SAHEL INTERNATIONAL JOURNAL OF
AGRICULTURE AND FOOD SECURITY
VOLUME 1 • ISSUE 1 • JANUARY–DECEMBER 2026

Economic Analysis of Cattle Marketing in the Cash Crunch Era in North-East Nigeria

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Abstract

This study analysed the economics of cattle marketing during the 2023 cash crunch in North-East Nigeria, focusing on profitability, price fluctuations, marketing efficiency and the constraints encountered by cattle marketers. Primary data were collected through structured questionnaires and oral interviews from cattle marketers in selected markets across Adamawa, Borno and Taraba States using a multistage sampling procedure. The sampling frame comprised 4,948 marketers, from which 495 respondents were selected. The analytical framework combined descriptive statistics, gross margin analysis, robust Ordinary Least Squares regression, coefficient-difference tests, Stochastic Frontier Analysis and Kendall's coefficient of concordance. The findings revealed a substantial deterioration in cattle marketing performance during the cash crunch. Average monthly sales declined from ₦46.73 million before the cash crunch to ₦10.78 million during the period, representing a 76.9% reduction, while average monthly profit fell from ₦1.61 million to ₦700,982, a decline of 56.3%. Despite this contraction, cattle marketing remained profitable on average. Access to credit, full-time participation in cattle marketing, education, digital financial literacy, age, association membership, business size, transfer payments and access to market information positively influenced profitability, although their relative effects varied between the pre-crunch and cash-crunch periods. Price fluctuations, particularly for medium-sized cattle, adversely affected marketers' economic outcomes, while capital and water use contributed positively to marketing efficiency. Cash shortage emerged as the most severe constraint, reflecting the sector's substantial dependence on liquidity for cattle purchases and other operating expenses. The study concludes that the cash crunch constituted a significant liquidity shock that reduced the scale and profitability of cattle marketing while increasing the importance of credit, digital payment mechanisms, market information and financial capacity. It recommends expanding affordable working-capital finance, strengthening digital financial literacy and payment infrastructure, improving cattle-market infrastructure and information systems, and promoting institutional and risk-management mechanisms to enhance the resilience of cattle marketing against future monetary and liquidity shocks.

Keywords: *Cattle marketing; cash crunch; profitability; marketing efficiency; price fluctuations; liquidity; North-East Nigeria.*

1.0 Background to the Study

The livestock sector is an important component of agricultural economies because of its contribution to food security, employment, household income and rural livelihoods. Livestock provides high-value animal protein and serves as an important source of economic security for millions of households, particularly in developing countries. In Africa, livestock production and marketing support a substantial proportion of rural populations and constitute an important source of livelihood across pastoral and agro-pastoral communities. Cattle production is particularly important because it generates income and provides meat, milk and other livestock products, while also functioning as a store of wealth and a means of coping with economic shocks among rural households (Mercy Corps, 2020; FAO, 2021, 2023).

Nigeria has one of the largest cattle populations in Africa, reflecting the economic significance of the cattle subsector within the country's agricultural economy. Estimates indicate that Nigeria's cattle population exceeded 20 million head in 2020, placing the country among the leading cattle-producing countries on the continent (Kamer, 2023; Sasu, 2023). Beyond their contribution to meat and milk supply, cattle serve several socioeconomic purposes, including income generation, household consumption, religious and cultural activities, festivities and wealth preservation (Azare et al., 2020; Ja'afar-Furo et al., 2021). These functions are particularly evident in Northern Nigeria, where cattle production and trade have historically constituted important components of household livelihoods and regional commerce.

North-East Nigeria occupies an important position in the country's cattle economy because of its large livestock population, extensive pastoral activities and established cattle marketing networks. States such as Adamawa, Borno and Taraba contain important production areas and cattle markets that facilitate the movement of animals between producers, assemblers, traders and consumers within and outside the region. Cattle marketing performs the essential economic function of connecting production with consumption while providing income and employment for livestock producers, traders, transporters, intermediaries and other market participants. An efficient cattle marketing system is therefore expected to provide remunerative returns to market participants while ensuring that cattle and beef products reach consumers at competitive prices (Mafimisebi, 2012; Jibrilla, 2019; Azare et al., 2020; Bawuro et al., 2022).

The functioning of cattle markets, however, depends considerably on the availability of liquidity because transactions have traditionally been dominated by physical cash payments. This dependence became particularly important during Nigeria's 2023 cash crunch, which followed the implementation of the currency redesign and cashless policy and restrictions surrounding the circulation of old banknotes. The resulting scarcity of physical currency affected economic transactions across several sectors and created particular difficulties for activities characterised by large-volume cash transactions. Within cattle markets, limited cash availability affected the capacity of buyers and traders to complete transactions, finance transportation and other marketing operations, and make timely payments to sellers. The situation consequently had implications for market liquidity, cattle demand, prices, marketing costs and the general flow of cattle trade.

The cash crunch also accelerated the transition towards electronic payment systems in cattle markets, exposing marketers to new operational and institutional constraints. Although electronic transactions offered an alternative to physical cash, their effectiveness depended on access to banking facilities, digital financial knowledge, reliable communication networks and confidence in electronic payment systems. For cattle marketers accustomed to cash transactions, delayed transfers, poor network connectivity, inadequate knowledge of digital financial transactions and difficulties accessing funds could increase transaction costs and constrain business activities. These conditions could further influence profitability, marketing margins, pricing behaviour and marketing efficiency. Understanding these effects is important because disruptions in cattle marketing extend beyond traders to livestock producers, consumers and other actors whose livelihoods depend on the cattle value chain.

Despite considerable research demonstrating the economic importance and profitability of cattle marketing, empirical evidence on how the 2023 cash crunch affected the economics of cattle marketing in North-East Nigeria remains limited, particularly regarding profitability, costs and returns, price fluctuations, marketing efficiency and constraints faced by marketers. This constitutes an important empirical gap given the region's dependence on cattle production and marketing. Accordingly, this study analyses the economics of cattle marketing during the cash crunch period in North-East Nigeria, with emphasis on the socioeconomic characteristics of marketers, determinants of profitability, costs and returns, price fluctuations, marketing efficiency and major marketing constraints. The remainder of the paper is organised into the literature review, methodology, results and discussion, and conclusion and recommendations.

2.0 Literature Review and Theoretical Framework

2.1 Conceptual and Theoretical Perspectives on Cattle Marketing

Cattle constitute an important component of the livestock economy because of their contribution to meat, milk, hides, income, employment and household wealth. Nigeria is among the major cattle-producing countries in sub-Saharan Africa, with cattle production particularly concentrated in the northern part of the country (FAO, 2021). Unlike many other livestock enterprises, cattle production depends considerably on grazing resources, mobility, water availability and established marketing networks. Consequently, cattle marketing performs an important coordinating function by moving animals from production or surplus locations to consumption centres where demand is relatively high. This spatial movement creates place, time and possession utilities and connects producers with traders, processors and final consumers.

Marketing generally encompasses the activities involved in identifying consumer needs and facilitating the movement and exchange of goods and services between producers and consumers. Within agriculture, efficient marketing provides producers with remunerative prices while making products available to consumers at appropriate locations, times and prices (Kohls & Uhls, 2002; Mafimisebi, 2012). Cattle marketing therefore comprises the business activities associated with assembling, purchasing, transporting, financing, pricing and selling cattle from producers to consumers. Its importance extends beyond the physical exchange of animals because it generates

income and employment and contributes to the economic and social wellbeing of communities involved in the livestock value chain (Ismail, 2008; Mubi et al., 2013).

The economics of cattle marketing is influenced by the socioeconomic characteristics of market participants and the institutional environment within which transactions occur. Age, education, marketing experience, household resources, income, herd size, access to markets, association membership and access to information can influence marketers' decisions and economic outcomes. Market location is also important because marketers operating far from major markets may incur higher transportation and transaction costs, while membership in associations can facilitate information sharing, negotiation and access to marketing opportunities. Similarly, access to digital technologies can improve information flows and transactions, although inadequate digital knowledge and infrastructure may constrain their effective utilisation (Mafimisebi et al., 2013; Anwar & Syah, 2023; Emmanuel et al., 2023).

The theoretical foundation for examining cattle marketing during a cash crunch can be situated within the Keynesian theory of demand for money, particularly the transaction motive for holding money. Keynesian theory identifies transaction, precautionary and speculative motives for holding money, with the transaction motive explaining the need for liquidity to undertake routine economic exchanges. Cattle marketers require liquidity to purchase animals, pay transportation and labour costs and meet other operating expenses. Policies that restrict currency circulation may therefore disrupt normal transactions and compel market participants to adopt alternative payment mechanisms. Within this framework, the cash crunch provides an appropriate setting for examining how limited physical cash and increasing reliance on digital payments influence liquidity, transactions, profitability and overall cattle marketing performance (Nikensari et al., 2019; Larnyo et al., 2022; Akhtar, 2023).

2.2 Profitability, Price Behaviour and Marketing Efficiency

Profitability is fundamental to the sustainability of cattle marketing because marketers must generate sufficient returns to cover cattle purchases and associated marketing costs. Empirical studies generally indicate that cattle production and marketing can be profitable, although profitability varies according to enterprise characteristics and operating conditions. Mohammed et al. (2015), for instance, reported positive returns from cattle fattening and marketing in Adamawa State, with feed costs, number of cattle marketed and marketing experience significantly influencing gross margins. Similarly, Adebayo et al. (2018) established the profitability of different actors in the cattle value chain but found substantial variation in gross margins and profit efficiency. More recent evidence also suggests that household characteristics, access to credit, off-farm income, experience and enterprise scale can influence profitability and profit efficiency (Jimoh et al., 2023).

Marketing costs constitute another important determinant of returns. Transportation, labour, market charges, cattle procurement and financing costs can substantially reduce the margins realised by marketers. Rekwot et al. (2019) identified marketing experience, access to credit, association membership, transportation, labour and procurement costs as important determinants of profitability. Mafimisebi et al. (2023) similarly found cattle marketing to be profitable but reported

transportation as a major component of total variable costs for dealers and retailers. Their findings further demonstrated that insufficient capital, poor road infrastructure and insecurity were important constraints. These studies indicate that profitability depends not merely on selling prices but on marketers' ability to manage operating costs and institutional constraints.

Price fluctuations further influence the economic performance of cattle marketing because changes in cattle prices affect revenues, purchasing decisions, marketing margins and consumer demand. Cattle prices can respond to animal characteristics, production costs, market conditions, macroeconomic instability and disruptions within supply chains. Price volatility may increase uncertainty and make it difficult for marketers to plan purchases and sales or maintain stable profit margins. External shocks can intensify these effects; for example, disruptions associated with the COVID-19 pandemic affected cattle supply chains through processing constraints, movement restrictions and changing consumer demand (Anderson et al., 2021). Boyer et al. (2022) further observed that cattle price dynamics may vary according to quantity, grade, sex, weight and prevailing marketing arrangements.

Marketing efficiency indicates the capacity of a marketing system to deliver products to consumers while minimising costs and providing adequate returns to market participants. Efficiency can be assessed through marketing margins, profit-cost ratios, technical efficiency measures and methods such as Acharya's modified marketing efficiency approach. Evidence suggests substantial differences in efficiency across livestock markets and marketing channels. Akouegnonhou et al. (2023), for example, found differences in marketing efficiency among beef cattle marketing channels in Benin, while Gabdo et al. (2020) demonstrated variations in technical efficiency and cost structures in cattle feedlot systems in Adamawa State. These findings suggest that efficient cattle marketing depends on cost management, market organisation, technology, infrastructure and the ability of actors to respond to changing market conditions.

2.3 Empirical Evidence on Cattle Marketers and Marketing Constraints

Empirical evidence shows considerable heterogeneity in the socioeconomic characteristics of livestock producers and marketers. Nse-Nelson et al. (2017) found that age, education, marital status and other socioeconomic characteristics were important features of beef marketing, while Olorunnisomo et al. (2010) reported differences in educational attainment, family size and marital status among livestock farmers. Evidence outside Nigeria similarly demonstrates substantial diversity. Wauffo et al. (2023), studying beef cattle breeders in Cameroon, found livestock to be an important income source but identified variations in education, labour utilisation and financing. Most respondents financed their activities through personal savings, illustrating the limited penetration of formal finance in livestock enterprises.

Empirical studies also confirm that access to finance and other socioeconomic factors influence cattle marketing outcomes. Musa et al. (2019) identified access to credit and marital status as important factors influencing cattle marketing profitability, while Mohammed et al. (2015) found that cattle marketing experience and the number of cattle marketed significantly affected gross margins. Jimoh et al. (2023) further showed that household size, credit, off-farm income and production experience were associated with profit efficiency in beef production. Taken together,

these findings demonstrate that differences in financial resources, human capital and enterprise characteristics can determine marketers' ability to withstand shocks and maintain profitable operations.

Cattle marketers nevertheless operate under numerous constraints that can undermine profitability and efficiency. Major problems identified in the literature include inadequate finance, high transportation costs, poor market infrastructure, insufficient market information, livestock diseases, insecurity, environmental pressures and limited access to appropriate technology (Blair et al., 2023; Kennady et al., 2023). In Nigeria, inadequate financing and high transportation costs have repeatedly been identified as significant marketing constraints, while traditional livestock markets may also suffer from weak infrastructure and inefficient market arrangements (Taiye et al., 2020). Such problems can become more severe during economic shocks because reduced liquidity limits marketers' capacity to finance cattle purchases, transportation and other routine operations.

Existing literature therefore establishes that cattle marketing is generally profitable but remains sensitive to socioeconomic characteristics, operating costs, price movements, infrastructure, access to finance and market efficiency. It also demonstrates how external shocks, including COVID-19 restrictions and other market disruptions, can affect livestock transactions and marketers' economic performance. However, much of the available evidence examines cattle marketing under relatively normal market conditions or focuses on disruptions other than Nigeria's recent cash scarcity. There remains limited empirical evidence simultaneously comparing profitability before and during the cash crunch and examining its implications for costs and returns, price fluctuations, marketing efficiency and constraints among cattle marketers in North-East Nigeria. This gap provides the basis for examining the economics of cattle marketing under the exceptional liquidity constraints created by the cash crunch period.

3.0 Methodology

3.1 Study Area

The study was conducted in North-East Nigeria, with particular focus on Adamawa, Borno and Taraba States. These states were selected because of the concentration of cattle production, trading activities and established cattle markets. The ecological conditions of the region, comprising mainly Guinea and Sudan savannah vegetation, support livestock production alongside crop farming. The region also shares important domestic and international livestock trade routes, particularly through its boundaries with neighbouring states and the Republic of Cameroon, making cattle production and marketing important sources of livelihood and commercial activity.

Adamawa, Borno and Taraba States possess climatic and ecological conditions that support substantial livestock populations, although these conditions vary across the study area. Agriculture remains a major livelihood activity, while cattle marketing provides income and employment to producers, traders, transporters and other market intermediaries. The existence of major cattle markets across the selected states therefore provides an appropriate setting for examining the economics of cattle marketing during the cash crunch period.

3.2 Sampling Procedure and Sample Size

A multistage sampling procedure involving purposive and simple random sampling techniques was adopted. First, Adamawa, Borno and Taraba States were purposively selected based on the concentration of cattle marketing activities. Three Local Government Areas were subsequently selected from each state based on the presence and volume of cattle marketing activities. Major cattle markets were then selected from the identified locations, after which individual cattle marketers were selected using simple random sampling. This procedure was intended to capture marketers operating in important cattle markets across the three states while minimising selection bias.

The selected locations comprised Yola South, Song and Mubi South in Adamawa State; Askira Uba, Chibok and Maiduguri in Borno State; and Gashaka, Eware and Sardauna in Taraba State. The corresponding cattle markets included Ngurore, Song, Tike International, Askira Uba, Chibok, Maiduguri, Karamti, Eware and Nguroje cattle markets. The sampling frame was obtained from records of cattle marketers available from the respective markets.

A sampling fraction of 10% of the identified population of cattle marketers was used. The sampling frame comprised 4,948 cattle marketers, consisting of 1,780 in Adamawa, 1,648 in Borno and 1,520 in Taraba. This produced samples of 178, 165 and 152 cattle marketers from Adamawa, Borno and Taraba States, respectively, giving an overall sample size of 495 cattle marketers.

3.3 Data Collection

Primary data were collected from cattle marketers using a structured questionnaire complemented by oral interviews. The questionnaire was developed in line with the objectives of the study and captured information on respondents' socioeconomic characteristics, cattle marketing activities, costs and returns, prices, payment methods, market conditions, challenges encountered during the cash crunch and strategies adopted by marketers. The use of a structured instrument ensured consistency in the information obtained across respondents and study locations.

Before the main survey, the questionnaire was pre-tested on a small group of respondents to assess its clarity and suitability for obtaining the required information. Necessary modifications were subsequently made before the final administration. During the survey, respondents were informed about the purpose of the research and confidentiality of the information provided. The completed questionnaires were subsequently checked and validated to minimise errors and improve the reliability of the data used for analysis.

3.4 Methods of Data Analysis

The data were analysed using a combination of descriptive and inferential statistical techniques selected in accordance with the study objectives. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarise the socioeconomic characteristics of cattle marketers and other relevant variables. Gross margin analysis was employed to estimate and compare the costs and returns of cattle marketing before and during the

cash crunch period. Gross margin was determined as the difference between total revenue and total variable cost, with variable costs comprising cattle purchase, transportation, taxes, feeds, water, medication, union dues and loading and off-loading expenses.
Multiple regression analysis using robust Ordinary Least Squares (OLS) was employed to determine the socioeconomic factors influencing cattle marketing profitability before and during the cash crunch. The analysis considered factors including access to credit, employment status, education, digital financial literacy, age, association membership, household size, business size, mode of payment and access to market information. A Z-test of coefficient differences was further used to determine whether the estimated effects of the profitability determinants differed significantly between the periods before and during the cash crunch.
The effect of cattle price fluctuations on marketers' economic outcomes was also examined using multiple regression analysis, with changes in the prices of large-, medium- and small-sized cattle considered alongside relevant socioeconomic factors. Marketing efficiency during the cash crunch was assessed using Stochastic Frontier Analysis (SFA), taking into account major marketing inputs such as capital, labour, water, feed, transportation and medication. The approach enabled the estimation of efficiency levels and identification of factors associated with inefficiency among cattle marketers.
Finally, the major constraints encountered by cattle marketers during the cash crunch were ranked using Kendall's coefficient of concordance (Kendall's W). The technique was used to determine the degree of agreement among respondents regarding the relative importance of the identified marketing challenges, while the statistical significance of the level of agreement was assessed using the chi-square statistic. Thus, the analytical framework combined descriptive statistics, gross margin analysis, robust OLS regression, coefficient comparison, stochastic frontier analysis and Kendall's coefficient of concordance to address the major dimensions of cattle marketing examined in the study.

4.0 Results and Discussion

This section presents the major findings on the economics of cattle marketing during the cash crunch period in North-East Nigeria. Consistent with an article-paper format, the presentation focuses on the most policy-relevant results rather than reproducing every output from the broader study. The results are organised around the socioeconomic characteristics of marketers, determinants and changes in profitability, price fluctuations and marketing efficiency, and major constraints experienced during the cash crunch.

4.1 Socioeconomic Characteristics of Cattle Marketers

Table 1: Selected Socioeconomic Characteristics of Cattle Marketers

Characteristic	Dominant Category	Percentage (%)
Gender	Male	99.57
Age	31–40 years	30.43
Marital status	Married	83.40
Educational level	No formal education	57.45

Characteristic	Dominant Category	Percentage (%)
Main occupation	Cattle marketing	95.96
Marketing experience	Above 15 years	40.21
Association membership	Member	74.47
Access to market information	Had access	98.72
Access to credit	Had access	50.85

Source: Field Survey, 2023.

The results in Table 1 reveal that cattle marketing in North-East Nigeria was predominantly a male economic activity, as 99.57% of respondents were men. The largest age group was 31–40 years (30.43%), followed closely by those aged 41–50 years (28.30%), indicating that cattle marketing was largely undertaken by individuals within economically active age groups. In addition, 83.40% of the respondents were married. These characteristics suggest that cattle marketing provides an important livelihood for economically active adults with substantial household responsibilities.

Educational attainment was comparatively low, with 57.45% of the cattle marketers having no formal education. This is important in the context of the cash crunch because the monetary disruption increased the need for alternative payment channels and familiarity with formal and digital financial services. Marketers without formal education may rely more heavily on experience, interpersonal networks and conventional cash transactions. Nevertheless, the sector was characterised by considerable practical knowledge, as 40.21% of respondents had been engaged in cattle marketing for more than 15 years. The combination of limited formal education and substantial practical experience indicates that experiential knowledge remains an important form of human capital in cattle marketing.

The institutional characteristics of the respondents also reveal relatively strong market networks. About 74.47% belonged to cattle marketing associations, while 98.72% had access to cattle marketing information. However, only 50.85% reported access to credit, leaving almost half of the marketers without credit facilities. This financial divide was particularly important during the cash crunch because marketers without credit had fewer opportunities to overcome temporary liquidity shortages. The results therefore indicate that while marketers possessed strong experience, association networks and access to information, access to financial resources remained comparatively constrained.

4.2 Profitability and Economic Performance Before and During the Cash Crunch

Table 2: Selected Determinants of Cattle Marketing Profitability

Variable	Before Cash Crunch	During Cash Crunch	Direction
Access to credit	0.512***	0.540***	Positive
Full-time cattle marketer	0.813***	1.398***	Positive
Years of education	0.025**	0.027**	Positive
Digital financial literacy	0.581***	0.402*	Positive
Age	0.031***	0.043***	Positive

Variable	Before Cash Crunch	During Cash Crunch	Direction
Association membership	0.469***	0.281**	Positive
Business size	0.002***	0.002***	Positive
Transfer payment	0.358***	0.281**	Positive
Access to market information	0.583***	0.431***	Positive
R^2	0.607	0.588	—

*Note: *** p < .01; ** p < .05; * p < .10. Source: Field Survey, 2023.*

Table 2 shows that access to credit was a consistent positive determinant of profitability both before and during the cash crunch. Its coefficient increased slightly from 0.512 before the cash crunch to 0.540 during the period, with both estimates statistically significant at the 1% level. This demonstrates the importance of liquidity to cattle marketing operations. Credit enables marketers to finance cattle purchases, transportation and other operating expenses when internally generated funds are insufficient. Its continued significance during the cash crunch is particularly important because restricted access to physical cash increased the value of alternative sources of working capital.

Full-time participation in cattle marketing also positively influenced profitability, with its coefficient rising markedly from 0.813 before the cash crunch to 1.398 during the period. The difference in the employment-status coefficient was among the notable changes identified in the comparison of the two periods. This suggests that marketers who depended primarily on cattle marketing and devoted greater attention to the enterprise were better positioned to maintain profitable operations under difficult monetary conditions. Their deeper market involvement may have enabled them to use established trading networks, information and accumulated experience more effectively when transactions became difficult.

Other important determinants included age, association membership, business size, transfer payments and access to market information. In particular, transfer payment remained positive and statistically significant during the cash crunch, showing the economic importance of electronic transactions when physical cash became scarce. Access to market information also remained a significant positive determinant, while larger businesses recorded higher profitability. Overall, the model explained 60.7% of variations in profitability before the cash crunch and 58.8% during the cash crunch, indicating that the selected socioeconomic and business characteristics accounted for a substantial proportion of differences in marketers' profitability.

Table 3: Average Monthly Sales and Profit Before and During the Cash Crunch

Indicator	Before Cash Crunch (₦)	During Cash Crunch (₦)	Change (%)
Average monthly sales	46,725,369	10,784,334	−76.9
Average monthly profit	1,605,873	700,982	−56.3

Source: Field Survey, 2023.

The comparison in Table 3 provides particularly strong evidence of the adverse effect of the cash crunch on cattle marketing. Average monthly sales declined from approximately ₦46.73 million before the cash crunch to only ₦10.78 million during the period. This represents an estimated reduction of about 76.9%. The magnitude of this decline indicates a substantial contraction in cattle

transactions, suggesting that cash scarcity restricted the capacity of buyers and marketers to undertake transactions at their previous scale.

Average monthly profit similarly declined from approximately ₦1.61 million before the cash crunch to about ₦700,982 during the period, representing a reduction of approximately 56.3%. Although the positive average profit indicates that cattle marketing remained profitable during the cash crunch, the considerable reduction demonstrates substantial deterioration in financial returns. Marketers therefore continued operating profitably on average, but at a much lower level than under pre-cash-crunch conditions.

Taken together, the reductions in sales and profits provide clear evidence that the cash crunch affected both the scale and financial performance of cattle marketing. The decline in sales was proportionately greater than the decline in profit, indicating substantial adjustment in the level of business activities. Operating expenditure also contracted, with the average cost of cattle purchases during the cash crunch falling to approximately ₦8.99 million. Thus, the reduction in expenditures should not necessarily be interpreted as improved cost efficiency; rather, it appears to reflect a reduction in the scale of cattle purchases and overall trading activities during the period.

4.3 Price Fluctuations and Marketing Efficiency

Table 4: Selected Results on Price Fluctuations and Marketing Efficiency

Indicator	Coefficient	Statistical Significance	Effect
Price change of large cattle	−0.030	p = .077	Negative
Price change of medium cattle	−0.034	p = .024	Negative
Water use	0.277	p < .001	Positive efficiency effect
Labour hours	0.004	p = .729	Not significant
Capital	Positive	Significant	Improved efficiency

Source: Field Survey, 2023.

The price results show that fluctuations in cattle prices adversely affected marketers' economic outcomes, although the effects differed across cattle categories. The price change for large cattle recorded a negative coefficient of −0.030, although the relationship was only weakly significant at the 10% level. This suggests that unfavourable price movements for large cattle had some adverse association with marketers' financial outcomes, but the evidence was comparatively weak. Economic outcomes during the cash crunch were therefore influenced by more than changes in the prices of large cattle alone.

The result for medium-sized cattle was stronger. Price fluctuations in this category produced a coefficient of −0.034 with a p-value of 0.024, indicating a statistically significant negative relationship with marketers' economic outcomes. This implies that adverse movements in the prices of medium-sized cattle were associated with deterioration in marketers' financial performance during the cash crunch. Given the importance of this cattle category in market transactions, unstable prices could reduce realised margins and increase the uncertainty faced by marketers when making purchasing and resale decisions.

The marketing-efficiency results further demonstrate that resource availability mattered during the cash crunch. Capital positively and significantly influenced efficiency, indicating that marketers with stronger financial resources were better able to maintain their operations despite the liquidity shock. Water use also recorded a positive and highly significant coefficient of 0.277, reflecting the importance of maintaining cattle condition while awaiting sale. By contrast, labour hours had a coefficient of 0.004 and were statistically insignificant ($p = 0.729$), suggesting that simply increasing labour input did not translate into improved marketing efficiency. Financial capacity and essential operational inputs were therefore more important than labour intensity in sustaining efficiency during the cash crunch.

4.4 Major Constraints During the Cash Crunch

The constraint analysis indicates that lack of cash was the most severe challenge, recording a mean severity score of 4.00, the maximum on the four-point scale used in the study. Respondents therefore classified cash shortage as an extremely severe problem. This finding directly reflects the nature of the monetary shock examined in the study and confirms that the scarcity of physical currency had practical consequences for cattle marketers rather than merely representing a change in the national payment system.

The severity of cash shortage can be explained by the transaction-intensive nature of cattle marketing. Marketers require working capital for cattle purchases as well as transportation, labour, feeding, medication and other market-related expenditures. Consequently, inadequate access to physical cash constrained their capacity to meet immediate financial obligations and complete transactions. This liquidity constraint is consistent with the sharp decline observed in average monthly sales and profits during the cash crunch, indicating that the financial disruption translated directly into reduced market activity.

Overall, the results establish that the cash crunch constituted a substantial economic shock to cattle marketing in North-East Nigeria. Its effects were manifested in the sharp contraction in sales and profits, greater importance of credit and alternative payment mechanisms, adverse consequences of cattle price fluctuations and severe liquidity constraints. Nevertheless, marketers with access to credit, market information, digital payment facilities, stronger business scale and adequate productive resources demonstrated greater capacity to maintain profitable and efficient operations. The evidence therefore highlights liquidity, financial inclusion, market information and payment-system adaptability as central elements of resilience in cattle marketing during periods of monetary disruption.

5.0 Conclusion and Recommendations

The study concludes that the cash crunch significantly disrupted cattle marketing in North-East Nigeria because of the sector's strong dependence on physical cash transactions. Although cattle marketing remained profitable, the period was characterised by a substantial contraction in transaction volumes and a decline of more than 50% in average profit. Access to credit, digital financial literacy, education, association membership, payment methods and market information remained important determinants of profitability, while price fluctuations—particularly for big- and

medium-sized cattle—adversely affected marketers' economic outcomes. Marketing efficiency was also affected, while cash scarcity, high transfer charges, poor network connectivity, low customer demand, fake credit alerts and inadequate market infrastructure compounded the difficulties experienced by marketers. These findings underscore the need for interventions that improve marketers' access to finance, strengthen their capacity to conduct digital transactions, improve market infrastructure and reduce their exposure to price and liquidity shocks. Accordingly, the following recommendations are proposed.

1. Improve access to affordable credit and working capital. Financial institutions, microfinance banks and relevant government agencies should develop accessible and affordable credit facilities specifically tailored to cattle marketers. Such facilities would provide the liquidity required to purchase cattle, finance transportation and meet other operating expenses, particularly during periods of cash scarcity.

2. Strengthen digital financial literacy and payment infrastructure. Government agencies, financial institutions and cattle marketers' associations should provide practical training on mobile banking, electronic transfers and other digital payment systems. This should be complemented by improved network connectivity in major cattle markets, lower transaction charges and stronger safeguards against fake credit alerts and failed electronic transactions.

3. Improve cattle-market infrastructure and information systems. Government should invest in essential cattle-market infrastructure, particularly transportation facilities, water supply and reliable communication networks. Timely dissemination of cattle prices and other market information should also be strengthened to enable marketers to make informed purchasing and selling decisions and reduce the adverse effects of price fluctuations.

4. Strengthen risk management and institutional support. Cattle marketers' associations should be supported to promote savings, livestock insurance, market diversification and other risk-management mechanisms that can protect members against liquidity and price shocks. Government agencies, financial institutions and marketers' associations should also collaborate to strengthen market regulation, capacity building and institutional support for a more resilient and efficient cattle marketing system in North-East Nigeria.

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