Public Expenditure and Human Development in Nigeria

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ABSTRACT

The aim of the study was to examine the relationship between public expenditure and human development in Nigeria from 2003 to 2022. The study utilized secondary data from online publications of Central Bank of Nigeria (CBN) statistical bulletin and United Nations Development Programme (UNDP) human development report for the period 2003 to 2022. Data collected were analyzed with multiple regression analyses. Results from the Least Square System Regression showed that while recurrent expenditure had insignificant effect on HDI, capital expenditure had significant effect on HDI in Nigeria. The findings therefore show that expenditure on infrastructure improves human lives. Musgrave theory of public expenditure, Keynesian theory and capability approach could be relied upon for studies on public expenditure and human development in Nigeria. Those in practice should understand that recurrent expenditure on key areas such as health and education which indirectly improves gross national income per capita should be greatly encouraged. Policy that increases capital expenditure which is aimed at improving rural areas especially food and allied industries remains very key for human development.

Keywords: Public Expenditure, Recurrent Expenditure, Capital Expenditure, Human Development, Nigeria.

INTRODUCTION

Public expenditure is an essential feature of governance in countries of the world. The economy can only function when government disburses funds to meet the collective needs of the country. According to Ndum, Okoye and Amahalu (2019), expenditure incurred by public authorities to meet the joint social wants of the citizens is referred to as public expenditure. Effective resource allocation among public goods stimulates the economy for growth and development. Government spending is intended to meet the objectives of governance which include improvement of employment levels, price stability, favourable balance of payment position, economic growth and equitable distribution of income. Public expenditure ensures that consumer goods are available, payments are made for investments while ensuring equitable distribution of income (Pula and Elshani, 2018). The importance of public expenditure to the economy cannot therefore be overemphasized.

Public spending is predicated on annual budgetary allocations which are dependent on current fiscal policies. The prevalence of budget deficits in Nigeria has necessitated the need to incur debts that will augment internally generated revenue for the provision of public goods and services. Public spending is therefore dependent on availability of resources. Over the past two decades, government has borrowed regularly from both internal and external sources to augment the lean resources in order to meet its public spending. While emphases may be to utilize greater portion of the resources to fund capital projects which include the construction of public infrastructure such as schools, hospitals, dams, roads and airports; this has

not been the case in Nigeria. Recurrent expenditure which involves payment for items of recurring nature such as salaries and wages has increased over the years while capital expenditure dwindled. Both the capital and recurrent expenditure are geared towards stimulating economic activities for the purpose of growth and development in Nigeria.

Total public expenditure in the economy moved from N1,018.2 billion in 2002 to N4,194.6 billion in 2010 with recurrent and capital expenditure being N3,109.4 and N883.9 billion respectively as at 2010 which represents 21 percent of the total public spending in 2010. As at 2021, the volume of public expenditure in the economy has moved to N12,164.1 billion with recurrent and capital expenditure being N9,145.2 billion and N2,522.5 billion respectively which is about 20 percent of the total public expenditure. The implication is that government total expenditure has increased over the years with greater emphases on recurrent expenditure. This further implies that less investments in capital investments have been carried out within the period despite the infrastructure gap in Nigeria. According to Pula and Elshani (2018), capital expenditure has the capability to improve economic growth and development.

Human development refers to an improvement in the development discourse which encourages countries to measure governance from not just the economic angle but the state of well-being of the human population. Human development which is measured with a summary figure which averages the level of education, health and income of the population is a prime requirement of government of countries in general and Nigeria in particular in a bid to determine the result of government economic policies. Thus, the 1990 Human Development Report (HDR) of the United Nations Development Programme (UNDP) defines human development as a process of enlarging people's choices to live long and healthy lives; to be educated and to enjoy decent standard of living. Human development is measured by the human development index which is an average figure that reveals the long-term progress of human development in a country with reference to education, health and income. The human development index thus groups economies based on whether the index falls within the low, medium or high range of human development. Nigeria fell within the medium range in 2021 human development report with a score of 0.535 (UNDP, 2022) despite the increase in public expenditure over the years.

Public expenditure has increased over the years in Nigeria partly due to increased population which has increased aggregate demand for social goods and services such as good road networks, constant electricity, bridges, telecommunication, airports, security, education and health services. Other causes of rise in public expenditure include employment, inflation, increased public debt, government subsidies, taxation and economic growth. According to Aja (2022), Keynesian multiplier theory argues that government spending improves general income which can either be consumed or saved. Income received in households can either improve demand leading to redistribution of income in the economy or increase the propensity to save. The question of whether the level of public spending should influence both economic and social development positively in Nigeria has led to several controversies among researchers.

Majority of the empirical studies on effect of public expenditure on the economy have been on economic growth (Abu & Abdullahi, 2010; Ogar, Eyo & Arikpo, 2019; Ebipre & Eniekezineme, 2020) while a few are on economic development (Babalola, 2015; Duruechi & Chigbu, 2022. Empirical studies on relationship between public expenditure and human development are very few and they include Omodero (2019) who examined the effect of government general spending on human development in Nigeria and concluded that while capital expenditure had negative and insignificant effect on human development, recurrent expenditure had positive and significant effect on human development in Nigeria. Edeme, Nkalu and Ifelunini (2017) examined the distributional impact of public expenditure on human development in Nigeria. The study utilized panel approach to determine the effect of public expenditure proxied by government expenditure on education, health, agriculture, rural development, water resources, energy, housing and environmental protection. Human development is proxied by HDI. The study revealed that government expenditure on education, health, agriculture, rural development and water resources have positive marginal

effect while energy, housing and environmental protection have decreasing marginal impact on human development in Nigeria. With the dearth of empirical literature on public expenditure and human development in Nigeria, the concern is to empirically evaluate the effect of public spending proxied with capital and recurrent expenditure on human development proxied with human development index in Nigeria from 2003 to 2022. This study therefore investigates the effect of public expenditure on human development in Nigeria. Specifically, the study objectives are to:

1. Evaluate the effect of recurrent expenditure (RE) on human development index (HDI) in Nigeria;
2. Assess the effect of capital expenditure (CE) on human development index (HDI) in Nigeria.

The study therefore hypothesizes that:

H_{01}: There exists no significant effect from recurrent expenditure on human development index in Nigeria.

H_{02}: Capital expenditure has no significant effect on human development index in Nigeria.

Concept of Public Expenditure

Public expenditure refers to outflow of resources from government to other sectors of the economy whether the gesture is reciprocated or not (CBN, 2016). Public expenditure is also referred to as government spending. Miftahu and Rosni (2017) cited in Ebipre and Eniekezineme (2020) posit that public expenditure occur for two major reasons which are provision of necessary facilities for law and order as well as to improve allocative efficiency in the face of externalities. The second reason is for the provision of required infrastructural facilities that will improve productivity and other economic activities in the long run. Good institutions ensure that an enabling environment that promote economic activity, growth and development are possible (Ukwueze, 2012). Government spending therefore ensures the provision of security, welfare and social goods for the citizens. Through the act of public spending, economic activities improve which further stabilizes the economy. Public expenditure ensures that consumer goods are available, payments are made for investments while ensuring equitable distribution of income (Pula & Elshani, 2018).

Government expenditure has been on the increase over the years. Several reasons have been postulated for the continuous increase in public expenditure in Nigeria. These include rise in population; inflation; rise in per capita income of citizens which creates more demand and technological changes (Ukwueze, 2012). In response to the argument that government expenditure increases in tandem with industrial and economic growth, Bird (1971) cited in Efobi and Osabuohien (2012) justifies the argument with the position that both administrative and protective functions of government require huge capital outlay as well as the need for increased provision of social and cultural goods and services. Increased government spending therefore becomes very necessary in order to meet government expectations for the nation. Mitchel (2005) cited in Ukwueze (2012) posits that if government spending is zero, there would be very little economic growth since there would be no institutions to ensure that contracts are enforced, properties are protected and infrastructure are developed. Output would be very limited stifling growth of the economy. Public spending is therefore assumed to be the most powerful economic tool of all modern societies that ensures growth of the economy (Arrow & Kurtz, 2000; cited in Ogar, Eyo & Arikpo; 2019). Public expenditure is simplified into capital and recurrent expenditure.

Capital expenditure

Public expenditure is referred to as capital expenditure when such payments result to the acquisition of fixed capital assets, stock, land or intangible assets (CBN, 2021). They include payments for construction of infrastructure such as airports, dams, roads, bridges, public buildings and railways. Public spending on capital assets create future benefits which last for more than one year. Capital expenditure is further

categorized in Nigeria into sectoral and functional classifications. Sectoral classification involves government capital expenditure on major sectors of the economy such as health, education, agriculture, quarrying and mining, real estate and manufacturing while functional classification includes administration, social and community services, economic services and transfers (CBN, 2021). The effect of capital expenditure on growth of economies has been a matter of interest globally. According to Pula and Elshani (2018), capital expenditure had positive and significant effect on economic growth of the Western Balkan countries and also reduced the negative impact of global economic crises of 2007 in the region which include Republic of Albania, Bosnia and Herzegovania, Montenegro, Republic of Kosovo, Serbia and North Macedonia. Capital expenditure however of least developed countries in Africa namely Burundi, Zimbabwe, Congo, Mali and Mozambique remain lower than the rest of African countries thereby affecting growth and development in those countries (United Nations Economic Commission for Africa, 2023). Inability to improve revenue collection in Africa continues to undermine capital expenditure growth in the region in general and Nigeria in particular.

Recurrent expenditure

Government recurrent expenditure refers to regular spending on routine basis on wages and salaries, goods and services and other administrative expenses (Omodero, 2019). Public expenditure is referred to as recurrent when such payments do not lead to the acquisition of fixed assets and they include wages, salaries and overheads, depreciation (CBN, 2021). Also referred to as consumption expenditure, recurrent expenditure are utilized for the day to day operations of government. In Nigeria, expenditure on recurrent items have increased annually, thereby leading to shortages in public capital expenditure.

Concept of Human Development

The concept of human development was developed by Pakistani economist Mahbub ul haq and presented at the World Bank in the 1970s to highlight the need for governments of the world to measure their effectiveness in relation to the lives of their citizens and not just the economy. The concept of human development has broadened over the years but still retains the original import which is to improve the lives of people. The 1990 Human Development Report (HDR) of the United Nations Development Programme (UNDP) defines human development as a process of enlarging people's choices to live long and healthy lives; to be educated and to enjoy decent standard of living. According to Sen (1993) cited in Bagolin (2008), human development is the process that improves peoples' capabilities to do or to be what they consider valuable. Sen further posits that human development improves peoples' freedom positively. People should have the freedom to decide 'who to be, what to do and how to live' (Sen, 1993; cited in Bagolin, 2008). Subsequent reports of UNDP from 1990 to 2000 have defined human development in different dimensions which include health and life; education; decent standard of living; political freedom; creativity and productivity; environment; social and relational; culture and arts (Alkire, 2010). Human development therefore covers all aspects of development which include fiscal policy, economy, international trade, savings, social services or safety nets for the poor, investments in basic technology (ul Haq, 1999). Human development therefore is directed towards not just economic development but all-round progress of society with humans at the core of development.

The importance of human development to the economy over time cannot be underestimated since human development implies that the society is majorly filled with human resources that are healthy and optimizing their capabilities to be creative, productive and politically free. Thus, human development enhances both physical and natural capital as well as the human resource too (Vijesandiran & Selvarasa, 2018). Human development is crucial for reduction of poverty since advancement of people who are the force behind change in society as well as in charge of production is the core of human development. Human development is measured by the human development index (HDI), a summary measure for assessment of the long-term

progress of a country in three core areas of human development which are a long and healthy life, access to education and a decent standard of living (HDR, 2020). The index measures standard of living by average spending of the population; length of life by life expectancy at birth; education by combination of the literacy rate of the adult population and average length of school. To ensure comparability across countries, data for computation of life expectancy is obtained from United Nations Population Division; the mean years of schooling and expected years of schooling are obtained from United Nations Educational, Cultural and Scientific Organization (UNESCO) Institute for Statistics while the Gross National Income data is obtained from the World Bank, IMF and United Nations Statistics Division (Human Development Report, 2020). According to UNDP (2012), human development range is as follows:

(a) An index of 0-0.49 = Low development

(b) An index of 0.5 – 0.69 = Medium development

(c) An index of 0.70 – 0.79 = High development

(d) An index above 0.80 = Very high development

Human development in Nigeria remained unchanged between 2021 and 2022 at 0.53 which has been classified under the medium human development category. The implication remains that economic growth has not trickled down to majority of the people who do not have access to key social parameters such as education, health and neither do they have decent standard of living.

The HDI remains very important in the current development discuss due to its universal acceptance and simplicity of use. The index is at the fore front of development discuss where it provides critical answers to pressing developmental issues such as inequality and multifunctional poverty; the index has substantial advantages over other measurement indicators such as the terms of provision of level and trend of development of countries (Klasen, 2018). The index therefore despite the challenges of measurement of other areas of human development and reliability of data remains at the forefront of measurement of development among nations of the world.

Public Expenditure and Human Development in Nigeria

Public expenditure in Nigeria is majorly categorized into capital and recurrent expenditure. Over the years, public expenditure has increased giving rise to numerous infrastructural projects and expanded government operational services across the country. The composition of public expenditure has fluctuated over the years with emphases on capital expenditure before the year 2000. This was attributed to the proceeds from oil revenue obtained during the boom periods. With the downturn in oil revenue, capital expenditure projections reduced while recurrent expenditure increased. As at 2000, recurrent expenditure was N461.6 billion while capital expenditure was N239.45 billion which represents 48 percent difference. The relationship is further depicted in the graph below which shows the proportion of public expenditure on both recurrent and capital expenditure between 2003 and 2022 in Nigeria.
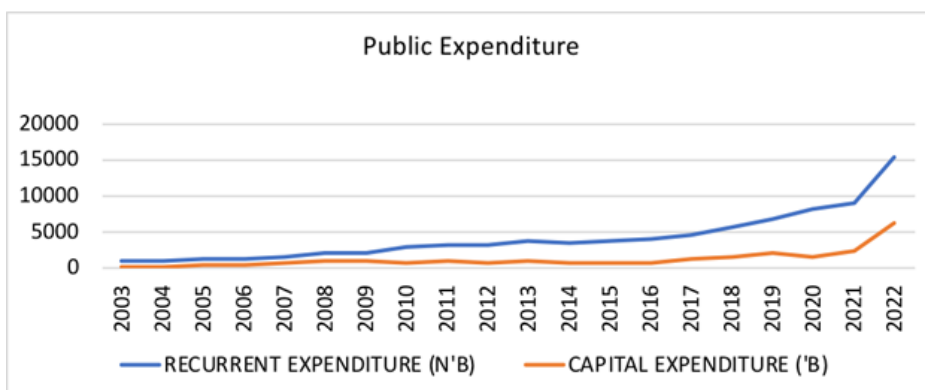
The line graph above depicts that recurrent expenditure remained higher than capital expenditure over the 20 years in view. Recurrent expenditure increased marginally from N984.3 billion to N2,117.4 billion between 2003 and 2008 and then grew at a more rapid rate from 2009 to 2022. In contrast, capital expenditure grew marginally from N241.7 billion to N960.0 billion between 2003 and 2008 and fluctuated between 2009 and 2021. Public expenditure on recurrent items appears to be the focus of government activities since the bulk of government spending are on consumption. However, continuous fiscal deficits over the years have attracted very high debt service payments which further erode the value of public expenditure despite the rise in volume expended in the economy.

Human development in areas such as gross national income per capita, education and health have been proffered as basic reasons for government economic policies and activities. Public expenditure which represents one of the tools of fiscal policy is utilized to drive economic growth and development in countries. Through government targeted investments in both the public and private sector, aggregate demand improves leading to sustainable growth and reduction in poverty. The expectation is that economies overcome high unemployment, poverty and growing inequality (African Development Bank (AfDB), 2022) as well as other social challenges such as insecurity, low literacy and inadequate healthcare which are prevalent in developing countries in general and Nigeria in particular.

THEORETICAL REVIEW

Musgrave Theory of Public Expenditure

Musgrave theory of public expenditure (1964) postulated that the income elasticity of demand for public goods depends on the three levels of income. Where low levels of per capita income are prevalent as found in developing countries, demand for public services are reduced. This is attributed to greater demand for primary needs of the population such as food, clothing and shelter. As per capita income increases, demand for public good increases prompting government to increase expenditure in provision of public goods. The theory further postulates that at very high level of per capita income which occurs in developed countries, the rate of public sector growth falls since the basic needs are already assuaged. The theory assumes however that natural causes can lead to the outcomes described above.

Keynesian Theory

The theory was propounded by John Maynard Keynes before the great depression of the 1930s. The Keynesian theory argues that the economy is influenced to a great extent by government intervention in the economy through government expenditure and taxation in order to direct the economy towards macroeconomic stability. Government spending stimulates the economy which Keynes postulated that government either needs to increase expenditure or reduce taxation in times of recession while the opposite is the case in times of affluence. Government spending improves output which has multiplier effect on employment. The theory further posits that multiplier effect on output will occur in the form of multiples of the increase or decrease in expenditure that led to the change especially if other forms of spending remain constant while government spends (Jahan, Mahmud and Papageorgiou, 2014).

Capability Approach

The capability approach was developed by Amartya Sen in 1979 to give further insight on human development. The approach criticized the problem of inequality which was prevalent despite the economic well-being of countries. Individuals should not just have access to primary goods but should have

capabilities that will ensure their well-being. Sen (1993) defines capabilities as different combinations of things a person is able to be or to do. Ensuring that life given opportunities are maximized and not just income alone emphasizes human development. Improving income alone without education and health development diminishes capabilities.

REVIEW OF EMPIRICAL LITERATURE

Abu and Abdullahi (2010) examined the effect of government expenditure on economic growth in Nigeria from 1970 to 2008. The study utilized disaggregated analyses and revealed that government total recurrent expenditure, total capital expenditure and education have negative effect on economic growth in Nigeria while government expenditure on health, communication and transport increased economic growth in Nigeria.

Babalola (2015) utilized Pair-wise correlation to determine the relationship between fiscal policy proxied with government recurrent expenditure, government capital expenditure, government investment and tax revenue and economic development proxied with real per capita income. The study period was from 1981 to 2013. Results revealed that government recurrent expenditure and government investment have positive and significant effect on economic development in both the short and long run. Capital expenditure had positive impact only in the short run while tax revenue had inverse significant effect in both the short and long-run.

Edeme, Nkalu and Ifelunini (2017) examined the distributional impact of public expenditure on human development in Nigeria with data collected from 20 States in Nigeria. The study utilized panel approach to determine the effect of public expenditure proxied by government expenditure on education, health, agriculture, rural development, water resources, energy, housing and environmental protection. Human development is proxied by HDI. The study revealed that government expenditure on education, health, agriculture, rural development and water resources have positive marginal effect while energy, housing and environmental protection have decreasing marginal impact on human development in Nigeria.

Kairo, Mang, Okeke and Aondo (2017) studied the impact of government expenditure on human capital development in Nigeria using the auto-regressive distributed lagged approach from 1990 to 2014. Results revealed that both in the short and long run, government expenditure has remained positive but insignificant to human capital development in Nigeria.

Omodero (2019) employed the multiple linear regression model and ordinary least square method to analyze the relationship between government general spending and human development in Nigeria from 2003 to 2017. Independent variables were recurrent and capital expenditure, inflation and corruption while the dependent variable was human development index (HDI) from 2003 to 2017. Findings revealed that capital expenditure has negative and insignificant influence on HDI while recurrent expenditure has strong and positive influence on HDI. Further analyses revealed that while corruption did not have any impact on HDI, inflation has a negative and insignificant effect on HDI.

Ogar, Eyo and Arikpo (2019) investigated the impact of public expenditure on economic growth in Nigeria for the period using the vector autoregressive technique (VAR). The study revealed that government capital expenditure had positive but insignificant effect on economic growth while government fiscal deficit had negative insignificant relationship with economic growth in Nigeria. Recurrent expenditure had positive but insignificant effect on growth of the Nigerian economy while in the short run recurrent expenditure had positive insignificant effect on growth of the Nigerian economy.

Okoye, Omankhanlen, Okoh, Ese and Ahmed (2019) utilized autoregressive distributed lag to estimate the long-run and short-run relationship between government expenditure and economic growth in Nigeria for the period 1981 to 2017. Public expenditure was disaggregated into capital and recurrent expenditure while

controlling for inflation. Economic growth was proxied by GDP. Findings showed no significant relationship between public expenditure and GDP in the long-run while the short-run test revealed negative significant relationship between lagged recurrent expenditure and economic growth. The lagged capital expenditure also showed strong relationship with economic growth in the short-run.

Ihenetu and Sotonye (2019) examined budget implementation and human development nexus in Nigeria from 1999 to 2018 with capital expenditure, recurrent expenditure and debt recovery as independent variables while human development index was the dependent variable. Using ordinary least square multiple regression test, the study revealed that capital expenditure and debt recovery had no significant effect on human development within the period of the study while recurrent expenditure had significant effect on HDI within the period of the study. Budget implementation was found to have overall effect on development within the period of the study.

Eneisik (2021) examined the effect of public expenditure on human capital development in Nigeria from 1960 to 2019. The study utilized ordinary least square to analyze the effect of public health expenditure and education expenditure on human development index in Nigeria. Findings showed that both health and education expenditure have positive but insignificant effect on human capital development in Nigeria.

Etim, Nkereuwem and Efanga (2021) utilized the Fully Modified Least Squares Model to analyze the effect of public expenditure on economic development in Nigeria from 2000 to 2019. While human development index was the dependent variable, public capital expenditure, public recurrent expenditure and external borrowing were the independent variables of the study. Findings showed that all the independent variables had positive and significant effect on economic development in Nigeria.

Duruechi and Chigbu (2022) examined the effect of government capital expenditure on economic development of Nigeria from 1990 to 2020. The study utilized ordinary least square analyses to ascertain the effect of government capital expenditure disaggregated into economic services, social and community services, transfers and administration on economic development proxied with per capita income. Findings revealed that jointly, the capital expenditure has positive and significant effect on economic development in Nigeria. Results on economic services, transfers and administration had insignificant negative and positive effects on per capita income while social and community services had significant effect on per capita income in Nigeria.

METHODOLOGY

The study adopted the ex-post factor design which is a research design undertaken after the events have taken place and the data are already in existence. Secondary data on Human Development Index which was the proxy for Human Development were obtained from online publications of United Nations Development Programme (UNDP) Human Development Report (2022) while data on Recurrent Expenditure and Capital Expenditure were obtained from Central Bank of Nigeria Statistical Bulletin for the period 2003 to 2022.

Model Specifications

Multiple regression analytical technique was adopted to examine the relationship between the independent variables of Capital Expenditure (CEXP), Recurrent Expenditure (REXP) and Human Development Index (HDI), the dependent variable.

Linear specification: HDI = f{CEX, REXP}

The model is expressed in the econometric form below:

$$HDI = \beta_0 + \beta_1 CEXP + \beta_2 REXP + U_t$$

Where

β_0	=	Intercept of the model
β_1, β_2	=	Parameter Estimates
HDI	=	Human Development Index
CEXP	=	Capital Expenditure
REXP	=	Recurrent Expenditure
U_t	=	Error term

Data Analysis Technique

Unit Root Test

The test enables us to verify whether the time series data employed in analysis were stationary in order to avoid a spurious result. The unit root test has to be conducted first to determine whether the regression analysis will be conducted the traditional manner. The Augmented Dickey Fuller (ADF) statistics was employed for the unit root test.

Vector Error Correction Model (VECM)

Vector Error Correction Model (VECM) is employed in the time series model to ascertain the long relationship or speed of adjustment to equilibrium. The VECM coefficient shows the rate at which the model returns to equilibrium in the long run. The Error correction term ECM(-1) must be negative.

DATA PRESENTATION AND ANALYSIS

Unit Root Test

Table 4.1:   Augmented Dickey Fuller Unit Root Test

VARIABLE	ADF STATISTICS	CRITICAL LEVEL 5%	P VALUE	ORDER OF INTERGRATION	REMARK
CEXP	-3.289825	-3.040391	0.0310	1(1)	STATIONARY
REXP	-3.451280	-3.040391	0.0226	1(1)	STATIONARY
HDI	-3.650753	-3.040391	0.0152	1(1)	STATIONARY

Source: E-view 10

The unit root of table 4.1 showed that the variables in the model are all stationary at first difference. This is considering that their respective ADF values of CEXP: -3.289825; REXP: -3.451280; HDI: -3.650753 are all greater than their reported critical values of -3.040391. The data set therefore is relied upon for estimation.

Table 4.2: Johansson Cointegration Test

Date: 17/02/2024 Time: 03:25				
Sample (adjusted): 2006 2022				
Included observations: 17 after adjustments				
Trend assumption: Linear deterministic trend				
Series: HDI REXP CEXP				
Lags interval (in first differences): 1 to 2				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.840612	38.89813	29.79707	0.0034
At most 1	0.325108	7.679051	15.49471	0.5003
At most 2	0.056828	0.994607	3.841466	0.3186
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.840612	31.21908	21.13162	0.0014
At most 1	0.325108	6.684444	14.26460	0.5271
At most 2	0.056828	0.994607	3.841466	0.3186

Result from table 4.2 above reveals long run relationship between HDI and the two explanatory variables. This is based on the Trace statistics probability value of 0.0034 and Maximum Eigenvalue probability value of 0.0014 which are both greater than 0.05. The results revealed one co-integration in both the Trace test and the Maximum Eigenvalue test. This therefore led to the conclusion that there exists long run relationship between HDI, CEXP and REXP.

Error Correction

Table 4.3:   Error Correction Model

Vector Error Correction Estimates			
Date: 17/02/2024 Time: 03:02			
Sample (adjusted): 2006 2022			
Included observations: 17 after adjustments			
Standard errors in ( ) & t-statistics in [ ]			
Cointegrating Eq:	CointEq1		
HDI(-1)	1.000000		
REXP(-1)	-0.161601		
	(0.01177)		
	[-13.7302]		
CEXP(-1)	0.144256		
	(0.01958)		
	[7.36855]		

C	0.997950		
Error Correction:	D(HDI)	D(REXP)	D(CEXP)
CointEq1	-0.382248	0.257746	-8.242590
	(0.08762)	(2.01131)	(5.99481)
	[-4.36251]	[0.12815]	[-1.37495]
D(HDI(-1))	-0.357038	-8.123901	-18.57295
	(0.20610)	(4.73100)	(14.1010)
	[-1.73233]	[-1.71716]	[-1.31714]
D(HDI(-2))	-0.201865	-4.350627	-0.025066
	(0.18830)	(4.32231)	(12.8829)
	[-1.07205]	[-1.00655]	[-0.00195]
D(REXP(-1))	-0.039333	-0.457340	-0.265546
	(0.02077)	(0.47666)	(1.42072)
	[-1.89417]	[-0.95946]	[-0.18691]
D(REXP(-2))	-0.015803	0.024691	0.022544
	(0.01475)	(0.33849)	(1.00889)
	[-1.07167]	[0.07294]	[0.02235]
D(CEXP(-1))	0.032944	0.238674	1.002986
	(0.01187)	(0.27237)	(0.81183)
	[2.77637]	[0.87627]	[1.23547]
D(CEXP(-2))	0.022030	0.018194	0.296455
	(0.00873)	(0.20031)	(0.59704)
	[2.52454]	[0.09083]	[0.49655]
C	0.013795	0.293806	0.212245
	(0.00511)	(0.11725)	(0.34947)
	[2.70076]	[2.50579]	[0.60733]
R-squared	0.757187	0.551451	0.259430
Adj. R-squared	0.568332	0.202579	-0.316568
Sum sq. resids	0.000300	0.158157	1.405015
S.E. equation	0.005775	0.132563	0.395111
F-statistic	4.009359	1.580670	0.450401
Log likelihood	68.90561	15.63580	-2.930047
Akaike AIC	-7.165366	-0.898329	1.285888
Schwarz SC	-6.773265	-0.506229	1.677988
Mean dependent	0.007635	0.145040	0.147122
S.D. dependent	0.008790	0.148449	0.344348

The VECM results of table 4.3 showed that the error correction from HDI is appropriately signed with a negative coefficient value of -0.382248 and a significant T-statistics value of -4.36251. This revealed that 38.22% of disequilibrium in the short run is adjusted yearly by changes in the explanatory variables. The results also consolidate the long run relationship revealed by the Johansson co-integration result. The adjusted R squared value of 0.568 revealed that the explanatory variables account for 56.8% variations of the HDI. The F-statistics value of 4.00 showed that the model is fit.

Table 4.4:   VECM Least Square Regression Result

	Coefficient	Std. Error	t-Statistic	Prob.
Dependent Variable: D(HDI)				
Method: Least Squares (Gauss-Newton / Marquardt steps)				
Date: 17/02/2024 Time: 03:05				
Sample (adjusted): 2006 2022				
Included observations: 17 after adjustments				
D(HDI) = C(1)*(HDI(-1) – 0.161601066718*REXP(-1) + 0.144255797589				
*CEXP(-1) + 0.99795028438) + C(2)*D(HDI(-1)) + C(3)*D(REXP(-1)) +				
C(4)*D(CEXP(-1)) + C(5)*D(HDI(-2)) + C(6)*D(REXP(-2)) + C(7)				
*D(CEXP(-2)) + C(8)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.382248	0.087621	-4.362509	0.0018
C(2)	-0.357038	0.206103	-1.732330	0.1173
C(3)	-0.039333	0.020766	-1.894171	0.0907
C(4)	0.032944	0.011866	2.776371	0.0215
C(5)	-0.201865	0.188298	-1.072050	0.3116
C(6)	-0.015803	0.014746	-1.071672	0.3118
C(7)	0.022030	0.008726	2.524535	0.0325
C(8)	0.013795	0.005108	2.700758	0.0244
R-squared	0.757187	Mean dependent var		0.007635
Adjusted R-squared	**0.568332**	S.D. dependent var		0.008790
S.E. of regression	0.005775	Akaike info criterion		-7.165366
Sum squared resid	0.000300	Schwarz criterion		-6.773265
Log likelihood	68.90561	Hannan-Quinn criter.		-7.126390
F-statistic	4.009359	Durbin-Watson stat		2.159324
Prob(F-statistic)	0.028640			

The VECM Least Square Regression result above is used to determine the significance of RCEXP and CEXP on HDI. From the table above, C(2) represents HDI, C(3) represents REXP while C(4) represents CEXP. Findings revealed that REXP has T statistics value of -1.894 while P-value of 0.0907 is greater than 0.05. Also, CEXP has T statistics value of 2.776, P value of 0.0215 is less than 0.05.

Evaluation of Working Hypotheses

With respect to result from the VECM least square regression of table 4.4, null hypothesis one is accepted since REXP has no significant effect on HDI. This is given the fact that the P-value of 0.0907>0.05.

The results also led to rejection of null hypothesis two since the p-value of 0.0215<0.05. The study therefore concluded that null hypothesis two is rejected since CEXP has significant effect on HDI.

Table 4.5: Diagnostics Test

Summary of the Breusch-Godfrey Serial Correlation and Heteroskedasticity Test

Diagnostics	Probability/critical value	Remark
Heteroskedasticity F(9, 7)	**0.6678**	**Non Heteroskedasticity**

Autocorrelation F(2,7)	0.4694	No serial correlation

Results of the diagnostic tests are presented in table 4.5, the Serial correlation test was conducted using Breusch-Godfrey Serial Correlation LM test, Heteroskedasticity test using Breusch-Pagan-Godfrey. The study reveals that the model passes the diagnostics tests against serial correlation, functional form misspecification, this is considering the fact that the respective probability values are greater than 5% (0.05 significant level).
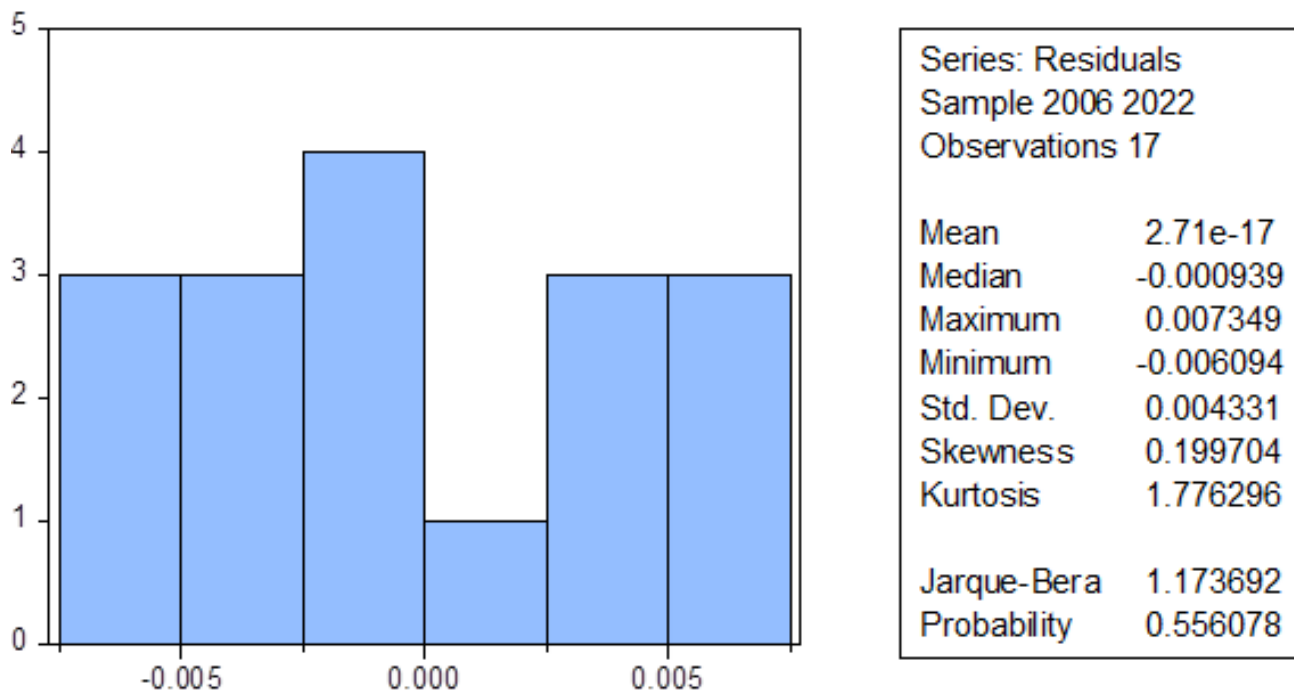

Figure 1:   Jarque-Bera Normality Test

The Jarque –Bera statistics value of 1.173692 and probability value of 0.556078 showed that the residuals in the model are normally distributed since the probability value is greater than 5% level of significance. The test reveals that the model passes the normality test against non-normal errors as presented above.

Findings

1. Recurrent Expenditure (REXP) has insignificant effect on human development in Nigeria for the period in view. This result agrees with the study of Ogar, Eyo and Arikpo (2019) who found that recurrent expenditure had no significant effect on economic growth in Nigeria but is not consistent with the findings of Omodero (2019) and Ihenetu and Sotonye (2019).
2. Capital expenditure (CEXP) has significant effect on human development in Nigeria. This result shows consistency with the empirical study of Etim, Nkereuwem and Efanga (2021) and Duruechi and Chigbu (2022) whose findings showed that capital expenditure significantly and positively affected economic development in Nigeria.

CONCLUSION

The study focused on effect of public expenditure variables of recurrent and capital expenditure on human development and ascertained that while capital expenditure has significant influence on human development in Nigeria, recurrent expenditure had insignificant effect on human development in Nigeria.

RECOMMENDATIONS

The study made the following recommendations based on the findings.

1. Public recurrent expenditure should be targeted towards improvement of the economic and social lives of the people in the country. Recurrent expenditure on key areas such as health, education as well as recurrent expenditure that improves gross national income per capita should be greatly encouraged. Economic wastes should be avoided given that resources are scarce while leakages in the economy should be plugged through continuous audit of the system. High operating costs of governance can also be reduced with continuous citizenship participation in governance especially from the budgeting stage to actual implementation.

2. The role of capital expenditure towards improved human development cannot be overemphasized. Capital expenditure should not only be targeted towards the cities but should be extended to the local areas where significant production of both agricultural and economic goods take place in order to improve the lives of the population equally. This will improve employment opportunities and sustain jobs that will empower the citizens economically and socially. With respect to corruption which has remained endemic, government needs to build trust through timely completion of capital projects as well as ensuring that only quality infrastructural projects are provided in order to encourage citizen participation in taxation. This will greatly improve taxation revenue for execution of further projects in Nigeria.

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