

Impact of Fixed Medium-Term National Development Plans and Structural Adjustment Program on Aggregate Economic Activity in Nigeria

Uche M. Ozughalu^{1*}, Uche C. Nwogwugu²

1. Department of Economics, Faculty of the Social Sciences, University of Nigeria, Nsukka, Enugu State, Nigeria.
2. Department of Economics, Faculty of Social Sciences, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

*Email of corresponding author: uchemord@yahoo.com

Abstract

Nigeria adopted and implemented four fixed medium-term national development plans between 1960 and 1985 with a view to ultimately achieving optimum societal wellbeing. However, due to the economic problems of the 1980s, an extensive structural adjustment program (SAP) was put in place in 1986. Among other things, SAP was meant to restructure and diversify the Nigerian economy. This paper empirically analyzes the impact of the four plans and the structural adjustment program on aggregate economic activity in Nigeria. The study employs a growth equation that contains major macroeconomic variables such as credit to private sector, foreign direct investment and foreign trade as well as dummy variables that capture eras of the four fixed medium-term national development plans and the structural adjustment program. Contemporary econometric techniques of co integration and autoregressive modeling form part of the methodology for this study. The study is based on annual time series data from 1960 to 2009 obtained from the Central Bank of Nigeria (CBN). The estimates of the study, among other things, reveal that the fixed medium-term national development plans in general had no significant impact on aggregate economic activity in Nigeria whereas the structural adjustment program had some significant positive impact on aggregate economic activity in the country. Thus there is need for optimum state planning in the country, especially if the planning is for fixed medium-term. In general, there is need for optimal management of the country's economy.

Keywords: Development planning, Econometrics, Structural adjustment program, Time series, Nigeria.

INTRODUCTION

Nigeria attained political independence on October 1, 1960. In the pre-independence era, the country was governed by British Colonial masters. Under the colonial masters, economic activities and fortunes were predicated on central planning and regulations as dictated by the masters. Even though the colonial masters apparently tried their best to improve the welfare of the people through co-ordinated planning yet economic achievement under the British rule was evidently small. As indicated in Usoro (1983), the Nigerian economy experienced various problems; these were evidently due to the fact that the planning that was done for the country under the British rule and dictatorship was essentially meant to serve the interest of Great Britain. Under the British rule, the Nigerian economy was subsistence and survival was through close adaptation to the local environment (Usoro 1983). It is pertinent to state here that the first phase of development planning in Nigeria was undertaken by British colonial administrative officers. As observed by Awoseyila (1996), this followed largely the initiatives of the British Secretary of State for the colonies who called upon Governments of all British dependencies to produce proposals for development under the Colonial Development and Welfare Act. This led to the emergence of the "Ten-year Plan and Welfare for Nigeria: 1946 – 55". This plan marked the first attempt to draw up a consistent guideline for the allocation of resources for the

development of the Nigerian economy. The Central Development Board assisted by Area Development Committees in each of the three groups of provinces (Northern, Eastern and Western) into which Nigeria was then divided for administrative purposes had the responsibility of drawing the plan. But when Nigeria became a Federation on October 1, 1954 and more powers were given to the regions, development planning became regionalized. Thus the 1946 plan was terminated on March 31, 1955 and each of the three regional governments launched new plans with effects from April 1, 1955. In general, the pre-independence plans of both Federal and Regional Governments were not comprehensive as each of the development schemes in the plans had no relationship with one another or to any broad objective. And government programs and activities were not coordinated with development in the private sector (Awoseyila 1996).

As if Nigeria got used to central planning and regulations which characterized the later part of the British colonial rule, the country embraced developing planning after gaining independence; the country adopted and implemented four fixed medium-term national development plans between 1960 and 1985. However, as pointed out in Ozughalu (2006), from 1960 – 1985 when the Nigerian economy was characterized by very high and increasing dominance of public sector/public enterprises in economic activities, the economy could not be put on the path of sustainable growth and development rather it witnessed fluctuating fortunes (CBN 1993). It is instructive to state here that with the collapse of the world oil market in the early 1980s, the Nigerian economy began to show great signs of distress. These were followed by serious macroeconomic problems that initially led to the introduction of an economic stabilization policy package in 1981 and later to various rounds of budget-fighting austerity measures between 1982 and 1985. Despite these policy measures, the problems apparently remained unabated. Indeed, since the 1980s it has become very clear to virtually all and sundry that the public sector has failed in its assumed role of a dominant instrument for the socio-economic development of Nigeria (Ozughalu 2006).

When it became glaring that the measures were not producing the desired results, an extensive structural adjustment program (SAP) was put in place in Nigeria in 1986. SAP was the first major economic reform program in the country and it operated till 1993 (Osaghae 1995). A critical examination of the Nigerian economy during the SAP era will reveal that while improvements were recorded in some areas, some traditional economic problems persisted and new ones even emerged (CBN 1993).

There has been heated debated among economists and policy analysts on whether or not the four fixed medium-term national development plans and the structural adjustment program had significant positive effects on the Nigerian economy. This paper makes a modest contribution to the debate by empirically analyzing the impact of the four fixed medium-term national development plans and the structural adjustment program on aggregate economic activity in Nigeria. The rest of the paper is organized as follows. Section 2 contains some relevant background to the study while Section 3 reviews some relevant literature. Section 4 centers on econometric analysis of the impact of fixed medium-term national development plans and structural adjustment program on aggregate economic activity in Nigeria while Section 5 contains some recommendations and some brief concluding remarks.

2. BACKGROUND TO THE STUDY

2.1 THE FOUR FIXED MEDIUM-TERM NATIONAL DEVELOPMENT PLANS

2.1.1 The First National Development Plan: 1962 – 1968

The National Development Plan of 1962 – 1968 was the first conscious effort by government to set and quantify national objectives as well as to ensure a common national planning framework. The plan was designed, among other things, to facilitate the achievement and maintenance of the highest possible rate of increase in the standard of living and to provide necessary conditions for wealth creation, including public support and awareness of the sacrifices that would be required. In specific terms, the plan, among other things, aimed at achieving a minimum growth rate of 4% in the gross domestic product for the Nigerian economy and the acceptance of a common general priority by all governments. The highest priorities were accorded to agriculture, industry and the training of high and middle level manpower (Awoseyila 1996; Obadan 2003).

It is worthwhile to note that the plan relied heavily on external sources for funds to execute a major part of its design; this constituted a serious constraint to the implementation of the plan during the period. Suffice it to say that the country's external reserve was considered too low to draw from to finance the plan. And the expected foreign capital for the execution of public sector program was not realized. However, many projects were successfully

completed. Some of the major projects successfully completed during the plan period were: the Port-Harcourt Refinery, the Nigerian Security, Printing and Minting Plant; the Nigerian Paper Mill, Jebba; the Bacita Sugar Company; the Kainji Dam; the Niger Bridge, Onitsha; Ports Extension; and Construction of some trunk roads (Awoseyila 1996; Obadan 2003).

2.1.2 The Second National Development Plan: 1970 – 1974

The National Development Plan of 1970 – 1974 which considered the effects of the civil war of 1967 – 1970, was, among other things, expected to provide a blueprint for the tasks of reconciliation, reconstruction and rehabilitation. In specific terms, the objectives which government sought to achieve through the plan included establishing Nigeria firmly as: (i) a united, strong and self-reliant nation; (ii) a great and dynamic economy; (iii) a just and egalitarian society; (iv) a land of bright and full opportunities for all citizens; and (v) a free and democratic society. It is worth mentioning that of the four fixed medium-term national development plans operated in Nigeria between 1960 and 1985, the 1970 – 1974 plan stood out as containing the most vehement expression of the need for the country to play a greater role in international politics, particularly in Africa. To stress on the desire, the government made it explicit in the plan that “in the context of contemporary world politics and technology, Nigeria cannot fulfill its roles in Africa without a radical and militant program of social action” (Awoseyila 1996).

The plan aimed at achieving, among other things, at least an average annual rate of growth in real GDP of 6.6%. Overall, the plan recorded a number of significant achievements which were mainly in the areas of manufacturing, transport, education, health, information and social welfare, communications and mining, among other things. It is important to point out here that these achievements were more a product of the unprecedented inflow of crude oil money that accrued to the country during this period than any inherent strength of the plan itself. Indeed, finance did not pose as a major problem to the implementation of the plan rather it was the inadequacy of executive capacity that posed as a major obstacle (Awoseyila 1996; Obadan 2003).

2.1.3 The Third National Development Plan: 1975 – 1980

This plan was unprecedented in terms of its ambitions. The planned growth rate of GDP was 9% per annum. However, in general, the primary objectives of the plan did not differ significantly from those of the 1970 – 1974 plan except that, in addition, the 1975 – 1980 plan sought to achieve a significant reduction in the level of unemployment, great diversification of the economy, balanced development and indigenization of the economy (Awoseyila 1996; Obadan 2003).

It is important to note that the 1975 – 1980 plan more than any other suffered severe setbacks at the implementation stage. Many projects had to be delayed, rescheduled or even cancelled. Finance which was initially thought not to pose any problem during the plan period later turned out to be a major impediment particularly in the last year of the plan, following the glut in the world market for crude oil which resulted in sharp fall in oil prices and revenues. This unexpected development disturbed the expected inflow of financial resources and made it necessary for the government to engage in massive external borrowing (Awoseyila 1996; Obadan 2003).

2.1.4 The Fourth National Development Plan: 1981 – 1985

The overriding objective of development effort as contained in the plan of 1981-1985 remained that of bringing about significant improvement in the living conditions of the people. The specific objectives of the plan included the reduction of the dependence of the economy on a narrow range of activities and the development of technology and significant increase in productivity. The planned growth rate in GDP was 7.2% per annum (Awoseyila 1996).

Of all the four fixed medium-term national development plans, the 1981 – 1985 plan had the most dismal record of performance. The execution of the plan was plagued by serious financial problems. The financing of most of the projects was based on earnings from the oil sector. But when the international oil market virtually collapsed, the level of capital investment had to be pruned down by about 40%. The global recession of the plan period could partly explain government's inability to execute most of the planned projects while uncoordinated policies and programs of the plan as well as carelessness appeared to have pre-empted any serious level of implementation. Apart

from this, the massive external borrowing done by the country evidently worsened the adverse situation. It could be recalled that while oil revenue declined, the government found solace in unprecedented external borrowing thus the economy was plagued with high debt overhang (Awoseyila 1996; Obadan 2003).

2.2 THE STRUCTURAL ADJUSTMENT PROGRAM (SAP): 1986 – 1993

At the end of 1985 it became obvious that budget-tightening austerity measures alone would not solve economic problems of Nigeria. Thus there was the suspension of efforts to formulate a fifth medium-term national development plan for the 1986 – 1990 period to tackle the fundamental structural problems of the economy. In 1986, the Structural Adjustment Program (SAP) was put in place with a view to removing several areas of administrative controls and adopting a free market oriented economy that would encourage private enterprise and more efficient use of resources (Awoseyila 1996). SAP was the most revolutionary approach taken to solve Nigeria's long-standing economic problems and it constituted the most controversial package of economic policies ever instituted in the country (Obadan 2003). The objectives of SAP included: (i) to restructure and diversify the productive base of the Nigerian economy in order to reduce its dependence on the oil sector and on imports; (ii) to achieve fiscal and balance of payment viability in the short to medium term; (iii) to lay the foundation for a steady and sustainable non-inflationary economic growth; and (iv) to reduce the dominance of unproductive investments in the public sector and improve the sector's efficiency as well as enhance the potentials of the private sector (Awoseyila 1996; Obadan 2003).

In order to achieve its objectives, SAP focused on market-oriented development strategy with great emphasis on private sector - led development, small government, efficient resource allocation and market-determined prices (including interest rates and exchange rates). The strategy under SAP also included both management and supply oriented policies. These policies entailed the stabilization of the economy, liberalization of trade and payment systems in order to obliterate macroeconomic distortions and put in place a package of incentives that would pave the way for adequate supply responses (Obadan 2003).

The Structural Adjustment Program was initially meant to be implemented from 1986 to 1988 but its major features continued to be implemented within the macroeconomic policy framework. The national plans that were introduced from 1990 were carried out within the framework of SAP. Indeed SAP continued till 1993 (Osaghae 1995) when it became evident that the economic problems plaguing the country could not be adequately addressed under SAP.

3. LITERATURE REVIEW

3.1 CONCEPTUAL ISSUES

3.1.1 Planning, Plan, Development Planning and Development Plan

As observed by Obadan (2003), planning involves looking ahead and anticipating the future, making choices from available alternative means to achieve specific objectives, and formulating programs of action to attain those objectives. It is an organized process of preparing a set of decisions for future actions directed at achieving some desired goals. In the context of developing economies, planning is a tool geared towards economic and social development. Development itself may be conceptualized as a process of structural transformation of a national socio-economic system which in the long-term is expected to bring about (a) high and self-sustained economic growth and (b) a distribution of national income that is acceptable to all parties in the society (Obadan 2003). Structural transformation implies institutional and behavioral changes and new intersectoral economic relationships (Temmar 1992).

A plan, according to the Concise Oxford English Dictionary¹, is a detailed proposal for doing or achieving something. Put differently, a plan is a comprehensive program of activities or scheme of work containing set of objectives and specified means of achieving the objectives. Development planning is a deliberate and conscious attempt by the government to coordinate economic decision-making over a short, medium or long term and to influence, direct or control the level and growth of some principal economic variables/indicators of a country in

¹ Soanes, C. and A. Stevenson (eds). 2006. Concise Oxford English Dictionary (11th Revised Ed.). New York: Oxford University Press.

order to move the country's economy from a given state to a more desirable state. In the context of a developing country of the contemporary era, the desired state can be summarized as putting the economy firmly back on the path of rapid, self-sustaining, equitable and balanced growth of output, employment and income with the minimum possible level of inflation. Development Planning involves the collection of substantial information, evolution of past development records, projections of future trends, and setting out of targets. It also involves major policy measures for short, medium and long-term planning and goals (Obadan 2003).

A development plan refers to a blue print of programs and policies directed towards achieving the goal of development planning, that is, economic and social development (Obadan 2003). Obadan (2003) further noted that development plan can be short-term (about one year), medium-term (three to five years) or long-term (ten to twenty years or more). A good plan should among other things, have the following features. (a) comprehensiveness in the sense of including the central government, parastatals and agencies of government, as well as the private sector; (b) a review of past performance of the economy as well as an identification of the most serious current problems; (c) the desired socio-economic objectives and targets; and priorities need to be established among them; (d) strategies for achieving identified objectives and targets; the strategies will, in turn, be translated into policy specifics; (e) programs of capital spending for the plan period which should also be broken down into specific projects; and (f) a full range of projections or forecasts about the behavior of the economy over the plan period and beyond.

In general, planning involves a decision made in advance concerning what has to be done, who has to do it, when it has to be done and how it is to be done so as to bridge the socio-economic gap between the current state and the desired state. Suffice it to say that all countries irrespective of the economic system that is operated do some forms and various degrees of planning.

3.1.2 Structural Adjustment Program (SAP)

Adjustment in general, covers all strategies designed to reduce or eliminate imbalances in external accounts and in the allocation and utilization of national resources. These strategies may be categorized into structural adjustment and stabilization policies although the two are not mutually exclusive (Logan & Mengisteab 1993). Stabilization programs are short-term instruments (of 1 to 2 years) designed to correct disequilibria in internal and external current accounts. These programs are essentially directed at levels of economic activity, rate of inflation and balance of payments. The goals of stabilization may be defined in terms of aggregate fiscal policy (reducing government expenditures and increasing government incomes); aggregate monetary policy (controlling the stock and cost of money); and exchange rate. Structural adjustment policies, on the other hand, are medium to long-term economic restructuring devices aimed at improving a country's economic performance and balance of payments position (Logan & Mengisteab 1993). Three categories of structural adjustment policies are expenditure reducing, expenditure-switching and institutional reforms (Mengisteab & Logan 1991). Expenditure-reducing policies are calculated at improving a country's balance of trade position by decelerating aggregate domestic demand for local and imported goods and services and by increasing export volumes while simultaneously decreasing import volumes. Expenditure-switching policies are directed at mobilizing factor inputs away from the non-tradable goods sector to the tradable goods sector and from consumption to savings and investment. Institutional reforms which hang on market liberalization are based on the belief that the market can do better than the state when it comes to allocation of resources to different segments of a society (Logan & Mengisteab 1993). It is instructive to state here that the need for an adjustment program arises when an economy is experiencing an imbalance in aggregate supply which manifests itself in the worsening of a country's balance of payments. Adjustment program is usually put in place when all efforts aimed at stabilization have failed to return the economy to its potential output growth (Ekpo 2004). Thus structural adjustment program is put in place to alter the structure of an economy with regard to production, consumption and distribution.

As pointed out by Ekpo (2004), the principal elements of an adjustment program include: (a) adopting and implementing measures to stimulate domestic production and broaden the supply base of an economy; (b) adopting and implementing realistic exchange policy; (c) rationalization and restructuring of tariff structures; (d) trade and payment liberalization; (e) reduction of government expenditures; (f) wage restraint; (g) adoption and implementation of appropriate pricing policies; (h) privatization of public sector enterprises; (i) increases in domestic interest rates; and (j) reducing administrative controls through heavy reliance on market forces.

3.2 THEORETICAL ISSUES

As observed by Ozughalu (2006), in the management of a national economy, two major but opposing theoretical prescriptions are usually applied. These prescriptions are the postulations of the classical and Keynesian theories; prescriptions from the variants of the theories are also applied. The classical theory advocates reliance on price mechanism based on private ownership of factors of production, self-interest, perfect competition and free enterprise. The theory posits that under certain conditions (such as atomistic behavior, perfect mobility of factors of production and information symmetry) the market price mechanism guarantees the optimal allocation of resources. The Keynesian theory, on the other hand, states that employment is a function of effective demand; effective demand brings about output; output creates income; and income creates employment. Therefore, effective demand determines the equilibrium level of employment and income (Bhatia 1981; Sundharam & Vaish 1981; Jhingan 2001 & 2002). It is said that effective demand is determined by aggregate supply function and aggregate demand function. Aggregate supply function is stable in the short-run for it depends on physical or technical conditions of production which do not change during this period. Thus the theory asserts that all efforts should be directed towards improving the aggregate demand function as the only panacea for the problems of depression and unemployment (Jhingan 2002).

The classical theory does not support government intervention rather it says that role of government in an economy should only be that of maintaining law and order and the creation of relevant institutions and environment for the functioning of the market (Ozughalu 2006). But the Keynesian theory advocates government intervention in an economy as the only way to guarantee optimal functioning of the economy.

Development planning follows the Keynesian theory and its variants as found in the post-Keynesian theories and liberal paradigm. As observed by Obadan (2003), due to the limitations of the free market system, the invisible hand of the market must receive assistance from the visible hand of the government. This implies that deliberate planning of the government is required for the optimal functioning of an economy. However, such deliberate planning effort has to be directed towards strengthening rather than supplanting the market system in the quest for accelerated development. Indeed, the government has a duty to intervene in economic activities; and failing to do that, the market may lead to a misallocation of present and future resources, or to other consequences that may not be in the long-run interest of the society (Obadan 2003). Structural Adjustment Programs are predicated on the classical theory and its variants as found in the neo-classical and monetarist theories and the neo-liberal paradigm (see Stein & Nissanke 1999; Ozughalu 2006). The programs are anchored on the market mechanism. There is need to state here that when all its assumptions are satisfied, the market mechanism remains the best means of allocating resources. Indeed, reliance on market/price mechanism based on individual self-interest, private ownership of factors of production, perfect competition and free enterprise is expected to bring about optimal performance of an economy. This is the spirit behind the adoption of Structural Adjustment Programs in many countries.

3.3 EMPIRICAL LITERATURE

As indicated in Dwivedi (2001) and Blanchard (2009), the gross domestic product (GDP) is a very popular and robust measure of aggregate economic activity. To cater for price changes/inflation, nominal GDP should be appropriately deflated by a good deflator or price index such as the consumer price index and the producer price index. Such deflation will then make the GDP to become real GDP or GDP at constant prices (Dwivedi 2001; Blanchard 2009).

In considering the effect of a given macroeconomic variable or an economic phenomenon on aggregate economic activity, it is customary to do so by including various macroeconomic variables that capture fiscal and monetary phenomena in an econometric model (See Shahbaz, Ahmad & Chaudhary 2008). Such macroeconomic variables should be such that are considered to affect aggregate economic activity. Thus an econometric model that contains some fiscal and monetary variables as well as relevant binary variables can be used to analyze the impact of fixed medium-term national development plans and structural adjustment program on aggregate economic activity in a country. However, we should avoid including too many explanatory variables in order to avoid tremendous loss in degrees of freedom and possible reduction in the robustness of the estimates (see Gujarati & Porter 2009). The impact of fixed medium-term national development plans and structural adjustment program on aggregate economic activity can also be assessed by comparing the growth rates in aggregate economic activity or some selected economic activities during the period of the plans and structural adjustment program with the growth rates before and after the periods (see Awoseyila 1996; CBN 1993).

The foregoing approaches (econometric and non-econometric approaches) have been applied for various countries such as Indonesia, Pakistan and Nigeria (see Leinbach 1987; CBN 1993; Awoseyila 1996; Ajakaiye 1997; Iqbal, James & Pyatt 2000; and Obadan 2003). However, econometric approach is more scientific, rigorous and robust, and it produces more desirable results than non-econometric approach.

As observed by Obioma & Ozughalu(2005), it has become fashionable in contemporary econometric analysis to consider issues of stationarity, cointegration and error correction mechanism when dealing with econometric models involving time series variables. Stationarity guarantees non-spurious results; cointegration captures equilibrium or long-run relationship among (cointegrating) variables; and error correction mechanism is a way of reconciling the short-run behavior of an economic variable with its long-run behavior (Gujarati & Porter 2009). Unfortunately, there is a dearth of studies that use contemporary econometric methodology in the analysis of the impact of fixed medium-term national developments plans and structural adjustment program in Nigeria.

4. ECONOMETRIC ANALYSIS OF THE IMPACT OF FIXED MEDIUM-TERM NATIONAL DEVELOPMENT PLANS AND STRUCTURAL ADJUSTMENT PROGRAM ON AGGREGATE ECONOMIC ACTIVITY IN NIGERIA

4.1: Methodology

The econometric model for this study is a modified version of the growth model adopted in Shahbaz, Ahmad & Chaudhari (2008). Our model is specified as follows:

$$RGDP = a + bCPSGDP + cFDIGDP + dFTGDP + eCPI + fRGDP(-1) + gNDP + hSAP + \mu \quad \text{----- (1)}$$

where: RGDP is real gross domestic product which is our measure for aggregate economic activity; CPSGDP is credit to private sector as share of GDP which is a proxy variable for financial development; FDIGDP is foreign direct investment as share of GDP, which is a proxy variable for financial openness; FTGDP is foreign trade(i.e. exports+imports) as share of GDP, which is a proxy variable for trade openness; CPI is consumer price index, this measures price level; RGDP(-1) is one-period lag of RGDP; NDP is a dummy variable that captures the periods of the fixed medium-term national development plans(NDP=1 for plan years and 0 for other years); SAP is a dummy variable that captures the period of the structural adjustment program(SAP =1 for SAP years and 0 for other years); and μ is the stochastic error term. The a priori expectations are: a, b, c, d, e, f >0; g, h<or>0. Data on the following variables were collected from the Central Bank of Nigeria's Statistical Bulletins of 2004, 2007 & 2009 (i.e. CBN 2004, 2007 & 2009).

We will begin by testing for stationarity of the variables of our model (i.e. Equation 1). We will use the Augmented Dickey- Fuller (ADF) unit root test which is derived from Dickey and Fuller (1979 &1981). Our ADF test consists of estimating the following equation:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \epsilon_t \quad \text{-----(2)}$$

where: ϵ_t is a pure white noise error term; t is time trend; Y_t is the variable of interest; β_1, β_2, δ and α_i are parameters to be estimated; and Δ is difference operator. In the ADF approach, we test whether $\delta = 0$.²

When we finish our test for stationarity and if all our variables are found to be integrated of the same order, the next stage will be to conduct some tests of cointegration to see if there is a long-run or equilibrium relationship between the variables. We will use two popular cointegration tests namely: the Engel-Granger (EG) test and the Johansen test. The EG test is contained in Engel and Granger (1987) while the Johansen test is found in Johansen (1988) and Johansen and Juselius(1990). The EG test involves testing for stationarity of the residual from Equation 1. If the residual is stationary at level, it implies that the variables under consideration are cointegrated. The EG approach could exhibit some degree of bias arising from the stationarity test of the residual from the equation (i.e. Equation 1). As pointed out in Idowu(2005), the EG assumes one cointegrating vector in a system with more than two variables and it assumes arbitrary normalisation of the cointegrating vector. To address the foregoing shortcomings of the EG approach it is necessary to complement it with the Johansen test. The Johansen cointegration test is a full information maximum likelihood approach. It is based on the following vector autoregressive (VAR)

² In the ADF test, the null hypothesis is that the variable in question has a unit root (i.e. is not stationary).

model of order p:

$$Y_t = A_1 Y_{t-1} + \dots + A_p Y_{t-p} + B X_t + e_t \quad (3)$$

where: Y_t is a k-vector of non-stationary I(1) variables; X_t is a d-vector of deterministic variables; and e_t is a vector of innovations. One can rewrite this VAR as follows:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^p \Gamma_i \Delta Y_{t-i} + B X_t + e_t \quad (4)$$

$$\text{where } \Pi = \sum_{i=1}^p A_i - I, \quad \Gamma_i = - \sum_{j=i+1}^p A_j \quad (5)$$

If the variables are cointegrated we will go ahead and estimate Equation 1 because such estimates will not be spurious (see Gujarati & Porter 2009). Estimation of Equation 1 will suffice for our analysis once the variables are cointegrated thus we will not engage in error-correction modeling.

4.2: Results and Analysis

The stationarity tests for the variables in Equation 1 using the ADF unit root test are presented in Table 1 below. The table shows that all the variables are stationary at first difference; thus they are integrated of order one.

Table 1: ADF Unit Root Test for the Variables in Equation 1

Variables	ADF Statistic (at first difference)	Order of Integration
RGDP	-7.185740(-3.574446)*	I(1)
CPSGDP	-4.808265(-3.574446)*	I(1)
FDIGDP	-12.22886(-3.574446)*	I(1)
FTGDP	-10.86759(-3.574446)*	I(1)
CPI	-4.954162(-3.57446)*	I(1)
RGDP(-1)	-7.285178(-3.577723)*	I(1)
NDP	-8.755950(-3.574446)*	I(1)
SAP	-6.782330(-3.574446)*	I(1)

Source: Computed by the authors. Note: (a) MacKinnon critical values for rejection of hypothesis of unit root are in parentheses (b) Tests include intercept and no trend. (c) The stars imply 1% level of significance.

We now test for cointegration of the variables in Equation 1. We begin with the EG test by testing for the stationarity of the residual from the equation.

Table 2: Stationarity Test of the Residual from Equation 1

Variable	ADF Test Statistic(at level)
Residual	-8.438869(-3.574446)*

Source: Computed by the authors.

Note: Same as Table 1

Table 2 shows that the residual from Equation 1 is stationary at level, that is, it is integrated of order 0. Thus the EG cointegration test indicates that the variables in the equation are cointegrated. Let us now complement the EG test with the Johansen test. Tables 3a and 3b present the Johansen cointegration test. The Johansen cointegration test results (both the trace test and the maximum eigenvalue test) show that the variables in Equation 1 are cointegrated thus validating the results of the EG tests.

Table 3a: Johansen Cointegration Test for the Variables in Equation 1: Trace Test

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	5 Per cent Critical Value	Prob.**

None*	0.618700	167.1203	125.6154	0.0000
At most 1*	0.578824	120.8403	95.75366	0.0003
At most 2*	0.481122	79.33440	69.81889	0.0072
At most 3	0.384550	47.84229	47.85613	0.050
At most 4	0.231812	24.54304	29.79707	0.1784
At most 5	0.136475	11.88445	15.49471	0.1626
At most 6*	0.095941	4.841303	3.841466	0.0278

Source: Computed by the authors. Note: *denotes rejection of the hypothesis at the 5 % level. ** denotes MacKinnon-Haug-Michelis (1999) p-values. Trace test indicates 3 cointegrating equations at the 5% level.

Table 3b: Johansen Cointegration Test for the Variables in Equation 1: Maximum Eigenvalue Test

Hypothesised No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Per cent Critical Value	Prob.**
None*	0.618700	46.28004	46.23142	0.0494
At most 1*	0.578824	41.50586	40.07757	0.0343
At most 2	0.481122	31.49211	33.87687	0.0938
At most 3	0.384550	23.29925	27.58434	0.1611
At most 4	0.231812	12.65859	21.13162	0.4841
At most 5	0.136475	7.043149	14.26460	0.4841
At most 6*	0.095941	4.841303	3.841466	0.0278

Source: Computed by the author. Note: *denotes rejection of the hypothesis at the 5 % level. ** denotes MacKinnon-Haug-Michelis (1999) p-values. Maximum eigenvalue test indicates 2 cointegrating equations at the 5%.

Since the variables in Equation 1(i.e. our econometric model) are integrated of order one and are cointegrated it is safe to use ordinary least-squares method to estimate the equation for such estimation will not give spurious results. The estimates of the equation are presented in Table 4 below:

Table 4: Estimates of Equation 1

Variable/Constant	Coefficient	Standard Error	t-statistic	Probability
C	2.90E+10	1.46E+10	1.992928	0.0530***
CPSGDP	-1.39E+09	4.55E+08	-3.044495	0.0041*
FDIGDP	-6.08E+11	2.16E+11	-2.816042	0.0074*
FTGDP	2.58E+10	2.16E+10	1.195226	0.2389
CPI	8.32E+08	2.29E+08	3.633690	0.0008*
RGDP(-1)	0.722429	0.115406	6.259914	0.0000*
NDP	7.27E+09	8.22E+09	0.884462	0.3816
SAP	2.22E+10	9.38E+09	2.362306	0.0230**

$R^2=0.942980$; Adjusted $R^2=0.933245$; Durbin Watson (DW) Statistic= 2.413964 ;
F-statistic= 96.86334 ; Probability (F-statistic)= 0.0000 ;
Breusch-Godfrey Serial Correlation LM Test: F-statistic= 1.379203 ; Probability= 0.2638 ;
Obs*R-squared= 3.236759 ; Probability= 0.1982 .
Breusch-Pagan-Godfrey Heteroscedasticity Test: F-statistic= 0.546977 ; Probability= 0.7937 ;
Obs*R-squared= 4.185097 ; Probability= 0.7582 ; Scaled explained SS= 4.836967 ; Probability= 0.6799 .

Source: Computed by the authors. Note: *stands for being statistically significant at 1%; **stands for being statistically significant at 5%; and ***stands for being statistically significant at 10%.

As can be seen from Table 4, the fixed medium-term national development plans, in general, did not have any significant impact on aggregate economic activity whereas the structural adjustment program had some significant positive impact on aggregate economic activity in Nigeria. The parameter estimate associated with the fixed medium-term development plans dummy is not statistically at 1%, 5% or even 10% but that of the structural adjustment program is statistically significant at 5%. Financial development as represented by the share of credit to private sector in GDP had significant negative impact on aggregate economic activity; this is strange; however, it may be due to poor financial intermediation which is known to characterize the nation's financial system. Financial openness as captured by the share of foreign direct investment in GDP also had significant negative impact on aggregate economic activity in the country over the years; this may be due to poor utilization the foreign direct investment. Trade openness as represented by the share of total trade in GDP did not have any significant impact on aggregate economic activity in Nigeria over the years. The general price level as represented by the consumer price index had significant positive effect on aggregate economic activity in the country over the years; suffice it to say that price serves as an incentive that boosts aggregate production. In general, aggregate economic activity in previous period had positive impact on aggregate economic activity in current period.

The model estimates are generally reliable. Most of the parameter estimates are statistically significant at 1%, 5% or 10%. The Breusch-Godfrey³ Serial Correlation Lagrangian Multiplier Test shows that we cannot reject the null hypothesis of no serial correlation of any order; also the Breusch-Pagan-Godfrey Heteroscedasticity Test indicates that we cannot reject the null hypothesis of no heteroscedasticity. Thus we can safely say that our model is not plagued by serial correlation and heteroscedasticity. The R^2 and Adjusted R^2 of 0.942980 and 0.933245 respectively show that our model has a good fit. Indeed, the estimates of our model are generally robust. This is validated by the F-statistic which is statistically significant at 1%.

5: RECOMMENDATIONS AND CONCLUSION

Given that the fixed medium-term national development plans in general did not have significant impact on aggregate economic activity in Nigeria, the factors that militated against the plans should be well studied and analyzed by economic planners and policy makers and future plans should be well articulated and implemented so that they will have tremendous positive impact on aggregate economic activity in the country. On the other hand, given that the structural program had significant positive impact on aggregate economic activity in the country, the government should replicate the strong and desirable sides of the program in future adjustment programs in the country and in economic management of the country.

In conclusion it is worthwhile to state, at this juncture, that both state planning and reliance on market forces

³ In autoregressive model Durbin-Watson d statistic is not appropriate in the detection of autocorrelation rather Durbin h statistic or the Breusch-Godfrey Serial Correlation LM test should be used (see Gujarati & Porter 2009).

and private sector are necessary in the management of a national economy. Planning should however be done to complement the market and not to undermine it. Nigeria has evidently not performed well in state planning. The government should put adequate machinery in motion for efficient and robust state planning. Such machinery should ensure that future plans in the country have tremendous positive impact on aggregate economic activity in the country; also future adjustment programs should be made to have greater positive impact on aggregate economic activity in the country. These are necessary conditions for Nigeria to be emancipated from the shackles of underdevelopment.

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