Effects of Socio-economic Characteristics of Intermediaries on the Profitability of Cattle Marketing in Mubi Local Government Area of Adamawa State, Nigeria

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Abstract: **This study examined the effect of socio-economic characteristics of cattle marketing intermediaries on their profit in Mubi local government area of Adamawa state, Nigeria. Random sampling technique was employed to select 123 respondents in Mubi International Cattle Market. Data were collected with the use of a well structured questionnaire and analyzed using descriptive statistics and t-test derived from multiple regression models. The result from the analysis revealed that all the respondents (100%) were male with a mean age of 37 years, had market experience of 6-10 years, literate (56.1%), a mean household size of 5 persons and (30.1%) had a startup capital of ₦110,000-200,000. The study revealed that access to credit and marital status have positive effect on profit while age, years of education, family size, marketing experience, startup capital and number of cattle owned were not determinants of profit earned from cattle marketing. The result also showed that the major constraints faced by cattle marketers were insurgency, inadequate market information, inadequate market facility and high cost of transportation. It was recommended that Marketers should form associations and cooperatives for extensive information sharing among members.**

Keywords: **Socio-economic characteristics, Cattle Marketing Intermediaries, Profitability.**

I. INTRODUCTION

Cattle *Bos indicus* belongs to the genus *Bovine*. It is among the breed of animals raised by humans for commercial purpose. This include domestic animals, semi-domestic and wild animals. The term livestock does not include poultry or fish farming (Ryan, 2005). Livestock systems have both positive and negative effects on the natural resource base, public health, social equity and economic growth (World Bank, 2009) currently; livestock is one of the fastest growing agricultural subsectors in developing countries. This growth is driven by the rapidly increasing demand for livestock products, this demand being driven by population growth, urbanization and increasing incomes in developing countries (Delgado, 2005).

Agriculture contributes to the developing countries economy especially in area of food provision for rapid growing population, supply of adequate raw material to the growing industrial sector, a major source of employment for one-half of the population, generation of foreign exchange earnings and provision of standard market (World Bank, 1998). In developing countries, livestock sector contributes more than 30% to Agricultural Gross Domestic Product (AGDP) and about 40% of the global GDP and serves as the fastest growing Agricultural market (Swanepoel *et al.,* 2010). Livestock in Nigeria contribute to rural livelihoods and poverty relief among marketers and rearers (Martin, 2014), Food and Agricultural Organization, (FAO) (2013), projected that per capita consumption of livestock products will increase by about 50% from 1993 to 2020. The increases are attributed to developing countries as a result of rapid population growth, urbanization and rise in income of the market intermediaries.

Active market participation is an important ingredient for agricultural and rural development. Commercialization of smallholder farming systems, through active participation cattle markets has the potential to exploit developing regions' comparative advantages and transform rural economies (Boughton *et al.,* 2007). Commercializing smallholder farming systems leads to increased productivity and improved quality of produce, thereby contributing to improved incomes. Hence, market participation by smallholder cattle farmers has the potential to lead to specialized; market oriented farming systems (Mathenge *et al*., 2010). Since cattle is a preferred source of protein, an assessment of the socioeconomic characteristics of intermediaries on the profitability of cattle marketing in the study area is very important as this will lead to the discovery of problem areas that deserves immediate attention and recommend suitable options that will help in reducing or eliminating the bottlenecks associated with it.

Objectives of the Study

 I. determine the socio-economic characteristics of cattle marketers in Mudi Local Government area of Adamawa State;

 II. Determine the effect of socio-economic characteristics on the profit margin of cattle marketers;

 III. Identify major constraints associated with cattle marketing in the study area.

II. METHODOLOGY

The Study Area

The Study was conducted in Mubi Local Government Area of Adamawa State, Nigeria. Mubi is located on latitudes 8^0 N and 11^0 N and longitudes 11^0 5' E and $13^0 5'$ E. It is on altitude of 696 meters above sea level, with an annual mean rainfall of 700mm in North West and 1600mm in the Southern part of the State. The Maximum temperature can reach 40^OC, particularly in April, while minimum temperature can be as low as 18^oC between December and January (Mansir, 2006). It also has an international boundary with the Cameroon Republic along its eastern border (Mohammed, 1999).

The area is divided into two Local Government Areas which are Mubi North and Mubi South. Mubi North has a population of 151,072 people and Mubi South has a population of 128,937 people (National Population Commission, 2006). Mubi International Cattle Market which is situated in Mubi South Local Government Area of Adamawa State forms an area of contact with cattle marketers.

Population and Sampling procedure

The population of the study comprised all cattle marketers in Mudi International cattle Markets, with particular interest on wholesalers, retailers, butchers and brokers. The sampling frame of 1,231 registered cattle marketers was obtained from Mubi International Cattle Marketers Association in Adamawa State. Random sampling technique was used to select 123 respondents for this study.

Data Collection and Analysis

Data for this study was collected from primary sources. The primary data was generated by the researcher through the personal interview techniques and well structured questionnaires which were administered to 123 cattle marketers in Mubi international cattle market of Adamawa State. Data collected were analyzed using descriptive and inferential statistics. The descriptive statistics were frequency distribution, percentages and mean while the inferential statistics was paired sample t-test. t-test was generated from the multiple regressions., four functional forms were used but the best fit was semi-log.

Model Specification

Paired sample t-test analysis

The t - test was used to analyze objective (ii) the significant relationship between the socio-economic characteristics of Cattle Marketers and their profit, and the t-test was generated from the multiple regression. Four functional forms were used but the best fit was semi-log. The multiple regressions model is explicitly expressed as follow

$Y = a + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 + b_4 \log X_4 + \ldots\ldots\ldots\ldots b_n \log X_n + E$_____ semi-log

y = profit (₦)

X_1 = sex (dummy variable: Male= 1 and female= 0)
X_2 = age of the marketers (year)
X_3 = marital status (dummy: Married =1 Single = 0)
X_4 = level of education (years)
X_5 = major occupation (day/₦) (dummy: cattle marketer = 1, otherwise = 0)
X_6 = family size (number of persons)
X_7 = marketing experience (years)
X_8 = cattle marketing start-up capital (₦)
X_9 = access to credit
X_{10} = Number of cattle that you have,
E = the error term.

III. RESULTS AND DISCUSSION

Socio-economic Characteristics of Cattle Marketing Intermediaries

The socioeconomic characteristic of respondents is presented in Table 1. The result showed that all the respondents were male (100%). This showed that cattle marketing is mostly a business been practiced by men in Adamawa State, with no record of female marketers in the state. This can be as a result of the tedious nature of the business which requires a lot of trekking, and most women cannot withstand the stress. This finding agrees with that of (Lamidi *et al.,* 2002) who found that ruminant market is mostly men business across Nigeria, particularly in the Northern region as a result of religion and tradition.

Analysis of age among respondents revealed that the modal age range of respondents was between 30-34 years with a mean of 37 years. This indicated that the respondents were in their youthful and productive age with the relatively younger ones (20-24 years) and older ones (>50 years) being less involved in the enterprise. However, this is different from the findings of (Mafimisebi *et al.* 2013) who found that majority of cattle marketers were within the age range of 41-50 years in their study titled Fundamentals of Cattle Marketing in Southwest, Nigeria: Analyzing Market Intermediaries, Price Formation and Yield Performance.

The result also revealed that Majority (88.6%) of the respondent were married while 11.4% were single. The dominance of male in this business could be attributed to the high energy required in performing the marketing activities. This findings is in line with the findings of (Mafimisebi *et al.,* 2013) who found that majority (89.2%) of cattle marketers were married.

More so, the results on the educational levels of respondents showed that 43.9% had no formal education, 21.1% had primary education, while secondary and higher level were 18.7% and 16.3% respectively. This implies that majority (56.1%) of the marketers were educated. hence are expected to have the required basic knowledge and skills to enhance their marketing performance and other related activities.

The result showed that the modal household size ranged from four to six with a mean of 5 persons. This implied that cattle marketers had access to family labour which can help in carrying out marketing activities. This finding is slightly below that of (Okewu and Iheanacho, 2015) who found a household size of 1-10 persons in their study titled Socioeconomic Characteristics of Goat Marketers in Benue State, Nigeria. More so, (Umaru and Kazaure 2012) noted that 93 % of livestock marketers were married and a slightly higher household size ranging from 11-20.

. The result further revealed that majority (79.7%) of the respondents had 6-10 years marketing experience. This implies that the marketers are highly experienced in cattle marketing. This finding is in line with that of (Hamidu 2014) who found a household size of 6-10 in his study titled Profitability Assessment of Cattle Marketing in Gombe Metropolis, Gombe State, Nigeria.

Startup capital analysis revealed that majority (30.1%) of the respondents started with ₦110,000 – ₦200,000, 22% ₦210,000 – ₦300,000, 19.5% ₦310,000 – ₦400,000 while 14.6% and 13.8% started wit h₦10,000 -₦100,000 and ₦410,000 and above respectively. This shows that most of the respondents started with a reasonable amount of money for their cattle business. Majority (87%) of the respondents did not have access to credit while 13% had access to credit. Respondents with cattle between 1–20 were 43.9%, 24.4% had 21 – 40 cattle and the least are those with over 100 cattle (2.4%). This shows that marketing encourages them to keep their own cattle for breeding and resell during festive seasons and other occasion.

Table 1: Socio-Economic Characteristics of Cattle Marketing Intermediaries (n = 123)

Variable	Frequency	Percentage	Mean
Age			
20 – 24	2	1.6	**37**
25 – 29	20	16.3	
30 – 34	28	22.8	
35 – 39	21	17.1	
40 – 44	21	17.1	
45 – 49	14	11.4	
50 and above	17	13.8	
Marital status			
single	14	11.4	
married	109	88.6	
Years of education			
no years of education	54	43.9	
primary	26	21.1	
secondary	23	18.7	
tertiary	20	16.3	
Family size			
1 -3	11	8.9	**5**
4 – 6	66	53.7	
7 – 9	32	26	
10 and above	14	11.4	
Marketing Experience (years)			
1 -5	25	20.3	**7**
6 – 10	63	51.2	
11 -15	14	11.4	
16 – 20	16	13	
21 and above	5	4.1	
Start-up capital (₦)			
10000 -100000	18	14.6	**255,000**
110000 -200000	37	30.1	
210000 – 300000	27	22	
310000 – 400000	24	19.5	
410000 and above	17	13.8	
Access to credit			
yes	16	13	
no	107	87	
No. of cattle you have			
1 – 20	54	43.9	**31**
21 – 40	30	24.4	
41 – 60	24	19.5	
61 – 80	8	6.5	
81 – 100	4	3.3	
101 and above	3	2.4	

Source: Field survey data, 2017

Marketing Margin and Profit of Intermediaries

Table 2 shows that the mean purchasing price of cattle in the study area for wholesalers, retailers, butchers and brokers are ₦168483.3333, ₦105370.3704, ₦119666.6667, ₦144285.7143 respectively, whereas the mean of the selling prices are ₦197,533.3333, ₦131,070.0741, ₦143,333.3333, ₦181,904.7619 respectively. The profit of ₦24,110.8336, ₦19,994.40, ₦18,080.00, ₦32,190.00 per cattle were found for intermediaries (wholesaler's retailers, butchers and brokers) respectively and this makes up 14.7%, 19.6%, 16.5%

and 20.7% of marketing margin for the wholesalers, retailers butchers and brokers respectively, meaning wholesalers obtained 14.7% of the final sales which is paid by either the retailers, brokers or butchers. Retailers obtained 19.6% of the final sales which is paid by either the butcher, brokers or the consumer while the butchers obtained 16.5% of the final sales which is paid by the consumer. Based on this information obtained, cattle business is profitable in the study area. This finding agrees with that of (Girei *et al.,* 2013) who found that cattle marketing is a profitable business.

Table 2: Market margin and Profit Per Cattle

Items	Wholesalers	Retailers	Butchers	Brokers
Sum of purchasing price(₦)	10109000.00	2845000.00	1795000.00	3030000.00
Sum of Other Costs ₦ (e.g. Transportation, commission charge to middle men, water, medication etc)	296350.00	154150.00	83800.00	114000.00
Sum of Selling price(₦)	11852000.00	3539000.00	2150000.00	3820000.00
Mean of Purchasing price(₦)	168483.3333	105370.3704	119666.6667	144285.7143
Mean of Other Cost ₦ (e.g. Transportation, commission charge to middle men water, medication etc)	4939.16667	5709.2593	5586.6667	5428.5714
Mean of Selling price(₦)	197533.3333	131070.0741	143333.3333	181904.7619
Profit/ Return(₦)	24110.8336	19994.40	18080.00	32190.00
Marketing Margin (%)	**14.7**	**19.6**	**16.5**	**20.7**

Source: Field survey data, 2017

Effect of Socio-economic Characteristics of cattle marketing intermediaries on their profit

T-test generated from multiple regressions was used to test significant relationship between the socio-economic characteristics of cattle marketing intermediaries and their profit in the study area. Four functional forms were fitted into the data and the best chosen for analysis. The semi-log form was chosen as the lead equation on the basis of coefficient of determinant, F- ratio, number of significant variables, sign of the coefficient and *a priori* expectation. The result as shown in table 2 shows that the R^2 was found to be 0.509 which mean that 50.9% of the variations in the profits of the cattle marketing intermediaries were accounted for by the variation in their socio-economic characteristics.

The result in Table 3 showed that the coefficient of marital status was positive and significant. This implies that marital status is a determinant of profit which conforms to the a prior expectation that marital status would have a positive relationship with profit. This suggests that family labour could be available for marketing activities in the study area; this will reduce cost of labour and increase profit margin of marketers.

This finding is in line with the findings of (Lamidi *et al.*, 2012) in their study of Economics of Livestock Marketing in Lagos State, Nigeria that majority (64.29%) of the people involved in livestock marketing were married.

Furthermore, the result on level of education showed that the level of education was positive and not significant. This implies that level of education is not a determinant of profit. This is because level of experience can also determine the level of knowledge and information in the business and hence higher level of marketing efficiency. This finding agrees with (Aminu, 2009) that experience is very vital in the adoption of innovation which translates to improved business profit.

The coefficient of access to credit facility was positive and significant. It shows that access to credit have a significant relationship with profit. The reasons could be that as marketers have access to credit, their level of investment in business will increase leading to expansion and hence increase profit. This finding conforms to that of (Ocholi and Samuel 2017) who reported that income has a positive impact on profit in their study of profitability of Groundnut Processing in Taraba State Nigeria

Table 3: Regression Analysis estimating the Relationship between the Socio-economic Characteristics of cattle marketing intermediaries and their profit

Socio-economic Characteristics	Coefficients	Std error	T-value	Sig
(Constant)	1.588		4.166	.000**
Age	-.408	-.163	1.268	.207
Marital Status	1.028	.204	2.130	.035*
Years of Education	.288	.144	1.515	.133
Family Size	-.026	-.008	-.071	.944
Cattle marketing experience	.439	.182	1.555	.123
What is your start-up capital (₦)	-.149	-.068	-.769	.444
Do you have access to credit	.785	.398	4.143	.000**
Number of cattle owned by a marketer	-.381	-.115	1.390	.167
R^2	.509			
Adjusted R^2	.207			
Std error	.99167			
F-ratio	4.978 .000*			

Source: field survey data, 2017.

Numbers with ** and * indicated variable are significant at 1.0% and 5.0% level respectively

Major Constraints in Cattle Marketing

The various constraints limiting the marketing of cattle were identified by the respondents. These constraints are presented in table 4. It shows that the major constrains to the marketing of cattle was insurgency (insecurity) (78%).. This is due to the activities of Boko Haram in the study area. Insecurity can lead to decrease in agricultural product (beef) and other food items. This is followed by inadequate market information (74.0%) on prices, cost of production, improper record keeping by the marketers which are vital determinates in price setting are not available to cattle marketers Inadequate marketing facilities (73.2%) such as lack of good housing, absence of portable drinking water and proper feeds, absence/no good unit of measurement, electricity are major problems confronting cattle marketers in Adamawa state. Other problems include Cost of transportation, Cost of acquisition of Cattle, Cost of medication, Double charges Inadequate credit facility and Low profitability. This finding contradicts that of (Girei, 2013) who found that the least problem facing cattle marketers in Central Zone of Adamawa State, Nigeria is Security

Table 4. Major constraints in cattle marketing

Constraints	Frequency	Percentage
Inadequate market information	91	74.0
Cost of transportation	89	72.4
Cost of acquisition of Cattle	69	56.1
Cost of medication	61	49.6
Double charges	60	48.8
Inadequate credit facility	64	52.0
Low profitability	80	65.0
Inadequate market facility	90	73.2
Insurgency	96	78.0
*Multiple responses existed, hence>100% Source: Field survey data, 2017		

IV. CONCLUSION AND RECOMMENDATIONS

Cattle marketing is carried out by men who are married between the age group of 30-44 with family size of 4-6. More so, 43.9% of them had informal education and majority had experience of 6-10 years. The regression analysis showed that marital status and access to credit were significant which means they were determinant of profit while age, years of education, family size, marketing experience, startup capital and number of cattle owned were not significant.

The following recommendations were made based on the findings from the study:

i. Marketers should form associations and cooperatives for extensive information sharing among members

ii. Government should educate farmers through the provision of extension service agent so as to help them keep proper record which will provide lending institution more information to give credit.

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