Determinants of Profitability of Goat Marketing in Yobe State, Nigeria

Ibrahim Musa Waziri[1] and Hosea Danladi[2]
Department of Agricultural Technology, Yobe State College of Agriculture, Gujba, PMB 1104 Yobe State, Nigeria[1]
Department of Agricultural Economics, University of Maiduguri, PMB 1069 Borno State, Nigeria[2]

Abstract

The study analysed determinants of profitability of goats marketing in Yobe State, Nigeria. Data were sourced from both primary and secondary sources. Four livestock markets (Gaidam, Garin-Alkali, Ngalda and Potiskum) were purposively selected because they are considered to be the largest in the study area. The sampling frame was the list of marketers obtained from their associations. The marketers on the frame were categorized into retailers and, wholesalers, each category were selected randomly proportionate to their number in each market. A total of 90 samples were used for the analysis. The percentage taken from each category in each market was 20%. Descriptive and inferential statistics were used for data analysis. The descriptive statistics used were frequency distribution and percentages. Gross margin was used to determine the profitability. Factors that influence profit of goat marketers were quantitatively determined using the Ordinary Least Square (OLS). The profitability analysis shows that retailers earned on average gross margin of ₦1520 per herd of goat while wholesalers earned gross margin of ₦1560 per herd. Result of the determinants of profitability shows that the coefficients of operating of capital (X_1) and marketing experience (X_5) had positive signs while coefficient of cost of purchase (X_2), cost of keeping/maintenance (X_3), and cost of transportation (X_4) had negative sign. Parameters with positive signs indicate that as they increase profit of the respondents' increases to their respective coefficient values. While the negative sign implies decrease in profit proportionate to their coefficient values. The study recommends among others improved transportation network to reduce marketing cost in the study area and improved credit access to expand business.

Keywords

Determinants, Profitability, Goat Marketing, Yobe State, Nigeria

I. INTRODUCTION

Nigeria the most populous country in Africa is endowed with abundant agricultural resources such as arable lands, crops and livestock that provide means of livelihoods. It serves as the main source of food and income for most of the populations. Where these resources are properly harnessed and utilized, it would address so many developmental issues such as unemployment, poverty, insecurity and hunger. Livestock industry is viewed both as important source of nutritional protein and as an employment generation sector which in turn generate income, end poverty and increase Gross Domestic Product (GDP) . In the agricultural sector it is second only to the crop and represents on average 15.3% of agriculture's contributions to the economy (Central Bank of Nigeria, 2010). Nigeria has population of about 34.5 million goats, 22.1 million sheep, 16.9 million cattle and 100 million poultry (Lawal-Adebowale, 2012a).

Goat is among the livestock largely reared by farmers in the country's agricultural system. This is because they make a very valuable contribution to household income, especially to the poor in the rural households (Isaac and Olutawayo, 2009). Goats are relatively easy to keep, they reproduce quickly and spread the risk inherent in agricultural production (Ehui*et al*., 2003), and can be used as a first step on the ladder out of poverty (Peacock, 1995). Goats are kept mainly for meat production but they also have diverse roles in the socio-cultural and economic life of their owners (Lawal-Adebowale, 2012b).

Yobe State economy is largely based on agriculture. It is among the states with highest number of goats in Nigeria with a distribution of 2.08 million goats (National Agricultural Extension and Liaison Service, 2017). In Yobe State, goats are raise as a major source of meat and immediate cash income. Goats sub-sector especially goat marketing has the potentials of employing people and generate much needed income to meet daily demand of life in the state. To achieve this, there is the need to carry out empirical study to know the profitability of goats marketing and its determinants in the study area. The study therefore was designed to investigating profitability of goats marketing and its determinants in Yobe state, Nigeria.

II. MATERIALS AND METHODS

The study was conducted in Yobe State, Nigeria. The State is located in the semi-arid zone of north eastern part of Nigeria, within latitudes 10.5^0 N and 13^0 N and longitudes 9.5^0 E and 13^0E, with a total area of 47,153 square kilometers, and estimated population of 2736537 (NPC, 2007). It shares local boundaries with Bauchi to the west, Borno to the north east, Gombeto the south, and Jigawa States to the west. It also shares international border of 323km with Niger republic to the north. The State has a range of variability in climate which made it unique from other states in the country. It has hot, cold, dry and rainy seasons in a year. The dry season lasts for more than seven months in a year. The rainy season is short, rainfall lasts between 120 to 140 days with annual drops ranging between 500mm to 1000mm from north to south. Between December and February is the period of harmattan which is characterized by cold, dry, dusty and foggy wind. The hottest period in a year is between March and part of June with temperature recording over 40^0C (Nigeria Meteorological Agency, 2010). The vegetation of the State is savannah, with notably shorter trees like *Acacia*, Termarind, Shea Butter, Locust Beans etc. The climate and vegetation of the State makes it suitable for small ruminant production.

Most of the inhabitants are rural based. About 80% of the people engaged in agriculture, 60% engaged in livestock keeping (Yobe State Economic Reform AgendaYOSERA, 2003). The State is one of the largest suppliers of livestock in Nigeria (Yobe State Ministry of Agriculture, 2011). It is noted as the “meat store” of sub-Saharan Africa. It has the largest livestock markets in West Africa and small ruminants are kept in almost every household in the State for one purpose or the other, because of the abundance of small ruminants large numbers of traders are found in every village and towns of the State (YOSERA, 2003).

Multi stage sampling procedure was used to select the respondents for the study. In the first stage four major livestock markets were purposively selected namely Gaidam, Garin-Alkali, Ngalda and Potiskum. In the second stage, marketers were categorized into retailers and wholesalers base on the number of goats handled per market day. Twenty (20%) of marketers from each category were randomly selected from each market in the third stage.

Table 1 Sampling Frame and Sample Size

Markets	Total Marketers		Sampled Marketers	
	Wholesalers	Retailers	Wholesalers	Retailers
Potiskum	25	115	5	23
Gaidam	20	85	4	17
Ngalda	25	85	5	17
Garin Alkali	20	75	4	15
Total	90	360	18	75

Field Survey 2017

Both primary and secondary data were used for this study. Primary data were obtained using structured interview schedule. While secondary data was sourced from government publications, internet and journals. Descriptive and inferential statistics were used. Descriptive statistics such as frequencies, percentages and means were used to analyze marketing constraints; gross margin was used to analyze profitability. The gross margin is represented as:

$GM = p_i q_i - \sum r_i x_j$

Where;

G.M = Gross Margin

P = Price (Naira) per herd

q = Quantity of goat sold (in number)

r = Cost of marketing services (Naira)

x = Marketing services

i = 1, 2, 3, ………… …………………m number of respondents

j = 1, 2, 3, …………………………….. n number of services employed

$i \neq j$

Determinants of profitability of goat marketers were analyzed using the Ordinary Least Square (OLS). The model is explicitly expressed as:

$Y_i = f(\beta_1 X_1, \beta_2 X_2, \beta_3 X_3, \beta_4 X_4, \beta_5 X_5, \mu_i)$

Where:

Y_i = gross margin of i^{th} respondents (Naira)

$\beta_{1\text{-}5}$ = coefficient

X_1 = Operating Capital (Naira)

X_2 = Cost of purchase (Naira)

X_3 = Cost of keeping/maintenance (Naira)

X_4 = Cost of transportation (Naira)

X_5 = Marketing experience (years)

μ_i = The error term (which is assumed to have zero mean and constant variance).

i = 1,2,3 …………………………......n number of traders.

III. RESULTS AND DISCUSSIONS

The profitability was analyzed using gross margin. Gross margin is a budgetary technique used in determining enterprise profitability, is defined as the gross revenue less variable cost. Table 2 and 3 presents results of the profitability analysis of goats marketers. The results shows that retailers earned on average a gross margin of ₦1520 per herd of goat while wholesalers earned a gross margin of₦1560 per herd of goat. This revealed that small ruminants marketing are profitable business in the study area. This is in agreement with the findings of Mafimisebi *et al.* (2013), Nasiru *et al.* (2012), and Okoruwa *et al.* (2012) who reported that livestock marketing is a portable business.

Table 2 Gross Margin of Goat Marketers (Retailers)

Items	Average Cost Per Herd (₦)
Variable Cost	
Average Purchase Price per herd	9000
Commission Charge	200
Transportation	100
Maintenance/Keeping Cost	120
Tax Paid	60
Total Marketing Cost	480
Average Selling Price Per Herd	11000
Gross Margin	1520

Field Survey, 2017

Table 3 Gross Margin of Goat Marketers (Wholesalers)

Items	Average Cost Per Herd (₦)
Variable Cost	
Average Purchase Price per herd	8000
Commission Charge	200
Transportation	100
Maintenance/Keeping Cost	80
Tax Paid	60
Total Marketing Cost	440
Average Selling Price Per Herd	10000
Gross Margin	1560

Field Survey, 2017

IV. DETERMINANTS OF PROFITABILITY OF GOAT MARKETING

The multiple regression estimates revealed that the functional form with a good fit was double log function having the highest value of the coefficient of determination (R^2) and significant variables. The estimated R^2 shows that 79.0% of the variation of the gross margin of respondents was explained by the explanatory variables specified in the model, while, 21.00% of the variation is unexplained due to random variable U_i

Table 4 Estimated Double Log Regression Function

Variable	Coefficient	Standard Error	t-Value
Constant	15.9163	1.1522	13.81***
Level of Capital	0.0779	0.0229	3.4***
Cost of Purchase	-0.8526	0.1305	-6.54***
Maintenance/Keeping	-0.3954	0.0605	-6.54***
Transportation	-0.1777	0.0695	-2.56**
Marketing Experience	0.0759	0.0349	2.17**
R^2 =0.785			
Adjusted R^2=0.79			

Field Survey, 2017

Note: **,*** are significant at 5% and 1% respectively

The result in Table 4 showed that the coefficient of level of capital was positive and significant at 1% with a value of 0.0779. The result implies that an increase in the level of capital holding other variable constant will lead to an increase in the profits of the respondent by 0.78 percent. This finding conforms to earlier result reported by Nasiru *et al.* (2012), Mumba *et al.* (2011). The coefficient of cost of purchase was significant at 1% level with a value of -0.8526. The result implies that a unit increase in the cost of purchase will reduce the profit of the respondents by the value of the coefficient (0.85). This is in line with the findings of Tibi and Aphunu (2010), Isaac and Olutawayo (2009). The regression coefficient of cost of marketing / maintenance was negative and significant at 1% with a value of -0.3954. This indicated that as the cost of keeping/maintenance increase the profits of the respondents will decrease by 0.4 percent. This agrees with the findings of Isaac and Olutawayo (2009). The coefficient of transportation was significant at 5% level with a value of - 0.1777 the negative sign implied that an increase in this variable would lead to decrease in the profit of respondents which may be due to high cost of transportation in the study area. This finding agrees with that of Nasiru (2008), and Suleiman *et al.* (2013). The coefficient of marketing experience was positive and significant at 5% level, with a value of 0.0759. The result indicated that marketers who spend a lot of years in the business made more profits because of accumulated knowledge on trends in small ruminants marketing. This finding corroborates with earlier findings of Afolabi, (2007).

V. CONCLUSION

The study concluded that goat marketing is a profitable business in the study area. The determinants of profitability of goats marketing were level of capital, marketing experience, cost of purchase, cost of keeping/maintenance and cost of transportation. High cost of transportation and inadequate capital were the major constraints to goats marketing in the study area.

VI. RECOMMENDATIONS

The following recommendations were made based on the findings of this study:

- Stakeholders should do more in assisting the marketers to access loans to reduce the problem of inadequate capital among the marketers in the state; while marketers are also encourage to form cooperative society to enable them access loans.
- Government should consider goat marketing as a venture to absorbed teeming unemployed people therefore, necessary incentives should be put in place to make it attractive to reduce the unemployment situation in the state and the country.

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