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Impact of Public Expenditures on Inclusive Economic Growth in Nigeria: 1980-2017

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Abstract

This study investigated the impact of public expenditures on inclusive economic growth in Nigeria: 1980-2017. The study employed autoregressive distributed lag (ARDL) model, stationarity test, and other diagnostic tests to investigate whether or not Federal government public expenditures have impact on inclusive economic growth in Nigeria. This study made use of six explanatory variables namely: Federal government public expenditures in agriculture, education, health, internal security, social and community services, and transport and communications to establish relationships with the two dependent variables used (employment growth rate and human development index growth rate). These two dependent variables served as proxies for inclusive economic growth since they contribute to the general standard of living. The study found that a long-run stable relationship existed between the regressors of public expenditure and inclusive economic growth. The t-statistics also revealed that each of the regressors were not statistically significant at 5%. However, the F-statistics revealed that the entire systematic components of each model were statistically significant at 5%. Therefore, the study concluded that the regressors have not significantly contributed to inclusive economic growth individually. However, the F-statistics shows that collectively the regressors have significantly impacted inclusive economic growth in Nigeria. This study recommended among other things that public expenditures should be directed towards inclusive economic activities in a manner that they will create sustainable linkages across economic value chains which will ensure inclusive economic growth in the long run.

Keywords: Employment, Growth Rate, Human Development, ARDL model, Inclusive Economic Growth

JEL Codes: G24

1. Introduction

Economic growth has to be inclusive to ensure the wellbeing of the entire population. Inclusive growth is not only about expanding national economies but also about ensuring that we reach the most vulnerable people of the societies. According to Ali (2007) the equality of opportunity and participation in growth by all with a special focus on the working poor and the unemployed are the very bases of inclusive growth.

Palanivel (2015), recognized multiple definitions of inclusive growth but pointed out that there are some common features, namely: Growth is inclusive when it takes place in the sectors in which the poor work. For example, growth is inclusive if it takes place in agricultural sector where the poor work and occurs in places where the poor lives especially in the undeveloped areas with few resources. Growth is also inclusive if it uses the factors of production that the poor possess and reduces the prices of consumption items that the poor consume namely: food, fuel and clothing.

However, in Nigeria, there is a fair amount of current consensus on the fact that economic growth has failed to be sufficiently inclusive, particularly in the democratic period. It has been increasingly recognized that the growth centered approach to poverty reduction may be a necessary but not a sufficient condition for poverty reduction. Thus, the need to make growth inclusive (social and economic dimensions) should become the centre of government reform agenda. Policies for inclusive growth are important components of most government strategies for sustainable growth. For instance, a country that has grown rapidly over a decade, but has not seen substantial reduction in poverty rates may need to re-

focus specifically on the inclusiveness of its growth strategy, i.e. on the equality of opportunity for individuals and firms. Increasing the output of crude oil produced may not lead to increase in employment opportunities, reduction in poverty and inequality because such growth strategy lacks inclusiveness.

One of the problems identified in this study revolves around the fact that the economy is often said to be growing with increase in gross domestic product (GDP) and large budgetary provisions, running into trillions. However, such growth is not inclusive in the real sense of it. Many Nigerians are still living below the poverty line, with high level unemployment rate and Nigeria's per capita income (PCI) and human development index (HDI) is still among the lowest in the world.

According to Bhagwati (2015) "Inclusive growth would pull the poor into gainful employment, thereby helping to lift them out of poverty and that higher incomes would enable them to increase their personal spending on education and health." Yet, economic growth in Nigeria has not created meaningful employment, as many of the country's youth, including those with university degrees, are currently unemployed. In addition, incomes of the majority of Nigerians have not risen, and while access to education and health may have improved in the country, its quality has declined significantly. The main objective of this study therefore is to examine the impact of public expenditures on inclusive economic growth in Nigeria from1980 to 2017.

This study is significant because it paid close attention to the impact public expenditures had on inclusive economic growth. Unlike, previous studies such as Anand and Mishra (2013), Aigbedion and Anyanwu (2015) and so on. This particular study disaggregated public expenditure into three (3) components namely recurrent, capital and total public expenditures and the study examined each of their impact on inclusive economic growth. The significance of this study is further expressed in disaggregating recurrent, capital and total public expenditures into agriculture, education, health, internal security, social and community services and transport and communications. None of the previous studies disaggregated public expenditure in line with this structure. By this disaggregation policy makers can now simply at a glance examine the impact of recurrent, capital and total public expenditures on inclusive economic growth.

The study made use of secondary data from 1980 to 2017. The reason for this period is that, the researcher believes that this period is long and adequate enough to cover all the trends and structural variations in the Nigerian economy. The study had two (2) dependent variables which served as proxy for inclusive economic growth namely Employment Growth Rate (EGR) and Human Development Index Growth Rate (HDIGR).

The reason for choosing Employment Growth Rate (EGR) as dependent variable lays in the fact that employment can be a means of contributing to public good, reducing inequality, securing livelihoods and empowering individuals. Work allows people to participate in the society and provides them a sense of dignity and worth. In addition, work that involves caring for others or voluntarism builds social cohesion and strengthens bonds within families and communities. These are all essential aspects of inclusive economic growth. *And Human Development Index Growth Rate (HDIGR) is also used as dependent variable because* Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development namely, a long and health life, being knowledgeable and having a decent standard of living.

This study also had independent variables which included recurrent, capital and total public expenditures in the following sectors agriculture, education, health, internal security, social and community services, transport and communications. Although, we have three (3) tiers of government in Nigeria Local, State and Federal. All the above public expenditures were based on Federal government expenditures.

2. Literature Review and Theoretical Framework

The concept of inclusive growth in development literature has not enjoyed a universal definition. While some scholars' definitions of inclusive growth are interchangeable with pro-poor growth, others incorporate non-income dimensions (non-income factors affecting the poverty elasticity of growth). For instance, (Anyanwu, Adam and Areo 2018) noted that inclusive economic growth is the growth that ensures that all segments of the society especially the poor participate in contributing to wealth creation through employment opportunities and benefit in terms of improved social welfare. (Ranieri and Ramos, 2013) argued that inclusive growth involves improving the lot of underprivileged people in particular and overall making opportunities more plentiful while lessening barriers to the attainment of better living conditions. In the same vein, Anders and Sperling(2013), noted inclusive growth in terms of growth that is delivered by the inclusion of more people in the production of wealth, allowing them to benefit from overall economic development. (Paramasivan, Mani, and Utpal, 2014) pointed-out that inclusive growth is about achieving income growth while reducing inequality, improving social opportunities, ensuring equality of access (to services and markets), and protecting the vulnerable.Inclusive growth is a growth that combines the increased participation of poor and marginalized people in economic processes, particularly through employment, with increased sharing in the benefits of growth that is realized through rising incomes that accrue to the poor as well as increased social welfare benefits (Obadan, 2016). Inclusive growth is "growth that not only creates new economic opportunities, but also one that ensures equal access to the opportunities created for all segments of society, particularly for the poor" (Ali, 2007).

Public expenditure refers to government expenditure i.e. government spending. It is incurred by Federal, State and Local governments of a country. According to (Central Bank of Nigeria, 2015) Public expenditure can be defined as, "The expenditure incurred by public authorities like Federal, State and Local governments to satisfy the collective social wants of the people." According to Central Bank of Nigeria (2009)recurrent public expenditures are consumption expenditures incurred on civil administration, defence forces, public health and education, maintenance of government machinery. This type of expenditure is of recurring type which is incurred year after year. On the other hand, capital expenditures are incurred on building durable assets, like highways, multipurpose dams, irrigation projects, buying machinery and equipment. They are non recurring type of expenditures in the form of capital investments. Such expenditures are expected to improve the productive capacity of the economy and create employment opportunities which are one of the hallmarks of inclusive growth (Goldsmith 1969).

According to (Nurkse, 1950)balanced growth theory is relevant to Public expenditure on inclusive growth because it stressed that, as an economy grows, there is the need for all the sectors to grow to support each other. The interconnectedness of different sectors implied that growth was required across the economy at a constant rate. This view suggested a clear role for government in supporting those sectors that might not 'naturally' grow, or might lack investment from the private sector. If all parts of the economy need to grow, then government should support those sectors that might not naturally develop.

Romer is credited with stimulating New Growth Theory. According to (Romer, 1994). The new growth theory is often called "endogenous" growth theory, because it internalizes technology into a model of how markets function. Second, new growth theory holds that unlike physical objects, knowledge and technology are characterized by increasing returns, and these increasing returns drive the process of growth. The new growth theory is relevant to public expenditure on inclusive growth because

public expenditures in social capital is subject to market failure and New Growth theorists argue that government should allocate resources to compensate for this failure.

Wagner (1893) the German economist made an in-depth study relating to rise in government expenditure in the late 19thcentury. Based on his study, he propounded a law called "The Law of Increasing State Activity".(Wagner, 1893) law states that "as the economy develops over time, the activities and functions of the government increase". Wagner's Statement indicates the following points: First, in progressive societies, the activities of the central and local government increase on a regular basis. Secondly, the increase in government activities is both extensive and intensive. Thirdly, the governments undertake new functions in the interest of the society. Fourthly, the old and the new functions are performed more efficiently and completely than before. Fifthly, the purpose of the government activities is to meet the economic needs of the people and to advance inclusive growth. Sixthly, the expansion and intensification of government function and activities lead to increase in public expenditure. Lastly, though Wagner studied the economic growth of Germany, it applies to other countries too both developed and developing.

Peacock and Wiseman (1967), hypothesis of public expenditure is based on their empirical study conducted in United Kingdom, during the period 1890 to 1955. Here also like (Wagner 1893) these economists noted the relationship between growth of an economy and public expenditure. But there is wide difference between these two theories. Here, (Peacock and Wiseman, 1967) asserted that, public expenditures will increase with respect to the growth of an economy. But the growing trend will not be like in the Wagner's (1893), theory. Further, it will be in a step like manner. According to this hypothesis, there are three basic effects in an economy. They are displacement effect, inspection effect, and concentration effect.

Clark (1980) idea of public expenditure is associated with the idea of tax tolerance. He noted that, public expenditure should not exceed more than 25 percentage of the total expenditure since it may create inflation even in the balanced budget. Further, higher public expenditure will increase the income of the people which may tend to reduce production because of fear of higher tax payment among the people.

Okafor and Kenneth (2016) studied whether public expenditure has induced employment opportunities in Nigeria. The study revealed that deficit financing of recurrent expenditure was the most important single factor inhibiting public expenditure from inducing inclusive economic growth for employment generation. The study recommended that to ensure its efficiency, tax policy, pricing policy, exchange rate policy and credit policy should form integral components of a country's employment policy.

Golit and Yilkudi (2015) employed the auto-regressive distributed lag (ARDL) model to investigate whether or not the pattern of production matters for inclusive economic growth in Nigeria and, if yes, what pattern of production offers the best opportunity for the achievement of inclusive economic growth? The finding revealed that Agriculture, manufacturing and trade were found to be the key sectors for driving inclusive economic growth where the country's overriding interest is in employment and poverty reduction.

Ozurumba and Amadi (2015), examined the sectoral performance and inclusive economic growth in Nigeria from 1990 to 2013. They used per capita income and human development index to serve as proxy for inclusive economic growth. Six explanatory variables (the GDPs of agricultural, oil and gas, telecommunication, manufacturing, financial institutions and electricity sectors) were specified and used to establish a relationship with human development index and per capita income using the vector autoregressive (VAR) approach. Their study found that the selected explanatory variables had no significant relationship with per

capita income and human development index. Based on their findings their work concluded that the selected sectors of the economy do not contribute significantly to the development of the Nigerian economy.

Sodipe and Ogunrinola (2011) investigated the employment and inclusive economic growth relationships in the Nigerian economy adopting a simple model and using the ordinary least square technique, their study showed a positive and statistically significant relationship between employment level and inclusive economic growth in Nigeria while a negative relationship was observed between employment growth rate and GDP growth rate in the economy. Thus, the study recommended increased labour-promoting investment strategies that will help reduce high current open unemployment in Nigeria.

This study adopted an endogenous theory of economic growth put forward by Romer and Lucas. This is because the variables considered in this study such as employment growth rate, human development index growth rate, and public expenditures in agriculture, education, health, internal security, social and community services, transport and communications were all determined within the Nigerian economy. The public expenditures which are independent variables that impact inclusive economic growth; which is the dependent variable; are part and parcel of the Nigerian economy and not gotten outside it.

Endogenous growth theory holds that inclusive economic growth is primarily the result of endogenous and not external forces (Romer 1994). Endogenous growth theory holds that investment or public expenditure in human capital, innovation, and knowledge are significant contributors to inclusive economic growth. The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to inclusive economic growth.

This study adopted the simplified version of growth framework first developed by Romer (1990), Grossman and Helpman (1991) and (Aghion and Hawitt,1992). In adopting this framework therefore, this study would take a fairly mechanical view of the production in new technology of labour (human capital) in the traditional Cobb-Douglas production function in which labour, capital and technology are combined to enhance productivity. The model would normally comprise of four variables viz: labour (L), capital (K), and technology (A), and output/income (Y).The framework assumes two sectors: the goods-producing, where output is produced and the R&D sector, where additions to stocks of knowledge are made.

$$Y_{(t)}=\{(1-\alpha_k)k_{(t)}\}\alpha[A_{(t)}(1-\alpha_L)L_{(t)}]^{1-\alpha} \quad 0 < \alpha < 1 \qquad 2.1$$

From equation 2.1 α_L of the labour force is used in the R&D sector and$1-\alpha_L$in the goods producing sector. Similarly, $\alpha_k$of the capital stock is used in R&D and the rest in goods producing sector. More so α_L and α_k are assumed exogenous and constant, because the use of an idea or piece of knowledge in one place does not preclude it from being used elsewhere. The equation 2.1 assumes constant return to capital and labour, i.e with a given technology, doubling the inputs in-turn doubles the amount that can be produced.(Barro,1991) advocated the importance of capital and technology in the process of inclusive economic growth. Drawing from Romer's (1986), path breaking model, some scholars have harped on the critical role human capital played in the growth process. For instance, models developed by Aghion and Howitt (1998) emphasized the role of technological change, (Grossman and Helpman,1991) model stressed impediments to adopting new methods or technology and (Harberger, 2005) which canvassed costs of reduction in the production process resulting from technological innovation as few examples of such. These scholars held the view that through more efficient processes, output could be increased while unit cost could be lowered.

Hence, restricting the model to new ideas that depends on the quantity of labour and

capital engaged in research and level of technology is given thus:

$$A^*_{(t)}=\delta\,[\alpha_k k_{(t)}]^{\beta}[\alpha_L L_{(t)}]^{\rho}A(t)^{\theta} \quad \delta>0,\ \beta\geq 0,\ \rho\geq 0 \qquad 2.2$$

Similarly, because two stock variables in the equation whose values are considered endogenous, k and A, it makes it more complicated to analyze; as such we restrict the model without capital by setting β and α to zero, (Romer, 2009). When capital is restricted, equation 2.1 becomes:

$$Y_{(t)}=A_{(t)}[(1-\alpha_L)L_{(t)}] \qquad 2.3$$

And the production function for the new knowledge in equation 2.2 would become:

$$A^*_{(t)}=\delta[\alpha_L L_{(t)}]^{\rho}A(t)^{\theta} \qquad 2.4$$

Equation 2.3 implies that output or income per labour (worker) is proportional to A, and thus, the growth rate of output or income per worker equals the growth rate of A, as such, the study would focus on the dynamics of A, which is given by equation 2.4 meaning that the growth rate of A at time (t) denoted by

$$g_A(t)=\delta\alpha^{\rho}{}_L L(t)^{\rho}A(t)^{\theta-1} \qquad 2.5$$

This framework, ceteris-paribus, assumes that voting more resources to research would yield more discoveries and improve technology.

3. Methodology

Estimation Technique

The autoregressive distributed lag (ARDL) bounds test that was developed by Pesaran and Shin (1999) was used for this study because it has certain advantages over other cointergration methods which include it does not require that all variables under consideration be integrated of order zero, order one or fractionally integrated.

This study also conducted unit root test at level and first difference in order to determine univariate properties of the series being examined. To achieve this, the standard procedure of unit root test by (Philips and Perron, 1988) was employed. The Philips-Perron unit root test was used because of its great **advantage** of being a *non-parametric procedure*, i.e. it does not require selecting the level of serial correlation as in ADF. It rather takes the same estimation scheme as in DF test, but corrects the statistic to conduct for autocorrelations and heteroscedasticity (HAC type corrections).

Model Specification

This study adapted an econometric model previously used by Golit and Yilkudi (2015) which has been discussed earlier in the literature review. However, this study modified their work, by making use of (recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, and transport and communications) to establish a relationship with these two dependent variables (employment growth rate and human development index growth rate). These two dependent variables served as proxies for inclusive economic growth.

Thus, for recurrent public expenditures, the Models are of the general form:

$$EGR_t = f\ (RPEE_t\ ,RPEH_t,\ RPEA_t,\ RPEIS_t,\ RPETC_t\ ,RPESC_t\ ) \qquad 3.1$$

$$HDIGR_t= f\ (RPEE_t,\ RPEH_t,\ RPEA_t,\ RPEIS_t,\ RPETC_t,RPESC_t) \qquad 3.2$$

Where: EGR_t is Employment Growth Rate proxy for inclusive economic growth, $HDIGR_t$ is Human Development Index Growth Rate proxy for inclusive economic growth, RPEE is Recurrent public expenditures in education, RPEH is Recurrent public expenditures in health, RPEA is Recurrent public expenditures in agriculture (food), RPEIS is Recurrent public expenditures in internal security, RPETC is Recurrent public expenditures in transport and communication, RPESC is Recurrent public expenditures in other social and community services.

Equations 3.1 and 3.2 are linearized as:

$$EGR_{t-1} =\beta_0 + \beta_1 RPEE_{t-1,} + \beta_2 RPEH_{t-1,} + \beta_3 RPEA_{t-1,} + \beta_4 RPEIS_{t-1,} + \beta_5 RPETC_{t-1,} + \beta_6 RPESC_{t-1} + \lambda\varepsilon cm_t + \mu_t \qquad 3.3$$

$$HDIGR_{t-1}=\beta_0 + \beta_1 RPEE_{t-1,} + \beta_2 RPEH_{t-1,} + \beta_3 RPEA_{t-1,} + \beta_4 RPEIS_{t-1,} + \beta_5 RPETC_{t-1,} + \beta_6 RPESC_{t-1} + \lambda\varepsilon cm_t + \mu_t \qquad 3.4$$

For capital public expenditures, the Models are of the general form:

$EGR_t = f(CPEE_t, CPEH_t, CPEA_t, CPEIS_t, CPETC_t, CPESC_t)$ 3.5

$HDIGR_t = f(CPEE_t, CPEH_t, CPEA_t, CPEIS_t, CPETC_t, CPESC_t)$ 3.6

Where: EGR_t is Employment Growth Rate proxy for inclusive economic growth, $HDIGR_t$ is Human Development Index Growth Rate proxy for inclusive economic growth, CPEE is Capital public expenditures in education, CPEH is Capital public expenditures in health, CPEA is Capital public expenditures in agriculture (food), CPEIS is Capital public expenditures in internal security, CPETC is Capital public expenditures in transport and communication, CPESC is Capital public expenditures in other social and community services.

Equations 3.5 and 3.6 are linearized as:

$EGR_{t-1} = \beta_0 + \beta_1 CPEE_{t-1} + \beta_2 CPEH_{t-1} + \beta_3 CPEA_{t-1} + \beta_4 CPEIS_{t-1} + \beta_5 CPETC_{t-1} + \beta_6 CPESC_{t-1} + \lambda \varepsilon cm_t + \mu_t$
3.7

$HDIGR_{t-1} = \beta_0 + \beta_1 CPEE_{t-1} + \beta_2 CPEH_{t-1} + \beta_3 CPEA_{t-1} + \beta_4 CPEIS_{t-1} + \beta_5 CPETC_{t-1} + \beta_6 CPESC_{t-1} + \lambda \varepsilon cm_t + \mu_t$
3.8

For total public expenditures, the Models are of the general form:

$EGR_t = f(TPEE_t, TPEH_t, TPEA_t, TPEIS_t, TPETC_t, TPESC_t)$ 3.9

$HDIGR_t = f(TPEE_t, TPEH_t, TPEA_t, TPEIS_t, TPETC_t, TPESC_t)$ 3.10

Where: EGR_t is Employment Growth Rate proxy for inclusive economic growth, $HDIGR_t$ is Human Development Index Growth Rate proxy for inclusive economic growth, TPEE is Total public expenditures in education, TPEH is Total public expenditures in health, TPEA is Total public expenditures in agriculture (food), TPEIS is Total public expenditures in internal security, TPETC is Total public expenditures in transport and communication, TPESC is Total public expenditures in other social and community services

Equations 3.9 and 3.10 are linearized as:

$EGR_{t-1} = \beta_0 + \beta_1 TPEE_{t-1} + \beta_2 TPEH_{t-1} + \beta_3 TPEA_{t-1} + \beta_4 TPEIS_{t-1} + \beta_5 TPETC_{t-1} + \beta_6 TPESC_{t-1} + \lambda \varepsilon cm_t + \mu_t$
3.11

$HDIGR_{t-1} = \beta_0 + \beta_1 TPEE_{t-1} + \beta_2 TPEH_{t-1} + \beta_3 TPEA_{t-1} + \beta_4 TPEIS_{t-1} + \beta_5 TPETC_{t-1} + \beta_6 TPESC_{t-1} + \lambda \varepsilon cm_t + \mu_t$
3.12

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6 > 0$

Where: β_0 = Autonomous value or the intercept term
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = Policy parameters
μ_t = Error term
$\lambda \varepsilon cm_t$ = Vector of short run adjustment dynamics.

It was assumed that the error term (μ) conformed to the Ordinary Least Squares (OLS) assumptions.

A Priori Expectations

It was further assumed based on a priori that all the parameters would take on values greater than zero (0).The a priori expectation is such that all components of public expenditures are positively correlated with inclusive economic growth. The coefficient of elasticity of each of the public expenditure variables are expected to be positive, that is greater than zero. That is $\beta_1 - \beta_6$are expected to be greater than zero, that is $\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$; $\beta_5 > 0$; $\beta_6 > 0$;.

Sources of Data

The data on public expenditures were sourced mainly from Central Bank of Nigeria (CBN) statistical bulletin (2010) and (2017). The data on Human Development Index (HDI) were sourced from United Nations Development Programme (UNDP) Human Development report (2010) and (2017) while data on employment rate were sourced from National Bureau of Statistics Annual Abstract (2010) and (2017) and Employment Statistics in Nigeria report of National workshop (2010) and (2017). The

time series data will cover the period from 1980 to 2017.

4. Data Analysis and Interpretation of Results

Descriptive Statistics

The descriptive statistics of variables used in the estimation of recurrent, capital and total public expenditures are presented below.

Table 4.1 (a): Descriptive Statistics for Models 3.1 and 3.2

	EGR	DI	HDIGR	RPEA	RPEE	RPEH	RPEIS	RPESC	RPETC
Mean	2.6	0.4	0.9	13.5	83.5	48.3	83.8	50.9	12.9
Median	3.0	0.4	0.9	2.4	14.2	4.3	11.5	3.2	2.0
Maximum	15.2	0.5	3.0	65.3	390.4	257.7	410.2	281.0	90.0
Minimum	-27.0	0.3	-1.5	0.0	0.1	0.0	0.0	0.0	0.0
Std. Dev.	5.9	0.0	0.7	18.4	119.7	74.1	119.4	92.1	20.2
Skewness	-3.2	0.3	0.4	1.3	1.4	1.5	1.3	1.6	2.2
Kurtosis	18.7	1.9	7.4	3.6	3.8	4.3	3.4	3.9	8.0
Jarque-Bera	437.2	2.5	31.1	10.8	13.9	17.9	10.5	17.3	67.2
Probability	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	93.9	15.8	34.3	488.5	3007.3	1739.1	3018.4	1835.5	466.6
Sum Sq. Dev.	1238	0.0	17.8	1191 5	50205 8	19250 3	49925 7	29694 4	14314
Observation	36	36	36	36	36	36	36	36	36

Source: E-views output, version 9.0

The employment growth rate (EGR) averages 2.60% per annum. It ranges from a maximum of 15.24% to a minimum of -27.02%. It has a standard deviation of 5.9495 while the Human Development Index (HDI) averages 0.439. It ranges from a minimum of 0.378 to maximum of 0.527 with a standard deviation of 0.048. The Human Development Index Growth Rate (HDIGR) has a mean of 0.955 per annum. It ranged from a maximum of 3.01 to a minimum of -1.59.

Table 4.2 (b): Descriptive Statistics for Models 3.5 and 3.6

	CPEA	CPEE	CPEH	CPEIS	CPESC	CPETC	EGR	HDIGR	HDI
Mean	27.7	16.6	17.1	11.9	9.2	18.8	2.6	0.9	0.4
Median	6.0	6.1	4.5	0.0	1.3	3.8	3.0	0.9	0.4
Maximum	138.9	87.9	97.2	65.7	86.9	106.2	15.2	3.0	0.5
Minimum	0.2	0.1	0.05	0.0	0.0	0.2	-27.0	-1.5	0.3
Std. Dev.	37.1	20.9	25.3	19.3	16.4	28.1	5.9	0.7	0.0
Skewness	1.2	1.3	1.8	1.6	3.1	1.5	-3.2	-0.4	0.3
Kurtosis	3.6	4.6	6.1	4.4	14.9	4.2	18.7	7.4	1.9
Jarque-Bera	10.1	15.6	35.4	19.0	273.4	16.7	437.2	31.1	2.5
Probability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

	CPEA	CPEE	CPEH	CPEIS	CPESC	CPETC	EGR	HDIGR	HDI
Sum	1000	600.6	616.9	428.5	331.2	680.3	93.9	34.3	15.8
Sum Sq. Dev.	48228	15426	22484	13106	9494.4	27691	1238.8	17.8	0.0
Observations	36	36	36	36	36	36	36	36	36

Source: *E-views output, version 9.0*

The capital public expenditures on agriculture (CPEA) has the mean of 27.78 billion Naira and it ranges from a maximum of 138.90 billion Naira to a minimum of 0.2525 billion Naira with a standard deviation of 37.12. In addition, the capital public expenditures on education (CPEE) has the average of 16.68 billion Naira and it ranges from a minimum of 0.1391 billion Naira to a maximum of 87.90 billion Naira with a standard deviation of 20.99. The Federal government capital public expenditures on health (CPEH) have a mean of 17.14 billion naira and it ranges from a maximum of 97.2 billion Naira to a minimum of 0.0511 with a standard deviation of 25.35.

Table 4.2 (c): Descriptive Statistics for Models 3.9 and 3.10

	EGR	HDI	HDIGR	TPEA	TPEE	TPEH	TPEIS	TPESC	TPETC
Mean	2.6	0.4	0.9	41.3	100.2	65.4	95.7	60.1	31.9
Median	3.0	0.4	0.9	10.0	22.5	8.4	11.5	5.4	8.4
Maximum	15.2	0.5	3.0	171.3	425.8	288.1	446.2	360.5	196.2
Minimum	-27.0	0.3	-1.5	0.2	0.3	0.1	0.0	0.0	0.2
Std. Dev.	5.9	0.0	0.7	51.8	135.8	92.2	136.5	103.9	46.6
Skewness	-3.2	0.3	-0.4	1.0	1.2	1.2	1.2	1.6	1.8
Kurtosis	18.7	1.9	7.4	2.7	3.2	3.0	3.2	4.3	6.1
Jarque-Bera	437.2	2.5	31.1	6.2	9.8	8.8	9.7	19.8	34.7
Probability	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	93.9	15.8	34.3	1487	3607	2355	3447	2166	1150
Sum Sq. Dev.	1238	0.0	17.8	94175	645871	297872	652427	378060	76066
Observations	36	36	36	36	36	36	36	36	36

Source: E-views output, version 9.0

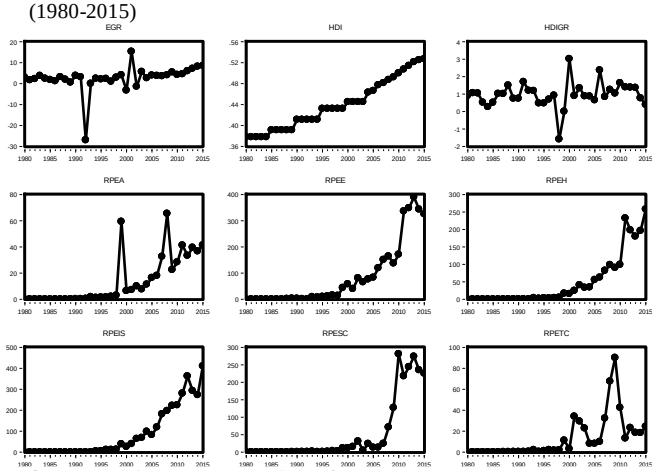
The Federal government total expenditures on internal securities (TPEIS) have a mean of 95.75 billion Naira. It ranges from a maximum of 446.2 billion Naira to a minimum of 0.00 billion Naira. The standard deviation is 136.53.To test for normality of the residuals, Jarque- Bera Statistic for all the variables have probabilities less than 5% significant level except Human Development Index (HDI), so the null hypotheses of normality were rejected, implying that the series were not normally distributed except Human Development Index (HDI).

Trends Analysis

The trend of the Human Development Index Growth Rate (HDIGR) shows a high level fluctuation in the trend with a mean of 0.955 and a minimum of -1.59 in the year 1998. The (HDIGR) trend also shows a maximum of 3.01 in the year 2000. The HDI indicates the number of people with access to education and other basic amenities that could promote inclusive economic growth. In summary, the trends of public expenditures in Nigeria is consistent with Peacock and Wiseman (1967) hypothesis which asserted that public expenditure will increase with respect to the growth of an

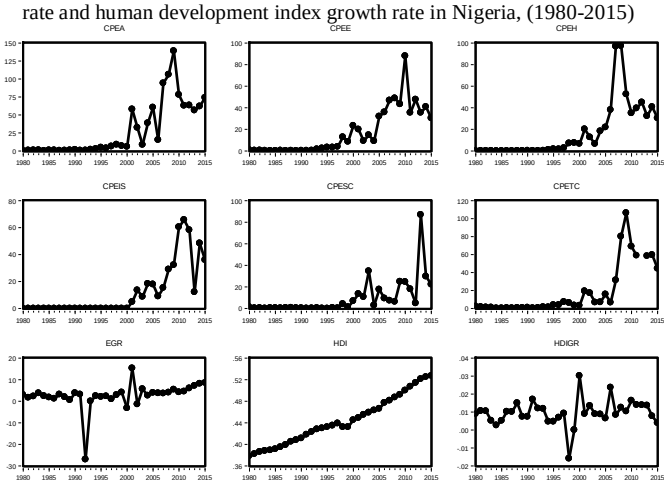
economy and that the growth in public expenditure is a non-linear relationship with the real per capita income.

Figure 4.1: Trends of recurrent public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



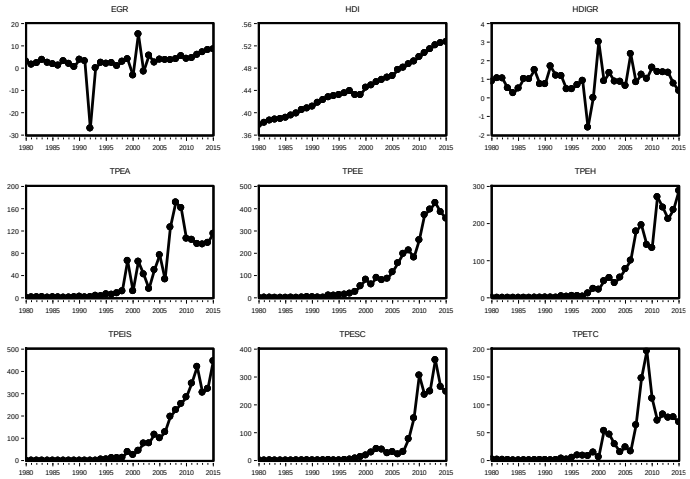
Source: *E-views output, version 9.0*

Figure 4.2: Trends of capital public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



Source: E-views output, version 9.0

Figure 4.3: Trends of total public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



Source: *E-views output, version 9.0*

Unit Root Test for Stationarity

This study conducted unit root test at level and first difference in order to determine univariate properties of the series being examined. To achieve this, the standard procedure of unit root test by (Philips and Perron, 1988) was employed. The Philips-Perron unit root test was used because it has the advantage of making use of non-parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. (Gujaranti and Porter, 2009).

Table 4.3(a): Unit root test for stationarity of recurrent public expenditure, using Philips-Perron test

Variable	Test statistics	Critical value	Order of integration
EGR	-6.197959	-4.243644^{xxx}	I(0)
HDIGR	-14.252879	-4.252879 ^{xxx}	I(1)
RPEA	-5.292043	-4.243644 ^{xxx}	I(0)
RPEE	-7.934188	-4.252879 ^{xxx}	I(1)
RPEH	-9.430942	-4.252879 ^{xxx}	I(1)
RPEIS	-9.182842	-4.252879 ^{xxx}	I(1)
RPESC	-6.143666	-4.252879 ^{xxx}	I(1)
RPETC	-7.500724	-4.252879 ^{xxx}	I(1)

Source: E-views output, version 9.0;^{xxx} implies significance at 1%.

Table 4.3(b):Unit root test for stationarity of capital public expenditure, using Philips-Perron test

Variable	Test statistics	Critical value	Order of integration

Variable	Test statistics	Critical value	Order of integration
EGR	-6.197959	-4.243644^{xxx}	I(0)
HDIGR	-14.252879	-4.252879 ^{xxx}	I(1)
CPEA	-9.500594	-4.252879^{xxx}	I(1)
CPEE	-3.843706	-3.544284^{xx}	I(0)
CPEH	-4.877134	-4.252879^{xxx}	I(1)
CPEIS	-12.40808	-4.252879^{xxx}	I(1)
CPESC	-6.132345	-4.243644^{xxx}	I(0)
CPETC	-3.652467	-3.562882^{xx}	I(1)

Source: E-views output, version 9.0; ^{XXX} implies significance at 1%; ^{XX} implies significance at 5%.

Table 4.3(c): Unit root test for stationarity of total public expenditure, using Philips-Perron test

Variable	Test statistics	Critical value	Order of integration
EGR	-6.197959	-4.243644^{xxx}	I(0)
HDIGR	-14.252879	-4.252879 ^{xxx}	I(1)
TPEA	-7.809334	-4.252879^{xxx}	I(1)
TPEE	-3.595946	-3.548490^{xx}	I(1)
TPEH	-10.13554	-4.252879 ^{xxx}	I(1)
TPEIS	-10.53171	-4.252879 ^{xxx}	I(1)
TPESC	-6.359462	-4.252879 ^{xxx}	I(1)
TPETC	-6.087190	-4.252879 ^{xxx}	I(1)

Source: E-views output, version 9.0; ^{XXX} implies significance at 1%; ^{XX} implies significance at 5%.

Interpretation of ARDL Bounds Test

ARDL Bounds test for Long run relationships

The bounds test results for long run relationships are presented in Table 4.4 (a) for models (3.1, 3.2, 3.5, 3.6, 3.9 and 3.10) that is, recurrent, capital and total public expenditures respectively.

Table 4.4 (a):ARDL Bounds Test for Long–Run Relationships
Null Hypothesis: No Long-Run Relationships Exist

	Recurrent Expenditure				Capital Expenditure				Total Public Expenditure			
Models	Model 3.1		Model 3.2		Model 3.5		Model 3.6		Model 3.9		Model 3.10	
DV	D(EGR)		D(HDIGR)		D(EGR)		D(HDIGR)		D(EGR)		D(HDIGR)	
F –Stats	5.196024		6.545377		5.258498		6.087770		4.841760		6.564562	
K	6		6		6		6		6		6	
Sig	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB	LB	UB
10%	2.12	3.23	2.12	3.23	2.12	3.23	2.12	3.23	2.12	3.23	2.12	3.23
5%	2.45	3.61	2.45	3.61	2.45	3.61	2.45	3.61	2.45	3.61	2.45	3.61
2.5%	2.75	3.99	2.75	3.99	2.75	3.99	2.75	3.99	2.75	3.99	2.75	3.99
1%	3.15	4.43	3.15	4.43	3.15	4.43	3.15	4.43	3.15	4.43	3.15	4.43

Source: E-views output, version 9.0

The F-statistics for the models were 5.196024, 6.545377, 5.258498, 6.08770, 4.841760 and 6.564562 respectively. This implies that the variables were cointegrated

since F-statistics exceeds the upper and lower critical bound values of 1%, 5%, 2.5% and 10% levels of significance. There were cointegration and long-run relationships among the variables. The null hypotheses were rejected.

All the lagged independent variables for recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, transportation and communications, as shown in Table 4.4 (b) below were all insignificant. The t-statistics were all less than 1.697 at 5% level of significance. Therefore, the variables do not contribute significantly to the changes in the dependent variables.

The values of R – squared of 0.583, 0.637,0.642, 0.621, 0.606 and 0.639 for models 3.1, 3.2, 3.5, 3.6, 3.9 and 3.10 respectively means that 58.3% , 63.7%, 64.2%, 62.1%, 60.6% and 63.9% of the variability in the dependent variables EGR and HDIGR were explained by the estimated equations in the aforementioned models.(i.e systematic component of the model consisting of all the predetermined variables) and 41.7%, 36.3%, 35.8%, 37.9%, 39.4% and 36.1% were left unexplained by the aforementioned models respectively. While t–statistics explains the significance of each regressor, F–statistics explains the significance of the entire systematic components of the equation.

The F–statistics values for Models 3.1, 3.2, 3.5, 3.6, 3.9, 3.10 were 5.20, 6.55, 5.61, 6.09, 4.80 and 6.56 with the probability ofF–statistics being 0.00085, 0.00017, 0.0004, 0.0003,0.0012 and 0.00016 for the aforementioned Models respectively. This means the entire Models were significant at 5% therefore, the null hypotheses were rejected.

Table 4.4 (b): ARDL Bounds Test

	Recurrent Expenditure		Capital Expenditure		Total Public Expenditure	
Models	Model 3.1	Model 3.2	Model 3.5	Model 3.6	Model 3.9	Model 3.10
Dependent Variable	D(EGR)	D(HDIGR)	D(EGR)	D(HDIGR)	D(EGR)	D(HDIGR)
Independent Lagged Values of Public Expenditures	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics
C	0.1997 (3.2192)	0.0043 (2.6511)	0.1755 (3.1852)	0.0041 (2.5216)	0.2106 (3.3856)	0.0041 (2.4060)
Agriculture	-0.0024 (-0.7742)	9.96E-05 (0.9471)	0.0063 (1.4673)	3.90E-05 (0.3664)	-0.0009 (-0.3294)	7.90E-05 (0.9283)
Education	-0.0010 (-0.4775)	-5.16E-05 (-0.7388)	-0.0033 (-0.8102)	2.65E-05 (0.2006)	-0.0002 (-0.0775)	6.94E-06 (0.0846)
Health	0.0016 (0.5164)	1.11E-06 (0.0103)	-0.0054 (-1.2368)	1.52E-06 (0.0149)	-0.0011 (-0.3610)	-9.34E-05 (-0.8842)
Internal Security	-0.0005 (-0.2475)	6.86E-05 (1.0351)	-0.0031 (-0.8899)	7.93E-05 (0.6234)	0.0007 (0.4561)	7.23E-05 (1.2625)
Social and Community Service	0.0001 (0.1024)	-1.10E-05 (-0.3337)	-0.0013 (-0.5021)	6.14E-05 (0.6770)	-0.0005 (-0.3103)	-1.93E-05 (-0.3902)

	Recurrent Expenditure		Capital Expenditure		Total Public Expenditure	
Models	Model 3.1	Model 3.2	Model 3.5	Model 3.6	Model 3.9	Model 3.10
Dependent Variable	D(EGR)	D(HDIGR)	D(EGR)	D(HDIGR)	D(EGR)	D(HDIGR)
Independent Lagged Values of Public Expenditures	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics	Coefficient & t-statistics
Transport & communications	0.0047 (1.5659)	-7.08E-05 (-0.6923)	0.0008 (0.2156)	-9.24E-05 (-0.6864)	0.002245 (0.8782)	-6.38E-05 (-0.7602)
R^2	0.5831	0.6380	0.6424	0.6210	0.6056	0.638648
F – Statistics	5.1960	6.5454	5.6138	6.0877	4.7998	6.564562
Prob(F-Statistics)	0.0009	0.0002	0.0003	0.0002	0.0011	0.000162
AIC	-0.2487	-7.0272	-0.3432	-6.9816	-0.2454	-7.029105
SIC	0.1104	-6.6681	0.0607	-6.6224	0.1585	-6.669962
Durbin Watson DW Stat	1.9939	2.0926	2.0172	2.1010	2.0010	2.180456

Source: *E-views output, version 9.0*

The Durbin–Watson DW statistics values 1.99, 2.09, 2.02, 2.10, 2.00 and 2.18 for the aforementioned Models respectively means autocorrelation is negligible. Therefore, there were no autocorrelations in the models. Meaning the error term of the successive models or equations was independent of each other.

Other tests of fitness of fit such as Akaike Information Criterion (AIC) were at the values of -0.2487,-7.0272, -0.3432, -6.9816, -0.2455 and -7.0291 for the aforementioned models respectively. These values were low which makes them good.

Policy implications of Findings

This study revealed a stable long run relationship between the regressors of public expenditure and inclusive economic growth. By implication the Federal Government macroeconomic policies have relatively been stable and the parameters of the models were also stable as depicted by the cusum diagrams in the appendix and the F-statistics. Therefore, consistent increase in public expenditure will further promote inclusive economic growth.

The t-statistics which explains the significance of each regressor indicate that individually the regressors failed to adequately impact inclusive economic growth. However, the F-statistics which explains the significance of the entire systematic components of the six (6) models were all statistically significant at 5% level. This implies that collectively the regressors have significant impact on inclusive economic growth. Therefore, policy makers should take advantage of the collective influence these sectors have on inclusive economic growth and further explore more avenues such as National Economic Empowerment and Development strategies (NEEDS), N-power and so on to make economic growth more inclusive.

5. Conclusion and Recommendations

It was obvious from the study that recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, transport and communications do not have significant impact on inclusive economic growth individually. However, they have significant impact collectively. Therefore, this study recommends the following:

In order for public expenditures to further have impact on inclusive economic growth; the Central Bank of Nigeria (CBN) should intensify efforts towards bringing about financial inclusion through financial literacy programmes. This will enhance public awareness on the availability of financial products in sectors such as agriculture, education, health and so on. The Central Bank of Nigeria (CBN) should also sustain and improve upon her efforts at financial inclusion through direct intervention funds in various programmes and projects across the country especially in areas such as agriculture, education, internal security, health and so on.

The government through the Ministry of Budget and Planning should formulate and implement institution strengthening policies in the areas of agriculture, education, health, internal security, transport and communications and other life enhancing programmes that can specifically help to reduce income inequality and poverty in the country. Examples of such life enhancing programmes in the past were Better Life for Rural Women, National Economic Empowerment and Development Strategy (NEEDS), Petroleum Trust Development Funds, N-Power and so on. The government through relevant Ministries, Departments and Agencies (MDAs) should also provide an enabling environment that will encourage increased investment in education, agriculture, health, and so on by individuals and the private sectors. Other motivating factors such as Job opportunities, enhanced wage structures and improved working conditions should be provided to encourage inclusive economic growth in Nigeria.

Since capital public expenditures is important in determining inclusive economic growth, sustained government spending on infrastructural development is important in enhancing financial inclusion and inclusive economic growth in Nigeria. The current paradigm where recurrent expenditures is more than capital expenditures should be checked. The government through her relevant Ministries, Departments and Agencies (MDAs) should also increase her public expenditures on social and economic infrastructures and other life enhancing programmes that can specifically help reduce inequality, unemployment and poverty. This will also help to enhance the efficiency of labour and increase productivity and by implication inclusive economic growth. A situation where school leavers and graduates are unemployed and left to roam the streets should be checked through appropriate funding and Job opportunities.

There is need to also improve on the performance of the various sectors of the economy for example agriculture, health, education, internal security and so on in order to achieve a sustainable inclusive economic growth. Efforts should also be made to ensure that financial sector services to the real sectors are sustainable to stimulate economic activities in a manner that creates linkages across economic values chains that will assure inclusive economic growth in the long-run.

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APPENDIX

Figure (1): Cusum Stability Diagnostics Test for Model 3.1

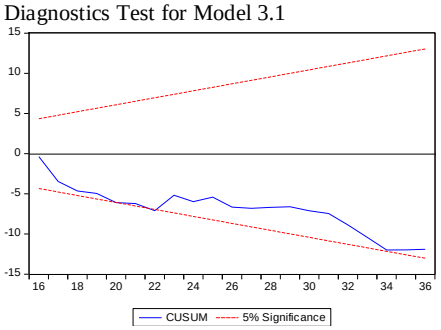


Figure (2): Cusum Stability Diagnostics Test for Model 3.2

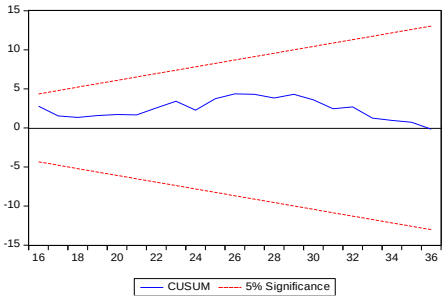
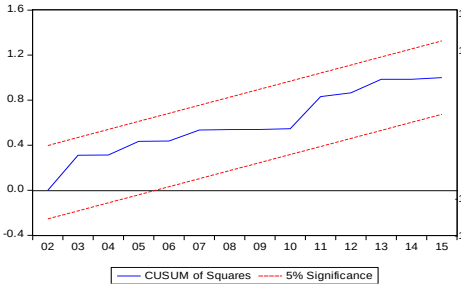


Figure (3): Cusum Stability Diagnostics Test for Model 3.5



Source: E-views output, version 9.0

Figure (4): Cusum Stability Diagnostics Test for Model 3.6

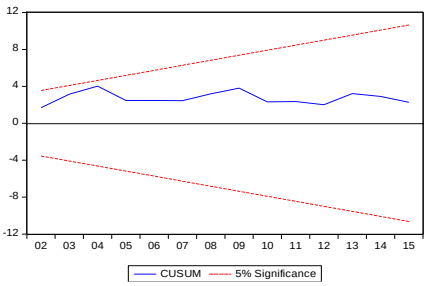


Figure (5): Cusum Stability Diagnostics Test for Model 3.9

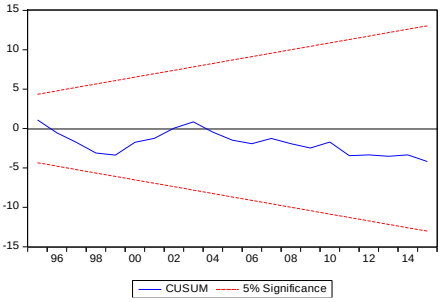
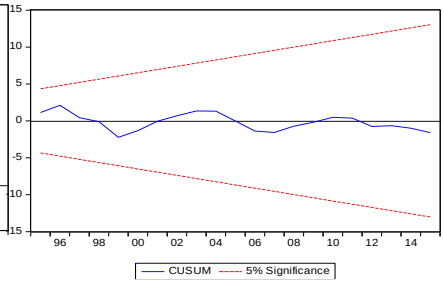


Figure (6): Cusum Stability Diagnostics Test for Model 3.10



Source: E-views output, version 9.0