

Assessment of the Profitability of Livestock Marketing Under Cash Based and Cashless Transaction Systems in Katsina State, Nigeria

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Abstract

This study assessed profitability of livestock marketing under cash-based and cashless transaction systems in some selected markets in Katsina State, Nigeria. The study analyzed the data collected from a multi-stage randomly sampled 366 marketers of livestock. The data was analyzed using descriptive statistics and marketing margin analysis. The result showed that livestock marketers are predominantly males (100%) and married (96.45%) of which most of them have formal education (Above 70%). Result also showed that marketers have an average age of almost 47 years and a household size average of 12 persons. Majority (76.5%) of the livestock marketers engaged in cashless transaction in the study area. The Study findings revealed profitability of livestock marketing regardless of animal type and transaction system in the study area. More profit was realized in marketing of cattle and goat under cashless marketing transaction system, while sheep marketing generated higher profit under cash-based transaction system. The study therefore recommended the use of cashless transaction system among marketer however, subsequent government policy shall aimed at reducing transaction cost involve in the system.

Keywords: Cashless, Transaction, Cash-based, Marketing, Livestock, Profitability

INTRODUCTION

Nigeria, is an agrarian economy and has significant proportions of its farmers in the rural areas that lack adequate capital to realize their production potentials. The financial system consists of a regulated formal sector which is controlled by government legislations and an un-regulated informal sector. Smallholder farmers that reside in rural areas supply 60% of the world's meat,

and provide 75% of the world's dairy production (IFAD, 2016). The sector also significantly contributes to the Nigerian economy as it accounted for 10% of the agricultural contribution to gross domestic product (GDP), the sector also serves as a primary source of employment, and contributes about 36.5% of the protein consumed in various Nigerian households (NBS, 2022). Over the years most of the livestock marketing activities took place in rural areas where there are no adequate basic amenities, communication networks and banks there by making marketing of livestock dominantly cash based transaction instead of emerging digital payments (Ukoha Ibeagwa, Essien, & Osuji, 2017).

All transactions in digital payments (cashless transaction) are completed online; it is an instant and convenient way to make payment. There are many advantages of cashless transactions which include reduction of transaction cost, get rid of soiled and damaged notes, and avoidance of theft (Bhattacharya, 2016). Despite the benefit derived in digital payment, cashless transaction is still low and there are high transaction costs and fear of cybercrime, money loss, internet connectivity problems; especially in developing countries such as Nigeria and India where the cashless policy was introduced (Kumar, Jain, Jhahria, Bangaraju, & Balaji, 2018). The Central Bank of Nigeria (CBN) in September, 2022 redesigned Naira notes as pathway for full implementation of cashless policy in the Nigeria; in order to meet 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 20,000 per individual account.

Problem Statement

These cashless transaction policy scenarios created situation of cash scarcity, which becomes more alarming in rural areas where there are no banks, Automated Teller Machine (ATM), and limited point of sale services (POS) operators, thus making the individuals to resort to digital transaction in their daily transactions and marketing activities. The cashless transaction is also affected by poor communication networks in the rural area creating ineffectiveness in marketing transactions. 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). Although previous studies (Nazifi Garba & Ibrahim, 2023, Ukoha *et al.*, 2017) have revealed cashless transaction perceived effectiveness among livestock marketers and crop producing farmers in Nigeria; there is need to have empirical evidence on the financial viability of the system among livestock marketers. This study therefore provided evidence empirical evidence by evaluating the marketing profitability among livestock marketers operating under cash-based and cashless transaction system in Katsina state, Nigeria. The study specifically addressed the following objectives:-

- a. Describe the socioeconomic characteristics of the livestock marketers
- b. Estimate the cost and returns of livestock marketing under cash based and cashless transaction system.

LITERATURE REVIEW

Livestock marketing plays an essential role in many economies, particularly in developing countries where livestock production is a significant source of income for millions of households (Nazifi et al; 2023). Various factors, including government policies influence the profitability of cattle marketing. Government policies have a significant impact on the profitability of livestock marketing. These policies encompass various areas, such as the introduction of e-transaction and cashless policies and the imposition of restrictions on cash transactions. The theoretical studies that have been conducted on the subject reveal that the effects of government policies on livestock marketing profitability may vary depending on the context and the specific livestock industry (El-Aich, 2018). To better understand the practical implications of government policies on livestock marketing profitability in different regions and sectors, it is necessary to conduct further research (Zizhong, Junrui, & Xiangdong, 2023).

Infrastructure development through government policies, can enhance market access and reduce transportation costs, there by inducing profitability of the enterprise (Leon, 2022). Investments in rural roads, cold storage facilities, and marketplaces are essential for enhancing the efficiency of livestock marketing (Krishna, Timsina, Gauchan., Basi., Jaishi & Pandey, 2023). Government-backed insurance programs can mitigate financial uncertainties in marketing and safeguard the incomes of livestock producers and traders during adverse events (Adebayo, Awosusi & Bekun, 2021). Government policies can facilitate access to market information, which is crucial for decision-making in livestock marketing (Kray, Heumesser, Mikulcak, Giertz, & Bucik, 2018). Policies supporting the dissemination of price information through digital platforms or extension services was reported to motivate market participation and improve profitability (Lucia, 2023).

Empirical Review

Previous studies suggests that adopting technology such as mobile phones and digital platforms, is increasingly relevant in cattle marketing (Ukoha *et al.*, 2017; Nazifi et al, 2023). Technology can improve market information flow and facilitate transactions. Livestock marketers who embrace technological innovations may gain a competitive advantage (Rekwot, Abdulsalam, Yusuf & Oyinbo 2019). Digital marketing strategies have been found to augment customer reach, sales effectively, and engagement in various industries (Bawuro, Anthony & Iorfa 2022). Digital technologies allow small farms to compete with large beef producers, and the introduction of digital platforms in small-scale cattle farms can help revitalize the livestock system (Evgeniya, 2023). These platforms strengthen the livestock system by connecting system actors, improving coordination, enabling transactions, and enhancing profitability. In general, technological innovation embraced in the marketing of cattle benefits market information flow, transaction facilitation, and gaining a competitive edge, while all due consideration has to be taken regarding drawbacks.

Theoretical Framework

This study was underpin according to Technology Acceptance Model (TAM). The technology adoption Model theory was propounded by Fred Davis in 1989. The theory is a combination of

reasoned action and planned behaviour. Initially the theory was developed to understand user acceptance of wide range of technologies or innovations (Dans, 1989). Accordingly, the author premised the theory on two useful constructs to explain TAM; these are Perceive usefulness (PU) and Perceives ease of use (PEOU). The two constructs attempts to explain the intents of using new technology. Perceive usefulness explain the extent to which users believe that a particular technology will benefit them in terms of performance. Chen, Li & Li (2011) posit that perceives ease of usage connotes the extent to which using a particular system would be free of difficulty. The theory is adopted for the study to accolade the above that only focus on the need to develop the right capability for marketers to achieve market increased performance. This makes the theory relevant because it explains the rationale why marketers will appreciate the digital payment in marketing transaction. Therefore, this study utilised the model in order to predict the perceived benefit of digital payment towards increasing the profitability of livestock marketing in order to secure a market advantage in this era of digitalization.

METHODOLOGY

The Study was conducted in Katsina State which is located in the North-western part of Nigeria, covering an area of 9341 sq. km and is situated between a latitude 11°07'49''N and 13°22'57''N and longitude 6°52'03''E and 9°9'02''E . The state is bounded by Niger Republic to the North, Jigawa and Kano States to the east, Kaduna State to the south, 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 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, 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 involve identification and purposive selection of major livestock markets in the Katsina state from various zone of the state, second stage was random selection of two markets from each zone. The determination of requisite sample size was then carried out using online raosoft sample size calculator at 97% level of confidence that resulted to making a total of 366 livestock marketers for the study. Subsequently, a systematic random sampling was then used to finally select the requisite marketers from the list of livestock marketers in all the selected markets. The summary of the sampling procedure can be seen in Table 1.

Table 1: Sampling Summary

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

Source: Research Field Survey, 2023

Data Collection and Tools of Analysis

Primary data was used for the study, which was collected through the use of structured questionnaire; administered by well-trained enumerators that have better understanding of their local language. The questionnaire was validated by an experienced research specialized in agricultural marketing which was then pre-tested before the proper data collection. The data information collected were socio-economic characteristics and cost and returns associated with livestock marketing under cash-based and cashless transaction systems. Descriptive statistics (such as mean, frequency and percentages) and marketing margin were the analytical tools used to achieve objectives of the study. The data collected was analyzed using Statistical Package for Social Sciences (SPSS) V20.

Marketing margin analysis

The marketing margin is the difference between selling price (SP) and total marketing cost (TMC) it was used to evaluate the market profitability for the livestock (Goat, Sheep and Cattle) operating under cashless and cash based transaction systems as specified below:-

$$\text{Marketing Margin} = \text{Selling price (SP)} - \text{Total Marketing Cost (TMC)}$$

$$\text{SP} = \text{Average Selling Price (₦)}$$

$$\text{TMC} = C_1 + C_2 + C_3 + C_4 + C_5$$

$$C_1 = \text{Average Purchase Price (₦)}$$

$$C_2 = \text{Average Transportation (₦)}$$

$$C_3 = \text{Average Tax (₦)}$$

$$C_4 = \text{Average Loading/uploading (₦)}$$

$$C_5 = \text{Average Purchase Price}$$

RESULTS AND DISCUSION

Socioeconomic Characteristics of Livestock Marketers

Socioeconomic characteristics of livestock marketers result was presented in Table 2. The result showed that livestock marketing is predominantly by males (100%) and married

(96.45%) marketers of which most of them have 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 primary occupation. Similarly their majority have no access to formal training on livestock marketing (91.53%), and access to credit facilities (56.01%) is limited, however most (66.39%) of them are members of cooperative groups, and majority (93.72%) of the them had accessible road to the market as well as been in possession of mobile phone devices (92.62%). Majority (76.5%) of the livestock marketers engaged in cashless transaction in the study area. This is similar to what was found by Ukoha, *et al.*, (2017) that 72.30% of farmers engaged in cashless transaction in Imo State, Nigeria. The policy implication of this socioeconomic characteristics is to guide policy directives; for instance, the domination of males in the enterprises implies the need to develop framework that will support women participation in livestock marketing enterprises; similarly high rate of marketer’s participation in cashless transaction implies the compliance of Agribusiness enterprises to cashless policy design by the Nigerian Government.

Table 2a: Socioeconomic Characteristics of Livestock Marketers

Variable Name	Frequency	Percentage
Gender		
Male	366	100
Female	-	-
Marital Status		
Married	353	96.45
Single	13	3.55
Education Level		
Primary	149	40.71
Secondary	73	19.94
Tertiary	104	28.42
Non formal/Adult Education	40	10.93
Primary Occupation		
Crop Production	69	18.85
Livestock Marketing	284	77.60
Agro-Processing	2	0.55
Civil Servant	9	2.46
Handcraft	2	0.55
Formal Training		
Yes	31	8.47
No	335	91.53
Cooperative Membership		
Non Member	123	33.61
Member	243	66.39
Road Accessibility		
Accessible	343	93.72
Non-Accessible	23	6.28

Access to credit		
No Access	205	56.01
Access	161	43.99
Use of Android		
Yes	103	28.14
No	263	71.86
Use of Mobile		
Yes	339	92.62
No	27	7.38
Engagement in cashless transaction		
Yes	280	76.50
No	86	23.50
Total	366	100

Source: Researchers' Field Survey, 2023

The result for the socioeconomic characteristics was further shown in table 3. The Age of the marketers result showed that respondents have an average age of almost 47 years. Mafimisebi, Bobola & Mafimisebi (2013) found similar average age of livestock marketers in southwestern Nigeria. Implying that livestock marketers in the study area are active individuals that participated in livestock marketing. Result further show that the respondents had an average households of 12 members. This implied that majority of the marketers have responsibility that necessitated them to engage in an income providing activities. The respondents were also found to have an average marketing experience of 21 years and an average income of ₦683,497.3 annually. The policy implication of this socioeconomic characteristics is to guide policy directives; for instance, the domination of males in the enterprises implies the need to develop framework that will support women participation in livestock marketing enterprises; similarly high rate of marketer's participation in cashless transaction implies the compliance of Agribusiness enterprises to cashless policy design by the Nigerian Government.

Table 3: Socioeconomics Characteristics of Livestock Marketers

Variable Name	Mean (x)	Standard Deviation
Age of Respondents	46.6	10.39
Household Size	12	6.83
Livestock Marketing Experience	21.2	10.51
Annual Income (₦)	683497.3	167648.65

Source: Researchers' Field Survey, 2023

Livestock Marketing Margin Analysis in Cash-Based and Cashless Transaction System

The result for the Cash-Based and cashless transaction system for various livestock is shown in table 4. The result for the cashless transaction of an average head of cattle results showed high transaction cost of (₦227,209.3) and a profit margin of ₦32, 077.21 meanwhile the transaction cost under cash-based system per cattle is ₦208,547.39 and a margin of ₦42,130.88 is realized under the system. This implies high marketing transaction cost under cattle cashless marketing system, although higher price (₦259,286.5) is offered under the system when compared with a selling price of ₦250,678.3 realized under cash based system. Irrespective of the transaction systems cattle marketing is found to be a profitable agribusiness in the study area. With respect to Goats marketing the result in table 4 shows TMC of ₦26,430.49 and a margin of ₦3,765.63 under cashless system meanwhile a TMC of ₦25,059 and a margin of ₦2,611 is realized under cash based system. Although there is a high transaction cost in cashless based goat marketing system, the system generate more profit and higher selling price than cash-based goat marketing system in the study area. Moreover, the marketing of sheep result in table 4; revealed TMC of ₦36,087.41, Selling price of ₦38,250 and a margin of ₦2,162.59 for cashless system, meanwhile a TMC of ₦34,853.86, Selling price of ₦39,737.3 and a margin of ₦4883.44 is realized by the marketers under cash based transaction system. this implies profitability of sheep marketing in the study area, however there is high transaction cost in a sheep cashless transaction system and a more profit is realized under cash based system. The result findings generally revealed profitability of livestock marketing irrespective of animal type and transaction system type in the study area. However cashless marketing system is found to increase livestock marketing transaction costs in the study area. The findings is consistence with that of Bamigboye Sodiq, & Oluwasusi (2017) on goat marketing in Ado Ekiti metropolis, Ekiti State, Nigeria, similarly Garba & Mohammed (2020) reported profitability on Sheep Marketing in Katsina Metropolis, Katsina State, Nigeria. The policy implication of this findings is that cashless transaction enhances livestock marketing. In order to sustain profitable performance of the livestock cashless transaction system Government shall put measures that will reduce transaction costs involve in the system.

Table 4: Livestock Marketing Analysis under Cash-Based and Cashless Transaction System

Type/ Cost Items	Cattle		Goat		Sheep	
	Cashless	Cash based	Cashless	Cash based	Cashless	Cash based
Purchase Price (₦)	222,612.6	203,608.70	25834.95	24,350	35,650.79	34,404.76
Transportation (₦)	3530	3928.69	352.92	390	211.26	232.46
Tax (₦)	454.95	400	100.97	101	104.36	101.19
Loading/uploading (₦)	611.71	610	141.65	218.48	121	115.45
TMC (₦)	227,209.3	208,547.39	26,430.49	25,059	36087.41	34,853.86
Selling Price (₦)	259,286.5	250,678.3	30196.12	27670	38250	39,737.3
Marketing Margin (₦)	32, 077.21	42,130.88	3765.63	2,611	2162.59	48,83.44

Source: Researchers’ Field Survey, 2022. Note: TMC= Total Marketing Cost

CONCLUSION AND RECOMMENDATION

The Study findings revealed profitability of livestock marketing regardless of animal type and transaction system in the study area. The study further show more profit to be realized in the marketing of cattle and goat under cashless marketing transaction system, while sheep marketing generates higher profit under cash-based transaction system. However, cashless marketing system was found to increase livestock marketing transaction costs in the study area. The marketers were found to mostly participate in cashless transaction. In addition, the livestock marketing activity was also male dominated in the study area. The policy implication of the study is that the cashless policy implemented by the Nigerian Government enhances profitability of livestock marketing enterprises.

The study proffers the following recommendations:-

- i. Government should develop policy framework that will aim at reducing transaction cost involve in the cashless transaction.
- ii. Given the domination of males in the livestock marketing, a policy framework that will support women participation in the enterprise should be developed
- iii. Cattle and goats marketers should embraces the use of digital payment, given the profitability of the transaction system in their marketing activities.
- iv. Future research should focus on evaluating the impact of the digital payments on income and welfares of the livestock marketers.

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