



ECONOMICS OF SHEEP MARKETING IN DAMBAM LOCAL GOVERNMENT AREA OF BAUCHI STATE, NIGERIA

Kolo, A., Mohammed, I. and Sani, R. M.

Department of Agricultural Economics and Extension

Abubakar Tafawa Balewa University Bauchi, Nigeria

Corresponding Authors' E-mail: abdulwahabkolo@gmail.com **Tel:** 08061572214

ABSTRACT

The study examined economics of sheep marketing in Dambam Local Government Area of Bauchi State, Nigeria. Multi-stage sampling technique, which consists of purposive and random sampling, was used to collect data from 1890 respondents for the period of 37 weeks. Data were analyzed using descriptive statistics, linear multiple regression and marketing margin techniques. The marketing margins were ₦ 3,142 (mean), ₦ 3,000 (minimum) and ₦ 13,000 (maximum) per head. The respective traders net income were ₦ 1,453 (mean), ₦ 2,650 (minimum) and ₦ 10,380 (maximum) per head. The result of linear multiple regression analysis revealed that 65% variation in the selling price of sheep was accounted for by the included independent variables. The major constraints to sheep marketing in the study area were insecurity, poor road, lack of access to credit and lack of standard unit of measurement. The study concluded that sheep marketing was profitable in the study area. The study recommended that government should encourage youth to venture into the business. This should be seen as a policy option for combating unemployment among youth in Nigeria.

Keywords: Average, Insecurity, Measurement, Price, Sheep.

INTRODUCTION

The importance of livestock sector in Nigeria is recognized in its contribution to human welfare and improvement of agriculture in general. The goal of livestock sector development policy is to attain efficiency in the production of livestock and livestock products, such as meat, wool, manure, traction, and savings (Hooft *et al.*, 2008). West Africa accounted for 25% of cattle, 33% of sheep, and 40% of goats that are available in Africa (Kamuanga *et al.*, 2004). In Nigeria, livestock rearing is one of the main economic activities on which the populations depend for food and income in both rural and urban areas. Hooft *et al.* (2008) reported that, in Nigeria, the contributions of livestock include food security, family income, risk mitigation, and social roles.

Small ruminants play important role as source of income to rural and urban dwellers. At macro level, meat, hide and skin are important sources of foreign exchange (CSA, 2004). Agricultural marketing in the tropics is one of the most important sectors of the economy in which small ruminant marketing have a substantial impact on the economy in which it operates. The importance of livestock marketing cannot be overestimated since it brings about specialized production for better skill and efficiency thereby providing opportunities for exchange of goods and services (Mubi *et al.*, 2012). Despite the increasing demand for small ruminants, marketing of sheep in Nigeria is still faced with a number of impediments. Potential production and market opportunities for sheep have not been exploited because of inadequate knowledge of sheep demand patterns. To shift production from subsistence to a more commercial outlook, it is especially important to improve the profitability of the enterprise. Sheep marketing is the performance of business activities that direct the forward flow of sheep from the producer to the ultimate consumer. In developing countries sheep marketing is entirely in the hands of



traditional middlemen (Bose *et al.*, 2010). According to Mohammed *et al.* (2013), production alone is not enough if products are not extended to ultimate consumers through the process of marketing and distribution. Majority of rural dwellers depend on the production, marketing and consumption of small ruminants for their livelihood. Nwokoye (1981) argued that, marketing is a motivating force in promoting specialization and capital accumulation as well as instrument for income generation to individuals and foreign exchange earnings.

Marketing of sheep is one of the major activities in Dambam LGA. A study on the economics of sheep marketing can provide important information on how the markets work. In fact, the availability of this kind of information may help a government to decide on the extent to which it should promote market development. This necessitates a comprehensive study on the economics of sheep marketing in the study area. Thus, this study was conducted to answer the following questions:

- i. What are the costs and return involved in marketing of sheep in the study area?
- ii. What are the factors that influence selling price of sheep in the study area?
- iii. What are the constraints associated with marketing sheep in the study area?

MATERIALS AND METHODS

The study covers Dambam Local Government Area of Bauchi State. The area is located in the Northern guinea savannah between Latitude 8^o 42' to 10^o 30' North of the Equator. It is bounded to the North by Pokistum L.G.A of Yobe State, and to the South by Katagum L.G.A, to the East by Gamawa LGA and to the West by Misau and Darazo L.G.As of Bauchi state. It covers an estimated land area of 1,077 km² (BSADP, 2004) and has a total population of 150,922 persons (NPC, 2006). It has mean maximum and mean minimum temperature of 42.8^oC and 18.3^oC, respectively. Furthermore, annual rainfall in the area ranges from 800-900mm with a mean of 879mm; the rain falls from the month of June to October. Most of the inhabitants of the area are predominantly farmers and traders with well-established regional market predominantly occupied by small ruminants - Goats and sheep.

Multi-stage sampling technique was employed to identify respondents for the study. In the first stage, three markets were purposively selected from each of the districts of the L. G. A. viz: Dambam, Dagauda, and Jalam based on preponderance of production and marketing of sheep. Finally, simple random sampling was carried out to select sheep traders for the study.

Primary data used were collected from 1,890 respondents using a semi-structured questionnaire. The types of data were those related to the research questions. Descriptive statistics (frequency distribution, percentages, mean, range, standard deviation and standard errors) and regression analysis, using SPSS statistical package, were used in analyzing the data. Marketing margin analysis was used to measure market performance of the sheep trading. Iheanacho (2005) defined marketing margin as the difference between the price consumers pay and that obtained by producers. In this circumstance, the market margin is the difference between prices at two market levels.

$$\text{Marketing Margin} = \text{selling price} - \text{supply price} \quad \dots (1)$$

where;

Selling price = retail price

Supply price = purchase price

Regression analysis was used to identify factors influencing the selling price of sheep in the study area. Maxa *et al.* (2009) suggested that multiple regression based on hedonic price model is an appropriate technique to use in determining factors influencing selling price of small ruminants. Before then, Williams *et al.* (2003) used multiple regression models to



analyze the determinants of selling price of sheep and goats.

The model specification is as shown below:

Y = a + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + b6X6 + e ... (2)

where;

Y = Selling price of sheep (₦)

a = Constant

X1 =Live weight (kg)

X2 =Age of animal (years)

X3 = trader's capital (₦)

X4 = Number of animals handled

X5 = Handling cost (₦)

X6 = Cost of transportation (₦)

e = Error term

RESULTS AND DISCUSSION

Costs and Returns of Sheep Marketing

Table 1 shows the mean (₦ 24,548.08), minimum (₦10,500) and maximum (₦ 47,000) purchase costs of a sheep while the respective marketing costs were ₦ 1,689 (mean), ₦ 350 (minimum)and ₦ 2,620(maximum). These resulted to total costs of ₦26, 237.2, ₦ 10,850 and ₦ 49,620 as mean, minimum and maximum. On the other hand, the mean, minimum and maximum selling price or gross income of a sheep was found to be ₦ 27,686, ₦ 13,500 and ₦ 60,000 respectively. Marketing margin according to Funke (2006) is the different between the sale price of the animal and cost incurred in the selling including purchase price of the animal including buying, transports etc. The marketing margins of 3,142 (mean), 3,000 (minimum) and 13,000 (maximum) was realized, while the respective net income of traders were ₦ 1,453(mean), ₦ 2,650 (minimum) and ₦ 10,380(13,000 (maximum). This is in line with the findings of Maikasawa and Jabo (2014) who reported a Net profit of ₦ 5, 704.6 per head in Sokoto metropolis of Sokoto State, Nigeria.

Table 1: Average Cost and Returns of Sheep Marketing in Danbam LGA (₦/sheep)

Table with 4 columns: Item, Mean, Minimum, Maximum. Rows include Purchase price, Government tax, Commission fee, Transport cost, Facilitating cost, Total marketing cost, Total cost, Selling price, Marketing margin, Net income (profit).

Source: Field survey, 2014

Factors influencing selling price of sheep

The results in Table 2 reveals that number of sheep handled by a trader, the age of the animals and the weights of the animals at the times of sales were the statistically significant (p ≤ 0.001) factors determining the selling price of sheep in Dambam LGA. This means that an



increase in any of these variables leads to an increase in the selling price of sheep. For example, generally the older a sheep is, the higher the selling price it attracts. On the other hand all other variables (capital, cost of transport per sheep and handling cost), exerted positive but insignificant influences on selling price of sheep. Meaning that even though, increases in each of these variables can result into additional increases in selling price per sheep but the increases were not statistically significant. Further, the coefficient of determination (R^2) was 0.65 implying that 65% of the variations in selling price of sheep were caused by the included independent variables ($X_1 - X_6$). Finally, the F – ratio of 1764.47 was also significant ($p \leq 0.001$). This implies that data fit the model used for the analysis.

Table 2: Factors influencing selling price of sheep

Variables	Coefficient	Standard error	t-value
Constant	3798.554	357.592	10.623***
Capital (₦)	0.001	0.001	0.199 ^{NS}
Number of animals sold	181.668	23.319	7.790***
Cost of transport per sheep(₦)	4.793	3.464	1.384 ^{NS}
Age of animal (years)	1205.546	62.742	19.214***
Weight(kg)	499.840	7.423	67.338***
Handling cost (₦)	0.019	0.172	0.113 ^{NS}
R^2	0.652		
Adj- R^2	0.651		
F-statistic	1764.471***		

Note: *** = Significant at $p \leq 0.001$; NS = Non significant

Source: Field survey, 2014.

Constraints Associated With Sheep Marketing

The constraints associated with sheep marketing in the study area were investigated and results are presented in Table 3. Analysis of the constraints as experienced by the traders in the study area revealed that 68% of the respondents indicated insecurity as their major problem. This was probably associated with the general security threats in the north-east sub-region of the country particularly in the neighboring areas of Azare, Ngalda and Potiskum livestock markets. The second most important problem was poor road network mentioned by 51% of the total respondents. The traders sometimes transport their sheep on hooves to the closer main road before moving them to the markets. Other most serious problems were poor access to credit (42%), lack of standard unit of measurement (36%) and problem of haggling (34%). According to Maianguwa (2013), insufficient access to capital forces the poor to engage in less marketing activities. This suggests that, with availability of capital and its accessibility a good number of people would enter into sheep marketing activities and thus perform more efficiently. Further, observations showed that animals were being sold based on physical assessments of buyers and sellers which in most cases do not reflect the true value of the animals. However, less important constraints identified included inadequate capital, high cost of transportation, inadequate market infrastructure and inadequate market information.



Table 3: Distribution of Respondents according to Constraints to Sheep Marketing

Market constraints	Frequency	Percentage	Rank
Inadequate of information	302	16	9 th
Poor of access to credit	794	42	3 rd
Poor road Network	964	51	2 nd
Inadequate capital	605	32	6 th
High Transportation cost	529	28	7 th
Lack of standard unit of measurement	680	36	4 th
Dishonesty of middlemen	227	12	10 th
Inadequate market infrastructure	340	18	8 th
Insecurity	1285	68	1 st
Problem of haggling	643	34	5 th
Total	6425	185*	

*Multiple responses

Source: Field survey, 2014.

CONCLUSION AND RECOMMENDATION

The study concluded that sheep marketing was profitable in the study area. It recommends that government should encourage youth to venture into the business. This should be seen as a policy option for combating unemployment among youth in Nigeria.

REFERENCES

- Adeosun, O. and Adebukola, F. B. (2012) Determinants of Income from Fish Marketing in Ibarapa Area of Oyo State, Nigeria. *Science Journal of Agricultural Research and Management*. Science Journal Publication, International Open Access Publisher, <http://www.sjpub.org> **20**(12): 135-146. Retrieved on 20th /14/5/7.
- Bose, A. A., Danwanka, H. A., Hamidu, B. M. and Mohammed, S. (2010). *Analysis of Cost and Returns of Bull Marketing in Akko Local Government Area, Gombe State, Nigeria*. Proceedings of the 24th Annual Conference of Farm Management Association of Nigeria 11th -14th October 2010. Pp330-333.
- Bauchi State Agricultural Development Programme (2004). *BSADP at a glance*. A pamphlet Prepared by P.M.E Sub-programme.
- Central Statistical Authority CSA (2004). *Agricultural Sample Survey 2003/04. Volume II. Report on Livestock and Livestock Characteristics*. Statistical Bulletin 302. Addis Ababa: FDRE.
- Devendra, C. (2007). *Small Ruminants in Asia; Contribution to Food Security, Poverty Alleviation and opportunities for productivity enhancement*. <http://www.mekarn.org/procsr/> (Accessed on February 2014).
- Funke, T. B. (2006) From Farm to Retail: Costs and Margins for Selected Food Industries in South Africa. A M.Sc. Thesis in Agricultural Economics. Faculty of Economic and Management Studies, University Of Pretoria. South Africa.
- Gujarati, D. N. (1995). *Basic Econometrics*. McGraw- Hill, New York, P.220-221
- Hooft, K., Milar, D., Geerlings, E. and Django, S. (2008). *Endogenous Livestock Development in Cameroon*. Agromisa Publishers, Wageningen. The Netherlands.



- Ibrahim, S. S. and Aliero H. M. (2012). An analysis of Farmers' Access to Formal Credit in the rural Areas of Nigeria, *African Journal of Agricultural Research*, 7 (47): pp. 6249-6253.
- Ihenacho, A. C. (2005) Structural Characteristics and performance of Retail Marketing of Eggs in Maiduguri Metropolis of Borno State, Nigeria; *Journal of Sustainable Development in Agriculture and Environment*, 1(4): 70-76.
- Jabil, I. Y. (2009) Marketing of Selected Processed Dairy Product in Bauchi state, Nigeria M.Sc. Thesis, Department of Agricultural Economics and Extension, ATBU, Bauchi. 114pp
- Kamuanga, M., D'Ieteren, G., Tano, K., Mugalla, C., Pokou K., Swallow, B. and Hall, D. (2004) *Improving the productivity of crop-livestock systems under trypanosomosis risk in West Africa: Potentials and opportunities in the next decade*. In: Williams, T.O., Tarawali, S. A., Hiernaux, P., Fernández-Rivera, S. (eds). Sustainable crop-livestock production for improved livelihoods and natural resource management in West Africa: Proceedings of an international conference held at the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria, 19-22 November 2001. ILRI (International Livestock Research Institute), Nairobi, Kenya and CTA (Technical Centre for Agricultural and Rural Cooperation, ACP-EC), Wageningen, The Netherlands, p. 436-465.
- Karshi, L. Y. (2010). *Economics of Rice and Maize Marketing in Selected Market in Abuja, Municipal Area Council, Federal Capita Territory, Nigeria*. M.Sc. Thesis, Department of Agricultural Economics and Extension, ATBU, Bauchi State, Nigeria. 109pp.
- Lawal-Adebowale, O. A. (2012) Factors Influencing Small Ruminant Production in Selected Urban Communities of Abeokuta, Ogun State. *Nigerian Journal of Animal Production*, 39(1): 218 – 228.
- Lucey, T. (2002) *Quantitative Techniques*, 5th Edition, Letts, Great Britain. Pp480-481.
- Maikasuwa, M. A. and Jabo, M. S. M. (2014) Analysis of sheep and goats marketing in Sokoto metropolis, Sokoto State, Nigeria; *International Journal of Agricultural science & vetenarnry medicine*. 2(1): 2320-3730. www.ijasvm.com
- Maxa, J., Borchere, N., Thomsen, H., Simianer, H., Gauly, M. and Sharifi, A. R. (2009) Auction price of Texel, Suffolk and German white headed mutton rams: A genetic-statistical study. *Small Ruminant Res.*, 85(23): 105-110.
- Mohammed, S., Mohammed, I. Ishaku, A. (2013) Socio-economic Factors Influencing Profitability of Cattle Marketing in Gombe Metropolis, Nigeria. *International journal of Scientific and Technology Research*, 2(6): 2277-8616.
- Mohammed, S., Mohammed, I., Ishaku, A. and Zahradden, D. (2013) Economic analysis of Cattle Marketing in Gombe Metropolis, Nigeria. *Asian journal of agriculture and rural development*, 3(12): 960-965.
- Mubi A. A., Michika S. A. and Midau A. (2012) Cattle Marketing In Mubi Area Of Adamawa State, Nigeria. *Agriculture And Biology Journal Of North America.*, 4(3): 199-204.
- National Population Commission (2006). *Census report, Nigeria*.
- Nwokoye, N. G. (1981). *Mordern Marketing for Nigeria*. Macmillan, London. 316pp.
- Pius, C. I. and Odjurwuedernie, E. I. (2006). Determinants of yam production and economic efficiency among small holder's farmers in Southern Nigeria. *Journal of Central European Agriculture*, 7(2): 333-338.
- Williams, T. O., Spycher, B. and Okike, I. (2003). *Economic, Institutional and Policy Constraints to Livestock Marketing and Trade in West Africa*. Inter. Livestock Research Institute (ILRI), P.O. Box 30709, Nairobi, Kenya.