Key Words: Profitability, butchers, net income, Abattoirs.

INTRODUCTION
Beef cattle production is a crop-livestock economic production activity in the core cattle producing states of Nigeria because they are used for farm operations and subsequently fattened and sold off (Okaiyeto *et al.,* 2006). However, beef cattle production has been shown to be inefficient across nomads, agro-pastoralists and ranchers indicating that there is still much opportunity for increased efficiency given the present state of technology (Nwigwe *et al.,* 2016). Butchery in the beef production includes stunning, exsanguinations, skinning, and evisceration, splitting and selling of the beef and its products to the consumers. Economically butchery activities provide an important source of empowerment and income generation in Nigeria and it has an important socio-cultural position in the rural areas (Oyediran *et al.,* 2018). Empirical evidence on cost and returns of butchery activities in the study area is limited in the study area.
Therefore, the main objectives of this study were to**:**

i. determine the costs and returns of beef cattle butchers in the study area
ii. identify the constraints limiting beef cattle butchers in the study area

METHODOLOGY
Study area
The study was conducted in Kano, Kaduna and Katsina States of north-west zone, Nigeria. The north-west comprises of Jigawa, Kano, Katsina, and Kaduna, Zamfara, Sokoto and Kebbi States. According to the 2006 population census, the total population of the zone was estimated at 35.7 million with an average density of 103 persons per square kilometer (NPC, 2006). The projected population of the zone in 2016 was about 47.5 million, based on an annual growth rate of 3.2%. The north-west zone is known for livestock production activities such as cattle, goat, sheep, and poultry etc.
Sampling and data collection
Multi-stage sampling technique was employed in the selection of the respondents. First, six Local Government Areas (LGAs) Rimin Gado, Gwarzo, Kubau, Soba, Faskari and Kafur were purposively selected (two from each State) based on their prominence in beef cattle production (agro-pastoralist). One abattoir in each of the 6 LGAs was randomly selected to give a sample of 6 abattoirs and 10 butchers per abattoir to give a sample of 66 butchers derived from a registered list of cattle butchers association.

The study made use of primary data. The data were obtained through the use of computer-aided personal interview (CAPI) version of survey instrument rather than paper-based questionnaire. The survey was administered using trained enumerators under the supervision of the first author.

Analytical Technique

Descriptive statistics

Descriptive statistics such as percentages was used to identify the constraints limiting beef cattle butchery activities in the study area.

Net income analysis

Net income analysis was used to determine the cost and returns of beef cattle butchery. It is expressed as:

π = Net income or Profit (₦)

TR = Total revenue (unit price x quantity) (₦)

TC = Total cost (Total variable cost + Total fixed cost) (₦)

The unit of profit for beef cattle butchery was Naira per 10 slaughtered cattle. Variable costs for butchers includeD cost of beef cattle/beef purchase, feeds, water, labour, marketing costs such as costs of transportation, packaging, beef refrigeration, market charges, brokers charges, costs of processing items etc. Fixed costs included depreciation on equipment and tools as well as land/shop rent. The depreciation was estimated by the straight line method:

$$D = \frac{P-S}{N} \quad \ldots\ldots 3.3$$

Where,

D = Depreciation (₦)

P= Purchase value of each asset (₦)

S= Salvage value, which is the price of the asset after its expected years of usage (₦)

N = Life span of the asset measured in years.

Following Bennett *el al.* (2019) a value added model was used to gain further insights on the value created by the actors in the beef cattle value chain and it is expressed as follows:

$$VA = TR - IC \quad \ldots\ldots 3.4$$

Where,

VA = Value added (₦)

TR = Total revenue (unit price x quantity) (₦)

IC = Intermediate consumption (cost of raw materials used up in the value addition activity) (₦)

Profitability of beef cattle butchery

The costs and returns in beef cattle butchery enterprise was estimated per 10 slaughtered cattle**.** The results presented in Table 4.1 showed that a total cost of ₦4,093.77 was incurred while total revenue of ₦33, 185.15 was generated by the beef cattle butchers resulting in a profitability of ₦29,091.38 per 10 slaughtered cattle. This showed that beef cattle butchery was profitable in the study area. The profit per naira invested in beef cattle butchery was 7.11 which indicated that a naira invested in beef cattle butchery gave a profit of ₦ 7.11. This high returns supported the income generation and youth empowerment opportunities in butchery activities as reported by Oyediran *et al.* (2018). Also, the results revealed that value addition by beef cattle butchery in the study area was ₦30,460.31. The average number of cattle slaughtered by the butchers in a month was 38. Based on the average number of cattle slaughtered in a month, an annual income of ₦1,326,566.92 was generated which was far above the minimum wage of ₦216,000 per year (₦18,000 per month). Therefore the income generated from beef cattle value chain by the butchers corresponded to 614.2% of the annual national minimum wage which was in agreement with the findings of Oyediran *et al.* (2018) on the potentials of butchery activity for income generation. In terms of the cost components of butchery activity, the costs of processing items (₦2,167.41 per 10 slaughtered cattle) constituted the highest variable cost incurred in beef cattle butchery activities in the study area and the least was the cost of water (₦557.43) as shown in table 1.

Table 1: Costs, returns, profitability and value addition of beef cattle value chain actors

Items	Butchers
Average costs	
Water	557.43
Marketing charges/tax/levy	1,152.60
Processing items (ingredients, firewood, kerosene etc.)	2,167.41
Total variable cost (TVC)	3,877.44
Depreciation	216.33
Total fixed cost (TFC)	216.33
Total cost (TC)	4,093.77
Average revenue	
Revenue per 10 cattle slaughtered	33,185.15
Total revenue (TR)	33,185.15
Net income (NI) = TR-TC	29,091.38
Profit per naira invested (NI/TC)	7.11
Intermediary consumption (IC)	2,724.84
Value added = TR-IC	30,460.31

Note: Average number of cattle slaughtered by butchers per month is 38

Constraints faced by butchers in beef cattle value chain

Lack of facilities in abattoirs indicated by 95.5% of the butchers ranked as the first constraint faced by the butchers as shown in Table 2. The poor and unhygienic conditions of abattoirs was not only common to the study area but appears to be a common challenge in most abattoirs across the country as reported by Iyiola, and Oni-Ojo (2013). This adversely affects the effective operation of butchery activities in the abattoirs. Lack of access to credit as indicated by 75.0% of the butchers ranked as the second constraint faced by butchers in the study area. This is in line with the findings of Oyediran *et al.* (2018) who reported that poor infrastructure in the abattoir and limited access to credit as well as poor financial support from formal financial institutions were some of the constraints faced by youths involved in butchery activities in the Abattoirs of Ogun State, Nigeria. Other constraints faced by butchers in the study area were high cost of butchery inputs, inadequate organization of butchers, lack of training opportunities, high charges, low bargaining power/difficulty in setting price and lack of health inspection of animals before slaughter.

Table 2: Constraints faced by butchers (n=66)

Constraints	*Frequency	Percentage	Ranking
Lack of facilities in abattoir	63	95.5	1st
Lack of access to credit facilities	58	87.8	2nd
High cost of butchery inputs	46	69.6	3rd
Butchers are not well organized	46	69.6	3rd
High charges	35	53.0	4th
Lack of training opportunities	24	36.3	5th
Low bargaining power/difficulty in setting price	22	33.3	6th
Lack of health inspection of animals before slaughter	8	12.1	7th

*NB: Multiple responses allowed

CONCLUSION AND RECOMMENDATION

It can be concluded that beef cattle butchery activities was a profitable agribusiness activity. Lack of facilities in the abattoirs was one of the major constraints encountered by majority of the butchers in the study area. Therefore, it was recommended that private sector participation in the provision of better slaughtering facilities such as modern abattoirs and proper drainage systems, amongst others were necessary to create good enabling environment to improve beef butchery activities.

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