



## CASHLESS TRANSACTIONS SOCIOECONOMIC DETERMINANTS AND ITS EFFECTIVENESS IN LIVESTOCK MARKETING ACTIVITIES AMONG LIVESTOCK MARKETERS IN KATSINA STATE, NIGERIA

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**ABSTRACT:** *The study analyzed cashless transactions socio-economic determinants and its effectiveness in livestock marketing activities among livestock marketers in Katsina State, Nigeria. Multi-stage sampling procedure was deployed to select and interview 366 livestock marketers. Descriptive statistics, likert scale and binary logistic regression model were used to analyze data collected. Majority (76.5%) of the livestock marketers were found to be engaged in cashless transactions. The livestock marketing in the study area is predominantly by male (100%) and married (96.45%) marketers of which most of them have some level of formal education ranging from primary (40.71%), secondary (19.94%) and tertiary education (28.43%). They have an average age of 47 years with an average experience of 21 years of marketing activities. Majority (88.25%) of them were also found to have annual income of 100,000 – 1,080,000 naira. Results further show that cashless transactions were effective only in animal selling transactions ( $M=3.079$ ) and animal purchase transaction activity ( $M=2.349$ ), among various livestock marketing activities. The result findings also revealed level of education ( $p<0.01$ ), income of the marketers ( $p<0.05$ ), cooperative members ( $p<0.01$ ), and mobile phone ownership ( $p<0.01$ ) to be the statistical significant factors influencing decision of livestock marketers participation in cashless transaction in the study area. Inadequate cash in circulation (98.09%), poor acceptance of transfer by some marketers (96.99%) and uncertainty of transaction success (96.72%) were major challenges of engagement in cashless transactions in the study area. It can therefore be recommended that mitigating challenges and improving contributing factors will enhance cashless transaction effectiveness in Livestock marketing activities.*

**KEYWORDS:** Cashless transaction, Marketing activities, Livestock, Determinants.



## INTRODUCTION

Digitizing payments from agricultural buyers to their smallholder suppliers is seen as a strong pathway for integrating digital financial services into agriculture value chains (Mattern & Ramirez, 2017). Digital payments can facilitate access to financial services for smallholder farmers by lowering transaction costs, providing flexibility and improving the customer experience (Asia-Pacific Economic Cooperation, 2017). All transactions in digital payments are completed online; it is an instant and convenient way to make payment. There are many advantages of cashless transactions which include limiting back money, reduction of transaction cost, getting rid of soiled and damaged notes, and avoidance of theft (Bhattacharya, 2016).

Despite the benefit derived from digital payment, cashless transactions are still low and there are high transaction costs and fear of cybercrime, money loss, internet connectivity problems, especially in developing countries such as India where the cashless policy was fully introduced (Kumar et al., 2018). Smallholder farmers “supply 60% of the world’s meat, and provide 75% of the world’s dairy production” (International Fund for Agricultural Development [IFAD], 2016). Nigeria is one of the leading countries in cattle production in sub-Saharan Africa (World Bank, 2009). Cattle industry has been providing livelihood for the significant proportion of the livestock rearing household and participants in the cattle value chain in Nigeria (Okunmadewa, 1999).

Although there are many sources of animal protein in Nigeria, Tibi and Aphmau (2010) has shown that livestock products are predominant and are the most commonly consumed animal protein sources. Cattle and beef trade provides the largest market in Nigeria with millions of Nigerians making livelihood from various beef related enterprises (Umar et al., 2008), and most of these farmers reside in rural areas where there is no adequate basic amenities, communication networks and banks (Ukoha et al., 2017), there by making marketing of livestock dominantly cash-based transaction. Towards an effort to digitize the Nigerian economy, the Central Bank of Nigeria (CBN) in 2012 introduced a cashless policy in some selected states of the country (Ndifon & Okpa, 2014). Due to successful implementation of the policy in the pilot states, the CBN in September 2022 redesigned naira notes as a pathway for full implementation of cashless policy in the country. In order to meet the deadline of acceptability of old notes, individuals in the country were forced to deposit their old notes in the banks with the anticipation of receiving new redesigned naira notes. Unfortunately, the CBN gave directives to the commercial banks to stop counter withdrawal payment, limiting withdrawals of new naira notes only via Automated teller machine, at daily maximum withdrawal limit of NGN20,000 per individual account. The cashless policy created a situation of cash scarcity, which became more alarming in rural areas where there are no banks, ATMs, and limited point of sale (POS) operators, thus making the individuals resort to digital transactions in their daily transactions and marketing activities which is also affected by poor communication networks. Livestock marketers were not singled out from the scenario given that the location of the markets is in rural areas and majority of farmers that brought the animals for sale to market do not have bank accounts and are generally skeptical about digital payment (Ukoha et al., 2017). It is against this backdrop that this study analyzed cashless transaction perceived effects and its determinants among livestock marketers, in Katsina state, Nigeria. The research outcome will help us understand the effect and extent adoption of cashless policy in livestock marketing for policy, research and intervention relevance.



## METHODOLOGY

### Study Area

Katsina State is located in the North-Western part of Nigeria, covering an area of 9341 square kilometers. The state is bounded by Niger Republic to the North, Jigawa and Kano States to the east, Kaduna State to the south, and Zamfara state to the west. (Katsina Diary, 2015). The projected population was 8,898,789 in the year 2018. (NPC, 2015). Katsina state is made up of thirty four (34) local government areas (LGAs). The weather climate is hot and dry for most of the year, maximum day temperature of about 38°C in the months of March, April and May are common and the minimum temperature is about 22°C in the months of December and January, and also has an average annual rainfall of 780mm. The inhabitants are mainly farmers, growing mostly grains, commonly cultivated crops were millet, guinea corn, cowpea, groundnuts and they rear animals' small and large ruminants such as goat, cows, camels (Katsina Diary, 2015).

### Sampling Procedure

Multistage sampling procedure was employed. First stage involves identification and purposive selection of major livestock markets in the Katsina state from various zones of the state, second stage was random selection of two markets from major livestock markets from each zone. Systematic random selection of requisite marketers estimated from a sample frame of livestock marketers in all the selected markets was carried out in the third stage, thereby making a total of 366 livestock marketers for the study

**Table 1: Sampling Summary**

Zones	Selected Marketed	Sample Frame	Sample size
<b>Daura Zone</b>	Maiadua	417	72
	Garki	353	50
<b>Funtua zone</b>	Funtua	250	74
	Bakori	172	48
<b>Katsina Zone</b>	Charanchi	424	82
	Dutsinma	130	40
<b>Total</b>	6	1720	366

Source: *Preliminary Survey, 2023*

### Method of Data Collection

Primary data was used for the study which was collected through the use of a well- structured questionnaire, administered by well-trained enumerators that have a better understanding of their local language. The data information collected include socio-economic characteristics, perception of livestock marketers on cashless transactions, cost and returns of livestock marketing and challenges livestock marketers faced during cashless transactions.



**Analytical Technique**

Descriptive statistics, likert scale, logit regression model, marketing margin and t-test were used to achieve various objectives of the study.

**Binary Logistic Regression Model**

Binary Logistic Regression Model. The dependent variable in this case is a dummy variable carrying 0 for non-engagement in cashless transactions and 1 for engagement in cashless transactions.

$$P (Y_i = 1) = \frac{I}{I + e^{-(\beta_0 + \beta_i X_i)}} \dots\dots\dots (i)$$

For ease of exposition, we write (1) as:-

$$P (Y_i = 1) = \frac{I}{I + e^{-z_i}} \dots\dots\dots (ii)$$

Where P (Y<sub>i</sub> = 1) is the probability that marketers engaged in cashless transactions and P (X<sub>i</sub> = 1) is the probability that marketers do not engage in cashless transactions. Z<sub>i</sub> is the function of a vector of the independent variables. The model can therefore be expressed as:

$$1 - P (Y_i = 1) = 1 - \frac{I}{I + e^{-z_i}} = \frac{I}{I + e^{+z}} \dots\dots\dots (iii)$$

$$\frac{P (Y_i = 1)}{1 - P (Y_i = 1)} = \frac{I + e^{z_i}}{I + e^{-z_i}} = e^z \dots\dots\dots (iv)$$

The explicit form of the model can be written as;

$$Y = F(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9 \dots X_n) \dots\dots\dots (v)$$

The explicit form can be written as

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e_i$$

Y = 1, women participate, Y = 0, men participate,

β<sub>0</sub> = the intercept

e<sub>i</sub> = the error term

X<sub>1</sub> = Age of the respondent (years)

X<sub>2</sub> = Years of experience in Livestock Marketing (Years)

X<sub>3</sub> = Flock size of the respondents

X<sub>4</sub> = Marital status (single = 0, married = 1)

X<sub>5</sub> = Educational Status/level (Non-Formal = 1, Primary = 2, Secondary = 3, Tertiary = 4)

X<sub>6</sub> = Access to credit of the respondents (Yes = 1, No = 0)

X<sub>7</sub> = Household size of the respondents (numbers)



X<sub>8</sub> = Cooperative Membership (Yes = 1, No = 0)

X<sub>9</sub> = Annual Income of the respondents (Naira)

X<sub>10</sub> = Accessible Road (Yes = 1, No = 0)

X<sub>11</sub> = Access to credit (Yes = 1, No = 0)

X<sub>12</sub> = Use of Mobile phones (Yes = 1, No = 0)

X<sub>13</sub> = Use of Android Mobile phones (Yes = 1, No = 0)

## RESULT AND DISCUSSION

### Socioeconomic Characteristics of Livestock Marketers

Socioeconomic characteristics of livestock marketers results were presented in Table 2. The result shows that livestock marketing is predominantly dominated by male (100%) and married (96.45%) marketers of which most of them have some level of formal education ranging from primary (40.71%), secondary (19.94%) and tertiary education (28.43%) in the study area. Majority of the respondents (77.60%) regarded livestock marketing as their major occupation. Similarly, the majority have no access to formal training on livestock marketing (91.53%), and access to credit facilities (56.01%); however, most (66.39%) of them are members of cooperative groups, and majority (93.72%) of the them have accessible road to the market and as well as possession of mobile phone devices (92.62%). Majority (76.5%) of the livestock marketers engaged in cashless transactions in the study area. This was found by Ukoha *et al.* (2017) that 72.30% of farmers have preference for cashless transactions in Imo State, Nigeria.

**Table 2a: Socioeconomic Characteristics of Livestock Marketers**

Variable Name	Frequency	Percentage
<b>Gender</b>		
Male	366	100
Female	-	-
<b>Marital Status</b>		
Married	353	96.45
Single	13	3.55
<b>Education Level</b>		
Primary	149	40.71
Secondary	73	19.94
Tertiary	104	28.42
Non formal/Adult Education	40	10.93
<b>Main Occupation</b>		
Crop Production	69	18.85
Livestock Marketing	284	77.60
Agro-Processing	2	0.55
Civil Servant	9	2.46
Handcraft	2	0.55



<b>Formal Training</b>		
Yes	31	8.47
No	335	91.53
<b>Cooperative Membership</b>		
Non Member	123	33.61
Member	243	66.39
<b>Road Accessibility</b>		
Accessible	343	93.72
Non-Accessible	23	6.28
<b>Access to credit</b>		
No Access	205	56.01
Access	161	43.99
<b>Use of Android</b>		
Yes	103	28.14
No	263	71.86
<b>Use of Mobile</b>		
Yes	339	92.62
No	27	7.38
<b>Engagement in cashless transaction</b>		
Yes	280	76.50
No	86	23.50
<b>Total</b>	<b>366</b>	<b>100</b>

Source: *Field Survey, 2023*

Regarding other quantitative socioeconomic variables as shown in table 3. Age of the marketers results show that most of the respondents are within the age range of 45-55 by (43.71%) and 34-44 by (23.22%) and they have an average age of almost 47 years. Mafimisebi, Bobola and Mafimisebi (2013) found a similar average age of livestock marketers in southwestern Nigeria. Implying that livestock marketing in the study area is by matured active individuals. Results further show that the marketers households have an average of 12 members and their majority have household ranges of 1-7 members by (30.87%) and 8-14 members by (34.69%). Implying that the majority of the marketers have responsibility that necessitated them to engage in income providing activities. About 73% of the respondents have a marketing experience range of 8-25 years with an average experience of 21 years of marketing activities. The majority of respondents (88.25%) were also found to have an annual income of 100,000 – 1080,000 naira and an average of 683,497.3 naira.

**Table 2b: Socio-economics Characteristics of Livestock Marketers**

Variable Name	Frequency	Percentage
<b>Age of Respondents</b>		
23-33	31	8.47
34-44	85	23.22
45-55	160	43.71
56-66	49	13.38
67-77	41	11.20
Mean	46.6	
Minimum	23	
Maximum	75	
<b>Household Size</b>		
1-7	113	30.87
8-14	127	34.69
15-21	89	24.32
22-28	29	7.92
29-35	8	2.18
Mean	12	
Minimum	1	
Maximum	33	
<b>Livestock Marketing Experience</b>		
8-14	84	22.95
15-25	186	50.82
26-36	64	17.49
37-47	30	8.196
48-58	2	0.5
Mean	21.2	
Minimum	4	
Maximum	52	
<b>Annual Income (Naira)</b>		
100,000 – 1080,000	323	88.25
1080,000 – 2,060,00	30	8.19
2,060,000 - 3,040,000	7	1.91
3,040,000 – 4, 020,00	4	1.00
4,020, 000 – 5,000,000	2	0.5
Mean	683497.3	
Minimum	100,000	
Maximum	500,000	
Total	366	100



### Effectiveness of Cashless Transaction on Livestock Marketing Activities

The result for effectiveness of cashless transaction on livestock marketing activities was presented in table 4. Result shows that cashless transaction is most effective in selling of livestock animal transaction (M=3.079). This implies that the marketers find it more effective to receive cash transfer of the livestock animal they sold; similarly, the animals are usually sold at distance places making it more convenient for the marketers to receive credit transfer for the sold animal. The second and less effective found was in animal purchase transaction activity (M=2.349), implying that some of the farmers that brought their animals to sell in the market also receive credit transfer payment. The other remaining marketing activities were found to be less effective; these include transportation (M=2.177), loading (M=2.08), offloading (M=2.13), and purchase animal identification marking (M=2.34). The overall result revealed that cashless transaction is more effective in the purchase and sales of livestock; this may be due to the volume of transaction amount involved in the two activities because other activities involve using small amount of money to make payment. This agree with finding by Podile and Rajesh (2017) and also supported what was found by Maravi (2020) that rural people have positive perception towards cashless transaction in sales transaction at Anuppur District of Madhya Pradesh.

**Table 4: Effectiveness of Cashless Transaction on Livestock Marketing Activities**

Marketing Activity	Mean Score N(366)	Std. Dev.	Rank
Effectiveness in Loading	2.082192	1.150172	6 <sup>th</sup>
Effectiveness in offloading	2.131148	1.151182	5 <sup>th</sup>
Effectiveness in Purchase	2.349727	1.174192	2 <sup>nd</sup>
Effectiveness in Transportation	2.177596	1.188364	3 <sup>rd</sup>
Effectiveness in Selling	3.079235	1.246037	1 <sup>st</sup>
Effectiveness in Purchased Animal marking	2.344262	1.093722	3 <sup>rd</sup>

**Key:** Ineffective = 1, less Effective=2, Undecided=3 Very effective = 4, strongly effective=5

Source: Field Survey, 2023

### Factors Influencing Livestock Marketer's Decision to Participate in Cashless Transaction

Socioeconomic factors influencing livestock marketer's decision to participate in cashless transaction results were presented in table 5. A significant ( $p < 0.01$ ) value of Log likelihood and LR chi2 (13) shows the overall fitness of the model, pseudo R2 value 0.2475 also shows about 25% predictive contribution of exogenous variables in determining marketers decision to participate in cashless transactions. The result findings revealed level of education ( $p < 0.01$ ), income of the marketers ( $p < 0.05$ ), cooperative members ( $p < 0.01$ ), and mobile phones ownership ( $p < 0.01$ ) to be the statistical significant factors influencing marketers decision to participate in cashless transactions in the study area.

The coefficient of level of education that is positive and significant, implies that the higher the level of education of the market the more they participate in cashless transactions. This implies that highly educated marketers participate more in cashless transactions. This may be due to the fact that cashless transactions involve the use of new technologies, such as mobile phones,





POS and banks. Educated people also tend to adopt new technologies more than less educated individuals. Previous studies by Banstola (2007) and Ukoha et al. (2017) have similar findings, which have shown that less educated people are more reluctant in using electronic payment services as a result of their inconvenience in using the internet for doing their transactions.

Income of marketer's coefficient was found to be positive and significant in the study area implying that cashless transactions are more frequent among high income individuals, in other words the higher the income, the more the participation in cashless transactions. This is due to the fact that it is more convenient to use cashless payment through credit transfer for a high amount of money transaction. The finding supported the long findings of Avery et al. (1986) who found that there was a strong positive correlation between income and credit card transactions.

The coefficient of cooperative membership was also positive and significant; this implies that participation in cooperative groups encouraged the decision to participate in cashless transactions. The cooperative members share useful information, making them to have a high level of awareness among them, hence they have higher propensity to participate in cashless transactions.

Moreover, the use of mobile phones was found to be positive and significant in influencing marketer's decision to engage in cashless transactions implying that marketers that own mobile phones have a high propensity to participate in cashless transactions. This is very certain because mobile phones are one of the integral mediums for conducting cashless transactions, therefore marketers that own them are more likely to participate in cashless transactions.

**Table 5: Factors Influencing Marketer's Decision to Participate in Cashless Transaction**

Variable	Odd ratio	Marginal effect	Standard Error	P- Value
Constant	0.0001	-8.664	2.859	0.002
Age of livestock Marketer	1.006	0.006 <sup>NS</sup>	0.025	0.803
Marital status	0.630	-0.461 <sup>NS</sup>	0.774	0.551
Level of education	1.605	0.473***	0.178	0.008
Household Size	1.011	0.011 <sup>NS</sup>	0.03	0.725
Marketing Experience	0.968	-0.033 <sup>NS</sup>	0.022	0.136
Main Occupation	0.895	-0.111 <sup>NS</sup>	0.292	0.703
Annual Income	1.478	0.391**	0.175	0.026
Training Participation	0.612	-0.491 <sup>NS</sup>	0.537	0.361
Cooperative Membership	2.093	0.739***	0.333	0.027
Accessible` Road	1.634	0.491 <sup>NS</sup>	0.552	0.373
Access to credit	0.720	-0.328 <sup>NS</sup>	0.32	0.305
Use of Mobile phones	69.940	4.248*****	1.049	0.000
Use of Android Mobile phones	1.163	0.151 <sup>NS</sup>	0.396	0.703
Log likelihood		-156.80229		0.000
LR chi2(13)		103.12		
Pseudo R2		0.2475		

**Note:** \*, \*\*, \*\*\* stands for significance at 1%, 5% and 10% Respectively, NS = Not Significant

Source: Field Survey, 2023



### Challenges of Using Cashless Transaction among Livestock Marketers

Table 6 showed results for challenges of using cashless transactions among livestock marketers in the study area. Findings show inadequate cash in circulation (98.09%) as the first challenge faced by the marketers; as narrated by the marketers, it is difficult to accept credit transfer by them because it is difficult for them to access cash due to its scarcity in circulation. The second important challenge was poor acceptance of transfer by some marketers (96.99%); this is also due to the fact that not all buyers or sellers of livestock accepted credit transfer as transaction payment, hence some farmers prepared cash transactions as means of payment. This is in tandem with what was found by Yaqub et al. (2013) that people are accustomed to using cash for most of their transactions. Uncertainty of transaction was ranked third (96.72%); this was due to poor network used for transaction as there might be delay before the transaction is completed or it may even fail to deliver to recipient in time as revealed also by Yaqub et al. (2013) that low level of internet penetration and poorly developed telecommunication impede smooth development and improvement in e-payments and e-commerce. High transaction charges (87.43%) were recognized as 4<sup>th</sup> challenge because all credit transfers attract charges; similarly, during withdrawal, the charges were high due to inadequate cash in circulation. Poor market information, price fluctuation, absence of transaction outlets, and poor access to communication networks were also an important challenges that impede cashless transactions in the study area. Poor knowledge of android phone usage, absence of bank in the community as well as multiple taxation were the least but also important challenges that contribute to difficulty in using cashless transactions in the study area.

**Table 6: Challenges of Using Cashless Transaction among Livestock Marketers**

Challenges	Frequency	Percentage	Rank
Absence of banks in the community	217	59.29	11 <sup>th</sup>
Absence of POS and Transaction outlets	298	81.42	7 <sup>th</sup>
Poor access to communication network	281	76.78	8 <sup>th</sup>
Inadequate Cash in circulation	359	98.09	1 <sup>st</sup>
Uncertainty in transaction	354	96.72	3 <sup>rd</sup>
Poor acceptance of transfer by some marketers	355	96.99	2 <sup>nd</sup>
Price Fluctuation	307	83.88	6 <sup>th</sup>
Multiple Taxation	237	64.75	10 <sup>th</sup>
Poor Market Information	319	87.16	5 <sup>th</sup>
Poor Knowledge android phones Usage	273	74.59	9 <sup>th</sup>
High Transaction Charges	320	87.43	4 <sup>th</sup>



## CONCLUSION AND RECOMMENDATION

The cashless transaction was found to be only effective in animal selling transaction and animal purchasing transaction activity among the livestock marketing activities. Level of marketers education, income of the marketers, their membership in cooperative groups and mobile phone ownership were the determining factors influencing decision of livestock marketer's participation in cashless transactions in the study area. Inadequate cash in circulation, poor acceptance of transfer by some marketers and uncertainty of transaction success were major challenges to engagement in cashless transactions in the study area. It can therefore be recommended that mitigating challenges and improving contributing factors will enhance cashless transaction effectiveness in livestock marketing activities.

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