Factors Influencing the Intensity of Market Participation among the Cattle Farmers in Adamawa state, Nigeria.

By

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Abstract

The study examined Factors influencing the intensity of market participation among the cattle farmers in Adamawa state, Nigeria. Multistage sampling procedure was employed to sample the respondents. Structured questionnaires were used to collect data from 400 respondents in the study area. Descriptive statistic was used to analysed the socioeconomic characteristics of the respondents and truncated regression analysis was employed to estimate the determinants of intensity of market participation among the market participants. The result of the findings shows that cattle market participants were averagely aged 43 years, they are predominantly male (95.04%), (83.48%) were married, while (77.96%), (57.02%) had formal education and are full-time cattle farmers respectively. The result of truncated regression analysis revealed that age and gender of the household head, distance to market, herd size and seasonality were the explanatory variable that influenced the intensity of cattle market participation. Recommendations were made such as to encourage more formal education among the farmers, the more the participant is educated, the better the chance of participation in the cattle market and also to encourage female and those that are unmarried to participate in cattle marketing activities, and to provide adequate pasture land and water supply so as to curb the problems of exposure to avarice of weather, creates more additional sales point at farming communities is paramount important in the intensity of cattle market participation.

Introduction

Agricultural marketing plays a significant role in the development of Agricultural and industrial sectors in both developed and developing countries in the world. The demand for livestock and livestock products in Africa is increasing as a result of rapid human population growth. Cattle are one of the prominent and major sources of animal protein in the world. Nigeria had a population of about 13.9 million cattle in 1990 (Lawal, 2012, Umar *et al.* 2008, Blench 1999). However, it is reported that in the year 2014 the population raised to 19 million (Federal ministry of agriculture and rural development, 2014). Similarly, worldwide, the cattle population reached 1.39 billion in 2005 and however, increased to 1.47 and 1.49 billion in 2010 and 2012, respectively (Zijpp *et al.* 2010; statista, 2015). Moreover, in Nigeria, the greater proportion of the livestock populations is concentrated in the northern region of the country. However, about 90 percent of the country's cattle population and 70 percent of the sheep and goat populations are concentrated in the northern part of the country. The concentration of Nigeria's livestock-based in the northern region is most likely to have been influenced by the ecological condition of the region which is characterized by low rainfall, lighter sandy soils and longer dry season (Lawal, 2012). While in Adamawa state, the population of livestock in the year 2012 was about 2.426 million goats with growth rate of 1.5% per annum, 2.036 million of sheep with growth rate of 1.2% per annum and 3.062 million of cattle with growth rate of 1% per annum (Aliyara and Yakubu, 2005).

Objective of the study are to;

1. identify the socio-economic characteristics of cattle farmers in the study area;
2. identify the determinants of intensity of market participation among cattle farmers in the study area;

Materials and Methods

Population of the study

The population for the study was cattle farmers in Adamawa State. The state has about six thousand one hundred and seventy (6,170) cattle farmers across the state (ministry for livestock productivity and nomadic settlement, Adamawa State).

Sample and sampling Techniques

A Multi-stage, random sampling and purposive sampling techniques were employed in the selection of the respondents. In the first stage, two Local Government Areas (LGAs) were purposively selected from four zones of the Adamawa State Agricultural Development Programme (ADADP), the selection was based on their relative importance in cattle farming.

In the second stage, twenty-six (26) districts were randomly selected from forty five (45) districts of the eight (8) selected LGAs proportionately using equation 1.

$$D = {}^{p}/_{\boldsymbol{P}} \times {}^{Q}/_{1} \quad (1)$$

The third stage, involves the random selection of 400 cattle farmers proportionately from the selected districts. Information on the sampling frame was obtained from the Ministry of Livestock Productivity and Nomadic Settlement, Yola. The selection of the four hundred respondents will be based on the proportionality factor presented in equation 2, as adopted from Giroh *et al*. (2014).

$$S = {}^{r}/_{R} \times {}^{N}/_{1} \quad (2)$$

The sample size of 400 cattle farmers with a total population of 6,170 respondents will be obtained when use 5% margin error (confidence interval) and with 95% confidence level (MarCorr 2014, creative research systems 2012, and Didier 2013). Moreover, the Sample size will also be determined by using Taro Yamane formula as shown below: (Polonia, 2013).

Data analysis techniques

Descriptive statistics was used to analysed the socioeconomics characteristics of cattle farmers and truncated regression analysis was used to analysed factors influencing the intensity of market participation in the study area.

Model Specification

Truncated Regression model

Most studies on market participation have typically adopted a two-step analytical approach involving the unobservable decision to participate and the observed degree or intensity of participation in the markets (Vance & Geoghegan, 2004; Alene et al., 2008). However, this study purposively analyzed the intensity of market participation, and identified factors that influence the degree of participation among the cattle farmers. The observed percentage of cattle that is actually sold in the market was used as a proxy for intensity of market participation (equation 3)

$$Y_i^* = \beta_i X_i + \mu_i \quad (3)$$

where Y_i^* is the percentage of cattle that is sold, β_i is the vector of parameters to be estimated, X_i is the set of explanatory variables and μ_i is the error term.

Result and discussions

Socio-economic characteristics of the respondents

The result in Table 1 showed that most of the cattle market participants (59.8%) were aged between 35 - 49 years, with 51.2% having a family size of between 10 – 14 persons. Also, most market participants had between 15 – 24 years of cattle marketing experience. Likewise, 50.41 % had herd size of less than 50 cattle, and were predominantly male (95.04%), and married (83.48, %), with 77.96% of the households having one form of formal education or the other, 57.02% being full-time cattle farmers. It is, however, not unusual to have more of male-headed households among the cattle a farmer, since cattle farming is considered a patriarchal activity in the study area. Female-headed households are, therefore, expected to have lower probability of market participation compared to their male counterparts. Also, with the result indicating that 83% of the respondents were married, it can be inferred that they had social obligations to cater for which could encourage their participation in cattle marketing activities.

Education level of the household head could lead to increase in the household's ability to access and to utilize market information. From the findings, about 78% of the households had one form of formal education or the other. This implies that they have the potential to utilize information more efficiently and as a result improve their marketing skills. This finding conforms to the findings of Randela *et al.* (2008) and Enete and Igbokwe (2009) who reported that education provides households with better production and managerial skills which could translate to increased market participation.

Table 1: Socioeconomics Factors of the Sampled Cattle Farmers

Attribute	Frequency	%
Age		
<20	12	3.31
20 to 34	57	15.70
35 to 49	217	59.78
50+	77	21.21
Family size		
<5	56	15.43
5 to 9	94	25.90
10 to 14	186	51.24
15+	27	7.44
Years of market experience		
<5	21	5.79
5 to 14	91	25.07
15 to 24	209	57.58
25+	42	11.57
Herd size		
<50	183	50.41
50 – 99	65	17.91
100 – 149	68	18.73
150+	47	12.95
Gender		
Male	345	95.04
Female	18	4.96
Marital status		
Single	50	13.77
Married	303	83.48
Widowed	5	1.38
Divorced	5	1.38
Education		
No formal education	80	22.04
Adult/Primary Education	83	22.87
Secondary	108	29.75
Post-secondary	92	25.34
Major occupation		
Cattle farming	207	57.02
Civil servant	92	25.34
Trading	57	15.7
Farming	7	1.93

Source: Field survey, 2016

Determinants of Intensity of Market Participation

The result in Table 2 shows that age and gender of the household head, distance to market, herd size and seasonality influenced the intensity of cattle market participation. The truncated regression results show that age of the household head, gender and seasonality are significant at 5%, while distance to market and herd size are significant at 1%.

The finding revealed that market participation decreases with age since the coefficient of the variable carried a negative sign. The result suggests that as age increases by one year, the intensity of market participation decreases by 0.317. This may be due to the fact that older farmers may be prone to more risk, and would therefore choose to retain their livestock for security rather than participate in the market. This conforms to the findings of Musah *et al.* (2014) who reported that younger farmers are expected to be fully engaged in the market so as to enhance their quality of life. The study by Oparinde and Daramola (2014) observed that age of the farmer have significant influence on intensity of market participation in Ondo state, Nigeria. However, the studies conducted by Endris and Negussie (2011), Maiangwa (2013) , Mubi *et al.* (2013), and Yali *et al.* (2014), that farmers' age(s) and their experiences in farming significantly influence their market participation.

The result indicated further that intensity of the participation increases with gender. This could be as a result of the fact that males are the heads of families; therefore, they shoulder more household responsibilities that likely drive them to participate more in marketing activities. Generally, cattle farming in the study area are considered as patriarchal activities because men are expected to take up rigorous or tasking jobs such as cattle marketing, taking long journeys to markets and spending more time outside home, which married women are not allowed to do. In the study, market distance was negative and significantly related to the intensity of participating in the cattle markets. This implies that each unit increase in market distance decreases the intensity of participation by 0.227. Logically, if the cattle market is far from the point of production, households will participate less because of higher transport cost which reduces profit margin. This situation becomes complicated if prices are not favorable and the cattle have to be transported back to the rural areas. This concurs with the findings of Uchezuba *et al.* (2009) who indicated that market distance has a negative impact on the probability of the small-scale farmers marketing their animals to formal markets in South Africa.

Total herd size has a negative and significant relationship with the intensity of participating in the cattle markets; this implies that the intensity of participation decreases with an increase in the herd size. A unit increase in the herd size will decrease the intensity to sell cattle by 0.278. This is contrary to the findings of Girei and Omonona (2009) and Hangara *et al.* (2011) who stated that the number of cattle positively influenced farmers' participation in the cattle market. This finding may not be unconnected with the fact that majority of the cattle farmers are Fulani herdsmen and the number of cattle one has elevates their social status in the communities with its attendant negative consequences on intensity of market participation.

Seasonality (dry season) affects grazing, water and other related resources due to the absence of rainfall. Dry season is characterized by very low rainfall and the lack of natural grazing which leads to the use of alternative methods of feeding cattle during dry season. The coefficient for season which was measured as a dummy variable was positive and significant at 5% level. This suggests that as the season changes from rainy (X=0) to dry (X=1), it increases the intensity of participation in cattle markets which is orchestrated by increased supply. This implies that cattle farmers mostly grapple with inadequate feed and water during the dry season; and hence have to cut the herd size to ease the difficulties associated with inadequate feed.

Table 2: Result of truncated regression analysis for the intensity of cattle market participation

Variables	Coefficients (β)	Standard error	Z	Significance
Age	-0.317	0.152	-2.09	0.037**
Gender	8.445	3.638	2.32	0.020**
Education	1.951	3.677	0.52	0.596
Family size	-0.079	0.270	-0.29	0.770
Distance to market	-0.227	0.073	-3.13	0.002***
Prior market information	1.207	3.304	0.06	0.950
Road type	2.450	2.585	0.95	0.343
Herd size	-0.278	0.063	-4.37	0.000***
Season	5.988	2.803	2.14	0.030**
Theft at market	-0.235	2.439	-0.10	0.923
Constant	41.843	7.419	5.64	0.000
Wald Chi2	62.26***			
Log likelihood	-1325.8984			
Number of observations	351			

Source: Field survey, 2016

*** Significant at 1% ** Significant at 5%

Conclusion and Recommendations

The cattle market participants were averagely aged 43 years. This result shows that farmers have good chances of driving market advantage, since they were at productive age group. Those engaged in cattle business were predominantly male, and were married. This implies that the more farmers participates in the market the better chance addressing family problems. Moreover, distance to market and shortage feed during dry season affect the intensity of market participation. The findings revealed that majority of the households had one form of formal education or the other. This indicates that market participants can be able to utilize information more efficiently and consequently improve their managerial skills. Since education positively influenced the participation in the cattle market, there is need to encourage formal education among the cattle farmers in the study area, the more the participant is educated, the better the chance of participation in the cattle market and also to encourage female and those that are unmarried to participate in cattle marketing activities. Provision of reliable market information through mass media or extension services is paramount important in improving market participation in the study area. However there is a need to provide adequate pasture land and water supply so as to curb the problems of exposure to avarice of weather and to create more additional sales point at farming communities is paramount in the intensity of cattle market participation.

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