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Exploring the Dynamics of Economic Instability: An Analysis of the Interplay between Consumer Spending, Consumer Confidence, and Macroeconomic Factors

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This study empirically evaluates the effect of consumer confidence on consumer spending in Nigeria. Relatively little attention has been paid to the existence of a long-run relationship between consumer confidence and consumer spending in Nigeria, and this study aims to contribute to the existing literature in this regard by utilising quarterly data spanning from 2009 to 2023. Examining the relationship through the autoregressive distributed lag (ARDL) model, it was found that consumer confidence, money supply, and inflation have a significantly positive impact on consumer spending, while interest rates possess an adverse relationship with consumer spending in Nigeria in the long run. The findings of the study recommend that good infrastructure, ease of doing business, and reduction of tax rate on everyday purchasing are key contributors to consumers' optimism. Additionally, efficient responses to economic shocks and effective policy reformation according to the shift of the dynamic financial world are also crucial to making the economy well-run and maintaining the level of consumers' confidence.

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JEL Classifications: d12, M2

Introduction

The nexus between consumer confidence and macroeconomic performance around the globe has been an important issue in recent times, as consumers tend to respond differently during different economic times. Over the years, a number of studies, such as Carroll *et al.* (1994), Acemoglu and Scott (1994), and Olowofeso and Doguwa (2012), have investigated the relationship between consumer confidence and consumer spending, but no consensus has been reached. Consumer confidence measures consumers' feelings about current and future economic conditions and is also used as an indicator of the overall state of the economy. In this light, it is normally expected that when consumer confidence is high, consumers make higher or more purchases, and when consumer confidence is low, consumers tend to make lower purchases, which in turn leads to consumers saving more. Therefore, an economic indicator measures the degree of optimism that consumers feel about the state of the economy and their personal financial situation. In the same light, consumer spending is simply the purchase or acquisition of goods and services by individuals, families, or households. It is, therefore, important to investigate how consumer confidence could affect consumer spending patterns because investors in an economy use this indicator to predict consumer spending patterns. According to Olowofeso and Doguwa (2012), interest in consumer perceptions and attitudes reflects the general belief that individual consumers' sentiments and expectations directly affect the economy's direction. Knowing what consumers think about their future and understanding household consumption dynamics and operations is essential. Therefore, there is a need to consider the consumer confidence indices and their analysis, as consumer confidence tends to affect consumer spending, which has a role in the economy. Consumption is also an integral part of the gross domestic product. However, unexpected changes in consumer spending could be traced to the interplays or changes that occur in the financial markets.

Talking about the consumer confidence index (CCI), the Central Bank of Nigeria (CBN) commenced the compilation of consumer confidence in the second quarter (Q2) of 2008 by conducting a consumer expectations survey, as is being practised in many other economies worldwide. The CCI was measured in Nigeria using the economic condition index, the family financial situation index, and the family income index. Since this time, there has been a trend in the CCI and consumer spending over time, and this effort was purposed to gather qualitative data or information and or a survey from the household sector of the economy

to essentially serve as important information for the monetary policy formulation and management. According to the Central Bank of Nigeria (2020), consumer confidence in Nigeria increased to −14.80 points in the fourth quarter of 2020 from −21.20 points in the third quarter of 2020. The consumer expectation survey in Nigeria is based on a sample of 1800 households. It provides consumers with tendencies and expectations for general economic conditions, job opportunities, personal financial standing, and market developments. Consumer confidence in Nigeria averaged −8.45 points from 2008 until 2020, reaching an all-time high of 9.70 points in the fourth quarter of 2018 and a record low of −29.30 points in the fourth quarter of 2016. According to Neilsen (2020), against the backdrop of the unprecedented COVID-19 pandemic, West African consumer sentiment has experienced a sharp drop in the Nielsen CCI for Quarter 2, 2020. Nigeria's CCI shows a substantial decrease of 14 points to 108. As Africa's largest economy and oil exporter, Nigeria was already under immense pressure before the COVID-19 lockdown due to the collapse in international oil prices. Based on the additional economic pressure as a result of the COVID-19 pandemic, Nigeria, therefore, instituted a relatively early easing of its 5-week lockdown in early May due to the adverse financial effects on its economy and population. Looking at the consumer side during this time, which is Quarter 2, 2020, Nigerian job prospects declined, with less than half viewing them as excellent or good, a 14-point drop from the previous quarter. Nigerians' consumer confidence around their finances also declined, with 59% who think they will be excellent or sound over the next year, having decreased 19 points from the previous quarter. Immediate spending intentions also declined. Since consumer confidence already plays a role in consumer spending, it is essential to investigate further the impact of consumer confidence on consumer spending in Nigeria, as there have been fluctuations in consumer confidence over time and instability in consumer spending.

Consumer confidence is linked to consumer spending. A common criticism of consumer confidence is that consumer confidence causes consumer spending and is only sometimes a valid indicator of the extent and depth of the overall spending in the economy. However, if consumer confidence is high, it tends to lead to an increase in consumer spending. According to Olowofeso and Doguwa (2012), increasing consumer confidence leads to increasing consumer spending in an economy; shocks in the economy and uncertainty are likely to affect confidence causing a change in consumer spending. Some key factors that contribute to consumer confidence and consumer spending in Nigeria are inflation, exchange rate, corruption, style of politics, and bad governance. According to Ghosh (2021) when financial pessimism sets in, the consumer saves more to overcome future liquidity crunch. This analysis is a variant of the life cycle hypothesis when considerations for current expenditure are related to the future stream of expected income. So, CCI offers better information on measuring the expected income of

consumers rather than just relying on past values of disposable income. Acemoglu and Scott (1994) discuss that the forecasting ability of the consumer confidence of the consumers embedded in the index provides further information on how it might generate impetus for future consumption. According to Carroll *et al.* (1994), the measure of consumer confidence is highly associated with household consumption behaviour. Brand (2011) asserts that consumer confidence is one of the indicators that could signal changes in economic activity and could be valuable to forecasting and improving consumption based on the economy's recent, current, and expected conditions. The relationship between consumer confidence and consumer spending cannot be ignored, as some studies conceptualised. Dees and Brinca (2013) observed that consumer confidence has been justified for precautionary savings arguments. It is therefore essential to evaluate and analyses the issues around the effect and relationship between consumer confidence and consumer spending in the case of Nigeria.

Various studies in literature, such as Olowofeso and Doguwa (2012), Wilcox and Prokopec (2019), and Carroll *et al.* (1994), analysed the relationship between and effect of consumer confidence on consumer spending. These studies explored only the theoretical effect of consumer confidence on consumer spending in Nigeria and other foreign countries. Empirical studies on the subject matter in Nigeria, which is the largest economy in Africa, are rare. More attention should be paid to the causal relationship between consumer confidence and consumer spending in Nigeria, and this study aims to contribute to the existing literature in this regard. Olowofeso and Doguwa (2012) examined the impact of consumer confidence on consumer savings in Nigeria. Nevertheless, they failed to include money supply as an exogenous variable used in the study, as it can also cause consumer confidence and spending and impact consumer spending. This study, however, shall analyse consumer confidence and consumer spending in Nigeria by adding to the very few empirical studies on the subject matter in Nigeria. In addition, this study attempts to fill the gap in the literature by providing empirical evidence and analysis on the impact of consumer confidence on consumer spending in Nigeria by including money supply, inflation and interest rate as the control variables. This study also attempts to expand the data coverage to recent years since observations up to the second quarter of 2023 are included.

Literature Review

Consumer confidence

The concept of consumer confidence was introduced by Katona (1968), which explains that the willingness to buy depends on the consumers' subjective

expectations of their household finances and economic climate or condition. Confidence in any context involves believing that one can have faith or rely on something related to someone. In economic terms, as related to the subject matter, consumer confidence has to do with the economic indicator that measures the degree of optimism consumers feel about the economy's overall current and future state and financial situation. The concept of consumer confidence indicates that if the consumer has confidence in the immediate and near future economy and their finances, then the consumer will spend more than save. A month-to-month trend in consumer confidence reflects consumers' outlook concerning their ability to find and retain good jobs according to their perception of the current state of the economy and their financial situation.

According to Keynes (1936), consumer confidence can be linked to the "animal spirit", which means that human emotions drive consumer and business confidence and how people's confidence about some situations or economic outcomes motivates them to take some actions. Çelik (2010) described consumer confidence as a concept that implies the economic indicator that drives or moves its information content from both past and current economic outlooks. According to Evans *et al.* (2022), consumer confidence expresses the degree of optimism from the economy in which their consumption behaviour or pattern is determined, the decision associated with the spending and savings pattern. It is also known that consumer confidence typically increases when the economy expands and decreases when the economy contracts, as this can be associated with the gross domestic product in an economy. Referring to the United States, there is evidence that the measure of consumer confidence is a lagging indicator of stock market performance as the financial sector plays a significant role in the contentious development of the economy.

The analysis and understanding of consumer confidence can be used by various entities, including manufacturing firms, retailers, investors, banks, public opinion researchers, and government agencies. This helps them make strategic decisions regarding their sectors and gauge consumer willingness to make purchases. As a result, businesses can adjust their operations, and the government can prepare for changing tax revenue. If confidence drops and consumers are expected to reduce spending, most producers will tend to reduce their production volumes accordingly. In addition, if consumer confidence is improving, people are expected to increase their purchases of goods and services. In anticipation of that change, manufacturers can boost production and inventories. Large employers can increase hiring rates. Builders can prepare for higher housing construction rates. Banks can plan for a rise in demand for credit products. The government can expect improved tax revenues based on the increase in consumer spending; therefore, these tend to affect the economy's current or future overall state.

Consumer spending

Consumer spending, or consumer consumption or consumer expenditure, is the total money spent on final goods and services by individuals and households for personal use and enjoyment in an economy. Contemporary measures of consumer spending include all private purchases of durable goods, nondurable goods, and services. Consumer spending is complementary to personal saving, investment spending, and production in an economy. Keynes stated that the consumer spending function tracks and predicts total aggregate consumption expenditures in the gross domestic product. Consumer spending means all spending on final goods and services for current personal and household use. Consumer spending is a crucial driving force in the economy and a critical concept in economic theory.

Investors, businesses, and policymakers closely follow published statistics and reports on consumer spending to help forecast and plan investment and policy decisions. Consumption of final goods (i.e. not capital goods or investment assets) results from an ultimate motivation for economic activity. This is because all goods that are consumed must first be produced. Consumer spending is a vital part of the demand side of supply and demand, and the production of consumer goods is critical to the supply side. Consumers decide whether to spend their income now or in the future. Consumer spending typically only refers to spending on consumption in the present. Income retained for future spending is called saving, which also funds investment in producing future consumer goods. According to Sergeant *et al.* (2011), John Maynard Keynes believed consumer spending is the most critical short-term determinant of economic performance and a primary component of aggregate demand. It is the most significant component of the gross domestic product (GDP) and the Keynesian fiscal and monetary policy target in macroeconomics. Other economists, sometimes called supply-siders, accept Say's Law of Markets and believe private savings and production are more important than aggregate spending. If consumers spend too much of their income now, future economic growth could be compromised because of insufficient savings and investment.

Some empirical studies have also been reviewed to study the context in-depth, which are showcased in Table 1.

Methodology

Theoretical framework

The theoretical framework used in this study is adopted from Carroll *et al.* (1994), and Dees and Brinca (2013) who made use of the animal spirit theory as developed by Keynes (1936) and also used by Farmer (2008). According to the theory, if

Table 1. Literature review.

Author	Region and time span	Variables	Methodology	Findings
Mynaříková and Pošta (2023)	22 OECD countries (1889–2023)	Aggregate consumption, consumer confidence, well-being measures	Correlation matrix, empirical analysis	Consumer confidence positively influenced spending on durable and semi-durable goods and services. Measures of well-being had a negative impact on total consumption and spending in some categories.
Lieb and Schuffels (2022)	Dutch households (2023)	Household balance sheets, inflation expectations, durable consumption	ANOVA	Investments in risky assets and net worth moderate the impact of expected inflation on durable spending. This effect is particularly significant for households with fixed-rate mortgages.
Su *et al.* (2023a)	China (2022)	CL, CCI	Time-varying rolling-window approach	Consumer loans (CLs) can boost consumer confidence by easing liquidity constraints and improving consumption levels. The empirical outcome aligns with the Rational Expectations Perpetual Income Hypothesis (RE-PIH), suggesting that increasing CL can enhance consumer confidence. However, CCI has both positive and negative effects on CL. Optimistic confidence leads to increased borrowing, while excessive self-confidence may hinder the loan market. Effective promotion of consumer confidence can optimise consumption decisions and maintain loan stability.
Su *et al.* (2023b)	China (2000–2023)	CCI, outbound tourism expenditure (OTM)	Bootstrap full- and sub-sample rolling-window Granger causality tests	CCI generally positively impacts OTM, acting as a catalyst for outbound tourism spending. However, this impact becomes negative during events like the global financial crisis due to

Table 1. (*Continued*)

Author	Region and time span	Variables	Methodology	Findings
				renminbi appreciation. OTM does not significantly affect CCI. The findings emphasise the importance of considering CCI in tourism planning and strategy.
Malovaná *et al.* (2021)	22 High-income European countries (2002Q1–2018Q4)	Household macroeconomic environment (HOME) index, consumer confidence, asset prices, lending conditions	Index construction, empirical study	The "HOME" index, spanning 22 European countries from 2002 to 2018, reveals a strong link between consumer sentiment and current macroeconomic conditions, reflecting asset influence and mortgage decision delays during economic upturns.
Durrani *et al.* (2023)	Pakistan (February 2012–December 2020)	consumer confidence, uncertainty, economic factors (GDP growth, inflation, interest rate, stock returns, exchange rate), political factors (elections, terror attacks)	Regression analysis using OLS	Economic variables like inflation and economic growth significantly determine consumer confidence in Pakistan. Adding political variables, such as elections and terror attacks, increases the model's explanatory power. Political factors play a dominant role in shaping consumer confidence in Pakistan.
Grzywińska-Rąpca and Ptak-Chmielewska (2023)	European countries, January 2015–May 2022	CCI, retroactive assessments, future expectations	Panel modelling	Higher expectations of respondents have a statistically significant impact on the CCI, and differences in respondent assessments between countries are significant. Time differences do not have a significant impact on the CCI.
Rose *et al.* (2023)	US, COVID-19 pandemic	Lockdown stringency measures, consumer purchasing behaviours	Multi-level regression models	Nationally, consumers made fewer, larger physical shopping trips and saw significant increases in online sales during the onset of the COVID-19 pandemic. Examining spatial trends in sales

Table 1. (*Continued*)

Author	Region and time span	Variables	Methodology	Findings
				outcomes provides novel insights for retailers, stakeholders, and policymakers.
Anastasiou *et al.* (2023)	Eurozone	Consumer sentiment expectations	Bayesian panel VAR model	A positive shock to consumers' sentiment expectations leads to a subsequent positive response in household deposits, gradually reversing over 2–3 months. The results have implications for households, policymakers, central bankers, and commercial banks in the Eurozone.
Khumalo (2014)	South Africa (1980Q1–2012Q3)	Consumer confidence, unemployment, personal tax, economic growth and inflation.	VAR, VECM	Consumer aggregated expenditure tends to increase immensely with economic growth and consumer confidence in the long run.
Gosh (2021)	Brazil (1995–2018)	CCI, rate of interest, exchange rate, stock price and unemployment.	NARDL	In the long run, when consumers are more confident, they increase their purchasing ability relatively less. But a lower drop in confidence cuts back more purchases, which means if the economic indicators are in a stable position, the consumer will slowly increase their interest to increase their spending nature.
Juhro and Iyke (2020)	Indonesia (1993Q1–2019Q1)	CCI, business index, real labor income, short-term interest rate, real stock price index	ARCH	To predict consumer expenditure pattern, they blended two measures of confidence business and consumer confidence and found that both confidence indicator jointly indicates consumption expenditure by 80–100%.

Table 1. (*Continued*)

Author	Region and time span	Variables	Methodology	Findings
				By forecasting this pattern, the economy can gain from 4% to 13%.
Ahmed and Cassou (2016)	US (1960Q1–2014Q2)	Index of consumer confidence, labour income, financial assets.	VAR, STVAR	Explaining news versus animal attribute author found that consumer confidence responded differently to durable and nondurable goods. The confidence innovation in terms of durable goods during the economic recession was considerably smaller than confidence toward durable goods during economic expansion.
Haniff *et al.* (2016)	Malaysia (1998–2015)	Consumer sentiment index, disposable income, treasury bill rate, stock price	ARDL, CUSUM	Both in the long and short run, customer real disposable income plays a more significant role in explaining consumers' private spending patterns rather than consumer confidence. Because consumers have to spend a constant amount of income to meet their daily utility.
Çelik and Ozerkek (2011)	9 EU country (1999–2007)	Consumer sentiment, stock exchange index, exchange rate, interest rate	FMOLS, DOLS	There is a long-run relationship between consumer confidence and other macroeconomic variables, which implies that people are sensitive to their decision to spend based on the available information about the soundness of the dominant economic variable.

consumers are optimistic about the future, they tend to postpone savings in order to consume more in the present. This theory is being adopted because the framework was developed with empirical investigations that can be theoretically applied to achieve the specific objectives of the study. In Dees and Brinca's (2013) study, the model utilised household consumption expenditure, CCI indicators, interest rates, and stock prices. The reason for adopting this model is that it is the most relevant and it captured some of the variables used in this study. The model to be estimated is specified in the functional form as

The functional specification of the model is specified in the econometric form as

$$\text{HFCE} = \beta_0 + \beta_1 \text{CCI} + \beta_2 \text{Ms} + \beta_3 \text{INTr} + \beta_4 \text{INFr} + \varepsilon_t. \tag{1}$$

This can be represented in the mathematical form as $\beta_0 > 0$, $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 < 0$, $\beta_4 < 0$. Time series data spanning from 2009Q1 to 2023Q2 is used for this study.

Autoregressive distributive lag model

The main aim of the study is to examine the impact of consumer confidence on consumer spending in Nigeria. The model is specified in the mathematical and econometric form in Eqs. (2) and (3). In order to achieve the effect of consumer confidence on consumer spending, the study specifies the ARDL model. Studies like Etensa *et al.* (2022) acclaimed the robustness of the ARDL model while examining cointegrating relationship in small sample size.

Given the set u, ARDL $(p, q, q \ldots q)$ model is specified as

$$\begin{aligned}\ln\text{HFCE}_t = \alpha_O + \sum_{i=1}^{p} \alpha_{1i} \ln\text{HFCE}_{t-i} + \sum_{i=0}^{P} \alpha_{2i} \text{CCI}_{t-i} + \sum_{i=0}^{P} \alpha_{3i} \ln\text{Ms}_{t-i} \\ + \sum_{i=0}^{P} \alpha_{4i} \text{INTr}_{t-i} + \sum_{i=0}^{P} \alpha_{5i} \text{INFr}_{t-i} + \varepsilon_t \end{aligned} \tag{2}$$

In Eq. (2) α_1 represents the intercept while α_1, α_2, α_3, α_4, and α_5, represent the coefficients of the lagged dependent variables and regressors. In a time series error correction representation, Eq. (3) is specified as

$$\begin{aligned}\Delta\ln\text{HFCE}_t = \alpha_O + \sum_{i=1}^{p} \alpha_{1i} \Delta\ln\text{HFCE}_{t-i} + \sum_{i=0}^{P} \alpha_{2i} \Delta\text{CCI}_{t-i} + \sum_{i=0}^{P} \alpha_{3i} \Delta\ln\text{Ms}_{t-i} \\ + \sum_{i=0}^{P} \alpha_{4i} \Delta\text{INTr}_{t-i} + \sum_{i=0}^{P} \alpha_{5i} \Delta\text{INFr}_{t-i} + \delta_1 \ln\text{HFCE}_{t-i} + \delta_2 \text{CCI}_{t-i} \\ + \delta_3 \ln\text{Ms}_{t-i} + \delta_4 \text{INTr}_{t-i} + \delta_5 \text{INFr}_{t-i} + \varepsilon_t. \end{aligned} \tag{3}$$

Table 2. Definitions, sources and measurement of variables.

Variables	Definition	Measurement and indicator	Sources
Consumer spending	This is the acquisition of goods and services by individuals or family.	Household final consumptions expenditure (HFCE)	World Development Indicator (WDI)
Consumer confidence index (CCI)	An economic indicator that measures the degree of optimism that consumers have regarding the overall state of the country's economy and their own financial situations.	CCI	Central Bank Statistical Bulletin (CBN), Nigeria Bureau of Statistics (NBS)
Interest rate	Amount charged by lenders for a certain period as a percentage of the amount lent or deposited.	Lending rate (INTr)	WDI
Inflation rate	Percentage increase in the general price level of goods and services.	Consumer price index (INFr)	Central Bank Statistical Bulletin (CBN), NBS
Money supply	Total amount of money in circulation or existence in a country.	Broad money (Ms)	WDI

Equation (3) states the model used to test for extracting long-run relationship in a time series ARDL framework. The parameters $\alpha_1, \ldots, \alpha_5$ are short-run multipliers or elasticities and $\delta_1, \ldots, \delta_5$ are long-run multipliers (elasticities) used to calculate the error correction or speed of adjustment. Once a long-run relationship is known, the error correction model (ECM) in a time series ARDL framework is estimated as

$$\Delta \ln \mathrm{HFCE}_t = \alpha_O + \sum_{i=1}^{p} \alpha_{1i} \Delta \ln \mathrm{HFCE}_{t-i} + \sum_{i=0}^{P} \alpha_{2i} \Delta \mathrm{CCI}_{t-i} + \sum_{i=0}^{P} \alpha_{3i} \Delta \ln \mathrm{Ms}_{t-i} + \sum_{i=0}^{P} \alpha_{4i} \Delta \mathrm{INTr}_{t-i} + \sum_{i=0}^{P} \alpha_{5i} \Delta \mathrm{INFr}_{t-i} + \rho_1 \mathrm{ECT}_{t-i} + \varepsilon_t \quad (4)$$

Result and Discussion

The descriptive statistics show the characteristics, behaviour, and distribution of the data set used in this study. Table 3 presents the summary of the descriptive statistics of the model's variables.

Table 3. Descriptive statistics of variables employed in the model.

Variables	HFCE	CCI	INFr	INTr	MS
Mean	1672862.0	−6.422	11.932	16.582	19268.60
Median	18918.41	−4.408	11.700	16.655	18764.72
Maximum	27654427	9.735	17.600	29.135	35123.85
Minimum	7850.895	−29.783	8.010	5.562	9077.027
Std. dev.	6364681.0	9.672	2.566	2.856	6925.925
Skewness	3.582	−0.847	0.334	0.421	0.543
Kurtosis	13.97976	3.191	2.666	13.980	2.545
Jarque–Bera	329.460	5.566	1.070	232.420	2.659
Probability	0.000	0.062	0.586	0.000	0.265
Sum	76951666	−295.390	548.861	762.784	886355.6
Sum Sq. dev.	1.82E+15	4210.053	296.260	367.118	2.16E+09
Observations	58	58	58	58	58

Graphical analysis

Graphical illustrations capture the movements, trends, fluctuation, and discontinuities in the series. It also provides a qualitative assessment of possible relationship among the series. Figures 1 and 2 show the graphical expression of relevant variables employed in this study.

The household final consumption expenditure (HFCE) in Nigeria experienced a significant decline between 2009Q4 and 2010Q1. Following this period, the HFCE demonstrated an overall increasing trend. However, this growth was not consistent and exhibited noticeable fluctuations over time. These fluctuations indicate periods of slight decreases followed by slight increases in HFCE. The peak of HFCE was observed in 2009Q4, while the lowest point occurred in 2010Q2. This suggests

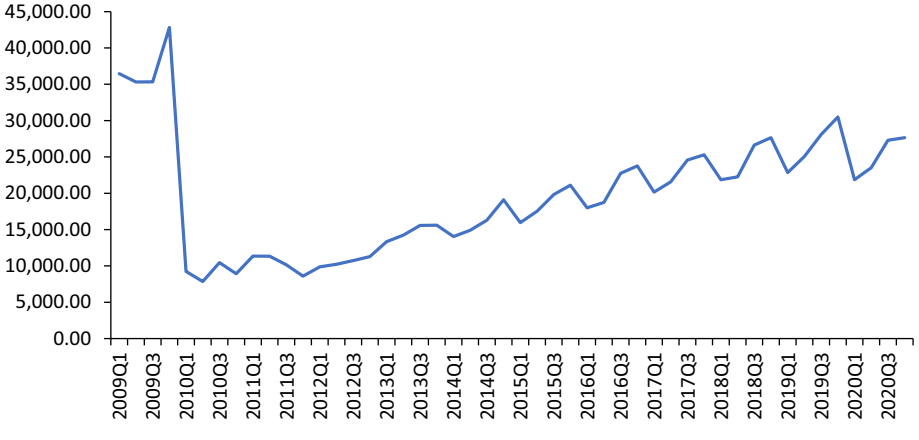

Fig. 1. Household final consumption expenditure.

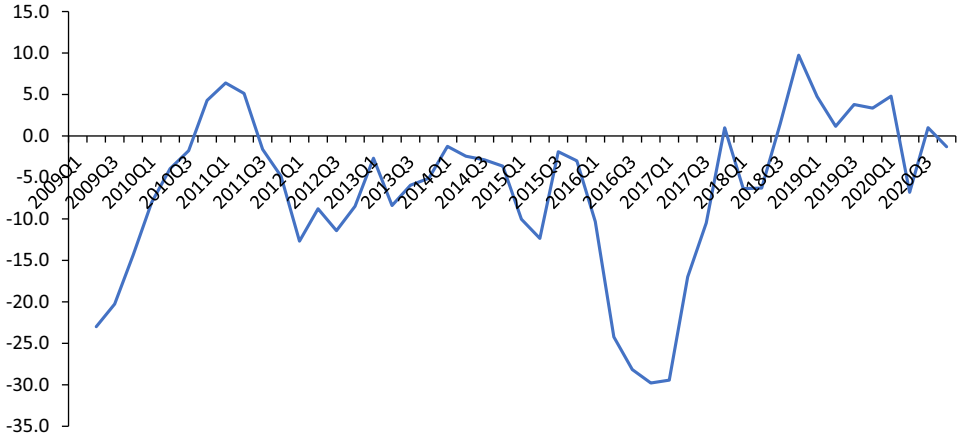

Fig. 2. Consumer confidence index.

that household spending was highest in 2009Q4 within the observed quarters. The instability in HFCE over time could be indicative of varying economic conditions impacting consumer behaviour.

The CCI, a measure of consumer optimism about current and future economic conditions, has shown high volatility since its inception in 2008. The CCI trend has been oscillating, indicating periods of increasing and decreasing consumer confidence. The highest level of optimism was recorded in 2018Q4 with a CCI of 9.7 points, closely followed by 2011Q1 with 6.4 points. However, the CCI was predominantly negative, reaching a low of −29.4 points in 2011Q1. This prevalence of negative CCI scores suggests that consumers often held a pessimistic outlook on future economic conditions and their financial status. Such pessimism can adversely impact consumer spending and is a concerning sign for Nigeria's economic health.

While there has been an overall trend of increasing and decreasing CCI, these fluctuations are predominantly on the negative side. This is evident from the fact that the CCI for most quarters is below 0 points. This persistent negative trend in consumer confidence could have far-reaching implications for the economy, potentially affecting investment, employment, and GDP growth rates.

Stationary tests

Stationarity of series becomes exigent when using time series data for analysis. Linear regressions generally assume that the series to be used for modelling are stable over time. It is obligatory that the series must exhibit stationarity so not to yield spurious and misleading results. Unit root test is a common test in econometric analysis to check whether a series is time-invariant, i.e. whether its

Table 4. ADF test results.

Variables	Level			First difference			$I(d)$
	Constant	Constant and trend	No constant no trend	Constant	Constant and trend	No constant no trend	
LNHFCE	−2.401	−1.583	−1.790	−5.407***	−2.855	−4.790***	$I(1)$
CCI	−2.515	−2.431	−2.402**	−5.696***	−5.649***	−5.739***	$I(1)$
LNMS	0.225	−4.436***	−4.493**	—	—	—	$I(0)$
INTr	−3.814**	−2.640	−0.485	—	—	—	$I(0)$
INFr	−2.282	−2.187	−0.284	−3.542***	−3.463*	−3.589***	$I(1)$

Note: *, **, *** represent significance levels at 10%, 5%, and 1%, respectively.

properties of mean, variance and auto covariance are constant over time. If these properties are time variants, the series is said to be nonstationary and thus follow a unit root process. Otherwise, stationary does not follow a unit root process. Hence, this study subjects each of the series in the model to the augmented Dickey–Fuller (ADF) test (Dickey and Fuller, 1979) and Phillips–Perron (PP) test (Phillips and Perron, 1988). The null hypotheses of both tests state that the series contains unit roots but with variants in their alternative hypothesis. The results are presented in Tables 4 and 5.

Tables 4 and 5 present the ADF and PP unit root tests results. From the ADF results, HFCE, CCI and inflation rate product are not stationary at level considering all test options (constant, constant and trend and without constant and trend). Money supply and interest rate series are stationary in their level form. The last column titled "$I(d)$" in Tables 4 and 5 concludes on the order of integration of the variables. It is important to note that the ADF test result in Table 4 conforms to the PP unit root test result in Table 5.

Since the results show that the variables are of different integration order (i.e. both $I(0)$ and $I(1)$), running a regression analysis on these variables would be

Table 5. PP test results.

Variables	Level			First difference			$I(d)$
	Constant	Constant and trend	No constant no trend	Constant	Constant and trend	No constant no trend	
LNHFCE	−2.372	−4.266	−0.267	−7.170***	−7.466***	−7.256***	$I(1)$
CCI	−2.515	−2.143	−2.402**	−5.635***	−5.588***	−5.684***	$I(1)$
LNMS	−0.646	−3.421**	−10.718**	—	—	—	$I(0)$
INTr	−4.475***	−5.008***	−0.877	—	—	—	$I(0)$
INFr	−1.878	−1.888	−0.440	−2.740*	−2.747	−2.754***	$I(1)$

Note: *, **, *** represent significance levels at 10%, 5%, and 1%, respectively.

Table 6. ARDL bounds test result.

F-statistic	7.94			
Critical value bounds				
Significance	10%	5%	2.5%	1%
I(0)	2.45	2.86	3.25	3.74
I(1)	3.52	4.01	4.49	5.06

carried out using the ARDL to achieve the prime objective of the study which is to examine the effect of consumer confidence on consumer spending in Nigeria and to also determine the existence of the long-run relationship between consumer confidence and consumer spending in Nigeria between 2009Q1 to 2023Q2.

Cointegration test

The cointegration test is used to detect or check for the presence of long-run equilibrium between series. Since it has been established by the unit root tests that the series are fractionally integrated of different orders, there is a need to check whether there is the existence of similar trend properties between the series as a model on co-integrated series is said to be super consistent. Thus, given the model and order of integration of the variables, the most appropriate cointegration test is the ARDLs bounds test. The ARDL bounds test allows for the combination of variables with different orders of integration. The ARDL bounds test result is presented in Table 6.

Table 6 shows that the value of the *F*-statistic is higher than the upper critical bound, i.e. *I*(1) bound at 5% significance level. It can thus be concluded that long run relationship exists among the variables. Hence, both the short-run (dynamic) and long-run (static) models are estimated.

Determination of optimal lag length (k)

Prior to the long-run estimation, it is required that the optimal lag length of the VAR model be firstly determined. The appropriate VAR lag order is estimated based on the five commonly used decision criteria, that is, sequential modified LR test statistic (LR), final prediction error (FPE), Akaike information criterion (AIC), Schwarz criterion (SC), and Hannan–Quinn (HQ) criterion. Table 7 presents different criteria with suggestions for optimal lag order selection.

Table 7 shows that the optimal lag length to be used for this study is four (4) as suggested by the AIC. This criterion is the best because it awards a penalty for degree of freedom.

Table 7. VAR lag order selection criteria.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−333.234	NA	5.376	15.871	16.076	15.947
1	−132.703	350.263	0.001	7.568	8.796	8.021
2	−87.059	67.936	0.001	6.607	8.860	7.438*
3	−59.069	35.150	0.001	6.468	9.745*	7.677
4	−21.278	38.669	0.000*	5.873*	10.174	7.459

Notes: * indicates lag order selected by the criterion.
LR: sequential modified LR test statistic (each test at 5% level),
FPE: Final prediction error,
AIC: Akaike information criterion,
SC: Schwarz information criterion,
HQ: Hannan-Quinn information criterion.

ARDL estimation

The study further estimates the effect of consumer confidence on consumer spending in Nigeria. The study adopts the unrestricted error correction ARDL model. The ARDL model is a dynamic specification that uses the lag of the dependent variable and the lagged and contemporaneous values of the independent variables, through which the short-run effects can be directly estimated, and the long-run equilibrium relationship can be indirectly estimated. One of the benefits of the ARDL technique is the ability to employ variables regardless of their order of integration, i.e. $I(0)$ or $I(1)$.

To determine the long-run relationship between consumer confidence and consumer spending in Nigeria, there is a need to ascertain the estimated value of the ECM, which helps to reveal whether or not a long-run relationship exists between consumer confidence and consumer spending in Nigeria.

Analysis of results

Table 8 presents the short-run and long-run results of the effect of consumer confidence on consumer spending in Nigeria. The results were estimated based on the specifications selected using the AIC.

The coefficient of ECT is significantly negative, −62.23%, which entails the existence of a long-run relation among dependent and independent variables. The estimated value of the coefficients also indicates that the speed of adjustment from the short-run dynamics to the long-run equilibrium is 62.2% quarterly, following a one-time shock in the short run since the coefficient of the error correction term is negative, less than 1 and statistically significant at 5%. The deviation from the long-run equilibrium, such as shocks to income, prices, taxes, or interest rates. The

Table 8. ARDL result.

Long-run results (static model)		Short-run (dynamic) model	
	Dependent variable: LNLHFCE		
Constant	−0.622 (0.0037***)	Constant	−1.116 (0.0955*)
CCI	0.014 (0.0359**)	LNHFCE (−1)	−0.622 (0.0804*)
INTr	−0.073 (0.0325**)	CCI	0.010 (0.0986*)
INFr	0.012 (0.0001***)	CCI (−1)	0.010 (0.0596*)
LNMS	0.957 (0.0001***)	CCI (−2)	−0.007 (0.0919*)
		CCI (−3)	−0.001 (0.8979)
Diagnostic tests		CCI (−4)	0.009 (0.0380**)
Bounds *F*-stat.	7.94***	INTr	0.046 (0.0075**)
Jarque−Bera	0.884 (0.6428)	INTr (−1)	0.039 (0.0156**)
Breuch−Godfrey	3.926 (0.2030)	INTr (−2)	0.039 (0.0190**
ARCH	3.032 (0.9102)	INTr (−3)	0.016 (0.0190**)
Ramsey-reset	3.133 (0.2419)	INTr (−4)	−0.004 (0.6130)
Lag selection (AIC)	(4,0,0)	INFr	0.238 (0.0144**)
R-squared	0.999	INFr (−1)	−0.269 (0.0260**)
Adjusted R^2	0.987	INFr (−2)	−0.131 (0.2301)
F-stat.	97.544	INFr (−3)	0.384 (0.0087***)
DW	2.188	INFr (−4)	−0.264 (0.0253**)
Prob (*F*-stat.)	0.0000	LNMS	−1.304 (0.0187**)
		LNMS (−1)	−0.281 (0.3551)
		LNMS (−2)	1.620 (0.0039***)
		LNMS (−3)	0.516 (0.2769)
		LNMS (−4)	0.036 (0.96683)
		ECT	−0.622 (0.0037***)

Note: *, **, *** represent significance levels at 10%, 5%, and 1%, respectively. *p*-Value is in parentheses.

results of the ARDL model show that consumption and its determinants have a stable long-run relationship in Nigeria. The ECT coefficient is −0.682 and significant at the 1% level, which means that any deviation from the long-run equilibrium is corrected by 68.2% in the next period. This result is consistent with the findings of Haliru (2023), Ogbonna and Ebimobowei (2012), and Oyinlola and Adedeji (2010), who also used the ARDL model to estimate the consumption function in Nigeria and found large and negative ECT coefficients. This result implies that consumption in Nigeria is highly sensitive and responsive to the disequilibrium caused by shocks to income, prices, taxes, or interest rates. This result can be explained by the economic conditions or policies in Nigeria, such as the COVID-19 pandemic, the recession, the inflation, and the exchange rate volatility, which have affected the consumer confidence and expectations in the country.

Moreover, in the long run result, consumer confidence has a positive and significant effect on consumer spending as the coefficient of consumer spending is statistically significant at 5% level. This also shows that 10% change in consumer confidence will lead to 0.14% change in consumer spending in the long run. This is in line with the findings of Ghosh (2021), Fereidouni and Tajaddini (2017), Oduh *et al.* (2012), and Mynaříková and Pošta (2023). The finding can be better explained with Souleles's (2004) discussion. He observed that there is a negative association between future expectations and savings. If one expects a better situation in the future, he or she tends to spend more now which means he or she has less propensity to save now. Therefore, the less savings in society triggers more expenditure. Consumers' confidence depends on several things. Among them, economic stability, political stability, own wealth and income are key issues.

The coefficient of interest rate in the long run is also significant at the 5% level of significance. Table 8 portrays consumer spending will be reduced by 0.07% if there is a percent increase in interest rate. In other words, the interest rate has an inverse relation to consumer confidence. When there is a hike in interest rates, people are likely to keep their money in the financial market due to getting incentivised (Ekong and Effiong, 2020). As a result, their present consumption will automatically be lessened at present. In addition, when there is a higher interest rate, the money supply gets cut down. Hence, with less money at hand, people don't show interest in spending more. Previous studies (Arapova, 2018; Muzindutsi and Mjeso, 2018; Garidzirai and Mapanga, 2022) tell the same story.

In the long run, inflation has a positive but not significant (at 5%) impact on consumer spending as the coefficient is not statistically significant at all levels. During an inflationary period, the price of everything gets higher for a multiplier impact. Therefore, the consumer has to spend more on their desired commodities and services than a stable period. On the other side, when people expect the price of goods will keep rising or maybe even higher in the future, then they are likely to buy more durable goods in the present (Ekong and Effiong, 2020). Obinna (2020) also found a positive impact in the context of Nigeria.

Money supply has a positive and significant impact on consumer spending in the long run at 10% significance level. The result shows that a percentage change in money supply will significantly result into 0.96% change in consumer spending. It can be deduced that the higher the volume of money in circulation, the higher the consumers' expenditure. Higher money flow in the economy will enable both producers and consumers with more cash in hand. As a result, more investment, more production and more consumption will happen. Campbell and Mankiw (1990) also found that when consumers experience a liquidity crisis in present circumstances, their confidence get higher for future consumption and vice-versa. This result is in line with Ihugba *et al.* (2021) and Onwe *et al.* (2023).

In addition, the short-run result shows that the first and second lag of consumer confidence have a positive and negative effect on future consumer expenditure or spending, respectively, as their coefficients are statistically significant at 1%. The third and fourth lags of consumer confidence also negatively and positively impact future consumer spending. However, the coefficient of the third lag of consumer confidence is not statistically significant as this tends to show that what the consumers feel about the current and future state of the economy in the past one, two, and four years significantly impacts what happens to their spending tomorrow. So, in previous years, consumer confidence significantly affected consumer spending in Nigeria. However, due to the immediate need for survival, consumer confidence only significantly impacts consumer spending in the current year, as shown in the short-run result. The primary inference from the result is that since the coefficient of consumer spending is significant and positive, it, therefore, means that an increase in consumer confidence will significantly lead to an increase in consumer spending and vice versa, i.e. as the consumers are more optimistic about the future economic condition in Nigeria, they tend to spend more and save less, vice versa.

Moreover, the short-run analysis also indicates a significant positive relationship between interest rates and consumer spending. This implies that a 1% increase in interest rates will result in a 4.57% increase in consumer spending because the coefficient is statistically significant at the 1% level. In other words, an increase in interest rate on deposit money and bank loans leads to increased consumer spending. It contradicts the long-run finding. The degree of influence of interest rates can be varied over time. For instance, if the monetary policy is designed in a way where the interest rate is positively related to economic actions, the income effect of interest rate, there is a chance of increased consumption in the short run (Sekantsia, 2016).

In the short run, the money supply negatively affects consumer confidence. A percentage change in money supply will significantly lead to a decrease of 18.7% in consumer spending. This implies that consumer spending decreases as the money supply increases. It can happen due to a liquidity trap. A liquidity trap refers to a situation when the interest rate is close to zero. Both consumers and businesses choose to hold cash anticipating deflation. Hence increasing the money supply could not able to boost consumption and investment. Besides, at times of economic uncertainty, firms are reluctant to invest as tools of monetary policy are not worthwhile in that period and the impact of it will limit the consequences of increased money supply.

Post estimation results

The validity of any model that is estimated hinges on the fulfillment of certain assumptions. Failure of the estimated model to observe these guiding assumptions

makes the estimates obtained unreliable, inconsistent, inefficient and poor for sound forecasts and predictions. The reliability of the short-run and long-run regression results is tested using relevant diagnostic tests. Table 8 shows the results of various diagnostic tests performed on the estimated model. Since the diagnostic test suggests that the OLS assumptions have not been violated, it therefore follows that the models estimated in Table 8 are consistent, efficient and feasible for forecast and policy making.

Conclusion and Recommendation

The main objective of the study is to unravel the effect of consumer confidence on consumer spending in Nigeria. In evaluating this objective, the study aims at some specific objectives, which include examining the trend in consumer confidence and consumer spending, analysing the effect of consumer confidence on consumer spending, and observing the existence of the long-run relationship between consumer confidence and consumer spending in Nigeria. The study utilises quarterly data spanning from 2009Q1 to 2023Q2.

On estimating the effect of consumer confidence on consumer spending, using the ARDL model, the short-run result showed that consumer confidence, interest rate, and inflation rate have a positive and significant impact on consumer spending and money supply have a negative and significant effect on consumer spending. The study, therefore, found out that in the long run, there exists a positive and significant effect of consumer confidence, interest rate, inflation rate, and money supply on consumer spending. Based on the long-run findings, the conclusion is drawn that an increase in consumer confidence, money supply, and inflation stimulates consumer spending in Nigeria. In contrast, an increase in interest rates leads to decreased consumer spending in Nigeria.

From the above discussion, this study suggests that the government should pursue policies that will help to spur consumer expenditure since the daily survival of consumers is based on consumer spending. The policies should be centered around the provision of social amenities in the society such as good roads, pipe borne water, subsidising education expenditure, provision of enabling environment for business and foreign direct investment which contributes to employment generation, taking care of shocks to some critical sectors in the economy and also embarking on financial reforms which will all help to stimulate the consumers' optimism about the future economic condition in Nigeria and then contribute significantly to consumer spending and economic performance in general. The government should also encourage the private sector to play a vital role in boosting influential spending. Besides, tax reform should be taken into account. The government must reduce the

tax rate for necessary product purchasing, which will help people gain more confidence in personal spending. That is how more purchasing will generate more demand and boost the national output and GDP growth. Both banks and govt should also make the available circulation of more money into the economy through credible monetary policy reform such as reduction in the interest rate and federal government buying of securities and then set in line more channels to allow consumers to spend efficiently. However, these channels should help the government acquire back this circulated money through consumer spending on locally made goods and local productions, which, therefore, contributes to the gross domestic product that helps to stimulate economic performance. Also, banks and financial organisations in Nigeria can use this type of study to design various products by predicting consumer spending and saving patterns.

The major limitation of this study is the inability to obtain high-frequency data for all the variables from 2009Q1 to 2023Q2. Thus, further studies should adopt high-frequency data to capture the nexus between the variables better. Also, there is a broad scope to describe how consumer attributes change to durable and nondurable goods for a precise conclusion on a micro basis. There is a common belief that customers' perception of spending varies occasionally. That means consumers act differently in the recession and expansionary periods of the economic business cycle. It should also be put under the microscope. Besides, animal attributes versus News effects can be described here in future studies to explore more in this topic.

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