Profitability of Goat Marketing in Benue State, Nigeria: A Study of Selected Local Government Areas

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Abstract: *The objective of this paper was to determine the profitability of goat marketing in Benue State, Nigeria. Multi-stage sampling technique was adopted. Two zones (B and C) were purposively selected out of the three agricultural zones in the state on the basis of accessibility and relevance to the study. From each of the two zones, two Local Government Areas (L.G.As) was randomly selected bringing the total to four. 30 respondents were randomly and proportionately selected from each of the four markets. This brings the total number of respondents for the study to 120. The frequency of goat marketer specific profit efficiency estimates showed that majority (27.5%) of goat marketers had profit efficiency range between 0.70-0.89 and a few (7.5%) with profit efficiency range 0.01-0.29. The most efficient goat marketer for this study has a Technical Efficiency of 0.9995 which indicates that only 1% of the goat marketing gross margin is forgone due to inefficiency from the study area. Evidence from the study indicates that goat marketing is a profitable business venture in the study area for both wholesalers and retailers. Marketers however, were operating below economic frontier, giving a low mean profit efficiency and suggestive of a scope for improvement by allocating resources efficiently, and addressing the structural and marketing constraints. Innovative and less-formal credit scheme using trade association should be used in extending credit to goat producers and marketers in future. Goat marketers should be educated using the best efficient marketers as a role model for cost saving strategies, so as to improve profitability of goat marketing in the study area.*

Key words: *Goat, marketing, profitability, Benue State, Nigeria*

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1. Introduction

Goats are among the main meat producing animals in developing countries and the choicest meat with huge domestic demand (National Agricultural Extension and Research Liaison Services, 1990, Bourn, Wint, Blench & Wooly, 1994, Egbe, 1994). Besides meat, goats provide products like milk, skin, and fibre and manure (Ayoade, 1999, Kumar, 2007 and Prassad, 2010). Antonio and Silver (2011) predicted that demand for livestock products will be doubled in the next 20 years due to world population increase, urbanization and economic growth. This provides excellent opportunity for goat producers and marketers. Attention however, is focused only on increased productivity and not on effective and efficient marketing system to cater for the perceived industrialization, commercialization of animal agriculture in Nigeria (Udedibe, 2010; Amogu, 2010).

Goat supply, currently, does not meet with consumers demand across time and space. Consequently, there are differences in prices paid by the consumers. According to Brinkmann & Adu (1977), goat and sheep meat accounted for 35% of total meat

consumption in eastern Nigeria and 45% of the total meat supply. In western Nigeria, goat and sheep meat accounted for only 13% of total consumption and 22% of supply. Consumption patterns, however, may well have changed since these data were collected. Sheep and goats contribute about 35% of total nation meat supply (FAO 2003). Of this percentage, goats contributed an estimated 20% of Nigeria meat supply (Brinkmann & Adu, 1977). Oni (2002) cited in Ajala & Adesehinwa (2008) recorded higher estimate of 24% contribution of goat meat to Nigeria total meat supply. The domestic production and noted importation are together still not enough to meet more than 60% of actual demand (Mbanasoor, 2000). Accurate statistics on livestock production and marketing are not available and therefore, detailed projections of the supply and demand of the livestock subsector cannot be realistically made. It is clear, however, that over the last decade the supply of meat, milk and eggs has failed to keep pace with the increasing population.

The future of animal husbandry in Nigeria will depend on parallel market orientation in livestock industry (Amogu, 2010; Lamidi, Bashorum & Aregbesola, 2012). This can only be achieved through a comprehensive study on economics of livestock marketing, which will help in establishing efficient and robust marketing system needed as animal agriculture approaches industrial level in Nigeria. However, the objective of this paper was to determine the profitability of goat marketing in Benue State, Nigeria.

2. Literature Review

2.1. Profitability of Goat Marketing

Profitability is the amount at which sales exceed costs. Marketing costs are the actual expenses incurred in performing marketing functions as a commodity moves from the farm gate to the ultimate consumers (Olukosi *et al*, 2005). It consists of variable costs and fixed costs components. In goat marketing, variable costs component include acquisition costs, feeding, medication costs and commission and charges (Nasiru *et al*, 2012). Housing costs and marketing charges consist of fixed cost in goat marketing.

Recent study has recorded ₦ 3,037 per goat sold as net income of goat marketers. The total variable cost accounted for 99.71% of total cost while 0.29% fixed cost was realized (Nasiru *et al*, 2012). The total variable cost for goat marketers was ₦21,135.92 and total revenue obtained from goat marketing for every goat sold was ₦24,233.33. The return per naira invested in goat marketers was ₦ 0.14. This indicated that goat marketing is a profitable venture (Iheanacho & Ali, 2010).

2.2. Factors Affecting Goat Marketing Gross Margin

The single most important measure of enterprise profitability is net income (Adegeye & Dittoh, 1985). This is because; it is the very reason why firms are established (Maikasuwa, 2014). Gross margin is considered in items of profit in this study. It is the left over when all expenses have been subtracted from revenue. Revenues are the prices paid by customers for receiving goods or services. Expenses are the costs of doing business. This is the cost of performing marketing activities. Revenue and expenses affect gross margin positively and negatively respectively (Maikasuwa, 2014).

The major factors affecting goat marketing gross margin include cost of purchase, feeding cost and medical. Transportation costs, handling cost and middlemen cost also affect goat marketing gross margin. Beside these, market charges and temporary housing

cost affect goat marketing gross margin (Iheanacho & Ali, 2010, Umaru & kazaure, 2013 and Maikasuwa, 2014).

The most important factors affecting goat marketing gross margin are acquisition, medication and handling costs (Nasiru *et al*, 2012). The acquisition cost per goat purchased, medication and labour cost were significant at 1%, 5%, respectively (Nasiru *et al*, 2012). Feeding cost had negative regression coefficient. Marketing charges, commission cost, housing cost and transportation cost showed positive regression coefficient, indicating direct relationship with revenue unlike feeding. Maikasuwa (2014) recorded ₦2630.74 net-income per head and concluded that goat marketing is profitable.

2.3. Problems of Livestock Pricing and Marketing

The problems of livestock marketing especially goats in Nigeria are many varied and complex. The commonest of these problems include; the distribution system, the price and pricing policies in the livestock market (Amogu, 2010). The most production activities of livestock take place in the northern state while there is large consumer market in the southern states.

This gives rise to a large north-south trade in the livestock marketing. The central distribution involves a number of middle men who play various roles as intermediaries between the producer and actual consumer (Amogu, 2010). The many and complex distribution system in goat marketing is a major problem facing livestock marketers. The major means of livestock transportation in Nigeria include trekking, railway, and by lorry or trailer (Amogu, 2010).

Each of these modes of transportation has its own inherent problem which results to emaciation, loss and death of the animals in transit. The activities of unregulated livestock produce checking point and theft cases along these routs compound the problem. Government policies actually run counter to the objectives of the producers since livestock marketing are generally unstable and associated with lagged supply response. Another problem in this regard is the food price dilemma. Government desires that food prices should be high enough to encourage producers and low enough to protect the poor food buyers (Strecten, 1987). The policies that attempt to strength incentive for increase production through high prices may result to reduce income and serve hardship on the poor buyers (Prinstrup & Anderson, 1987). How government can strike a balance for this to yield dividend is not certain when choices are to be made.

2.4. Theoretical Frame Work

2.4.1. Profit Efficiency Function

Ajala & Adesehinwa (2007) noted a change in theoretical and applied models used in market analysis. These models included: Structure, conduct and performance (SCP), Commodity approach and Transaction Cost Economics (TCE). They attributed the wide array of models to inadequacy of any single model to study markets in the developing countries. It is, therefore, recommended a blend of the models for complementary purposes and depending on the nature of the problem under study.

Seanicaa et al, (2006) showed that there has been an evolution in the theory of marketing efficiency, which has led to emergence of at least two hypotheses. These two Hypotheses include the "structure performance hypothesis" (SPH) and "efficient structure hypothesis" (ESH). The SPH proposes that markets with high concentration have

a poor performance. The ESH, on the other hand, proposes that performance is related to the market shares, which raises the profits. Examples of studies that confirmed the SPH are Bett et al. (2012), Afolabi (2007) and Olufemi (2010), while those that confirmed the ESH included Emam (2011), Massoud & Srinivasa (2012), Farayola et al. (2013) and Dastagiri et al. (2013).

As shown in figure 1, the elements of market structure include the barriers to entry and exit, and marketing channels. Conduct includes pricing strategies and promotion strategies. Performance includes marketing costs, revenues, marketing and gross margin (Greer, 1992). These elements of the markets are assumed to have a sequential relationship (Ferguson &Ferguson, 1994). It is believed that, efficient social marketing system is expected to realize high gross margin per goat compared to the inefficient one.

The two broad paradigms for measuring economic efficiency include: One based on an essential non-parametric programming approach to observed outcome. And another based on an econometric approach to the estimation of theory based models of production, cost and profit. The stochastic frontier model of Aigne, Lovell and Schmid (1977) is now the standard econometric platform for efficiency analysis. The empirical estimations of production and cost functions are standard econometric exercise.

The stochastic profit frontier for this study is similar to work of Ali & Flinn (1989), Adeshina & Djato (1996), Kolawole (2006), and Ogbanje (2013). The standard profit function assumes that goat market is perfectly competitive. Given the price of goat marketing activities (W) and the sales vector (P), marketers maximize profit adjusting the price of marketing activities and sales.

Thus, the profit function can be implicitly expressed as:

π = f(P,W,V,U,)

In logarithms terms, the function is specified as:

$Ln(\pi + \Theta)Ln(P,W,) + (V+U)$

Where:

Θ = a constant added to the profit of each marketer in order to attain positive value so as to treat the factors logarithmically. The exogenous nature of prices in this concept of profit efficiency assumes that there is no market power on the marketer's side. The marketers assume the possibility of imperfect competition given only the sales vector and not that of price rather than taking price as given. Therefore, alternative profit function is expressed as:

π = f (Y, W, V, U) in which the amount sales generated replace the price of goat (P) in the standard profit function. Profit efficiency in this study refers to the profit obtain from operating on the profit frontier considering prices of specific marketing transactions and the other factors. The actual normalized profit assumed to be welled behaved is the marketer's profit measured in terms of Gross Margin (GM) which is the difference between the Total Revenue (TR) and the Total Variable Cost (TVC)

$GM(\pi) = \sum(TR - TVC) = \sum(PQ - WX)$

Gross margin is divided on both sides of the equation above by P which is the market price of the goats sold by the marketers so as to normalize the profit function. Thus: $\pi/P = = \sum(TR - TVC)/P = \sum(PQ - WX_i)/P = Q - W X_i/P = f(X_i, Z) - \sum P_i X_i$

Where:

TR = total revenue

TVC = total variable cost

P = price of goat sold

X = minimized price of marketing transaction

Z = price of fixed market transaction

P_i = W/P which represents normalized price of marketing transactions

F(Xi Z) = production function

According to Meeusen & van den brocck (1997) as cited in Ogbanje (2013), the Cobb- Douglas profit function in implicit form which specifies marketing efficiency is expressed as:

$\pi_i = f(P_i,Z)\exp(V_i - U_i)$, I = 1,2. . . . n

The V_is are assumed to be independent and identically distributed random error, having normal N $(0, \delta^2 V)$ distribution, independent of the U_is. U_is are the profit inefficiency effects assumed to be non-negative truncation of the half-normal distribution N $(0, \delta^2 V)$. The profit efficiency is the ratio of predicted actual profit to the predicted maximum profit for a best practice operator. It is expressed as:

Profit efficiency (E_n) = π/π^{max}=exp(π[PiZ])exp(lnV)exp(-lnU)-θ/exp(π[PiZ])exp(LnV)-θ. The firm specific profit efficiency is also the mean 0f the conditional distribution of U_i which is expressed as:

$E_n = E \exp^{(-U)}/E$, $E_{n\ takes}$ the values between 0 and 1. If U_i = 0(on the frontier) implies potential maximum profit is obtainable which shows efficient marketers. If $U_i > 0$, it indicates goat marketers inefficient, losing profit due inefficiency. In this study, Battese & Coelli (1995), Coelli &Battese (1996) used to specify the stochastic frontier function with behaviour inefficiency components and to estimate all parameters in single-step maximum likelihood estimation. Socio-economic characteristics of goat marketers will be included in the model to indicate their possible effects on the efficiency of the marketers

On the bases of Effiong & Onyenweaku (2006), Nganga Kungu, deRidder & Herrero (2010) as cited in Ogbanje (2013).the stochastic profit frontier, using Cobb-Douglas functional form, was specified as follows:

$\ln\pi$ = $\ln\beta_0 + \beta_1\ln X_1 + \beta_2\ln X_2 + \beta_3\ln X_3 + \beta_4\ln X_4 + \beta_5\ln X_5 + \beta_6\ln X_6 + \beta_7\ln X_7 + \beta_8\ln X_9 + (v_i + u_i)$

Where:

$\ln\pi$ = average total marketing gross margin (₦)

X_1 = average price of feed (₦)

X_2 = average price of shed (₦)

X_3 = average purchase price of goat (₦)

X_4 = average price of labour (₦)

X_5 = average price of transportation (₦)

X_6 = average price of medication (₦)

X_7 = average price of market charges (₦)

X_8 = average price of commission charges (₦)

$X_1 – X_8$ are factors believed to affect the level of profit efficiency of the marketer and β_0 = constant, β_1- β_8 = are maximum likelihood estimates to be to be measured, In is natural logarithm, Vi and ui = composite errors

The inefficiency model (u) for the stochastic profit frontier was defined by:

$U=\delta_0+\delta_1z_1+ \delta_2z_2+ \delta_3z_3+ \delta_4z_4+ \delta_5z_5+ \delta_6z_6+ \delta_7z_7+ \delta_8z_8+ \delta_9z_9+ (v_i+ u_i)$

Where:

Z_1 =   Sex (dummy variable: male = 1 and female = 0)
Z_2 =   Age of the marketers (years)
Z_3 =   Marital status (dummy variable: Married = I & Single = 0
Z_4 =   Educational level measured in number of years Spend in formal school
Z_5 =   Household size (number of persons)
Z_6 =   Goat Marketing experience (years)
Z_7 =   Major occupation (dummy variable: Goat
     marketing=2, farming=1 & Non-farming = 0)
Z_8 =   Goat marketing capital level (₦),
Z_9 =   membership goat marketer association.
$\delta0$ =   constants
$\delta_1 – \delta_9$ =   composite error

2.5. Conceptual Frame Work

The conceptual framework of this study is based on the institutional analysis and development (IAD) approach of the new institutional economics (NIE). According to Dorward & Onsamo (2005), IAD approach assumed that an independent variable (exogenous sets of variables) influences situation of the agents and behavior of the agents in those situations. This leads to outcome generate feedback to modify the exogenous variables, the agents and their situation. The framework is operationalized as shown in figure one (1) which shows how various factors inter relate to influence goat marketing and hence the welfare of goat marketers. The market policy environment is characterized by the double charges and illegal fees collection trend in the country have influence on the marketing system. These indirectly determine the marketing Gross margin (profit).

Within the marketing system, however, various sets of factors inter-relate to determine marketing profit. Goat marketing costs such as transport, feeding, handling, commission charges, housing and medication as expenses. The kind of policy frame work put in place influence these marketing costs which in turn determine extend of marketing profit. It is expected that the lower the marketing costs, the higher the profit per goat traded. Goat marketing gross margin is also affected by the marketing efficiency. This is supported by the notion that for a marketing process to be effective, the manner in which the marketing costs are minimized is very crucial. Goat marketing gross margin is also influenced by institutional and socio-economic characteristics of goat markets. Institutional factors expected to influence goat marketing profit include; credit-access, membership of goat marketer's association, capital level and purchase price**. The socioeconomic characteristics of the marketers will be conceptualized to have an effect on the marketing gross margin (Dastagiri *et al.,* 2013; Farayola et al., 2013).**
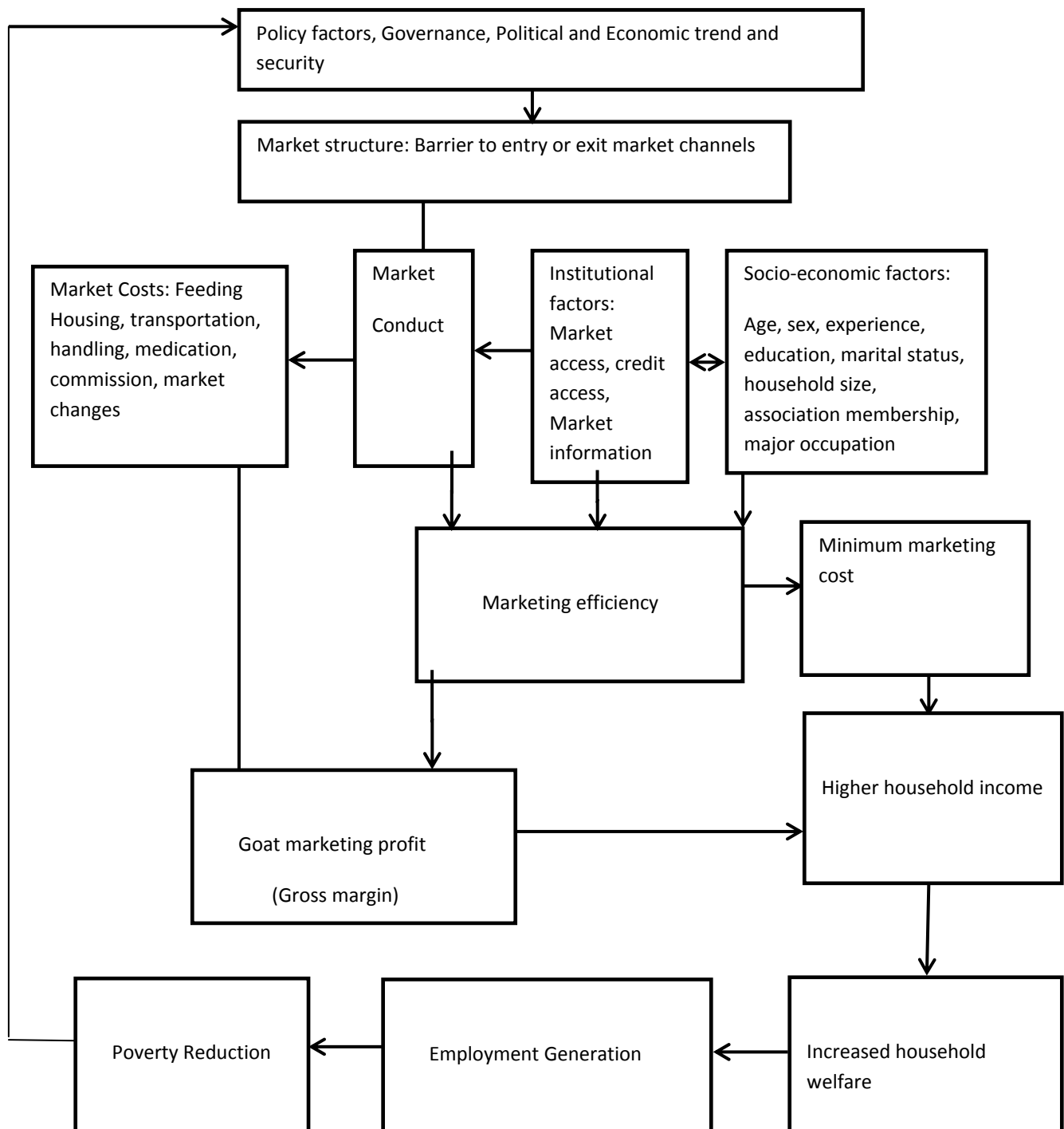
Figure 1: Conceptual frame work of factors influencing gross margin (profit efficiency) in goat marketing. (Adapted from New Institutional Economics theory)

3. Methodology

3.1. Population, Sample Size and Sampling Technique

The population of the study comprised of all goat marketers in the selected Local Government Areas of Benue State, Nigeria. Multi-stage sampling technique was adopted. Two zones (B and C) were purposively selected out of the three agricultural zones in the state on the basis of accessibility and relevance to the study. From each of the two zones, two Local Government Areas (L.G.As) was randomly selected bringing the total to four. The L.G.As selected includes Ogbadibo, Otukpo, Makurdi and Gboko. From each L.G.A., one major livestock market: (Otukpa, Otukpo, Makurdi and Gboko) within predominantly goat rearing areas was selected. 30 respondents will be randomly and proportionately selected from each of the four markets. This brings the total number of respondents for the study to 120. This is done on the basis of market accessibility, sizes of the market, and the number of buyers and sellers of goats.

3.2. Empirical Model for Profit Efficiency

On the bases of Effiong & Onyenweaku (2006), Nganga Kungu, deRidder and Herrero (2010), Ogbanje (2013), the stochastic profit frontier, using Cobb-Douglas functional form, was specified as follows:

$$\ln\pi = \ln\beta_0 + \beta_1\ln X_1 + \beta_2\ln X_2 + \beta_3\ln X_3 + \beta_4\ln X_4 + \beta_5\ln X_5 + \beta_6\ln X_6 + \beta_7\ln X_7 + \beta_8\ln X_8 + (v_i + u_i)$$

Where:

$\ln\pi$ = average total marketing gross margin (₦)per goat

X_1 = average price of feed (₦)

X_2 = average price of shed (₦)

X_3 = average purchase price of goat (₦)

X_4 = average price of labour (₦)

X_5 = average price of transportation (₦)

X_6 = average price of medication (₦)

X_7 = average price of market charges (₦)

X_8 = average price of commission charges (₦)

Vi and ui = composite errors

The inefficiency model (u) for the stochastic profit frontier is defined by:

U = $\delta_0 + \delta_1 z_1 + \delta_2 z_2 + \delta_3 z_3 + \delta_4 z_4 + \delta_5 z_5 + \delta_6 z_6 + \delta_7 z_7 + \delta_8 z_8 + \delta_9 z_9 + (v_i + u_i)$

Where:

Z_1 = Sex (dummy variable: male = 1 and female = 0)

Z_2 = Age of the marketers (years)

Z_3 = Marital status (dummy variable: Married = I & Single = 0

Z_4 = Educational level measured in number of Spend in formal school

Z_5 = Household size (number of persons)

Z_6 = Goat Marketing experience (years)

Z_7 = Major occupation (dummy variable: Goat marketing=3, farming=1 & Non-farming = 0)

Z_8 = Goat marketing capital level (₦),

Z_9 = membership goat marketer association.

δ_0 = constants

$\delta_1 - \delta_9 \quad =$

It is expected, *a priori,* that, the coefficient of X_1 and X_3 would be positive while x_2, x_4, x_5, x_6, x_7 and x_8 would be negative for hypotheses (Ho$_1$).Also, it was expected *a priori* that, the coefficient of Z_1, Z_4, Z_6 and Z_8 would be positive while $Z_2, Z_3, Z_5, Z_7,$ and Z_9 would be negative for hypothesis (Ho$_2$).

4. Results and Discussion

4.1. Factors Affecting Profitability in Goat Marketing

The effects of prices of marketing transactions and socio-economic variables on profitability were assessed. The summary statistics of the descriptive variables for profit efficiency is presented in Table 1. Analysis of the Table revealed that the mean profit efficiency of the respondents was (0.67) 67%, with 0.99 for the best farm and 0.03 for least marketer. This means that on the average, the gross margin fell by 33% from the maximum possible level due to inefficiency. The result also indicates that, for an average marketer in the sample to achieve profit efficiency of the most efficient counterpart, he needs about 33% cost saving while the least profit efficient marketers would need 99% cost saving to become the most efficient marketer. This shows a wide gap between the most economically efficient marketer and the worst marketer.

Table 1: Summary of the Descriptive Variables for Profit Efficiency

Descriptive Statistics					
Variable	N	minimum	Maximum	Mean	Std. Deviation
Gross margin	120	50	7550	687.75	833.300
Purchase price	120	5000	60000	12179.17	5818.615
Selling price	120	5500	60500	13371.67	5842.904
Transporting price	120	0	1000	74.50	125.784
Commission price	120	.01	200.00	87.9170	32.40657
Market charge	120	30	100	60.50	20.615
Housing price	120	0	150	60.00	18.334
Feeding price	120	20	300	49.54	30.307
Medicating price	120	0	500	116.17	124.757
Handling price	120	0	100	54.13	29.772
Sex	120	0	1	.86	.362
Age	120	20	77	48.87	13.839
Marital status	120	0	1	.94	.253
Household size	120	1	32	9.99	5.688
Marketing experience	120	2	60	15.77	9.712
Education level	120	0	27	8.94	6.126
Primary occupation	120	0	2	1.33	.686

Marketing capital	120	0	1000000	170416.67	188402.197
Association membership	120	1	0.980	1.01	.000
Profit efficiency estimates	120	.03	1.00	0.6701	0.24427
Valid N (list wise)	120				

Sources: computed from field survey data 2014

Maximum likelihood estimates of the frontier profit function are presented in Table 2. In the diagnostic statistics, the sigma square (δ^2) is significant at 10%, indicating that the model fitted the data well. The Gamma (Υ) is significant at one percent probability level. It is close to one (0.999), indicating high level of inefficiencies among marketers. It is the proportion of deviation from the frontier that is due to inefficiency which is 0.99. This implies that 99% variation in profit accounted for differences in the inefficiencies.

Table 1 also showed the estimate of coefficient of profit efficiency model in which negative sign on parameters indicates a decrease in profit in efficiency, while positive sign shows increase in profit efficiency. The result showed that all the total variable prices of marketing activities: purchase (-0.125), transporting (-0.146), commission (-0.113), market charging (-0.226), housing (-0.130), feeding (-0.183), medicating (-0.562), handling (-0.735) are negative and statistically significant at one percent probability level, except selling (0.139) that is positive but also significant. It means increase in any of them decreases profit efficiency at different levels accordingly, while selling prices increase profit efficiency. This concords with the *a prior* expectation. Increase in variable costs reduces gross margin while, good sales leads to high gross margin, per goat sold.

Table 2 also shows the estimate of the coefficient of stochastic profit inefficiency model. The result reveals that the sex, age and level of education of the respondents are positive and insignificant. The coefficients of marital status, household size and marketing experience are negative and statistically insignificant. This means that the insignificant parameters do not affect profit inefficiency. Primary occupation has negative coefficient (0.010) and significant at one percent probability level. The socio- economic variables, generally, do not affect profit appreciably as hypothesized because of strong influence and control exercised by goat marketer's trade union. This trade unions firm control of goat marketing, do not create room for easy entry by educated young youth in the study area. This finding is similar to that of (Ayoola & Ayoade, 1993).

Table 2: Maximum likelihood Estimates of the Stochastic Frontier Profit Function

Variable	*Parameter*	*Coefficient*	*T-ration*
Constant	(β_0)	-5.690	-35.69

(X_0)			
Mean purchase price (X_1)	(β_1)	-12.458	-295.840
Mean transporting price (X_2)	(β_2)	-1.455	-19.3212
Mean commission price (X_3)	(β_3)	-1.126	-25.3640
Mean market charging price (X_4)	(β_4)	-0.226	-111.4327
Mean housing price (X_5)	(β_5)	-0.129	-23.3378
Mean feeding price (X_6)	(β_6)	-0.184	-9.7010
Mean medicating price (X_7)	(β_7)	-56.195	-15.4999
Mean handling price (X_8)	(β_8)	-7.351	-96.5078
Mean selling price (X_9)	(β_9)	13.90	359.489
Inefficiency function			
Intercept (Z_0)	(δ_0)	-12.66	1.5815
Sex (Z_1)	(δ_1)	0.78	0.791585
Age (Z_2)	(δ_2)	3.216	1.2300
Marital status (Z_3)	(δ_3)	-5.351	1.2233
Household size (Z_4)	(δ_4)	-1.44	1.1585
Marketing experience (Z_5)	(δ_5)	-0.563	0.8044
Level of education (Z_6)	(δ_6)	0.366	1.0508
Primary occupation (Z_7)	(δ_7)	-0.010	7.1370
Diagnostic statistics			
Sigma squared	(δ^2)	0.476	1.1489
Gamma	(Υ)	0.999	25651798.0
Log likelihood		-34.47	34.4655
LR test		76.03	76.0278

Sources: computed from field survey data 2014.

The frequency of goat marketer specific profit efficiency estimates were presented in Table 3. The result showed that majority (27.5%) of goat marketers had profit efficiency range between 0.70-0.89 and a few (7.5%) with profit efficiency range 0.01-0.29.

Table 3: Frequency Distribution of Marketer Specific Profit Efficiency Estimates

	Range	Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	0.01 – 0.29	9	7.5	7.5	7.5
	0.30 – 0.49	24	20.0	20.0	27.5
	0.50 – 0.69	30	25.0	25.0	52.5
	0.70 – 0.89	33	27.5	27.5	80.0
	0.90&above	24	20.0	20.0	100.0
	Total	**120**	**100.0**	**100.0**	

Sources: computed from field survey data 2014.

4.2. Features of the most Efficient Goat Marketers in Benue State

The most efficient goat marketer for this study has a Technical Efficiency of 0.9995 which indicates that only 1% of the goat marketing gross margin is forgone due to inefficiency from the study area (Table 4). The goat marketer engaged in goat marketing on full time basis. The marketer also had access to good quality market information and credit facilities. He has market facilities such good quality shed, and drinking water pens. The marketer is well educated and task experience to avoid double taxation levies. He has easy access to credit facilities from lending institutions which enhances his market volume and sales and hence profit.

Table 4: Technical Efficiency Estimates for Goat Marketers in Benue State

1	1	0.64399561E+00	41	1	0.82313638E+00	81	1	0.99922016E+00
2	1	0.69224672E+00	42	1	0.80031097E+00	82	1	0.68621983E+00
3	1	0.97830730E+00	43	1	0.68486636E+00	83	1	0.99922016E+00
4	1	0.99728409E+00	44	1	0.88265487E+00	84	1	0.70798574E+00
5	1	0.99831069E+00	45	1	0.96046612E+00	85	1	0.55695476E+00
6	1	0.73532745E+00	46	1	0.98516094E+00	86	1	0.45998110E+00
7	1	0.89081741E+00	47	1	0.96046611E+00	87	1	0.68276185E+00
8	1	0.53528102E+00	48	1	0.37705253E+00	88	1	0.33890286E+00
9	1	0.55296323E+00	49	1	0.69318832E+00	89	1	0.32151848E+00
10	1	0.57532538E+00	50	1	0.42748697E+00	90	1	0.32526587E+00
11	1	0.75933552E+00	51	1	0.99639327E+00	91	1	0.35273687E+00
12	1	0.88429983E+00	52	1	0.99952861E+00	92	1	0.45551294E+00
13	1	0.93093188E+00	53	1	0.96759544E+00	93	1	0.67447979E+00
14	1	0.46848016E+00	54	1	0.49071070E+00	94	1	0.87995883E+00
15	1	0.70760948E+00	55	1	0.92308784E+00	95	1	0.80012248E+00
16	1	0.44258272E+00	56	1	0.63968082E+00	96	1	0.85883478E+00
17	1	0.53228849E+00	57	1	0.37705253E+00	97	1	0.52594631E+00
18	1	0.98697916E+00	58	1	0.83978095E+00	98	1	0.78321791E+00
19	1	0.22533075E+00	59	1	0.85912281E+00	99	1	0.71144790E+00
20	1	0.29190000E+00	60	1	0.98149601E+00	100	1	0.84596493E+00
21	1	0.46392475E+00	61	1	0.67327885E+00	101	1	0.62390792E+00
22	1	0.91213723E-01	62	1	0.98897466E+00	102	1	0.29162132E+00
23	1	0.84079505E+00	63	1	0.62610482E+00	103	1	0.27946615E+00
24	1	0.41270313E+00	64	1	0.99341708E+00	104	1	0.95451932E+00
25	1	0.52821012E+00	65	1	0.99727657E+00	105	1	0.61686222E+00
26	1	0.44986929E+00	66	1	0.99880249E+00	106	1	0.99850312E+00
27	1	0.46837231E+00	67	1	0.25717526E+00	107	1	0.57891242E+00
28	1	0.65271057E+00	68	1	0.52932906E+00	108	1	0.32449988E-01
29	1	0.83581372E+00	69	1	0.80073397E+00	109	1	0.14727128E+00
30	1	0.78547269E+00	70	1	0.41897226E+00	110	1	0.99910625E+00
31	1	0.68063430E+00	71	1	0.52835852E+00	111	1	0.84610234E+00
32	1	0.88714873E+00	72	1	0.82573418E+00	112	1	0.84610236E+00
33	1	0.58893074E+00	73	1	0.90393894E+00	113	1	0.39382282E+00
34	1	0.46451186E+00	74	1	0.52618732E+00	114	1	0.84326224E+00
35	1	0.41915226E+00	75	1	0.46033451E+00	115	1	0.41380943E+00
36	1	0.84024169E+00	76	1	0.65949286E+00	116	1	0.87396776E+00
37	1	0.56399807E+00	77	1	0.65949286E+00	117	1	0.34133935E+00
38	1	0.78110059E+00	78	1	0.42578914E+00	118	1	0.84610236E+00
39	1	0.91902711E-01	79	1	0.93428000E+00	119	1	0.87396776E+00
40	1	0.54017991E+00	80	1	0.76407588E+00	120	1	0.78701799E+00

mean efficiency =   0.67009866E+00

Source: Field Survey, 2014

4.3. Constraints in Goat Marketing

Constraints in goat marketing in the study area are presented in Table 5. The Table reveals that inadequate: market information, credit and market facilities as constraints in goat

marketing. Others include high cost of acquisition, transportation, medication and feeding. The analysis of the Table shows that major constraints for goat marketing in the study area include double charges and inadequate market facility as indicated by 15% each of the respondents. These double charges include: taxes collected by Local, State and Federal Governments. Other unethical charges are levies by crooked officials, especially those along the produce checking points from Local Government to Local Government. This drastically reduces the profit of goat marketers.

This is followed by inadequate market information and credit facility, high cost of transportation and medication (13% each). Inadequate marketing facilities such as improper housing, absence of portable drinking water, unit of measurement, lighting point, and also security of the market, are major problems confronting goat marketers. The findings also revealed that marketing information on prices, cost of production, which are vital determinates in price setting are not available to goat marketers. Most of the marketers do not have access to credit facilities, because of high interest rate collateral, absence of collateral security, improper record keeping by the marketers which is demanded by lending agencies. This finding is similar to the one obtained by Iheanacho & Ali (2010).

Table 5: Constraints in goat marketing

Constraints	Frequency	Percentage
Inadequate market information	15	13.0
High cost of transportation	16	13.0
Cost of acquisition	8	06.0
High cost of medication	15	13.0
Double charges	18	15.0
Inadequate credit	16	13.0
Low profit	14	12.0
Inadequate marketing facilities	18	15.0
Total	**120**	**100.0**

Sources: field survey data 2014.

5. Conclusion

Evidence from the study indicates that goat marketing is a profitable business venture in the study area for both wholesalers and retailers. Marketers however, were operating below economic frontier, giving a low mean profit efficiency and suggestive of a scope for improvement by allocating resources efficiently, and addressing the structural and marketing constraints.

6. Recommendations

   i.   Innovative and less-formal credit scheme using trade association should be used in extending credit to goat producers and marketers in future.
   ii. It calls for an improvement in the efficiency by minimizing the total variable costs of marketing so as to move to the frontier level.

iii. It calls for goat marketers to be good price setters and minimize costs so as to obtain high profit.

iv. Governments at all levels should provide an enabling environment such as market facilities, and favorable market regulatory framework for profitable goat marketing agribusiness in the study area.

v. Goat marketers should be educated using the best efficient marketers as a role model for cost saving strategies, so as to improve profitability of goat marketing in the study area.

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