

The Impact of Taxation and Inflation on Consumption in Nigeria

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ABSTRACT

The study focuses on the impact of taxation and inflation on consumption in Nigeria. The objective of the study is to examine the impact of taxation and inflation on consumption in Nigeria between 1983 and 2023. The auto regressive distributed lag model was used in this study due to the mix in integration order. The regression analysis reveals several key findings: firstly, inflation (INF) significantly influences household consumption expenditure (HCE) both in the short and long run, albeit with a negative effect observed in the long run. Secondly, the study finds that personal income tax (LNPIT) has a consistently negative impact on household spending and consumption in both the short and long run. Thirdly, the analysis shows that economic growth (GDPG) positively influences household consumption. These findings underscore the significant interplay between economic policies, inflation dynamics, and taxation in shaping consumption behaviors in Nigeria, offering insights crucial for policymakers aiming to foster sustainable economic growth and enhance household welfare. Based on the finding of the study, it was recommended that policies aimed at mitigating the long-term effects of inflation on the economy should be employed. Also, governments should consider adopting a "pay as you earn" taxation system to alleviate the burden on low-income earners.

Keywords: Inflation, Taxation, Economic growth, Consumption, Auto-regressive Distributed Lag.

INTRODUCTION

Over the years there have been an upward review of tax levies both indirect and direct taxes. It is expected that this would help redistribute income and improve domestic consumption. However, despite the increase in taxes generally in Nigeria, consumption has continued to decrease and again, the surging inflation rate all the time has compounded the situation for the consumers.

According to Abomaye (2017), taxation is a charge on income; hence, corporate tax reduces the amount of distributable profit; as dividend and retained earnings. Income generated by an organisation is one of the items to measure organisational performance/profitability. Usually, tax is charge as a percentage of the income. This has been over the years at 30% for company income tax and 2% for education tax. It is therefore, a progressive tax, since, the amount paid increases as income increases. The extent these tax affect a company's profitability has been issue of interest and concern to scholars, investors and other stakeholders. Many companies have closed down in Nigeria, citing among other factors, multiple taxation, in addition to high tax rate. While some were of the view that government should be more friendly in its approach to issues of taxation bearing in mind that government benefits more from a going concern that continues to pay tax than huge tax from a discontinued operation. Others expressed concern with the tax administration in Nigeria citing inefficiency and /or corruption as the main problem of tax in the country, not the tax rate, as such, opines that tax has insignificant effect on the profitability of food and beverage firms in Nigeria. Shareholders and firm executives contend that though company income tax and education tax are worth-while, the deduction usually remove reasonable proportion of income such that little or nothing is left for shareholders and for growth and maintenance of the organization. It is in the light of the above arguments as to the correct effect of tax on the profitability of firms in Nigeria that the study examined the effect of company income tax and education tax on the profit performance of food and beverage industries in Nigeria (Onwuzurike and Ugwu, 2020).

Nwole (2023) posits that, Inflation worsens the balance of payment positions. This is because inflation leads to increase in interest rate in a bid to control it hence, real values of money and government debts. It has inhibited

and distorted consumer spending by rising domestic prices relative to foreign prices, the currency inflation inhibits exports and stimulates imports thus, depleting the nations scarce foreign resources. Due to the inflationary situation savers find out that the value of their savings is eroded hence they are forced to add their current consumption thus hindering capital formation and the nation's economic growth. Inflation militates against long term savings plan of the consumer and hence becomes a function in improving a sub optimal lifetime consumption pattern upon the consumer. Current inflation rates in Nigeria have tremendously complicated the task for makers of government fiscal and monetary policies. Even when they believe that rate of inflation is really the public does not. This inflation not only makes it harder for policy makers to diagnose the factors affecting aggregate demand.

LITERATURE REVIEW

Ayeni and Cordelia (2022), assessed the effects of tax revenue on the economic growth of Nigeria utilizing time series data spanning from year 2000 till 2021. The study's specific goal is to evaluate the influence of hydrocarbon tax, corporation income tax and Value Added Tax on Nigeria's economic growth. The study employs secondary form of data which have been sourced from CBN statistical bulletin and published Federal Inland Revenue Statement. Ex-post facto research design is used for this study. The data collected are analyzed and tested for unit root using Augmented Dickey Fuller method. The study variables which comprise GDP, PPT, CIT & VAT are found to be stationary at first difference. Thus, a Johansen co-integration test is also conducted and it reveals a long-run relationship. Consequently, the study utilizes the Vector Error Correction Model to evaluate the effects of PPT, CIT and VAT on GDP. The findings reveal that PPT and VAT have positive and significant effects on GDP. It also reveals that CIT has a negative and significant effect on GDP. Based on these findings, the inquiry suggests that trainings and workshops should be organized by government tax agencies to the Nigerian public and companies on the importance and benefits of tax revenue to the economy. The tax authorities should also endeavour to encourage companies to pay tax so as to improve the growth of the economy which the companies are meant to benefit from as part of government's fulfillment of its social responsibilities.

Sebastian (2023) investigated the tax distortions and inflation rate. According to the study, expected inflation has few real effects in purely private economies, but this is not the case when the tax system is not neutral with respect to inflation. In practice, tax systems are not neutral—though some have attempted to be so in the past—and this paper provides a comprehensive overview of the most relevant non- neutralities drawing both on existing literature and showing new illustrations and evidence of the effects. The paper shows, for example, how taxing inflationary gains can have tremendous impact on effective tax rates—even at relatively low rates of inflation. It also shows how partial adjustment—for only some types of incomes—can create additional distortions. A new empirical analysis reveals how the erosion of the value of depreciation allowances through inflation affects investment. Finally the paper discusses policy options to address such non- neutralities.

Eze and Otalú (2020). examined the effect of Value Added Tax (VAT) as a means of revenue generation on Price firmness in Nigeria by finding out the role VAT is playing in the Inflation rate in Nigeria. The ex-post facto research design was embraced, and data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin for the period 1994 to 2018. The study employed simple linear regression model (ordinary least square (OLS)) via E-Views 10 statistical package in analyzing data. The results of the inquiry indicate that there is a significant connection between VAT and price stability (Inflation Rate) in Nigeria. The result of the investigation revealed that divergent to the view by commercial business owners that VAT elevated, the prices of their products, which engenders inflationary outcome. Value Added Tax (VAT) has no inflationary significance in Nigeria. Increased tax returns from VAT does not give rise to inflation in Nigeria and recommends that, although transparency is inevitable in today's global economy, sequencing of faces of liberalization is necessary to check possible inflationary consequences in Nigeria, therefore advocates for relative increase in the overall share of VAT within the context of fiscal policy whenever expansionary financial measures are adopted for achieving the goal of economic growth.

Osaretin and Ogie (2022) examined the effects of taxation on the growth of the Nigerian economy over a period of 30 years ranging from 1990–2019. The data on taxation was sourced from the Federal Inland

Revenue Service (FIRS) and the Nigerian Bureau of Statistics (NBS), while that of the Nigerian economy was sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin 2020. The explanatory variables were Petroleum Profit Tax (PPT), Company Income Tax (CIT), Custom and Excise Duties (CED), and Value Added Tax (VAT), which are proxies for taxation, and the dependent variables were Gross Domestic Product of Mining & Quarrying (MQGDP) and Manufacturing & Processing (MPGDP), as proxies for the Nigerian Economy. Diagnostic tests that were carried out include: descriptive statistics used to test for the normality of the data; the Augmented Dickey Fuller unit root test to test for the stationarity of the data; and the Johansen Co-integration test to test for long-run equilibrium relationships that exist among the variables. For data analysis, Auto Regressive Distributive Lag (ARDL) techniques were used as a statistical tool, and the statistical package used was E-view version 10. Based on the results obtained from ARDL, it was found that Petroleum Profit Tax (PPT), Custom & Excise Duties (CED) and Value Added Tax (VAT) have positive effects on the growth of mining and quarrying, with Company Income Tax (CIT) exerting a negative effect on them. The findings also revealed that Petroleum Profit Tax (PPT) and Customs & Excise Duties (CED) have a positive impact on growth of the manufacturing and processing sector, while Company Income Tax (CIT) and Value Added Tax have a negative impact. Based on the findings stated above, it was concluded that taxation has a positive effect on the growth of the Nigerian economy. This study recommends that the government and relevant tax authorities should strive to ensure that tax revenue is increased and channeled to those sectors of the economy that will in turn engender growth.

Ajala and Afolabi (2021) examined the effect that taxation has on the economic development of Nigeria, utilizing Nigerian tax revenue, the inflation rate, and unemployment rate as explanatory factors and the gross domestic product as the dependent variable. Similarly, questionnaires were issued to 80 respondents, of which 67 responded. Utilizing the Taro Yamani technique. Taxation was determined to have a beneficial association with Nigeria's economic growth. It was suggested that a well-defined policy for inter-governmental collaboration, cooperation, and coordination between different levels and agencies of government, as well as tax payer education on the role of taxation and development in Nigeria, be developed.

Charles and Ajudua (2018) investigated the Effects of Interest and Inflation Rates on Consumption Expenditure: Application of Consumer Spending Model). Using modified consumer spending model and data that span the period of 1981–2011, the study examines the effects of interest and inflation rates (proxy - consumer price index) on consumer spending. The study extended its investigation into the causal relationship between consumer spending (proxy; private consumption expenditure [PCE]), interest and inflation rates using granger causality Wald test, so as to ascertain if consumer spending can be use to predict future interest and inflation rates in the economy. The findings suggest that all explanatory variables account for approximately 93.38% variation in consumer spending, indicating interest and inflation rates and other control variables such as per capita income, indirect tax and savings as important determinants of PCE in Nigeria. The results on the granger causality indicated that future interest and inflation rates cannot be predicted using PCE. Therefore, based on these findings, we recommend expansionary fiscal and monetary policies to influence the level of aggregate demand in the economy.

Osasu and Sadiq (2022) assessed the role of taxation as a tool for addressing the challenges of inflation in Nigeria. Data for this study were gathered from Annual Abstract from the Office of National Bureau of Statistics and the office of the Federal Inland Revenue Service for a period of twenty years (1994 to 2014). The data gathered were thereafter analyzed using the error correction model (ECM) and from the analysis the paper revealed that all the variables (companies income tax, value added tax and custom and excise duties) had a positive and a non-significant relationship with inflation. However, from the conclusion the paper recommended that the government and policy makers should formulate an active tax policy to curb the issue of inflations in Nigeria and there should be a review of the periods where Nigeria witnessed lower inflation rates to see whether or not taxation (indirect taxes) played a role in ensuring the low inflation rate and then the successive introduction of the policies as it relates to taxation in the subsequent period.

METHODOLOGY

This section explained the procedures adopted by the researchers to examine the impact of taxation and inflation on consumption pattern in Nigeria. Secondary datasets were used, the datasets are, collected from publications of the central bank of Nigeria and world bank development indicators and NBS (2023) covering the period of 1983 to 2023.

Model Specification

Model specification is the expression of a relationship into a precise theoretical, mathematical, and econometrical form. In this study, we modelled our equation to follow the work of Osasu and Sadiq (2022), the functional form of the equation will be;

$$HCE = f (VAT, PIT, INF) \dots\dots\dots (1)$$

Where; HCE = Household consumption expenditure, VAT = Value added tax, PIT = Personal Income Tax and INF = Inflation.

By adding other explanatory variables such as Interest rate (INT) and gross domestic product growth (GDPG), the model becomes:

$$HCE = f (VAT, PIT, INF, INT, GDPG) \dots\dots\dots (2)$$

The econometric specification is thus specified as

$$HCE = \beta_0 + \beta_1VAT + \beta_2 PIT + \beta_3 INF + \beta_4 INT + \beta_5GDPG + U_t \dots\dots\dots (3)$$

Where;

HCE is the household consumption expenditure used as a proxy for consumption pattern, VAT and PIT are value added tax and personal income tax used to proxy taxation, INF is inflation rate, INT is interest rate, GDPG is gross domestic product growth rate. Meanwhile, the unknown parameters $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the coefficients or the slope of VAT, PIT, INF, INT and GDPG respectively, while the unknown parameter b_0 is the intercept of HCE and U_t is the stochastic error term.

Sources and Methods of Data Collection

The objective of this study is to investigate the impact of taxation and inflation on consumption pattern in Nigeria, secondary data is the basis of data used in this study, and they were sourced mainly from Central Bank of Nigeria, National Bureau of Statistics and world development indicator.

A-Priori Theoretical Expectation and Variable Measurements

The economic a-priori expectations, according to Koutsoyiannis (1977) is an economic theory that refers to the sign and size of the parameters in economic relationships. The expected relationship between dependent variable (HCE) and independent variables (VAT, PIT, INF, INT, GDPG) shall be based on macroeconomic principles.

Table 1.1: Economic A-priori Theoretical Expectation and Variable Measurements

Variables / Measurements	Labels	Economic A-priori
Household consumption expenditure is a transaction of the national accounts use	HCE	

of income account representing consumer spending.		
Value added tax is a tax on the amount by which the value of an article has been increased at each stage of its production or distribution	VAT	Negative $b1 < 0$
Personal income tax is a direct tax levied on personal income including wages and salaries, director's fees, dividends, royalties etc	PIT	Negative $b2 < 0$
Inflation is the general increase in the price of goods and services in a country in a particular time	INF	Negative $b3 < 0$
Interest rate is the amount of interest due per period, as a proportion of the amount lent, deposited or borrowed.	INT	Negative $b4 < 0$
This measures economic growth as expressed by gross domestic product from one period to another adjusted for inflation or deflation.	GDPG	Positive $b5 > 0$

Source: Author Compilation, 2024.

Pre-estimation Test

The pre-estimation test will be performed to show the characteristics or inherent behaviors of the variables proxy above to investigate the impact of taxation and inflation on consumption pattern in Nigeria. The pre-estimation tests are sub-divided into:

- (a) **Trend analysis:** which helps to capture the trend of the time series variables over time, and this will help us in the assessment of variable movements and changes over time.
- (b) **Descriptive analysis:** which helps to captures the inherent statistical behavior of the series. The parameters include; mean, median, mode, minimum, maximum, standard deviation, skewness, kurtosis, Jacque bera, and so on.
- (c) **Correlation analysis:** this measures the degree of relationship existing between two or more variables. Correlation matrix is a measure of the degree of relationship connecting two or more variables together. The degree of correlation can either be positive or negative.

Unit Root Test

The first step for an appropriate econometric analysis is to determine if the data in the series are stationary or not. The unit root test is a preliminary econometric criterion which measures the level of stationarity of the variables under consideration. Time series data can either be stationary or non-stationary. In stationary time series, shocks will be temporary and overtime their effects will be eliminated as the series revert to their long

run mean value. On the other hand, non-stationary time series will necessarily contain permanent components (Asteriou & Hall, 2007). However, time series analysis must be stationary so as to make predictable and stable economic policies and recommendations and also forecast for the future.

There are two important statistics used to evaluate unit root test namely; Phillip Perr(PP) and Augmented Dickey Fuller (ADF) tests, and both tests are employed in this study. In order to determine the position of stationarity using ADF or PP test, if the absolute value of the ADF or PP test statistic is greater than the critical value at the 1%, 5%, or 10% alpha level of significance, then the variables are stationary either level I (0), first difference I (1) or second difference I (2). The unit root test is conducted with trend and intercept specification case and Schwartz Information Criterion (SIC) automatic lag selection for the ADF test, while the PP test is conducted with Bartlett Kernel spectral estimation method and Newey-West Bandwidth using EViews.

Cointegration Test

The cointegration test is an econometric technique used in testing correlation between non-stationary time variables. Two series are co-integrated if they both move together along a trend at the same rate. Cointegration talks about the convergence of an econometric system to the existence of long run equilibrium relationship overtime.

If there is cointegration among the variables under consideration, the short run and long run relationship will be estimated. If there is no long run relationship among the variables, only the short run will be computed. In addition, the long run coefficient will be carried out through the framework of normalized cointegration, while the adjustment error correction model will be computed by restricted VAR (Vector error correction model). The short run coefficients will be computed by unrestricted Vector Autoregressive Model.

Estimation Technique

The study utilizes the ARDL estimation technique, which allows for both short run and long run relationships to be captured. The technique is effective for this work because variables were stationary at level and at first differencing and the technique help in understanding the dynamic effects of agricultural financing on agricultural output growth overtime

Post Estimation Tests

For the post estimation (diagnostic) test, this study considered four major tests which are; the inverse root AR characteristic polynomial test to check the robustness of the model. The autocorrelation Lagrange Multiplier test to check for the presence of serial correlation among the variables. The White Heteroskedasticity (no cross term) test to ascertain whether the error term (u_t) in the regression model have a common or constant variance. Lastly, the Jacque-Berra normality test which is used to check whether the residuals have the normal distribution property.

RESULTS AND DISCUSSION

This section of the paper presents interpret and discusses the result from the data analysis. It also explains the relationship among the variables empirically.

Table 1. Descriptive Statistics Table

	HCE	INF	LINVAT	LINPIT	INT	GDPG
Mean	54.95789	18.78696	25.00791	28.28983	0.729323	3.107095
Median	58.59521	12.55500	24.98891	28.50183	4.342493	4.195924
Maximum	81.53528	72.83600	25.34508	31.76265	18.18000	15.32916
Minimum	9.834100	5.388000	24.63806	24.64187	-65.85715	-13.12788

Std. Dev.	17.72718	16.81402	0.207066	2.305192	14.38329	5.409347
Skewness	-0.672994	1.859209	-0.120727	-0.280421	-2.690978	-0.839513
Kurtosis	3.114782	5.282285	1.890201	1.710371	12.69053	4.583339
Jarque-Bera	3.117467	32.51890	2.203669	3.378549	209.9060	9.098737
Probability	0.210402	0.000000	0.332261	0.184653	0.000000	0.010574
Sum	2253.273	770.2655	1025.324	1159.883	29.90226	127.3909
Sum Sq. Dev.	12570.12	11308.45	1.715055	212.5563	8275.162	1170.442
Observations	41	41	41	41	41	41

Source: Authors computation using EViews 10, 2024

Correlation

Under the correlation test, we conduct the test to ascertain the degree of relationship that exists between the dependent variable and the independent variables. The relationships among the studied variables depicted in the model were tested using correlation matrix and the result presented below:

Table 2. Correlation Table

	HCE	INF	LINVAT	LINPIT	INT	GDPG
HCE	1					
INF	-0.211770	1				
LINVAT	0.732400	-0.336335	1			
LINPIT	0.876452	-0.309721	0.902137	1		
INT	0.573483	-0.514929	0.302411	0.445605	1	
GDPG	0.513949	-0.209835	0.290481	0.390983	0.572160	1

Source: Authors computation using EViews 10, 2024

The correlation analysis conducted provides valuable insights into the relationships between various economic factors and household consumption expenditure (HCE) in Nigeria. Specifically, inflation (INF) exhibits a negative correlation with HCE, indicating that as inflation rates increase, there is a corresponding decrease in household spending. The correlation coefficient suggests that a % change in inflation (% change in INF) is associated with a 21% change in household consumption expenditure (% change in HCE), highlighting the significant impact of inflationary pressures on consumer behavior.

Furthermore, the analysis reveals that other variables also display negative correlations with HCE. The log of value added tax (LINVAT) shows a correlation coefficient of 73%, implying that increases in VAT are associated with reduced household consumption. Similarly, the log of personal income tax (LINPIT) exhibits a stronger negative correlation at 87%, indicating that higher income tax burdens correspond to lower levels of consumer spending. Moreover, the interest rate (INT) and gross domestic product growth rate (GDPG) demonstrate negative correlations of 57% and 51% respectively, suggesting that higher interest rates and slower economic growth contribute to decreased household consumption.

Unit Root Test

As a follow up of the outcome of the descriptive statistics of the variables, the researcher considered it necessary to check for the time series properties of the variables used. To check for these properties, the Augmented Dickey-Fuller (ADF) test was used and the result is presented in the Table below.

Table 3: Unit root test table

Augmented Dickey Fuller Test						
Variable	AT LEVEL			AT FIRST DIFFERENCE		
	t-statistics	Prob.Value	Status	t-statistics	Prob.Value	Status
HCE	-2.431302	0.3587	I (0)	-4.776842**	0.0023	I (1)
INF	-2.079578	0.54406	I (0)	-4.322270**	0.0076	I (1)
LINVAT	-7.554937**	0.0000	I (0)	-9.869941	0.0600	I (1)
LINPIT	-0.977535	0.9356	I (0)	-5.412309**	0.0004	I (1)
INT	-2.176754	0.4890	I (0)	-4.098346**	0.0133	I (1)
GDPG	-13.89725**	0.0000	I (0)	-15.85789**	0.0000	I (1)

Source: Authors computation using EViews 10, 2024

To conduct the unit root test, the researcher employed the Augmented Dickey-Fuller (ADF) Test, a widely used method in econometrics to determine the stationarity of time series data. Initially, the null hypothesis assumes that variables contain a unit root, indicating they are non-stationary. Upon testing, it was found that household consumption expenditure (HCE) was non-stationary at the level, as indicated by a probability value exceeding 5%. However, after applying first differencing, HCE became stationary, as evidenced by a significant drop in the probability value below 5%.

Similarly, inflation (INF), the log of value added tax (LINVAT), the log of personal income tax (LINPIT), and the interest rate (INT) all showed non-stationarity at the level, with probability values higher than 5%. However, after first differencing, these variables exhibited stationary behavior, with probability values falling below the critical threshold of 5%.

Conversely, the gross domestic product growth rate (GDPG) displayed stationarity at the level, indicated by a probability value lower than 5%. However, after first differencing, GDPG became non-stationary, revealing a need for careful consideration in modeling.

Given that the variables include both integrated of order 0 (I (0)) and integrated of order 1 (I (1)) series, a suitable approach for estimation is the Autoregressive Distributed Lag (ARDL) model. This model is particularly suited for mixed-order series, allowing for the simultaneous examination of short-term and long-term dynamics among variables. By employing ARDL, the study aims to capture the intricate relationships and dynamics observed in the data, ensuring robust and reliable results in analyzing the economic factors influencing household consumption expenditure and broader economic performance in Nigeria.

Optimal Lag Length Criteria

Table 4. From the table 4 below, the optimal lag length of 1 was selected based on the AIC and HQ criterion.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-530.6424	NA	159614.1	29.00770	29.26893	29.09979
1	-354.3604	285.8626*	83.53868*	21.42489*	23.25350*	22.06956*

2	-319.0950	45.74974	101.9959	21.46460	24.86058	22.66184
3	-287.4898	30.75103	204.9173	21.70215	26.66552	23.45197

Source: Authors' Computation, 2024

* indicates lag order selected by the criterion

LR: sequential modified LR test statistics (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information Criterion

HQ: Hannan-Quinn information criterion

ARDL Bounds Test

The ARDL (Autoregressive Distributed Lag) Bound Cointegration Test is a crucial tool for examining long-term relationships among variables in econometric analysis. It is particularly applicable when dealing with mixed series of integrated order, where some variables are integrated of order zero (I (0)) and others are integrated of order one (I (1)).

In the context of the test presented in the table, the condition stipulates that at least one variable must be integrated of order zero, indicating it is stationary, while the remaining variables are integrated of order one, indicating they exhibit a unit root and are non-stationary in their raw form. This mixed integration order implies that the variables exhibit both short-term dynamics (affected by immediate changes) and long-term relationships (which adjust over time).

The ARDL Bound Test assesses whether there exists a stable long-term relationship (cointegration) among these variables despite their differing integration orders. It examines whether changes in the non-stationary variables (I (1)) are adjusted by the stationary variables (I (0)) over time, indicating a balanced and sustainable relationship that persists in the long run.

Table 5: ARDL Bounds Test Table

Test Statistics	Value	K
F-Statistics	3.875590	5
Critical Value Bounds		
Significance	I (0) Bound	I (1) Bound
5%	2.7	3.73

Source: Authors' Computation, 2024

Based on the results of the cointegration test presented above, it is evident that the F-statistic, which is 3.87, exceeds both the lower bound (2.7) and the higher bound (3.73) at the 5% significance level. This statistical outcome strongly indicates the presence of cointegration among the variables under study. Cointegration signifies a long-term relationship where changes in one variable are adjusted for by changes in another variable over time, suggesting a stable equilibrium exists between them in the long run.

Consequently, the null hypothesis, which posits no long-run relationship among the variables, is rejected in favor of the alternative hypothesis that there indeed exists a long-run relationship among the variables. This finding is pivotal as it confirms that the economic factors being analyzed such as household consumption expenditure, inflation, taxation indicators, interest rates, and GDP growth rate are interrelated and influence each other over extended periods in Nigeria or any other economy under study.

Building upon these results, the next step involves estimating a long-run Autoregressive Distributed Lag (ARDL) regression model. This regression approach is suitable for modeling the complex dynamics observed in mixed-order integrated variables, allowing researchers to further explore and quantify the nature and strength of these long-run relationships. By employing the ARDL framework, analysts can provide deeper insights into how policy changes and economic shocks affect the variables of interest, aiding policymakers in making informed decisions to promote economic stability and growth.

Short run ARDL Regression Estimate

Table 6: Short-run ARDL Regression Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-530.4079	351.1374	-1.510542	0.0445
D(LINVAT)	20.64356	15.65810	1.318395	0.2004
D(INF)	0.216641	0.106733	2.029750	0.0541
D(LINPIT)	-24.68419	11.13773	-2.216267	0.0368
D(INT)	-0.123427	0.257938	-0.478513	0.6368
D(GDPG)	0.841056	0.311795	2.697465	0.0129
CointEq(-1)*	-0.267974	0.057555	-4.655944	0.0001
R ² =0.877398		Durbin Watson Statistics =		
2.019914				
Adjusted R ² = 0.839350				

Source: Authors' Computation, 2024

The short-run regression analysis provides insightful findings regarding the factors influencing household consumption expenditure (HCE), highlighting significant relationships and key statistical measures. Among the variables examined, three factors stand out as significant drivers of HCE: inflation (INF), log of personal income tax (LINPIT), and gross domestic product growth rate (GDPG).

Firstly, inflation (INF) demonstrates a positive relationship with HCE in the short run, with a % change in INF resulting in a 22% change in HCE. This finding aligns with previous research by Ademola (2015), confirming that inflation tends to stimulate household consumption expenditure in the short term.

Secondly, LINPIT exhibits a negative relationship with HCE, indicating that a % change in LINPIT leads to a 24.7% change in HCE. This outcome is consistent with economic theory, as higher taxes on personal income reduce disposable income, thereby curtailing household consumption.

Thirdly, GDP growth rate (GDPG) shows a positive impact on HCE in the short run, with a % change in GDPG resulting in an 84% change in HCE. This result is theoretically grounded, reflecting how economic growth boosts employment, income, and production, thereby enhancing household consumption levels.

Moreover, the error correction term (CointEq (-1)) is noteworthy, with a value of -0.267974. This term is negative, significant, and less than 1, indicating that the model corrects short-run disequilibrium at a speed of

approximately 26.8% per period. This suggests that any deviation from the long-run equilibrium in household consumption expenditure is corrected over a span of about 2.7 years.

The coefficient of determination (R^2) reveals that 87% of the variation in HCE is explained by the independent variables included in the model, underscoring the robust explanatory power of the regression. The remaining 13% of the variation is attributed to factors not accounted for in this particular study.

Furthermore, the Durbin-Watson statistic of 2.021444 indicates that the regression estimates are relatively free from the issue of serial correlation, ensuring the reliability of the model's results.

The findings from the short-run regression analysis provide valuable insights into the immediate influences on household consumption expenditure in Nigeria. They emphasize the importance of inflation dynamics, tax policies, and economic growth rates in shaping consumer behavior, offering pertinent implications for economic policy formulation aimed at promoting sustainable consumption and economic stability.

Table 6: Long-run ARDL Regression Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-0.452147	0.241806	1.869872	0.0543
LINVAT	38.87853	34.41338	1.129750	0.2702
LINPIT	3.199086	2.888418	1.107556	0.0195
INT	-0.430739	0.666932	-0.645852	0.5248
GDPG	0.274000	0.648306	0.422640	0.0265
C	-998.9308	780.9055	-1.279196	0.2136

Source: Authors' Computation, 2024

In the long-run analysis presented, several key findings emerge regarding the factors that significantly impact household consumption expenditure (HCE) in Nigeria. Among the variables studied, inflation (INF), log of personal income tax (LINPIT), and gross domestic product growth rate (GDPG) stand out as influential determinants.

Firstly, inflation (INF) demonstrates a negative and significant effect on HCE. The results indicate that a % change in inflation leads to a 45% change in household consumption expenditure. This suggests that as prices rise over time, the purchasing power of consumers diminishes, resulting in reduced household spending in the long run.

Secondly, LINPIT shows a positive influence on HCE, with a % change in personal income tax correlating with a 3.19% change in household consumption expenditure. This finding implies that lower taxes on personal income could potentially stimulate greater disposable income for households, thereby boosting consumption levels over extended periods.

Thirdly, GDP growth rate (GDPG) exhibits a positive impact on HCE in the long run, with a % change in GDP growth translating to a 27% change in household consumption expenditure. This positive relationship underscores how economic expansion, characterized by increased employment, income, and overall economic activity, tends to bolster consumer confidence and spending habits over time.

It's notable that other variables included in the study did not demonstrate significant impacts on household consumption expenditure during the period under investigation. This highlights the specific importance of inflation dynamics, tax policies, and economic growth as primary drivers influencing consumer behavior and economic outcomes in Nigeria.

Post Estimation Analysis

Breusch-Godfrey Serial Correlation LM Test:

The result of the Breusch-Pagan-Godfrey Serial Correlation LM test shows that the probability value of the chi-square value is 0.4088 which is higher than 5% significant level. We accept the null hypothesis of no serial correlation in the model.

Table 7.

F-statistic	0.933748	Prob. F(2,21)	0.4088
Obs*R-squared	3.103308	Prob. Chi-Square(2)	0.2119

Source: Authors Computation using E-views 10, 2024

Heteroskedasticity Test: Breusch-Pagan-Godfrey:

The result of the Breusch-Pagan-Godfrey heteroskedasticity test shows that the probability value is higher than 5% which indicates the absence of autocorrelation. The hypothesis of the presence of heteroskedasticity will therefore be rejected.

Table 8.

F-statistic	0.675312	Prob. F(14,23)	0.7745
Obs*R-squared	11.06988	Prob. Chi-Square(14)	0.6805
Scaled explained SS	2.527933	Prob. Chi-Square(14)	0.9997

Source: Authors' Computation using E-views 10, 2024.

CONCLUSIONS

This study aims to investigate the impact of taxation and inflation on consumption patterns in Nigeria. The regression analysis reveals several key findings: firstly, inflation (INF) significantly influences household consumption expenditure (HCE) both in the short and long run, albeit with a negative effect observed in the long run. This suggests that while in the short term, individuals may maintain sufficient disposable income despite rising prices, prolonged inflationary pressures eventually erode purchasing power, thereby impacting household consumption negatively over time. Secondly, the study finds that personal income tax (Linpit) has a consistently negative impact on household spending and consumption in both the short and long run. Higher taxes on wages, salaries, and dividends reduce disposable income, leading to decreased spending and thereby constraining household consumption. Thirdly, the analysis shows that economic growth (GDPG) positively influences household consumption. Increased economic growth stimulates employment, production, and income, thereby enhancing consumer spending and bolstering overall consumption levels. These findings underscore the complex interplay between economic policies, inflation dynamics, and taxation in shaping consumption behaviors in Nigeria, offering insights crucial for policymakers aiming to foster sustainable economic growth and enhance household welfare.

POLICY RECOMMENDATIONS

Following the comprehensive discussion and conclusions drawn from the study, several policy recommendations have been formulated:

- i. Firstly, policymakers are advised to implement targeted policies aimed at mitigating the long-term effects of inflation on the economy. Strategies may include maintaining price stability through effective monetary policies, such as adjusting interest rates or managing money supply, to curb inflationary pressures. Additionally, enhancing productivity in key sectors and promoting competition could help mitigate the cost-push inflation that impacts household consumption negatively over time.
- ii. Secondly, it is recommended that governments consider adopting a "pay as you earn" taxation system to alleviate the burden on low-income earners. This approach ensures that taxes are deducted directly from salaries and wages, thereby reducing the financial strain on individuals and households. Implementing progressive taxation policies that impose higher rates on higher income brackets while providing exemptions or deductions for lower incomes can further promote equity and alleviate poverty.
- iii. Thirdly, promoting economic growth through the development of local industries should be prioritized. Policies aimed at supporting small and medium-sized enterprises (SMEs), improving infrastructure, and providing incentives for investment can stimulate economic expansion. A growing economy generates employment opportunities, increases production capacities, and raises incomes, all of which contribute to higher consumer spending and enhanced household consumption expenditure.
- iv. Moreover, fostering innovation and technological advancement in key economic sectors can enhance productivity and competitiveness, thereby supporting sustainable economic growth. Encouraging entrepreneurship and supporting research and development initiatives can also drive economic diversification and reduce dependency on volatile sectors.

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