An Empirical Analysis of the Contribution of Agriculture and Petroleum Sector to the Growth and Development of the Nigerian Economy from 1960-2010

By

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Abstract

This paper investigates the contribution of agricultural sector and petroleum sector to the economic growth and development (GDP) of the Nigerian economy between 1960 and 2010 through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series; after which Chow breakpoint test was conducted to test the presence of structural change or break in the economy. The results of unit root suggest that all the variables in the model are stationary and the results of Chow breakpoint test suggest that there is no structural change or break in the period under review. The results also revealed that agricultural sector is contributing higher than the petroleum sector, though they both possessed a positive impact on economic growth and development of the economy. A good performance of an economy in terms of per capita growth may therefore be attributed to a well-developed agricultural sector capital. A major policy implication of this result is that concerted effort be made by policy makers to increase the level of productivity of agricultural sector in Nigeria by improving expenditure on the sector so as to boost the growth of the economy. Since the agricultural sector is the major contributor to GDP in Nigeria which is capable of changing social indictors of the economy, policies aimed at adequate financing of agricultural sector by government in order to boast its output, may result into a way forward. Government evolves policies toward diversifying the economy and encouraged the campaign for improvements in the non-oil sectors of the economy especially agricultural.

Keywords: *Contribution of Agriculture, Petroleum and GDP growth and the Nigerian economy*

1. Introduction

Agriculture and petroleum sectors are the key sectors in the Nigerian economy. These sectors are the 'brain box' of the Nigerian economy. Agricultural sector is vital source of raw materials needed for the agro allied industries, especially Beverages Company, food and exports. It was the cornerstone of the economy in the 1960s and early 1970s.

Nigeria was heavily dependent on agriculture, which was the sector accounting for more than 40 percent of the Pre-1973 GDP. It was the major source of funds for implementing the first development plan, 1962-1968. Within a decade up to 1983 however, agricultural output in Nigeria declined to 1.9 percent and export fell to 7.9 percent. Agricultural imports as a share of the total imports rose from 3 percent in the late 1960s to 7 percent in the early 1980s. Nigeria's unfavorable agricultural development resulted from the loss of compositeness among farm exports as the real values of the Nigerian Naira appreciated substantially from 1970 to 1972 and from 1982 to 1983. According to the Central Bank of Nigeria report, "export-oriented agriculture declined from 42 per cent of the total export in 1970 to less than 3 per cent in 1985."

The sector has suffered from years of mismanagement, and inconsistency in the government policies and the era of huge oil revenues has also contributed in the neglect of the agricultural sector. Major agricultural products are Cassava, corn, millet, cocoa, palm oil, groundnuts, rice, rubber, sorghum, yam, and livestock production. The sector still accounts for over 26.8percent of GDP and two thirds of employments. Nigerian is no longer a major exporter of cocoa, cotton, groundnuts, rubber and palm oil. The continuous decline in the agricultural sector despite huge investments in the sector, which among others include the establishment of River basins and Rural Development Authorities, the Agricultural Development programmes, ADP, (funded jointly by the World Bank and the federating Units in Nigeria),and more than 20 Agricultural Research Institutes. Over the years, especially in the early 1980s and late 1980s, modest programmes were evolved: the Obasango's Operation Feed the Nation (OFN), Shagari's Green revolution, and most recently, Obasango's agricultural programmes in 2004-2005, prominent was the cassava projects and much attention given to the sector. During the 2007, President Yar Adua's 7 point agenda also places emphasis on Food security. Despite all these, agriculture has failed to keep pace with Nigeria's rapid population growth. Nigeria once exporter of food, now relies on imports to sustain its growing population.

Change in the structure of the Nigerian export composition was not until 1970 with the new 'entrant oil. The Petroleum sector brought about fundamental changes in the Nigerian economy. Increased dependence on the oil sector had brought mixed feelings by the Nigerian government when it became the 'life line' of the economy due to increase dependence such that all sectors of the economy suffered the shockwaves.. According to Marinho a former NNPC Managing Director, "….government economic policies seemed to be dominated by the mentality that money is not our problem" (Marinho, 1984, p 23) had brought crisis in the Nigeria economy Over the years due to continuous dependence on the sector- for instance the crisis in 1985 brought economic emergency measures that culminated to the SAP year in 1986, to the most recent adjustments due to a drastic fall in the oil price in the 2009 budget. According to OPEC report of trends in global demand it showed that:

> *The financial crisis dominated market sentiment as the economic slowdown dented petroleum demand growth.(pg. 1)*
> These are the trends in the sector that have plagued all sectors of the Nigerian economy for many years. Policies aimed at diversifying the economy are yielding slow progress, especially the non-oil sector.

2. Theoretical and Conceptual Review

Agriculture
Agriculture involves the cultivation of land, raising and rearing of animals, for the purpose of production of food for man, feed for animals and raw materials for industries. It involves forestry, fishing, processing and marketing of these agricultural products. Essentially, it is composed of crop production, livestock, forestry, and fishing. The role of agriculture in reforming both the social and economic framework of an economy cannot be over-emphasized. It is a source of food and raw materials for the industrial sector. It is also essential for the expansion of employment opportunity, for reduction of poverty and improvement of income contribution, for speeding up industrialization and easing the pressure on balance of payment (Nwankwu, 1981). In effect, it has been the main source of gainful employment, which the nation can feed its teeming population, a regenerative source of foreign exchange earnings, a means of providing the nation's industries with local raw materials and as a reliable source of government revenue.

However, since independence, the role of agriculture in the economy has been on the downward trend especially its contribution to Gross Domestic Product (GDP). It shares to GDP fell from 39.9 percent in 1970/71 to 20.0 percent (based on constant prices) in 1988. This situation has partly due to the emergence of oil as an important commodity and partly to the poor performance of the sector. This contrasted position by 1963/64 year when agriculture contributed as much as 61.50 percent to the GDP.

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Central reason for formulating economic policies are to regulate the programmes of the economy; the optimum use of resources and achieving stability in the overall linkages in the sectors of the economy, are the desired paths of any economy.

Most of the literature relating to the Nigerian economy seems to always trace the structural changes in the economy resulting from changes in export revenue to the near neglect of vital sectors like the agricultural and the industrial sectors. This has always been attributed to trends in government policy making. It is important to measure the contribution of these sectors (Agriculture and Petroleum) because what we are measuring is the government's role as direct economic agent in the formulation of policies that affects the pace of the economy.

Changes in the structure of the Nigerian economy had brought with it business cycle-like description. Some of these periods were severe especially the years culminating to SAP years, a period where the economy could be described to be in a mild recession. This period defined critical aspects of many sectors like the industrial, agricultural and changed the *social welfare function* of individuals in Nigeria. The economy depended on a volatile oil sector. According to Graham(1978), "where imports are of developmental nature, such as capital goods and fertilizers, and are not domestically substitutable, a short fall in export earnings will tend to exert an adverse influence on development and growth of an economy"

Akorlie (1994) showed that Nigeria had caught the pandemic of the Dutch Disease because in the peak of the oil boom, it experienced heavy dependence on the imports due to rise in exports over the years. Rise in government paralstatals became punch-holes for government expenditure and further made worst government investments for the provision of public good.

Reynolds (1975) opined that agricultural development can promote economic development of the underdeveloped countries in distinct ways:
  (i)   By witnessing the supply of food available for domestic consumption and referring the labour needed for industrial development.
  (ii)   By enlarging the site of the domestic market for the manufacturing sector.
  (iii)   By increasing the supply of domestic savings and
  (iv)   By providing the foreign exchange earned by agricultural exports.

In their contributions, Omawalea and Rogrigues (1979) were of the views that most developing countries' agriculture has been assigned an important role in national development. To them, agriculture has been seen as a means of reducing dependence on certain importance, containing food price increases, earning foreign exchange, absorbing many new entrants to the labour market and increasing farm income at times of severe unemployment and rural poverty.

Johnson (1970), agreed with the above views that the appraisal of the agriculture's contributions or role in the national economy can be made using the primary criteria namely: the proportion of the population engaged in agriculture, the share of agriculture in the Gross Domestic Product, the proportion of the nation's responses devoted or employed in agricultural production and finally, the contribution of the agricultural sector to foreign trade.

Thus, in attempting to assess the importance of the agricultural sector in the Nigerian economy, our focus is to examine the contributions of the sector to food supply, employment, and source for raw materials to the industrial sector, (generally the Gross Domestic product) and export earning and Balance of payment. This is important especially as Nigeria makes proposals in the vision 2020 to become one of the 20 industrialized nations. It must in its preference place priorities on vitals sectors of the economy because these are the spring board for the realization of Nigerian's vision.

According to Anyanwu J.C (1999) the bulk of the Nigerian population lives in the rural areas where their major occupation is agriculture. Statistics has shown that over 60% of the Nigerian population engage in agricultural activities, that is to say agriculture is the major employer of labour in Nigeria but the sector has been experiencing neglect since the advent of petroleum in 1970s. This lead to high level of unemployment, abject poverty and wide spread income inequality that hampered the growth and development of this country.

According to Prof. Dudley seer there are basically three indicators of development in a country namely:- unemployment, poverty and income inequality. To him if these three things are not reducing rather increasing a country is considered underdeveloped, this is the Nigerian situation.

Petroleum
Modern activities in mining have involved crude petroleum and associated gas production in which foreign owned oil companies are partners (and local prospectors from 1990).

The development of the petroleum (oil) industry in the country began in the first decade of this century. It started with exploration activities by the German Bitumen Corporation. In 1937, an oil prospecting license was granted to shell D'Arcy Exploration Parties. In 1955, Mobil Exploration Nigeria Incorporated obtained concession over the whole of the former northern region of the country. This company carried out some geological work, drilled three deep wells in the former western region and abandoned the concession in 1961.

In 1958, the company started production. In 1961, the Federal Government of Nigeria issued ten oil prospecting licenses on the continental shelf to five companies. Each license covered an area of 2,560 square kilometers and was subject to the payment of N1m. With these generous concessions, full-scale on-shore and off-shore oil exploration began.

Oil was found in commercial quantities at Oloibiri in Niger Delta. Further discoveries at Afam and Boma established the country as an oil-producing nation. By April 1967, oil from Nigeria had reached 2 million barrels per day.

Mining sector is the prior sector in Nigeria since late 1970s with the discovery of oil in commercial quantity in some part of the country. The mining sector has been the mainstay of the Nigerian economy especially petroleum. Petroleum sector is the major contributor to GDP over the years as indicated by the current statistic. At average petroleum is contributing almost 40% to GDP, in 1990 its contributed 37.46, 48.19 in 2000 but its contribution decrease to 29.62% in 2009. The falling nature of this sector is attributed partly to the crisis in the Niger Delta region and partly due the overwhelming emphasis given to agriculture with the current global food crisis and the need for the country to diversify its export base. With the discovery of crude oil in commercial quantity in the early 1970s the contribution of agricultural sector has been on the decline due partly because of the neglect of the sector as well inadequate agricultural policies.

3. Empirical Review

Oji-Okoro (2011) investigate the contribution of agricultural sector on the Nigerian economic development and reveal that foreign direct investment on agriculture contribute the most (56.43), this means that for every unit of change in FDI on agriculture there is a corresponding change of 56.43 unit in GDP in Nigeria. Suleiman and Aminu (2010) conducted research on the contribution of agriculture, petroleum and manufacturing sector of the Nigerian economy and found out that agricultural sector is contributing higher than both petroleum and manufacturing sectors. The paper reveals that agriculture is contributing 1.7978 units to GDP while petroleum is contributing 1.14 units to GDP which is less than the contribution of agriculture. Awe and Ajayi (2009) conducted research on the diversification of the

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Nigerian revenue base for economic development reveals that the R^2 for agricultural revenue was significant when the log of revenue from agriculture was tested on the revenue from agriculture. About 60 percent of the movement could be explained in the relationship. The findings from the study further revealed that dynamic relationship exists between the revenue from the non-oil sector economic development. Ekpo and Umoh (2012) revealed that the contribution of agriculture to GDP, which was 63 percent in 1960, declined to 34 percent in 1988, not because the industrial sector increased its share but due to neglect of agriculture sector. It was therefore not surprising that by 1975, the economy had become a net importer of basic food items. The apparent increase in industry and manufacturing from 1978 to 1988, was due to activities in the mining sub-sector, especially petroleum. Muhammad and (2006) conducted study on production of agriculture in Nigeria and revealed that the negative coefficient of the value (-0.07) of the food imports indicates that as food import increases, domestic agricultural production decreases. This might be due to the fact that food importation exposes the local farmers to unfair competition by foreign producers who usually take advantage of economies of scale in production due to their access to better production technology.

The positive coefficient (286.91) of the GDP growth rate indicates that increase in the GDP also moves domestic agricultural production in the same direction. This shows that increased domestic economic activity has the impact of increasing the domestic agricultural production. This may be due to the fact that most economic activity in the country is related to agriculture.

The result also shows that population increases has been a major contribution to domestic agricultural production in Nigeria with the coefficient (18424.73). This may be due to the fact that majority of the populace are engaged in agriculture, meaning more hand on the farm as population increases.

The coefficient of consumer price index was positive (8.49). This shows that as consumer price increases domestic agricultural production also increases', meaning that domestic agricultural production is positively related to increase in consumer prices. This may be due to the fact that increase in price stimulates supply on the farmer's side leading to more production of food. More agro-processing activities must therefore be embarked upon in order that farmers may be able to dispose of their produce at fairly reasonable prices.

The result of the coefficient (0.04) of government expenditure was positive, that is domestic agricultural production is positively related to increase in government expenditure, meaning that as government expends more on agriculture, domestic agricultural production also increases. The reason why it was not significant might be due to the fact that government has not been investing so much on agriculture over the years.

4. Data and Method of Analysis

Data
The data used for this paper/study are basically time series data covering 1960– 2010, that is fifty-one(51) years. The data were sourced from Central Bank Nigeria (CBN) Statistical Bulletin.

Method of analysis
The research work makes use of the econometric procedure in estimating the relationship between the variables. The ordinary Least Square (OLS) technique will be employed in obtaining the numerical estimates of the coefficients of the equation, Augmented Dicky-Fuller test of stationarity would be adopted after which Chow break point and Chow forecast test would be used to test for structural change in the economy. The OLS method is chosen because it possesses some optimal properties; its computational procedure is fairly simple and it is also an essential component of most other estimation techniques.

In demonstrating the application of ordinary least square method, the multiple linear regression analysis was used with the GDP, Agriculture and petroleum, as the relevant variables. The dependent variable is GDP while the Agricultural output and petroleum output are the independent variables. Justification for the selection of these methods was that the data was a time series data and all time series data exhibit a random walk.

Models specification
This paper employed the model of Cobb-Douglas production function with constant returns to scale as:
$GDP = \alpha AGRIC^{B1} PETROL^{B2} \mu$ -------------------------------- (1)

Where GDP is defined as gross domestic product (output), α is the total factor productivity; AGRIC is the contribution of agriculture to GDP ; PETROL is the contribution of petroleum to GDP; B_1 and B_2 are the constant elasticity coefficients of agriculture and petroleum respectively. The logarithmic conversion of the equation above yields the structural form of production function as:

$Loggdp = Log\alpha + B_1 LogAGRIC + B_2 LogPETROL + Log\mu$ -------------- (2)
Where Loggdp = Log of Gross Domestic Product.
$Log\alpha = B_0$ is the intercept.
LogAGRIC = Log of contribution of agricultural sector to GDP.
LogPETROL = Log of the contribution of petroleum sector to GDP.
$Log\mu$ = Log of white noise error term which is assume to be 1.
μ = white noise error term.

Hypotheses
HO: Agricultural sector is not the major contributor to GDP of the Nigerian economy relative to petroleum sector.
HI: Agricultural sector is the major contributor to GDP of the Nigerian economy relative to petroleum sector.

Apriori Expectation: $B_0 > 0$, $B_1 > 0$, $B_2 > 0$.

5. Results and Discussion

Table 2 in the appendix contains multivariate regression results of growth model. The results indicate that both the coefficient of agriculture and petroleum sector are statistically significant at 1 percent level as indicated by the probability value 0.0000.This implies that a percent change in the output of agriculture and petroleum will increase GDP by 215.29 and 79.25 respectively which is consistence to the theoretical expectation and found to be positive. The intercept is found to be statistically insignificant an inconsistent with the theoretical expectation and found to be negative (i.e.$B_O < 0$); this is indicated by its high probability value 0.7724. This high probability implies that the presence of that effect that can invalidate the parameter is high (77.24 percent). This implies that GDP (economic growth) in Nigeria depends only on the two sectors agriculture and petroleum. The results also revealed that agriculture is contributing higher than petroleum to GDP over the years under review despite the neglect of the sector since the advent of oil in the early 1970's.

The R^2 0.9993 implies that 99.93 percent of total variance in GDP is explained by the regression equation or by the two sectors put together. Coincidentally, the goodness of fit of the regression remained high after adjusting for the degrees of freedom as indicated by the adjusted R^2 ($R^2 = 0.9993$ or 99.93%). F-statistics 36800.46, which is the measure of the joint significance of the explanatory variables, is found to be statistically significant at 1 percent as indicated by the corresponding probability value (0.000000).The Durbin-Watson statistic 2.3982 implies absence of autocorrelation in the model, the

Durbin-Watson statistic 2.3982 in table 2 is higher than R^2 0.9993 this indicate that the model is non-spurious and therefore can produce meaningful results.

Table 3 in the appendix: Chow Breakpoint Test reveals that there is no structural break in the Nigerian economy for the period under review. The null hypothesis of no structural break is accepted with low F-statistic value 0.1235 and a corresponding high probability value 0.9929. Table 4, 5 and 6 in the appendix contained the unit root test results. The results revealed that all the variables of the model are found to be stationary at both 1 percent, 5 percent, and 10 percent level. GDP and contribution of agriculture (LOGAGRIC) are both stationary at second difference (d(2)), while the contribution of petroleum is stationary at first difference (d(1)), which is indicated by ADF results at all levels greater than the critical values in absolute term.

6. Concluding Remark

This paper investigates the impact of contribution of agricultural sector and petroleum sector on the economic growth and development (GDP) in Nigeria through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series and Chow breakpoint test in testing the presence of structural change or break in the economy. The results of unit root suggest that all the variables in the model are stationary and the results of Chow breakpoint test suggest that there is no structural change or break in the period under review. The results also revealed that agricultural sector is contributing higher than the petroleum sector, though they both possessed a positive impact on economic growth and development of the economy. A good performance of an economy in terms of per capita growth may therefore be attributed to a well-developed agricultural sector capital. A major policy implication of this result is that concerted effort should be made by policy makers to increase the level of productivity of agricultural sector in Nigeria by improving expenditure on the sector so as to boost the growth of the economy. Since the agricultural sector is the major contributor to GDP in Nigeria which is capable of changing social indictors of the economy, policies aimed at adequate financing of agricultural sector by government in order to boast its output, may result into a way forward.

Government should evolve policies toward diversifying the economy and encouraged the campaign for improvements in the non-oil sectors of the economy especially agricultural.

References

Akorlie A. N., Dutch Disease (1994), Government policy and import Demand in Nigeria, Dept of Economics, University of Wisconsin, *Applied Economics,* Vol. 26, No. 4, 327-336.

Awe, A.A. (2009) Diversification of Nigerian Revenue Base for Economic Development: the contribution of non-oil sector. Journal of Social Sciences. Medwell Journals Scientific Research Publishing Company. Pakistan. Vol.6.Issue 3,pp138-143.

Central Bank of Nigeria (1993), "maximizing Trade, Finance and Investment Opportunities in Africa and Europe, an opinion presented by Okuroumu, T.O., CBN Bullion, Vol.17, No. 3, July/September.

Charles Nwaoguji (2009), Manufacturing sector remains distressed, The Sun online, January 22, 2009.

Ekpo, A.H. and Umoh, O.J. (2012) Overview of the Nigerian Economic Growth and Development.

Eghosa Osagie (1992) Edited, Structural Adjustment Programme in the Nigeria Economy, National Institute for Policy and Strategic Studies, Kuru, Jos Nigeria pp 71-104

Enebeli-Uzor, Sunday, (2009), Economic Meltdown: The realities for the manufacturing sector in Nigeria, Zenith Bank Economic Quarterly, Nigeria, pg 46-58.

Evbuomvom, G.O et al (2003), Agricultural Development: Issues of sustainability, CBN Publication, Abuja Nigeria.pp743-745.

Federal Government, Nigeria (2001), Main Report of Federal Ministry of Agriculture on Rural Development Sector Strategy, Abuja Nigeria. Pp 1-9, 46-60

Graham, B. (1978), The International Monetary System and the less Developed Countries, Macmillan Press, London.pp 334-339

Johnson B.F, (1966) Agriculture and Structural Transformation in Developing Countries: A survey of Research, *Journal of Economic literature*, Vol.8 No.2.

Malik Adeel et al (2004), The Performance of Nigerian Manufacturing Firms: Report on the Nigerian Manufacturing Enterprise Survey, United Nation industrial Development Organization, Federal Ministry of Industry and Department of Economics University of Oxford.

Marinho, FRA (1984), Oil politics and National Development, A lecture delivered at the National Institute for Policy and Strategic Studies, Kuru, Jos, Nigeria.

Muhammad, L.A. and Atte, O.A. (2006) Analysis of Agricultural production in Nigeria. African Journal of General Agriculture, Vol.2, No.1. Nigeria.

Ogiebor, N, (1987), Harvest of Failure, Newswatch October 5, Lagos, Nigeria.

Oji, O.I. (2011) Analysis of the contribution of Agricultural sector on the the Nigerian Economic Development.World Review of Business Research, Vol.1,No.1, pp191-200. Wuhan University of Technology.Wuhan P.R.China.

Omawale and Rodriguez A.M, (1979), Agricultural credit related to nutrition and national development in the Caribbean: A case study of the Guyana Agricultural Cooperative Bank in tropical agriculture Vol.56, No.1 p.369

Onyeonoru Ifeannyi (2003), Globalization and Industrial Performance in Nigeria, Journal of African Development, Vol. xxviii, Nos. 3 & 4.

Opec (2008), Monthly Oil market Report, November, 2008 Http://www.opec.org/publications

Reynold, L.G. (ed), (1975), Agriculture in Development theory, Yale University Press, London p.327.

Suleiman, G.P and Aminu, U. (2010). Analysis of the Contribution of the three Key sectors (Agriculture,Petroleum and Manufacturing sectors) of the Nigerian economy. Journal; of Management Studies Faculty of Management Sciences Vol.3. Usman Danfodio University, Sokoto.

World fact book (1991), Nigeria Planning, http://www.geographic.org

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APPENDIX

Table 1.

Gross domestic production and the share of agriculture from 1960 – 2010.

Year	GDP IN MILLION Y	Share of Agriculture (X₁)	Share of Petroleum Natural Gas (X₃)
1960	2233	1417.8	7
1961	2361.2	1456.6	21.2
1962	2597.6	1605.8	29
1963	2755.8	1673.8	28.8
1964	2894.4	1876.4	42.2
1965	3110	1691.8	106.8
1966	3374.2	1855	129
1967	2752.6	1527.8	71.8
1968	2656.2	1415.2	43
1969	3549.3	1711.7	230.5
1970	5281.1	2578.4	489.6
1971	6650.9	3033.7	944.2
1972	7187.5	3092.7	1144
1973	8630.5	3261.2	1899.2
1974	18823.1	4378	4108.7
1975	21475.2	5872.9	4165.5
1976	26655.8	8122	6105.9
1977	31520.3	7401.6	7071.6
1978	34540.1	8033.6	7539.4
1979	41974.7	9213,1	10687.7
1980	49632.3	1011.5	14137.4
1981	47619.7	13580.3	10219.8
1982	49069.3	15905.5	8512.9
1983	53107.4	18837.2	7388.7
1984	59622.5	23799.4	9037.4
1985	67908.5	26625.2	11375.2
1986	69147	27887.5	9558.9
1987	105222.9	39204.2	26722.8

1988	139085.3	57924.4	29859.2
1989	216797.5	69713	76530.3
1990	267550	84344.6	100223.4
1991	312139.8	97464.1	116525.8
1992	532613.8	145225.3	246828
1993	683869.8	231832.7	242109.7
1994	899863.2	349244.9	219109.3
1995	1933211.6	619806.8	766518
1996	2702719.1	841457.1	1157911.3
1997	2801972.6	953549.4	1068978.5
1998	2708430.9	1057584	736795.3
1999	3194023.6	1127693.1	1024464.3
2000	4537637.2	1192910	2186682.5
2001	4685912.2	1594895.5	1669001.1
2002	5403006.8	1883252.7	1798823.4
2003	6947819.9	2136466	2741553.9
2004	11411066.9	3903758.7	4247716.05
2005	14610881.5	4752978.8	5664883.21
2006	18564594.7	5940237	6982935.44
2007	20657317.7	6757867.7	7533042.6
2008	24296329.3	7981397.3	9097750.7
2009	24712669.9	9193851.7	7319262.7
2010	29108024.5	10363714.5	7617888.6

Source: Central Bank of Nigeria Statistical Bulletin, 2009 and 2010
TABLE 2: MULTIPLE REGRESSION RESULTS
Dependent Variable: LOGGDP
Method: Least Squares
Date: 03/17/12   Time: 20:03
Sample: 1960 2010
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8721.059	29986.46	-0.290833	0.7724
LOGAGRIC	2.152914	0.046818	45.98500	0.0000
LOGPETROL	0.792517	0.048426	16.36538	0.0000

R-squared	0.999348	Mean dependent var	3569802.
Adjusted R-squared	0.999321	S.D. dependent var	7309891.
S.E. of regression	190463.9	Akaike info criterion	27.20934
Sum squared resid	1.74E+12	Schwarz criterion	27.32297
Log likelihood	-690.8381	F-statistic	36800.46

| Durbin-Watson stat | 2.398194 | Prob(F-statistic) | 0.000000 |

COMPUTER OUTPUT

TABLE 3: TEST FOR STRUCTURAL CHANGES

Chow Breakpoint Test: 1970 1986

| F-statistic | 0.123518 | Probability | 0.992878 |
| Log likelihood ratio | 0.892074 | Probability | 0.989375 |

COMPUTER OUTPUT

TABLE 4: UNIT ROOT TEST FOR THE DEPENDANT VARIABLE LOGGDP.

Null Hypothesis: D(LOGGDP,2) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic based on SIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.936688	0.0000
Test critical values:	1% level	-3.581152	
	5% level	-2.926622	
	10% level	-2.601424	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGGDP,3)
Method: Least Squares
Date: 03/18/12   Time: 11:15
Sample(adjusted): 1965 2010
Included observations: 46 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGGDP(-1),2)	-2.012429	0.290114	-6.936688	0.0000
D(LOGGDP(-1),3)	0.541666	0.251046	2.157631	0.0367
D(LOGGDP(-2),3)	0.754651	0.162208	4.652375	0.0000
C	117289.4	93744.13	1.251165	0.2178

R-squared	0.872264	Mean dependent var	86500.73
Adjusted R-squared	0.863140	S.D. dependent var	1692857.
S.E. of regression	626266.1	Akaike info criterion	29.61588
Sum squared resid	1.65E+13	Schwarz criterion	29.77489
Log likelihood	-677.1652	F-statistic	95.60089
Durbin-Watson stat	1.500754	Prob(F-statistic)	0.000000

COMPUTER OUTPUT

TABLE 5: UNIT ROOT TEST RESULTS FOR LOGAGRIC

Null Hypothesis: D(LOGAGRIC,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=1)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-12.91847	0.0000
Test critical values:	1% level	-3.574446	
	5% level	-2.923780	
	10% level	-2.599925	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGAGRIC,3)
Method: Least Squares
Date: 03/18/12   Time: 11:19
Sample(adjusted): 1963 2010
Included observations: 48 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGAGRIC(-1),2)	-1.568371	0.121405	-12.91847	0.0000
C	38725.33	34024.81	1.138150	0.2610
R-squared	0.783923	Mean dependent var		-889.6250
Adjusted R-squared	0.779225	S.D. dependent var		499655.6
S.E. of regression	234771.4	Akaike info criterion		27.61139
Sum squared resid	2.54E+12	Schwarz criterion		27.68935
Log likelihood	-660.6733	F-statistic		166.8868
Durbin-Watson stat	2.187365	Prob(F-statistic)		0.000000

COMPUTER OUTPUT
TABLE 6: UNIT ROOT TEST RESULTS FOR LOGPETROL.
Null Hypothesis: D(LOGPETROL) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.748185	0.0000
Test critical values:	1% level	-3.571310	
	5% level	-2.922449	
	10% level	-2.599224	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGPETROL,2)
Method: Least Squares
Date: 03/18/12   Time: 11:06
Sample(adjusted): 1962 2010
Included observations: 49 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGPETROL(-1))	-0.825545	0.143618	-5.748185	0.0000
C	129407.9	79797.86	1.621697	0.1116
R-squared	0.412806	Mean dependent var		6094.116
Adjusted R-squared	0.400312	S.D. dependent var		694762.9
S.E. of regression	538021.1	Akaike info criterion		29.26914
Sum squared resid	1.36E+13	Schwarz criterion		29.34636
Log likelihood	-715.0940	F-statistic		33.04163
Durbin-Watson stat	2.057824	Prob(F-statistic)		0.000001

COMPUTER OUTPUT