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# **Income and Household Consumption Expenditure in Nigeria (1986–2020)**

**B. O. Tokoya<sup>a</sup>, O. H. Aiyeku<sup>a</sup>, A. A. Shonibare<sup>a</sup>, O. A. Ipinjolu<sup>a</sup>  
and R. O. Dairo<sup>a\*</sup>**

<sup>a</sup> *Central Bank of Nigeria, Garki Abuja, Nigeria.*

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

The correlation between household consumption expenditure and income in Nigeria was examined using annual time series data (1986–2020). The objectives of the study were achieved using some econometrics tools like the error correction model, the Johansen co-integration test, and the Granger causality test. There is a long-run relationship between income and household consumption expenditure, as revealed by the Johansen co-integration test. The errors that arose in the short run were corrected in the long run using the error correction model. There is a direct and significant relationship between household consumption expenditure and income, while other variables, except inflation, exhibit the same relationship. Inflation shows an indirect relationship. Since there was a long-term relationship between household consumption expenditure and income, the study recommended that the government enhance its welfare activities to improve the citizens' ability to buy goods and services. The interest rate should be reduced to encourage both potential and existing investors. The monetary authorities should embark on policies that will ensure a reduction in inflation rates and also ensure price stability. This would increase the value of each household's income and lead to an increase in household consumption.

**Keywords:** *Consumption; income; interest rate; inflation; monetary authority and price stability.*

## 1. INTRODUCTION

Macroeconomics examines aggregate consumption, which is determined by the amount of real income. Aggregate demand has two dynamic components investment and consumption with consumption making up the biggest percentage of the gross domestic product in most nations. It plays a significant part in developing a nation's economy. Access to finance sources and subsistence activities are highly essential in influencing overall consumption. Numerous factors influence an individual's consumption pattern, including their age, gender, family size, current income, and the overall economy. However, when an individual's current income is affected by unexpected gains, their overall consumption patterns are based on the long-term outlook for their financial situation rather than on their current finances. For example, a person may realize that his financial situation could be adjusted to better forecast his spending and savings behaviour.

Generally, consumer behaviour reflects a nation's degree of economic well-being and poverty. To know the changing patterns in household consumption spending, it is critical to measure consumption expenditure over time in every economy. Through such analysis, it is possible to discover the distribution of individual standards of living and the degree of disparity. In the third and fourth quarters of 2020, household consumption grew by over 6 percent and 16.6 percent, respectively, over the previous year. In 2020, the annual rate of growth in real household consumption expenditure was 0.81 percent, compared to a decrease of 1.06 percent in the preceding year [1]. Identifying and adjusting for economic, social, and clashing ideologies in standards of living is crucial to assessing household expenditure and consumption trends. The government, when setting its fiscal policies, looks at consumer expenditure because it contributes a substantial proportion of the Gross Domestic Product (GDP). In 2020, GDP was 152.32 trillion naira, or more than 400 billion USD. From October till the end of the year 2020, Nigeria's GDP reached 43.56 trillion naira, or more than 113 billion USD [1].

The importance of consumption is especially notable in economic literature due to its relevance to consumer welfare. In Nigeria, it represents around two-thirds of the country's GDP. Household consumption spending patterns represent a way in which a community makes use of its resources for survival, comfort, and

recreation, which may be described using words like quality, quantity, act, and tendency. As a result, it is important to conduct research that examines the correlation between income and consumption as well as other factors, like equitable distribution of income and goods and services, so the government and policymakers can use these factors to assess the country's consumption habits while establishing the country's social and economic policies.

As Keynes famously noted, few individuals would change their way of life due to a decline in interest rates. Therefore, the contemporary theory of consumption theory started with his general theory, which held that "man's disposed of his consumption will rise with the increase in his income on average, but not at the same rate as his income" [2]. A postulate of Keynes states that, overall, families will enhance their welfare by acquiring more of the commodities and services that have been created and will be produced in the future. This key element of collective demand enables them to improve their well-being. Economists have examined in-depth the probable drivers of the aggregate consumption function since this is of importance to an understanding of the aggregate consumption function. Numerous thoughts on consumption exist, but there is no single theory that accounts for all economies. The primary goal of this study is to examine the link between income and consumption. The purpose of this study is to look into the relationship between income and consumption expenditure in Nigeria, as well as to assess the impact of macroeconomic variables like inflation, gross fixed capital, and the exchange rate on household consumption expenditure.

## 2. THEORETICAL LITERATURE REVIEW

Many theories on consumption have been identified and debated by prominent economists. Such theories include Duesenberry's Relative Income Hypothesis, Keynes' Absolute Income Hypothesis, Modigliani's Life-Cycle Hypothesis, and Friedman's Permanent Income Hypothesis. However, this study is underpinned by the Keynes Absolute Income Hypothesis due to its emphasis on current income as the primary cause of consumption.

### 2.2 Keynes' Absolute Income Hypothesis

In his general theory, Keynes is credited with pioneering the modern theory of consumption by assuming that aggregate consumption is a

function of aggregate current disposable income. This postulation was based on his psychological law of consumption, which argues that increases in consumption lead to increases in income, but by a lesser increase in income and vice versa. In the short run, there exists a non-coincidence between the average propensity to consume (APC) and the marginal propensity to consume (MPC). Rather,  $MPC < APC$ , and that the MPC is positive but less than unity ( $0 < MPC < 1$ ) [16]. Though this theory has successfully modelled consumption in the short run, efforts made to apply this model over a longer time frame have been less successful. This contradictory result with Keynes prompted the development of other consumption theories based on factors other than income that are important in determining consumption. Some of the factors, as stated by Tobin [3], are the increase in asset holdings, the advent of new household consumer goods, increased urbanization, and the percentage increase of elderly people tending to shift consumption.

### **2.3 Duesenberry's Relative Income Hypothesis**

The James Duesenberry [4] Relative Income Hypothesis, though short-lived, stands as a major challenge to the key assumptions of the Keynes consumption theory. He postulates that consumption is based on relative income rather than absolute income. He argued that the consumption behavior of an individual is interdependent on the behaviour of others and that consumption relationships are not reversible in time. He claimed that the individual's utility index as a consumer depends on the ratio of their consumption to a weighted average of others' consumption. Based on this, he arrived at two conclusions: firstly, in line with time series evidence, the aggregate saving rate is not dependent on aggregate income; and secondly, in line with cross-sectional evidence, an individual's propensity to save is an aggregate function of their percentile position in the income distribution [5].

### **2.4 Friedman's Permanent Income Hypothesis**

In 1957, Milton Friedman [18] proposed the Permanent Income Hypothesis (PIH). This theory is intended to resolve the seeming conflict between a proportional long-run consumption function and a non-proportional short-run consumption function [16]. He asserted that

current income should not be the primary determinant of consumption, but rather long-term expected income should be. Furthermore, he posited that consumption and income should be divided into permanent and transitory components. Permanent income is the monetary value a worker expects to earn over a specified period of time, and it can fluctuate proportionally with the actual income level. Transitory income, on the other hand, is non-permanent and unstable income received by a worker, the amount of which is determined by his luck and effort [17]. Friedman's PIH was specific about people's desires to maximize their lifetime utility while being constrained by their ability to spend all of their lifetime resources. Therefore, consumers' plan their spending based on long-run expectations of their lifetime accrued resources.

### **2.5 Modigliani's Life-Cycle Hypothesis**

This theory was developed by Franco Modigliani and Richard Brumberg [6]. The notion of this theory is based on the fact that the consumption behaviour of an individual should be based on their lifetime expected income rather than their current income. People make choices at an early stage of their lives on the level of expenditure they plan to spend. However, they are constrained by the resources they receive through their existence. He also emphasized a number of factors that define the consumption of an individual. These factors are available resources centered on capital returns, spending decisions, and the present age at which the plan is made. In the end, the main aim of all consumers is to maximize their satisfaction in their lifetime, and this is mostly dependent on how much or little their available resources are throughout their existence. This shows the possibility of an inverse relationship between income and consumption spending, by way of saving for future consumption.

### **2.6 Empirical Literature Review**

Amin [7] examined the causal relationship between consumption expenditure and economic growth in Bangladesh using a bivariate framework and annual data from 1976 to 2009. He employed the Johansen and ARDL cointegration tests, which showed that there was a long-run cointegration between the variables. The presence of a long-run unidirectional causal relationship between economic growth and consumption expenditure was also discovered

using the Granger causality test. This proves that the Keynesian consumption functions are valid for the study.

Alimi [7] tested the Keynesian Absolute Income Hypothesis and analyzed the Kuznets Paradox for Nigeria, estimating the Marginal Propensity to Consume (MPC) and the Average Propensity to Consume (APC) parameters for short and long-run time series. The results showed MPC is in conformity with Keynes' proposition that MPC is less than one, however unstable, and the autonomous consumption value is negative in the long run. Also, contrary to Keynes' inference, the APC did not vary systematically with income. The resultant effect of this is that the consumption income elasticity is not in line with Keynes' expectations because there are other significant factors that determine consumption apart from income.

Alimi [15] estimated the consumption function for Nigeria and South Africa from 1980 to 2013 using the Permanent Income Hypothesis. He employed Cagan's adaptive expectation model and the result showed that there is a long-run relationship between consumption and income for Nigeria and SA. The study showed clearly that the consumption behavior of a Nigerian consumer based on future expected income conforms to the Permanent Income Hypothesis, while that of a South African consumer exhibits the Relative Income Hypothesis, where current income is affected by past consumption.

Ezeji and Ajudua [8] used a derived model from the Keynesian consumption function to calculate the aggregate consumption expenditure determinant in Nigeria. The Augmented Dickey Fuller and Johansen Co-integration tests were conducted to test for stationarity and long-run equilibrium relationships among the variables. The findings established a positive relationship between consumption expenditure and income and proved that the Nigerian consumption function is Keynesian in nature. It also revealed that variables other than current income, such as interest rate, price level, and exchange rate, played a significant role in explaining Nigerian consumption behaviour.

In their study, Onanuga et al. [9] factually applied the Keynesian Absolute Income Hypothesis in estimating the consumption function for Nigeria. The model formulated showed the short- and long-run consumption function relationships using the Granger representation theorem. The

outcome revealed the short-run consumption function was not proportional, i.e., MPC (0.78) was less than APC (0.88), which conforms to the AIH.

Ayeni and Akeju [10] used the Habit Persistence and Permanent Income hypotheses to determine the dynamic relationship between consumption expenditure and income in Nigeria. The former revealed that individuals' consumption habits adjust rapidly to changes in disposable income in the short run at 0.5569, whereas the latter revealed that the long-run multiplier effect of MPC is 0.2953, an indication that consumers spend less than they save.

Ekong and Effiong [11] used global data to show that gross national income and the inflation rate have a large and positive effect on household consumption expenditure in West Africa, while savings and interest rates have a significant but negative effect. This finding reaffirmed the validity of the absolute income hypothesis for West Africa.

Iheonu and Nwachukwu [12] conducted a study on the macroeconomic determinants of household consumption in some selected West African countries for the period 1989 to 2018. Using the panel augmented mean group procedure, the findings showed that household consumption in West Africa was positively influenced by the exchange rate, GDP per capita, private sector domestic credit, and personal remittances, while inflation had a negative impact on it.

Osuji [13] employed the use of the ordinary least square econometric technique to study the effect of inflation on household final consumption expenditure in Nigeria covering the period 1981 to 2018. The result indicated a long-term positive relationship between the two variables.

Habanabakize [14] examined the responsiveness of South Africa's household consumption expenditure to petrol prices, exchange rate volatility, and disposable income. He examined the co-integration and the short-run relationship amongst the variables, using time series data from 2002 to 2020 and the Auto Regressive Distributed Lag (ARDL) technique. The outcome of this study showed a long-run relationship among the examined variables. All independent variables had a positive long-run effect on household expenditure.

### 3. RESEARCH METHODOLOGY

#### 3.1 Preamble

This chapter is deduced from a theoretical framework that acts as the foundation for the reviewed work. The method of data analysis and the methodology's limitations are discussed in this chapter. The primary objective of this research work is to examine the relationship between household consumption expenditure and income in Nigeria.

#### 3.2 Model Specification

$$HCON = f(GDP, GFC, INF, EXG) \quad (3.1)$$

$$HCON = GDP^{a_1} GFC^{a_2} INF^{a_3} EXG^{a_4} \quad (3.2)$$

$$\log HCON = a_0 + a_1 \log GDP_t + a_2 \log GFC_t + a_3 \log INF_t + a_4 \log EXG_t + \mu_t \quad (3.3)$$

Where:

HCON stands for Household Consumption Expenditure.

GDP stands for Real Gross Domestic Product.

GFC stands for Gross Fixed Capital Formation.

INF stands for inflation,

EXG stands for Exchange Rate

**Table 1. A-priori expectation of the Independent Variables in the Model**

SYMBOL	VARIABLES	EXPECTED SIGNS
GDP	Gross Domestic Product	Positive
GFC	Gross Fixed Capital	Positive
EXG	Exchange Rate	Positive/Negative
INF	Inflation Rate	Negative

Source: Author's Computation

#### 3.3 Data Source

The data source process involves a variety of activities, beginning with the search person in libraries extracting information from the volumes of materials available as regards the research work. This study utilized annual time series data for the period 1986–2020 obtained from the statistical bulletin of the Central Bank of Nigeria (CBN).

#### 3.4 Variable Descriptors and Metrics

##### Household Consumption Expenditure

The proxy measures the household's expenditure on goods and services.

##### Gross Domestic Product (GDP)

This is the monetary value of a country's final output.

##### Gross Fixed Capital

This shows how much of the new value-added in the production process is reinvested rather than

consumed. It represents a component of the expenditure on the GDP.

##### An inflation rate

This is the persistent increase in the general price level in an economy measured at a particular point in time.

##### The exchange rate

This is the rate at which one country's currency is exchanged for another.

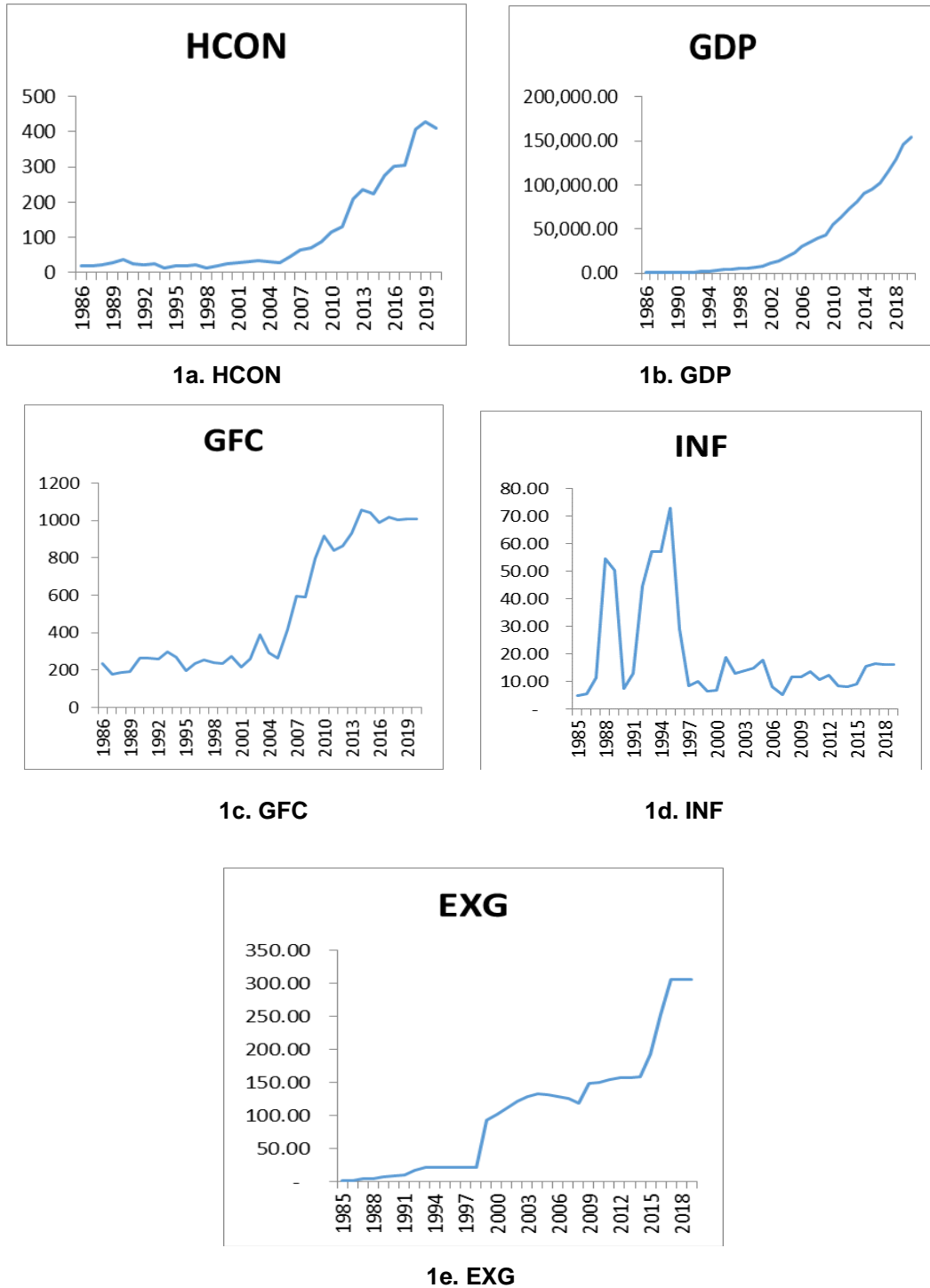
##### 3.4.1 A-priori expectation

This refers to the relationship that exists between the explained and explanatory variables of the model as postulated by the endogenous theory. Here, the researcher determines whether the variable conforms to expectations or whether there is a deviation. The Table 1 summarizes the a-priori expectations of the parameters.

## 4. RESULTS AND DISCUSSIONS

### 4.1 Trend Analysis

This section shows the trend of the various variables used in this analysis over the reviewed years in Nigeria. The outcome of the study is achieved by using regression analysis with the aid of a statistical software package (E-views 9)



**Fig. 1. Variables and Trend (1986-2020)**  
 Source: Author's Computation, 2021

### The trend in Household Consumption (HCON)

Fig 1.1a above shows a steady movement of household consumption expenditure from 1986 to 2020. The graph shows that Nigeria has witnessed a huge rise in consumption expenditure due to an increase in the population.

### The trend in Gross Domestic Product (GDP)

Fig.1.1b above shows the trend in GDP in Nigeria from 1986 to 2020. It shows a steady increase in the GDP in Nigeria from year 2000 to 2009 but a very sharp increase from year 2010 to 2020.

### The trend in Gross Fixed Capital Formation (GFC)

Fig 1.1c the movement of the gross fixed capital formation was steady from 1986 to 2004, and a very sharp increase was experienced from 2005 to 2016, after which it showed a steady decline from 2017.

### The trend in Inflation (INF)

From figure 1.1d above, the inflation rate has witnessed a huge swing in recent years. This has made the monetary authorities focus on the variable due to its potential danger.

### The trend in the Exchange Rate (EXG)

Fig. 1.1e above represents the trend of the exchange rate in Nigeria during the review period. A glance at the graph indicates that the economy has witnessed challenges in the foreign exchange market. The exchange rate increased steadily from 2015 to 2018.

## 4. 2 Descriptive Statistics

The descriptive statistics presented in Table 2 above establish the relationship between national

income and its impact on household consumption expenditure in Nigeria. According to the evidence, the means of household consumption, gross domestic product, gross fixed capital formation, exchange rate, and inflation rate are 108.3177, 38934.60, 516.8438, 113.6414, and 19.84376 in that order, while the standard deviations are 130.2294, 47123.31, 338.4021, 96.29075, and 18.43513.

## 4.3 Correlation Matrix

Analysis of the outcome from the correlation analysis as depicted in the table above shows that a positive correlation exists between household consumption expenditure and gross domestic product. This is indicated in the correlation coefficient (r) result as (0.823). This result basically implies that as gross domestic product increases, household consumption expenditure rises as well, showing direct movement in the trend of association between the variables. Furthermore, the results from the table further illustrate the fact that a positive correlation does exist between household consumption expenditure and gross fixed capital formation. This result is shown in the correlation coefficient (r) result of (0.949). Relatively, the study also observed that a positive relationship exists between household consumption expenditure and the exchange rate in Nigeria. This is also depicted in the correlation coefficient (r) result of 0.725. The study also observed that the relationship between household consumption expenditure and the inflation rate shows a negative relationship of (-0.373), which indicates that the higher the inflation rate, the lower the household consumption expenditure.

**Table 2. Result of Descriptive Statistics**

	HCON	GDP	GFC	EXG	INF
Mean	108.3177	38934.60	516.8438	113.6414	19.84376
Median	31.73300	13556.97	294.3218	120.9702	12.00000
Maximum	427.5680	154252.3	1057.174	306.0802	76.75887
Minimum	13.62600	198.1232	179.8576	2.020575	0.223606
Std. Dev.	130.2294	47123.31	338.4021	96.29075	18.43513
Skewness	1.332049	1.083509	0.548871	0.638209	1.758381
Kurtosis	3.373126	2.907749	1.512403	2.546953	4.942091
Jarque-Bera	10.55344	6.860691	4.984557	2.675301	23.53652
Probability	0.005109	0.032376	0.082721	0.262462	0.000008
Sum	3791.121	1362711.	18089.53	3977.449	694.5318
Sum Sq. Dev.	576629.8	7.55E+10	3893544.	315244.9	11555.03
Observations	35	35	35	35	35

Source: Author's Computation, 2021

**Table 3. Correlation Analysis**

	LOGHCON	LOGGFC	LOGGDP	LOGEXG	INF
LOGHCON	1.000000	0.949510	0.823923	0.725391	-0.373381
LOGGFC	0.949510	1.000000	0.870942	0.765975	-0.377504
LOGGDP	0.823923	0.870942	1.000000	0.960118	-0.475402
LOGEXG	0.725391	0.765975	0.960118	1.000000	-0.433570
INF	-0.373381	-0.377504	-0.475402	-0.433570	1.000000

Source: Author's Computation, 2021

**Table 4. Result of Stationarity (Unit Root) Test**

Variable	ADF Statistic	1% Critical Values	5% Critical Values	10% Critical Values	Order of Integration	p-Value
Log HCON	-6.274697	-3.646342	-2.954021	-2.615817	I(1)	0.0000
Log GDP	-3.104001	-3.646342	-2.954021	-2.615817	I(1)	0.0360
Log GFC	-3.053075	-3.661661	-2.960411	-2.619160	I(1)	0.0410
Log EXG	-5.764964	-3.646342	-2.954021	-2.615817	I(1)	0.0000
INF	-5.043733	-3.670170	-2.963972	-2.621007	I(1)	0.0003

Source: Author's Computation, 2021

**Table 5. Results of the Johansen Co-Integration Test**

Trace Test				
Hypothesized No. of CE(s)	Value	Statistic	0.05 Critical Value	Prob.**
None *	0.759436	100.5898	69.81889	0.0000
At most 1 *	0.627456	53.57241	47.85613	0.0132
At most 2	0.328145	20.98823	29.79707	0.3584
At most 3	0.135663	7.863723	15.49471	0.4801
At most 4	0.088352	3.052551	3.841466	0.0806
Maximum Eigen Value				
Hypothesized No. of CE(s)	Value	Statistic	0.05 Critical Value	Prob.**
None *	0.759436	47.01743	33.87687	0.0008
At most 1 *	0.627456	32.58418	27.58434	0.0104
At most 2	0.328145	13.12451	21.13162	0.4409
At most 3	0.135663	4.811173	14.26460	0.7655
At most 4	0.088352	3.052551	3.841466	0.0806

Trace test indicates 2 co-integrating equations at the 0.05 level

Max-eigen-value test indicates 2 co-integrating equations at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Author's Computation, 2021

#### 4.4 Unit Root Examination

The pre-estimation result is presented as the stationarity test. Augmented Dickey-Fuller unit root tests showed that all the variables are stationary at the first difference, i.e., I (1). See Table 4 above.

#### 4.5 Co-Integration Test

The Johansen co-integration test was used to check if the variable has a long-run relationship or not. The result is presented in Table 5.

Table 5 represents the trace and the maximum Eigen-value statistics, which indicate two co-

integrating equations that confirm the existence of a long-run relationship between household consumption expenditure and the independent variables.

#### 4.6 Normalized Co-Integrating Coefficients

In Table 6, the t-value of all variables indicates a significant result. The table also shows that a stable equilibrium relationship exists among the variables, and the value of HCON confirms the normalized results. The result of the coefficients is interpreted as follows: A 1 per cent increase in the gross domestic product (GDP) leads to a 0.6596% increase in household consumption



expenditure in the long run. A 1 per cent increase in gross fixed capital formation (GFC) leads to a 1.0124 per cent increase in household consumption expenditure in the long run. A 1 per cent increase in the exchange rate (EXG) leads to a 2.6818 per cent increase in household consumption expenditure in the long run, and a 1 per cent increase in the inflation rate (INF) leads to a 0.2330 per cent increase in household consumption expenditure in the long run.

#### 4.7 Granger Causality

The focus of the current study is on the causal relationship between household consumption

expenditure and income levels in Nigeria. The null hypothesis states that LOG GDP does not cause LOG HCON and LOG HCON does not cause LOG GDP. The probabilities for the causal variables, household consumption expenditure and gross domestic product, are 0.1683 and 0.0449. That is, there is a significant causal direction from household consumption expenditure to gross domestic product, while the direction from gross domestic product to household consumption expenditure is not significant. Hence, there is a one-way (unidirectional) causality between the core variables of the study.

**Table 6. Results of Normalized Co-Integrating Coefficients**

Variable	Log HCON	Log GDP	Log GFC	Log EXG	INF
Co-efficient Value	1.0000	0.659599	1.012429	-2.681831	-0.233037
Standard Error		(1.17505)	(0.92010)	(0.99622)	(0.02718)
t-statistics		0.56133	1.10035	-2.69200	-8.57384

Source: Author's Computation, 2021

**Table 7. Pair-wise Granger Causality Test**

Null Hypotheses	tistic	P-Value	Remarks
Log GFC does not Granger Cause Log HCON	1.15657	0.3291	We cannot reject $H_0$
Log HCON does not Granger Cause Log GFC	2.50417	0.0999	We cannot reject $H_0$
Log GDP does not Granger Cause Log HCON	1.90029	0.1683	We cannot reject $H_0$
Log HCON does not Granger Cause Log GDP	3.47467	0.0449	Reject $H_0$
Log EXG does not Granger Cause Log HCON	1.72881	0.1959	We cannot reject $H_0$
Log HCON does not Granger Cause Log EXG	3.93349	0.0312	Reject $H_0$
INF does not Granger Cause Log HCON	0.50103	0.6112	We cannot reject $H_0$
Log HCON does not Granger Cause INF	0.78333	0.4666	We cannot reject $H_0$
Log GDP does not Granger Cause Log GFC	1.65483	0.2093	We cannot reject $H_0$
Log GFC does not Granger Cause Log GDP	0.53968	0.5889	We cannot reject $H_0$
Log EXG does not Granger Cause Log GFC	0.88957	0.4221	We cannot reject $H_0$
Log GFC does not Granger Cause Log EXG	0.25656	0.7755	We cannot reject $H_0$
INF does not Granger Cause Log GFC	1.28297	0.2930	We cannot reject $H_0$
Log GFC does not Granger Cause INF	0.90472	0.4162	We cannot reject $H_0$
Log EXG does not Granger Cause Log GDP	3.74338	0.0362	Reject $H_0$
Log GDP does not Granger Cause Log EXG	2.82013	0.0766	We cannot reject $H_0$
INF does not Granger Cause Log GDP	4.02256	0.0291	Reject $H_0$
Log GDP does not Granger Cause INF	5.04070	0.0135	Reject $H_0$
INF does not Granger Cause Log EXG	3.69140	0.0378	Reject $H_0$
Log EXG does not Granger Cause INF	5.30222	0.0112	Reject $H_0$

Source: Author's Computation, 2021

**Table 8. Error Correction Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGHCON(-1))	0.037575	0.167882	0.223821	0.8247
D(LOGHCON(-2))	0.253410	0.156785	1.616287	0.1186
D(LOGGDP)	0.619314	0.313792	1.973641	0.0596
D(LOGGDP(-2))	-0.651259	0.338731	-1.922645	0.0660
D(LOGGFC)	0.675969	0.219249	3.083111	0.0049
D(INF)	-0.007961	0.002749	-2.896116	0.0077
ECT(-1)	-0.251193	0.115618	-2.172603	0.0395
R-squared =0.416284	D/W =2.131586			

Source: Author's Computation, 2021

#### 4.8 Income Error Correction Mechanism and its Effect on Household Consumption Expenditure in Nigeria

##### Dependent Variable: D (LOGHCON)

Table 8 presents the parsimonious model of the error correction regression with their standard errors and t-values extracted from the estimated ECM technique. An error correction model estimates the speed of adjustment to equilibrium in a co-integrating relationship. Here, the Error Correction Term (ECT), derived from the Levels Equation earlier, is included among the regressors and is denoted as ECT (-1). The coefficient associated with this regressor is typically the speed of adjustment to equilibrium in every period. Since the distribution of this test is the P-value provided in the regression output, this distribution is used as the evidence and any inference must be conducted using the P-value.

#### 4.9 Discussion of Findings

In the table above, the coefficient of determination (R<sup>2</sup>) value of 0.416284 implies that about 42 per cent of the total variation in household consumption expenditure is explained by changes in the exogenous variables, while 58 per cent is unexplained due to the error term. The coefficients of the different explanatory variables are explained below.

##### Household Consumption Expenditure

The coefficient of the lagged value of the dependent variable is positively signed. This shows that the variable has a direct relationship with the current household consumption expenditure. The value of the coefficient is 0.0375, which implies that a 1 unit increase in the lagged value of household consumption expenditure will lead to a 0.0375 unit increase in

the current household consumption expenditure in Nigeria. The variable is not statistically significant at 5 per cent with a probability value of 0.8247.

##### Gross Domestic Product

The coefficient of the gross domestic product is positive. This shows that the variable has a direct relationship with household consumption expenditure. The value of the coefficient is 0.619, which implies that a one-unit increase in the value of gross domestic product will lead to a 0.619-unit increase in household consumption expenditure in Nigeria. The variable is not statistically significant at 5 per cent with a probability value of 0.0596.

##### Gross Fixed Capital Formation

The coefficient of gross fixed capital formation is positive. This shows that the variable has a direct relationship with household consumption expenditure. The value of the coefficient is 0.676, which implies that a 1 unit increase in the value of gross fixed capital formation will lead to a 0.676 unit increase in household consumption expenditure in Nigeria. The variable is statistically significant at 5 per cent with a probability value of 0.0049.

##### Inflation Rate

The coefficient of the variable is negatively signed. This shows that the variable has an indirect relationship with household consumption expenditure. The value of the coefficient is -0.0079, which implies that a 1 percent increase in the rate of inflation will lead to a 0.0079 per cent decrease in household consumption expenditure in Nigeria. The variable is statistically significant at 5 per cent with a probability value of 0.0077.

The speed of adjustment does conform to the a-priori expectation of the error correction term, which is negative and statistically significant at 5 per cent. The coefficient of the lagged error term or equilibrium error correction model (-0.251193) is negative and significant, confirming that a long-run (co-integrating) relationship exists between household consumption expenditure and the set of explanatory variables. The size of this coefficient implies that adjustment to disequilibria towards long-run equilibrium via the correction term is relatively strong, as 25.12 per cent of disequilibrium in a given year is corrected in the following year. As a result, it takes about a year to eliminate 25.12 per cent of the difference between actual and equilibrium household consumption expenditure as determined by the fundamentals.

## 5. SUMMARY, RECOMMENDATIONS, AND CONCLUSION

### 5.1 Closing Remarks

The findings from this research show that there exists a positive and significant relationship between household consumption expenditure and income in Nigeria. A rise in income leads to a rise in household consumption expenditure. This is in line with the Keynesian consumption model. The findings also show that there is a direct relationship between household consumption expenditure and other independent variables such as gross fixed capital formation and the exchange rate, but that the inflation rate has an indirect relationship. An increase in household consumption expenditure leads to a rise in the level of output and the growth of the economy.

### 5.2 Recommendations

The following recommendations were made:

1. The study findings indicate that improving household expenditure and standard of living in Nigeria will depend on strengthening the country's currency and household income, and on the availability of necessary goods such as Premium Motor Spirit (PMS), consumables, etc.
2. Therefore, policies focusing on job creation, production growth, inflation reduction, and exchange rate stability would help to improve household consumption expenditure in Nigeria.

3. Interest rates should be reduced to encourage both potential and existing investors.
4. The monetary authorities should embark on policies that will ensure a reduction in inflation rates and also ensure price stability. This will add more value to the income received by each household and will lead to an increase in household consumption.

## DISCLAIMER

The views expressed in this study are those of the authors and not those of the Central Bank of Nigeria.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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