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Analysis of Cost and Return of Cattle Marketing Before and During Cash Crunch Period in North-East Nigeria

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ABSTRACT

This study was undertaken to analysed the cost and return of cattle marketing before and during cash crunch period in the north-east Nigeria. Purposive and simple random sampling method were adopted to select 495 respondents to form the sample size. Primary data was obtained from a cross sectional survey of cattle marketers with the aid of well-structured questionnaire along with interviews. Gross margin was used to analysed the data. The result indicated a substantial decline in the cattle marketing business during the cash crunch period, with average profits decreasing by over 50%. The overall findings indicates that cashless policy has affected cattle marketing in North-East Nigeria. This study therefore, recommend urgent need for financial literacy and training programs tailored to the specific needs of cattle marketers. These programs should focus on digital financial literacy and mobile banking, equipping them with the necessary skills to navigate a cashless economy effectively.

***Key Words**: Cash Crunch, Cattle Marketing, Cost and Return, Nigeria*

INTRODUCTION

Nigeria, is one of Africa's leading livestock producers, boasts an estimated cattle population of over 20.7 million heads in the year 2020, surpassing Niger (16.1 million), Uganda (15.5 million and Mali (13.8 million), Kamer, (2023). To buttress further, Sasu (2023) also suggests the cattle population to be around 21.16 million heads. Cattle in Nigeria serve various purposes, including income generation, religious practices, festivities, household consumption, and even as a form of security against crop failure (Azare *et al*., 2020 and Ja'afar –furo *et al*., 2021). Cattle farming has been a longstanding and integral part of Northern Nigeria's economy, culture, and society. The region, comprising states such as Adamawa, Borno, Taraba and Yobe, has historically been home to substantial cattle populations. Cattle play a key role in the livelihoods of many communities in this region, providing meat, milk, and income through sales (Jibrilla, 2019; Azare *et al.*, 2020; Bawuro *et al.*, 2022). Some few studies have been carried out taking into account the factors influencing the profitability of cattle marketing in Nigeria indicating that cattle marketing is a profitable business both in Nigeria and other countries around the world. For instance, Umar *et al.* (2008) conducted a research study on the economics of small-scale of cow fattening and marketing enterprise in Borno State, Nigeria using a random sampling to select 45 respondents from two districts that have large number of beef fattening enterprise. The study shows that small scale cow fattening and marketing enterprise is profitable. Zekeri and Mukhtar (2015) conducted a study which was aimed at providing information on profitability of dairy product processing among small scale producers and marketers in Kaduna State, Nigeria. An average processor was found to realized Net Income of N92.51 per litre, hence dairy products processing was found profitable in the study area. An average cattle marketer at rural and urban market had a marketing efficiency of 101.1% and 103.4%, respectively implying that the market was also efficient.

This study tries to address a critical research gap despite the undeniable importance of the livestock sector and cattle marketing in the context of North-eastern Nigeria, there is a notable lack of broad investigations into the effects of cash crunch on these markets. The cash crunch issue, characterized by deliberate government actions to reduce the circulation of domestic currency, remains relatively unexplored within the cattle marketing domain. Furthermore, the study holds paramount significance due to its emphasis on economic analysis and the critical role of cattle marketing within the context of Nigeria's increasing population. It is worth noting that cattle serve multifaceted purposes, providing essential resources such as milk, beef, cow dung, bones, blood, hide, and skin, which contribute both to local industries and human consumption. Additionally, cattle marketing plays a pivotal role in employment generation, particularly among the youth demographic in Nigeria. This employment spans various facets of the cattle marketing ecosystem, including feed formulation, transportation, fattening, intermediaries, and loading and offloading activities.

STATEMENT OF THE PROBLEM

Cattle farming is an integral part of rural life, benefiting from a well-established network for marketing cattle both domestically, regionally, and internationally. As government policies promoting electronic payments largely replace traditional cash transactions, which coursed a lots of problems to

cattle marketers of which majority of them depends on physical cash transaction. This situation raises important questions regarding the characteristics of cattle marketers, particularly on the costs and returns associated with cattle marketing. Considering the fact that cattle marketing is predominantly carried by headers, small and medium scale marketers who depend on the business for their livelihood, and on spot transaction. The primary issue is to gain a widespread understanding of how these policies are affecting cattle marketing economic activities. This includes reduced business activities, decreased production, fewer orders, and limited employment opportunities. Notably, previous research such as Musa, *et al.* (2019), Oleribe *et al.* (2020) and Bahta, *et al*. (2023), revealed that cattle marketing business is profitable. Although there was limited research that compares "Cost and Return of Cattle Marketing Before and During Cash Crunch Period in North-East Nigeria", it is against this background, this research aim to explore this aspect of cash less policy in the country.

Empirical Review on Factors Influencing the Profitability of Cattle Marketing

Profitability in livestock marketing, especially cattle marketing is a cornerstone of the agricultural sector, particularly when faced with cash constraints. In this overview, we amalgamate insights from multiple studies to offer an understanding of how livestock farmers in Nigeria are addressing the challenges stemming from government policies that have resulted in specific restrictions. For instant, Musa *et al.* (2019) investigated the factors influencing profitability in cattle marketing within the context of limited cash availability. Their research unearthed the significant impact of access to credit facilities and marital status on profitability. Access to credit provided cattle marketers with a distinct advantage, allowing them to manage their operations more efficiently, invest in resources, and capitalize on market opportunities. Additionally, married cattle marketers demonstrated superior profitability compared to their single counterparts, possibly due to the stability and support that a family structure can provide in times of economic uncertainty.

Similarly, Mohammed *et al.* (2015) conducted a study that assessed the socioeconomic determinants of profitability of cattle fattening and marketing business in Adamawa State. It was observed from the study that on the average, respondents obtained about ₦30,500 per cattle as profit. Regression estimates of factors affecting the profitability of cattle fattening and marketing enterprise show that the coefficient of cost of feeds, number of cattle fattened and marketed were positive and significant ($p \leq 0.10$) to gross margin of the enterprise. The coefficient of cattle fattening and marketing experience, was also positive and significant ($p \leq 0.01$) to gross margin of the cattle fattening business. In a similar study, Sirak and Derek (2015) examined the determinants of profit efficiency among smallholder cattle marketers in Botswana. Results of the study found a considerable capacity to improve profitability. Furthermore, Kalangia *et al.* (2016) conducted a study on factors affecting profit of cattle farming and marketing in East Java, Indonesia and to quantify the profit gained by farmers in lowland and upland areas. Using an Ordinary Least Square (OLS) method, their result of the study showed that the average profit gained by farmers in the upland area was higher than that gained by farmers in the lowland area.

In their study, Adebayo *et al.* (2018) analysed the profitability of actors within the cattle value chain in Niger State, Nigeria. The research included data from 193 male actors aged 20 and above. Notably, 47% had no formal education, while 53% had some level of education. The key intermediaries in cattle marketing were identified as producers, dealers, retailers, and brokers. Transportation costs were found as a significant part of the Total Variable Cost for each group. The study demonstrated the profitability of cattle marketing in the region, with different gross margin figures for each group. Profitability ratios also varied. Most actors fell within a profit efficiency range of 0.10 to 0.20, while some exhibited higher efficiency. The study indicated room for improvement, as actors operated below their economic potential, with identified challenges including inadequate finance, limited market information, and double charges. This highlight the need for targeted interventions to enhance efficiency and profitability within the cattle value chain in Niger State.

In a related study, Jimoh *et al.* (2023) examined the profit efficiency in beef production, a venture positioned within the cattle marketing domain in Nigeria and found it to be a profitable endeavor with a high return on investment. On average, beef cattle production operated at two-thirds of the profit efficiency frontier. Factors affecting profit efficiency were identified, with household size and access to credit decreasing inefficiency, while off-farm income and years of experience in beef cattle production improved efficiency. The coefficient for household size positively influenced profit inefficiency, signifying that larger households contributed to farm labor, in agreement with Mohammed *et al.* (2015), off-farm income had a negative impact on profit inefficiency, indicating that external income sources reduced inefficiency, as expected based on prior research by Mohammed *et al.* (2015), access to credit, with a positive coefficient, strongly contributed to profit inefficiency, suggesting that inadequate credit availability, possibly due to high interest rates or delayed disbursement, affected farmers negatively. Experience in beef cattle production had a negative influence on inefficiency, aligning with the expectation that more experienced farmers achieved higher profit efficiency due to their familiarity with the daily activities involved, as supported by Mohammed *et al.* (2015).

Furthermore, Mafimisebi *et al.* (2023) investigated the core aspects of cattle marketing in Southwest, Nigeria. They gathered primary data from 120 respondents selected through a multi-stage sampling technique and applied analytical tools such as descriptive statistics, budgeting, and price formation strategy models. The empirical findings revealed that the market was predominantly male-dominated (87.5%), with market intermediaries under 50 years of age (64.0%) and a significant portion holding formal education (68.0%). The three key intermediaries in the market were identified as dealers, retailers, and brokers. Notably, transportation costs constituted a substantial portion of the Total Variable Cost, accounting for 74.3% and 46.2% for dealers and retailers, respectively. Cattle marketing was found to be a profitable enterprise, with gross margin per head of cattle sold estimated at N 6,548, N 4,655, and N 2,342.50 for dealers, retailers, and brokers, respectively. Profitability ratios were 1.09, 1.07, and 1.03, respectively. Factors influencing cattle price discovery included body condition, payment mode, and the type of buyers, while breed, seller category, and colour were considered less important in this context. Cattle marketers faced constraints, with insufficient capital, poor road infrastructure, and insecurity identified by 85.0%, 83.3%, and 79.7% of the respondents, respectively. The study's conclusion highlighted the well-organized nature of the cattle market and its potential as a profitable venture and source of employment. To enhance the commercialization and performance of cattle marketing, the authors recommended strengthening marketing institutions through capacity building for stakeholders, revitalizing the rail system, and addressing road infrastructure issues. Also, in their data analysis, Rekwot *et al.* (2019) employed multiple linear regression analysis to identify significant socioeconomic determinants of profitability in both raw beef

and processed beef marketing, an essential component that can trigger more demand for cattle marketing. They found that marketing experience, credit availability, association membership, market charges, labour cost, transportation cost, and beef purchase cost were important factors influencing raw beef marketing profitability. Similarly, for processed beef marketing, marketing experience, credit availability, labor cost, cost of processing supplies, and cost of beef procurement emerged as primary predictors of profitability. Access to credit facilities, marital status, and factors like the scale of operations, as highlighted by Musa *et al.* (2019), have proven critical in navigating these challenges. Adaptability and resilience have been paramount for farmers and pastoralists in ensuring profitability during these trying times.

METHODOLOGY

Description of the Study Area

The study was carried out in three states (Adamawa, Borno, and Taraba) of north-east Nigeria. Adamawa State lies between latitude 7° and 11° North of the equator and between longitude 11˚ and 14° east of the Greenwich meridian. It covers a land area of about 38.74km^2 with a current projected population of about 3.2 million people according to 2006 National Census figure using the annual estimated population growth rate of 2.41 percent. . (*Adebayo et al.*, 2021).

Borno state is located on latitude 10^0 05 to 13^0 55N and longitude $11^0$45 to $14^0$45E it is bounded in northeast by Lake Chad, north by republic of Chad. West by Yobe state, south by Gombe and Adamawa state and east by republic of Cameroon.it has its capital in Maiduguri and it made up of 27 local government areas.

However, Taraba State had a population of about 2,300,736 people as at 2006 (NPC 2006). It has 16 Local Government Areas and one Special Development Area. It is divided into three Senatorial Districts: North, South and Central. It lies between latitudes 60º 30'N and 80º 30'N of the Equator and between longitudes 90 and 120 E of the Greenwich Meridian with a land mass of 54,426 km^2 (Oruonye and Bashir, 2011).

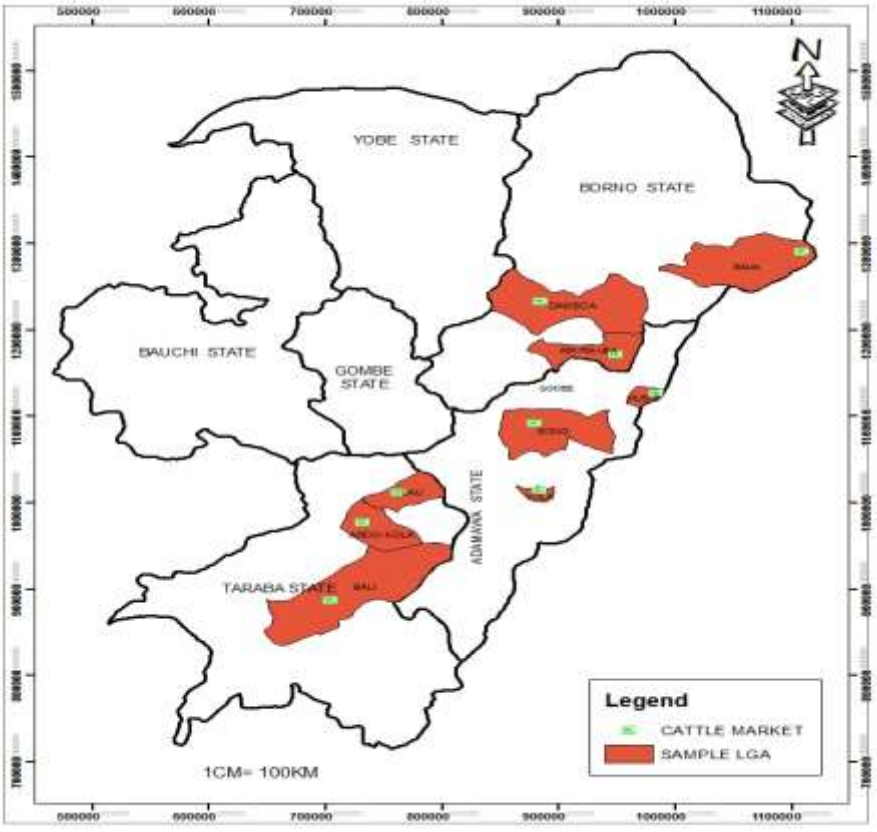

Figure 1: Map of Nigeria indicating Study Area

Sampling Method and Sample Size

The study employed Purposive and simple random sampling techniques.

Adamawa, Borno, and Taraba, were purposively selected within the North-East region. The rationale for this choice was rooted in the presence of the most prominent cattle markets in these areas, making them suitable for an in-depth investigation during the period of cashless policy.

Secondly, three local governments from each of the aforementioned states were purposively selected based on the cattle marketing activities within the local governments' areas. To assess this, the researcher considered various factors, such as the number of cattle markets, the size of these markets, and the capacity of cattle trade they facilitated.

Thirdly, three specific cattle markets within each selected local government area were purposeful selected. This selection was guided by observable factors, primarily the visible capacities of cattle inflows and outflows from these markets.

Finally, simple random sampling technique was employed to select the respondence base on the proportion of the total population of cattle marketers in each market, which was obtained from government tax collectors' records.

Selection of Sample Locations

Selection of three local government areas from each state and one major cattle market from each local government area was done as shown in Table 1.

Table 1: Sample Locations

Adamawa			**Borno**			**Taraba**		
Mubi South	Song	Ngurore	Chibok	Maiduguri	Askira Uba	Gashaka	Eware	Sardauna
TK Market	Song cattle market	Ngurore cattle market	Chibok cattle market	Maiduguris cattle market	Askira cattle market	Gashaka cattle market	Eware cattle market	Nguroje cattle market

Source: Designed by the Author.

Sampling Frame and Sample Size

From Table 2 in Adamawa State: Yola South, Song and Mubi South local governments were selected, with their respective cattle markets, Ngurore, Song cattle market and Tike International cattle market. The Table detailed the population of cattle marketers in each of these markets, which is 560 in Ngurore, 470 in Song and 750 in Mubi South. A 10% sample of the population was taken from each market, resulting in a total sample size of 178 individuals from Adamawa State. For Borno State, the local governments of Askira Uba, Chibok, and Maiduguri were considered, and the respective cattle markets, Askira Uba, Chibok, and Maiduguri cattle markets, were assessed. The Table displayed the population of cattle marketers in each of these markets, which includes 558 in Askira Uba, 510 in Chibok, and 580 in Maiduguri. A 10% sample was extracted from each market, resulting in a total sample size of 165 individuals from Borno State.

The final state, Taraba, is presented with the local governments of Gashaka, Eware, and Sardauna, and their respective cattle markets, Gashaka, Eware, and Nguroje cattle markets. The table outlines the population of cattle marketers in each market, with 541 in Gashaka, 515 in Eware, and 464 in Sardauna. Similarly, a 10% sample was chosen from each of these markets, resulting in a total sample size of 152 individuals from Taraba State. In summary, the table provides an organized and structured framework for sampling in this research, ensuring that a representative sample is obtained from various local government areas and cattle markets in the selected states, with a total sample size of 495 individuals across the three states. This systematic approach is crucial for conducting a rigorous and informative study on cattle marketing in North-eastern Nigeria.

Table 2: Sampling Frame and Sample Size

State	Local Government	Cattle markets	Population of cattle marketers	Sample (10% of the population)	Total sample
Adamawa	Yola South	Ngurore	560	56	
	Song	Song cattle market	470	47	
	Mubi South	Tike Int'l cattle Market	750	75	
			1,780	**178**	**178**
Borno	Askira Uba	Askira Uba cattle market	558	56	
	Chibok	Chibok cattle market	510	51	

	Maiduguri	Maiduguri cattle market	580	58	
			1,648	**165**	**165**
Taraba	Gashaka	Karamti cattle market	541	54	
	Eware	Eware cattle market	515	52	
	Sardauna	Nguroje cattle market	464	46	
			1,520	**152**	**152**
			4,948		**495**

Source: Designed by the Author based on information from each of the markets.

Method of Data Collection

In this study, the method of data collection was carefully structured to gather the necessary information for the research. The chosen approach for data collection was the utilization of structured questionnaire and oral interview. This method was selected to ensure the systematic and standardized acquisition of data from the study participants.

Analytical Techniques

Gross margin was used to obtain the cost and return of cattle marketers. This study computed gross margin following the popular formula for calculating gross margin as applied by many previous studies including Girei *et al.* (2013) which is the difference between the total revenue (TR) and the total variable cost (TVC). In this study, total revenue was obtained by multiplying the selling price of a cattle by the number of cattle sold by the marketers while total variable cost (TVC) comprised the purchase cost of cattle, transportation cost, tax, cost of cattle feeds, cost of water, cost of medications, union dues and cost of loading/off-loading.

The following formula was used based on the previous studies:

π = TR-TVC…….(1)

Where π = Gross margin representing the profitability of cattle marketing

TR = Total Revenue (Selling price x Quantity)

TVC = Total Variable Cost

The essence of computing the gross margin was to determine the profitability of the cattle marketing business in the Northeast before and during the cash crunch period, and to determine the factors influencing such profitability during the two periods. The study calculated the average gross margin for the two periods by dividing the total profit (gross margin) by the number of individual cattle marketers in the study sample.

Z-Test of Coefficient Differences

In this section, the study undertook a rigorous examination of the statistical significance differences in factors influencing the profitability of cattle marketing before and during the cash crunch period. The Z-test, a well-established statistical tool for assessing the significance of coefficient differences, was employed to analyse these variations. The formulation of the Z-test, is given thus:

$$Z = \frac{\beta_1 - \beta_2}{\sqrt{SE(\beta_1^2) + SE(\beta_2^2)}} \text{----------(2)}$$

Here, in this equation (2), each element plays a distinct role in the evaluation of coefficient differences. β_1 signifies the estimated coefficient of the regressors before the onset of the cash crunch period, while β_2 denotes the estimated coefficients of the repressor's during this economic phase. On the other hand, $SE(\beta_1^2)$ represents the standard errors of the estimated coefficients before the cash crunch, and $SE(\beta_2^2)$ reflects the standard errors of the estimated coefficients during the cash crunch period. This statistical method allowed the researcher to discern whether the factors influencing the profitability of cattle marketing underwent significant changes before and during the cash crunch period.

RESULTS AND DISCUSSION

Cost and Revenue Structures of Cattle Marketers before the Cash Crunch Period

Table 3 presents the cost structure of cattle marketers before the cash crunch period, shedding light on the average expenses incurred in their operations. These cost components are essential in understanding the financial dynamics of cattle marketing.

Cost of Purchases: The average cost of purchases for cattle marketers is approximately 41,349,884 NGN. This significant expenditure reflects the funds allocated for acquiring cattle, which is the primary commodity in the cattle marketing business. It highlights the substantial financial commitment required

for procuring cattle. This is consistent with the findings of Jimoh *et al.* (2023) who emphasized the importance of cost of purchasing cattle among the cost structure of cattle businesses and found slightly lower average amount spent on purchasing cattle for business purposes which can be attributed to differences in business sizes, location of the study and their small sample size of just 120. The high cost of purchase is also in line with the financial capacity and the business sizes of the marketers which is consistent with Olaoluwa and Adesegun (2022) who established in their study that cost of purchase constituted the main cost of operation for the cattle marketers.

Cost of Transport: On average, cattle marketers spend approximately 662,109.82 NGN on transportation. This cost component is crucial in ensuring the movement of cattle from one location to another, including transportation to markets and buyers. The standard deviation suggests some variation in transport costs among cattle marketers. This also supports the findings of Mafimisebe *et al.* (2013) and Olaoluwa and Adesegun (2022) who revealed that transportation constitute an important cost component of cattle marketers.

Tax: The average tax expense for cattle marketers is around 529,687.85 NGN. Taxes are essential obligations that cattle marketers need to fulfil, and this expense indicates their contribution to government revenue. The standard deviation implies some variability in the tax amounts paid. This result is also consistent of Mafimisebe *et al.* (2013) recognising tax as a cost component of cattle marketers.

Cost of Labour: The average cost of labour is approximately 485,547.2 NGN. This cost includes payments made to individuals who provide labour in various aspects of cattle marketing, such as feeding and handling. It reflects the financial resources allocated to supporting the workforce in the business. In the same vein, Oleribe *et al.* (2020) also recognised the cost of labour as an essential cost component in cattle marketing business.

Brokers Charges: Cattle marketers incur an average cost of approximately 706,250.47 NGN for broker charges. This expense is associated with engaging brokers who facilitate the buying and selling of cattle. It demonstrates the financial outlay for intermediary services in the cattle marketing process.

Cost of Cattle Feeds: On average, cattle marketers spend about 750,391.13 NGN on cattle feeds. This cost component is vital for ensuring the health and well-being of the cattle. It indicates the financial resources invested in providing quality nutrition for the livestock. This is also in line with Mafimisebe *et al.* (2013) and Olaoluwa and Adesegun (2022) who explained and empirically established the significance of cattle feeds as an essential cost component of cattle marketers.

Cost of Water: Cattle marketers allocate approximately 529,68.777 NGN to cover the cost of water. This is an essential expense to ensure that cattle have access to water, contributing to their overall health and productivity. The standard deviation suggests some variation in water expenses. Drinking water for cattle has also been established by some of the few empirical studies regarding the cost components of cattle marketers including a study by Mafimisebe *et al.* (2013) and Olaoluwa and Adesegun (2022).

Cost of Medications: The average cost of medications is approximately 525,273.8 NGN. This cost component is associated with maintaining the health of the cattle and preventing diseases. It reflects the financial commitment to ensuring the well-being of the livestock. This also confirms the finding of Mafimisebe *et al.* (2013) and Olaoluwa and Adesegun (2022) who established that medications constitute an important component of cattle marketers' cost.

In summary, the cost structure of cattle marketers before the cash crunch period highlights the substantial financial investments and expenditures associated with various aspects of the cattle marketing business. These expenses are essential for ensuring the health and productivity of the cattle, complying with tax obligations, and covering transportation and labour costs. Understanding this cost structure is crucial for assessing the financial sustainability and profitability of cattle marketing operations.

Table 3: Average Monthly Cost Structure of Cattle Marketers Before the Cash Crunch Period (N)

Variable	Obs	Mean	Std. Dev.
Cost of Purchasing cattle	470	41,349,884	2.144e+08
Cost of Transport	470	662,109.82	3465358.6
Tax	470	529,687.85	2772286.8
Cost of Labour	470	485,547.2	2541262.9
Brokers Charges	470	706,250.47	3696382.5
Cost of Cattle Feeds	470	750,391.13	3927406.4
Cost of Water	470	529,68.777	277228.69
Cost of Medications	470	525,273.8	2749184.5

Source: Field Survey, 2023.

Cost and Revenue Structures of Cattle Marketers during the Cash Crunch Period

The Table 4. presents the cost structure of cattle marketers during the cash crunch period, offering insights into the average expenses incurred in their operations under challenging economic conditions. A comparison with the cost structure before the cash crunch period can highlight the impact of the economic downturn on their financial dynamics.

Cost of Purchases: During the cash crunch period, the average cost of purchases for cattle marketers significantly declined to approximately 8,986,944.7 NGN. This substantial reduction reflects the impact of the economic downturn, which may have limited the capacity of cattle marketers to procure cattle in the same quantities or at the same cost as before.

Cost of Transport: On average, cattle marketers spent around 89,869.447 NGN on transportation during the cash crunch period. This cost component also experienced a noticeable decrease, indicating potential challenges in transporting cattle to markets or buyers, which may have been influenced by reduced financial resources.

Tax: The average tax expense for cattle marketers during the cash crunch period was approximately 22,4673.62 NGN. This amount reflects the ongoing tax obligations despite economic challenges, although it may have decreased due to reduced profitability or business activities during the cash crunch.

Cost of Labour: The average cost of labour during the cash crunch period was around 107,843.34 NGN. This cost component shows a reduction, which could be a result of limited resources and reduced labour needs in the cattle marketing business during the economic downturn.

Brokers Charges: Cattle marketers incurred an average cost of approximately 242,647.51 NGN for broker charges during the cash crunch period. This cost reflects the expenses associated with intermediary services, which may have been impacted by reduced cattle transactions during the economic challenges.

Cost of Cattle Feeds: On average, cattle marketers spent about 269,608.34 NGN on cattle feeds during the cash crunch period. This cost component might have been affected by the need to optimize expenses while maintaining cattle nutrition, potentially leading to cost reductions.

Cost of Water: Cattle marketers allocated approximately 8,986.945 NGN for the cost of water during the cash crunch period. This cost, while relatively lower than before, remains essential for ensuring the well-being of the cattle.

Cost of Medications: The average cost of medications during the cash crunch period was around 134,804.17 NGN. This cost component, while showing a decrease, reflects the continued commitment to maintaining cattle health despite economic challenges.

In summary, the cost structure of cattle marketers during the cash crunch era indicates a substantial reduction in various cost components compared to the pre-cash crunch period. The economic challenges of the cash crunch period have had a notable impact on the financial dynamics of cattle marketing. Cattle marketers have adapted by reducing costs in areas such as purchases, transport, labour, and intermediary services, while still prioritizing essential expenses like cattle feeds, water, and medications to ensure the well-being of their livestock. Understanding these changes in the cost structure is essential for assessing the resilience and adaptability of cattle marketing businesses in challenging economic conditions.

The cost and revenue structure of the cattle marketers considered appear to be consistent with numerous previous empirical investigations such as Ishaya *et al.* (2018) who also indicated that cost of purchases, cost of cattle feeds, cost of medications (drugs and vaccines), cost of labour, cost of loading, tax, transportation cost among others when considering the cost and return of cattle businesses in South-west Nigeria and Yobe State, respectively.

Table 4: Average Monthly Cost Structure of Cattle Marketers During the Cash

Crunch Period (N)

Variable	Obs	Mean	Std. Dev.
Cost of Purchases	470	8,986,944.7	49989000
Cost of Transport	470	89,869.447	499890
Tax	470	22,4673.62	1249725
Cost of Labour	470	107,843.34	599868
Brokers Charges	470	242,647.51	1349703
Cost of Cattle Feeds	470	269,608.34	1499670
Cost of Water	470	8,986.945	49989
Cost of Medications	470	134,804.17	749835

Source: Field Survey, 2023

Sales and Profit of Cattle Marketers Before and During Cash Crunch Period

The Table 5. below shows data on the sales and profits of cattle marketers before and during the cash crunch era, offering a comparative analysis of their financial performance in these two periods. The figures provide insights into the impact of the economic downturn on their sales and profitability.The

average monthly sales of cattle marketers before the cash crunch period were approximately 46,725,369 NGN. This substantial sales figure reflects the scale of business operations in a more financially favourable period. The standard deviation of 2.423e+08 NGN indicates considerable variability in sales among cattle marketers, suggesting that some were engaged in larger-scale transactions compared to others.

In contrast, during the cash crunch period, the average monthly sales dropped significantly to approximately 10,784,334 NGN. This represents a substantial decline in sales volume, which is indicative of the impact of economic challenges on the cattle marketing sector during the period. The standard deviation of 59,986,800 NGN during this period also reflects a wide range of sales figures among cattle marketers, suggesting varying degrees of adaptability to the economic challenges.

On the profit side, cattle marketers reported an average monthly profit of approximately 1,605,873 NGN before the cash crunch period. This profit level signifies a relatively healthy financial situation for the businesses, allowing for a positive return on investment. The standard deviation of 9,038,780.4 NGN indicates notable variations in profitability, with some businesses achieving significantly higher profits than others. This huge profit margin is consistent with the findings of Olaoluwa and Adesegun (2022)) who revealed that in terms of profitability, marketing of cattle was highly profitable in the study area with returns that could comfortably offset the cost of capital, with high marketing efficiency. However, during the cash crunch period, the average monthly profit dropped to approximately 700,981.69 NGN. This sharp decline in profitability is a direct consequence of the economic challenges faced by the cattle marketing sector during this period. The standard deviation of 3,899,142 NGN highlights the variability in profits, with some businesses potentially experiencing more severe profit reductions than others.

Table 5: Average Monthly Sales and Profits of Cattle Marketers Before and During Cash Crunch Period

Variable	Mean	Std. Dev.
Sales before cash crunch	46725369	2.423e+08
Sales during cash crunch	10784334	59986800
Profit before cash crunch	1605873	9038780.4
Profit during cash crunch	700981.69	3899142

Source: Field Survey, 2023.

Comparative Analysis

Table 5. reveals a stark contrast in sales and profitability between the two periods. Before the cash crunch period, cattle marketers operated in a more financially robust environment, with significantly higher sales and profits. This suggests that the sector was more financially resilient and profitable in pre-cash crunch times. However, during the cash crunch period, the cattle marketing sector faced considerable economic pressure, resulting in a notable reduction in sales and profitability. This decline is indicative of the impact of economic downturns resulting from cash crunch on the sector's financial performance. The standard deviations in both sales and profitability during the cash crunch period indicate increased variability among cattle marketers. This variability underscores the varying abilities of businesses to adapt and navigate economic challenges, with some being more resilient than others.

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CONCLUSION AND RECOMMENDATIONS

The rigorous examination of the cost and return structure of the cattle marketing business show substantial decline during the cash crunch period reflecting the significant effect of the cash crunch on the volume of transactions, operations and profitability of cattle marketers. Precisely, the average profit of the cattle marketers reduced significantly by more than 50% during the cash crunch period which the marketers attributed to decline in the volume of transactions due to difficulties in obtaining cash.

The findings of this study point to several key recommendations that can contribute to the resilience and sustainability of cattle marketing in Northeast Nigeria, particularly in the context of the cash crunch period. These include the urgent need for financial literacy and training programs tailored to the specific needs of cattle marketers. These programs should focus on digital financial literacy and mobile banking, equipping them with the necessary skills to navigate a cashless economy effectively. Collaboration among government agencies, financial institutions, and non-governmental organizations can facilitate the implementation of these initiatives.

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