Savings, Investment and Economic Growth in Nigeria

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Abstract
This study investigated the effect of savings and investment on the economic growth of Nigeria. To achieve the objectives of this study, secondary data were obtained from the central bank of Nigerian statistical bulletin providing record of Nigerian saving, investment and Gross Domestic Product (GDP) over the period 1980-2014. The data gathered were analyzed using the ordinary least square method of analysis, the augmented Dickey Fuller Test, Granger Causality Test, Error Correction Model and the cointegration test were equally carried out to check the stationarity and the Granger causes directions of the variables and also to check the longrun relationship between the variables of study. The result of the statistical/econometrics analysis revealed that there is a relationship between saving, investment and economic growth in Nigeria. Consequent on the above, the researcher recommended that; measures must be put in place to encourage savings from the public; effort should be made to increase the consumption of made in Nigeria goods, which includes the usage of raw material that can be sourced locally by Nigerian industries in order to increase foreign exchange earnings.
Keywords: Savings, Investment, Export, Foreign Exchange Earnings, Economic Growth.

1.0 INTRODUCTION

Savings, capital formation and economic growth have been central to the economic development debate for several decades. The links between them on one hand and the direction of casualty on the other hand still - remain contentious across countries (Obadan and Odusola, 2000). A number of contending theoretical issues surround the link between savings and investment. Since the neoclassical synthesis posits that for an economic agent, savings plus borrowing must equal asset acquisition, it follows then that in a closed economy, national savings and domestic investment will always be equal to export.

Thus, a high rate of saving leads to a high rate of investment provided the three necessary steps are upheld. First, there must be an increase in volume of real savings so that additional resources become available for investment. Second, a means of collecting and channeling the savings to make them available to investors is necessary. Third, there must be some act of investment by which savings are transformed into productive capital (James et al, 1987). The mobilization of additional savings to increase investment and initiate higher economic growth can come from internal and external sources. Internally, savings can be mobilized through self-finance (plough back of profits or borrowing from relatives), government appropriation through additional taxes and by financial intermediation.

Open economy framework provides another approach for examining savings-investment-linkage. Here, capital inflows introduce a distinction between export national savings and domestic investment. In an open economy, national savings need not be used for domestic investment; it may be invested abroad if the international private rate of return is promising. Thus an increase in national savings rather than raising domestic investment may be reflected in a larger current account surplus or reduced deficit. The theoretical framework often used to examine this relationship is the two-gap model, which holds that in a world characterized by unfettered capital flows; countries with high level of investment need to rely on equally high domestic savings (Feldstein and Horioka, 1980).

The gap between domestic savings and gross investment must equal the difference between imports and exports, and is financed by external capital or foreign savings (Feldstein and Horioka, 1980; Germany et al, 1992). However, empirical evidence from Feldstein and Horioka, (1980) contrasted with the sign of theoretical relationship. They found that in the long run, gross national savings and domestic investment rate show a strong positive correlation for both developed and developing countries. This Feldstein-Horioka puzzle prompted scholars (e.g. Bayaumi. 1990) to further examine what could bring about the close link between savings and investment. To some of these scholars both private savings and investment could be responding to the same factors, such as changes in the rate of growth of population or productivity.

Thus, in this case, even in a world of perfect capital mobility, there would be a close link between savings and investment. In the light of the foregoing, this study examines the savings, investment and growth connections in Nigeria, with a view to deducing the attendant policy implications of these relationships for sustainable economic growth.

Experiences of economic crisis have highlighted the fact that low (and declining) saving rate have contributed to generating unsustainable current account surplus in many countries. In the case of Nigeria, prior to the structural Adjustment programme (SAP) in 1986, there had being a major disequilibrium in its external sector from large current account deficit and high capital inflows, the balance of payment problem result from high saving and investment gap.

Theory and evidence have shown that the direction of association can run both ways. On the one hand, we have theoretical underpinnings for the direction of association running from saving to growth. Capital accumulation or physical investment is the proximate source of economic growth. Advocates of financial liberalization (McKinnon 1993, Shaw 1973) have long argued for financial liberalization on the basis that saving is complementary to investment in the development process, even with a money economy where saving can go either into the accumulation of physical capital. The advocates of financial repression (Tobin 1965, 1967) however, argued that savings are not necessarily channeled into investment and that the development of monetary sector could be damaging. On the other hand, we have a theory for the direction of association running from growth to saving. The lifecycle theory of consumption and saving predicts that changes in an economy's rate of economic growth will affect its aggregate saving rate.

However, recent - theoretical and empirical research has shed new light on, and also uncovered some puzzles concerning this mechanism. There is a great need to examine three key questions that refer to each of the logical building blocks of the conventional wisdom: first, what is the relationship (and, specially, the direction of causality) between growth and saving? Second, does countries' national saving really get translated into domestic investment or more generally, what is the saving-investment link like? And third, what is the contribution of capital accumulation to growth-most importantly is investment really the key to growth? This study seeks to answer these questions by examining the relationship between savings, investment and economic growth in Nigeria.

REVIEW OF RELATED LITERATURES

Theoretical Framework

An important distinction arises in growth models with regard to the effect of the saving rate. To illustrate this distinction, we will consider two sorts of growth models that have received wide attention in the literature. The Solow (1956) Sawn (1956) model and the Romer (1978) model. These two models specifically illustrate two alternative understandings of the role of saving rates in growth models. In one approach (illustrated here by the Solow-Swan model) the saving rate influences steady state and can impact on growth rate of output only temporarily. In the alternative approach (illustrated by Romer, (1978) model) the impact of the saving rate is not on a steady-state output, but on a growth rate of output directly.

The Solow -Swan (1956) model represents the case in which a, rise in the saving rate affects the stock of capital and the level of per capita income, but does not affect the rate of economic growth. The Solow-Swan model has a linearly homogenous production function of the form $Y = F(K, L)$, where Y is output K is capital and L is labour. Specified in labour intensive form, the production function is written as $y = f(k)$, where k is the capital-labour ratio ($k=K/L$).

The marginal production of capital is positive but decreasing i.e $f'(K) > 0$, $f'(K) < 0$. The labour force grows at constant rate g_L.

From the model it can be deduced that steady state or equilibrium occurs where:

$$f(k) = (g_L/s)k \text{...} (1)$$

Where 's' denotes the saving rate. While f(k) specifies actual output per capita produced for any capita-output ratio, k, $(g_L/s)k$ specifies the output needed to maintain the corresponding capital labour ratio. An increase in the saving rate will increase the steady-state per capita capital stock and per capital output. The following diagram illustrates the situation.

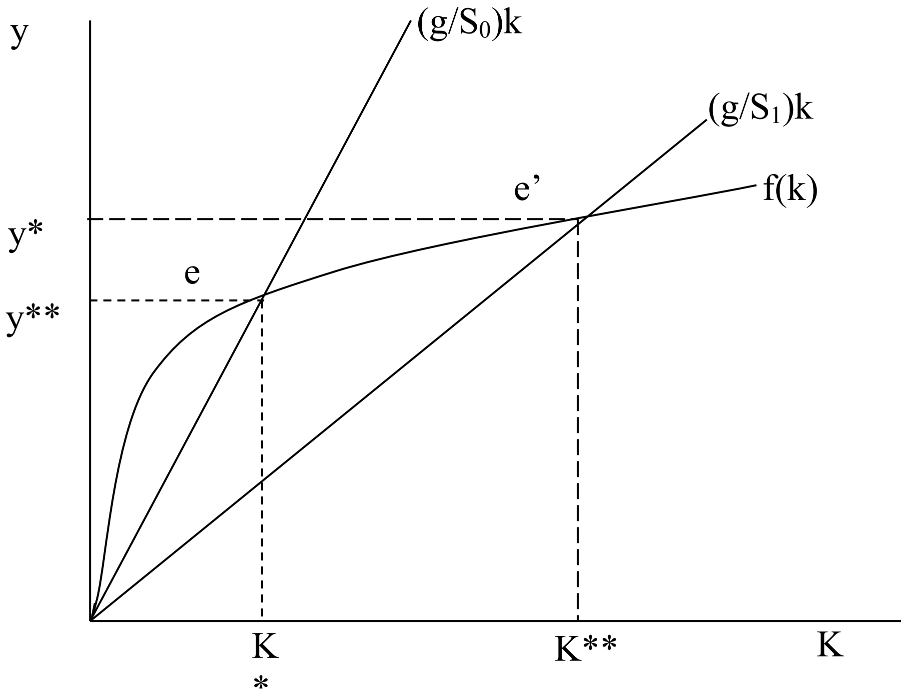

Figure 1. The effect of a change in the savings rate

When the saving rate is so it equilibrium to e'. Thus we see that an increase in the saving rate increases per capital output and per capita capital stock in steady-state. A higher savings rate will generate more investment per unit of output than it did before which in turn will lead to an expansion of capita per worker. The process, however, comes to a halt since for a given growth rate of labour, an increasing proportion of investment will be devoted to maintaining this higher capital labour ratio. The saving rate thus influences the level of per capita capital stock and thus per capita output towards which economy gravitates in equilibrium, rather than the rate at which either magnitude changes. In sum, according to the Solow-Swan model (1956), a change in the saving rate changes the economy's balanced growth path and hence per capita output in steady state, but it does not affect the growth rate of output per worker on the balanced growth path. Only an exogenous technological change will result in a further increase in steady state.

By contrast, in the Romer (1986) growth model in which technology is endogenous, an increase in the saving rate not only increases per capita output in steady state but also increases the growth rate of per capita output. To formalize the existence of spill over effects, the production function is written as:

$Y = f(K_F, K.L)$...(2)

Where Y denotes output, KF denotes the physical capital stock used by firms, aggregated over the economy; L denotes the labour input into production, and K the spill-over effect from investment. The spill-over effects take the form of learning by doing'. Investment comes to argument labour input, increasing its impact on output. It is further assumed that there are positive declining returns in all factors of production. The assumption is, further, that at the level of each firm there are constant returns to scale in Ki (where Ki is the capital stock for each form) and labour, L_5 while at the social returns Ki and K. The consequence of this is that the production function exhibits increasing returns to scale at the social level, though the production of each firm continues to exhibits constant returns to scale.

Rewriting equation (2) in labour intensive form we get:

$y\text{-}Y/L = f(K_F,K)$..(3)

Assume firms are homogenous in equilibrium so that Kf = k, K - KL, one can obtain the average product of capital as

$y/k=(K/k) = f(L)$..(4)

We can see that there is constant marginal product of capital as follows:

$y = kf(L)$

$Y = K\ f(L)$

$\delta Y/\delta K = f(L) > 0$

and $\delta Y^2 / \delta^2 K = 0$

So that there is no change in the marginal product of capital as the capital labour ratio increases. Now from the fundamental dynamic equation of growth:

$K = sy/k - g_L$..(6)

= sf(L) - gL

Where k represents the growth rate of k

Now since 8f (L)/ 6k=0, it follows that

δk/δk = 0...(7)

Thus, since the growth rate of the capital-labour ratio is not declining, it follows that the growth rate of per capita output is not declining in the capital-labour ratio either. Thus, an increase in the saving rate, not only increases the growth rate of the capital labour ratio, and per capita output, but the increase in the growth would persist indefinitely.

The difference between the Solow-Swan model and the Romer model relates to the nature of the capital stock. Since in the Romer model, the social return to scale in capital is constant, the marginal product of capital is also constant. Unlike in the Solow-Swan model, there is no incentive in the Romer model to discontinue investing in capital as the capital labour-ratio increases. Thus, there is no incentive for the economy to stop expanding. The above discussion illustrates how an increase in the saving rate can indeed lead to growth and more so, when technological change is seen as being endogenous, the increase in the growth rate will persist indefinitely. Hence, while the Solow-Swan model shows the saving rate to have a temporary effect on the growth rate, the Romer model shows the effect to be permanent.

Empirical Review

In view of the importance of the subject, many empirical studies have been conducted to assess the role of savings and investment on economic growth in both developed and developing countries. The results of some empirical studies are presented in this section.

The Saving - Growth Relationship

The relationship between savings and economic growth is studied using contemporaneous and dynamic models. In this sub section, some of the studies that attempted to correlate the saving rate and , economic growth are presented.

Bacha (1990), Otani and Villanuvea (1990), DeGrgorrio (1992), and Jappelli and Pagano (1994) used ordinary least square (OLS) regression on cross-section data from some African and Asian countries; and concluded that a higher savings rate (ratio of savings to GDP) led to higher economic growth. Another study of 32 countries by Kriechatus (2002) notes that a higher level of national savings led to higher investment and consequently caused higher economic growth. Many recent studies focused on the dynamic relationship of savings and economic growth using the concept of granger causality. Caroll and Weil (1994), using five-year averages of the economic growth rate and savings for OECD countries as well as a larger sample, found that economic growth granger caused savings in the larger sample. On the other hand when time dummies were not included, savings granger caused growth in the OECD countries.

However, Altanasio et al (2000) criticized the robustness of Caroll and Weil's results; found that using annual data rather than the five year average increases the precision and the statistical significance of the estimates as well as changing the pattern of causation. Singa (1996) presented evidence that economic growth granger causes growth rate of savings in Pakistan. Further, Sinha and Sinha (1998) found that the causality was from the economic growth rate to growth rate of savings in Mexico Sinha (1999) examined the relationship between the growth rate of savings and economic growth in SriLanka. In this study, the causality was from growth rates of gross domestic savings to economic growth rate. However, Sinha (2000) did similar studies in the Philippines and found causality from economic growth rate to growth rate of domestic savings.

Saltz (1999) argued that the higher the income per capita, the higher the consumption and savings rate. This study investigated the direction of causality in 17 third world countries, using the Vector Error Correction (VECM) model for eight countries and Vector Auto Regressive (VAR) model for the other nine countries. The study found that for nine countries the causality was from the economic growth rate to growth of savings. For only two countries was the direction of causality reversed. There were four countries where no causality was identified, and for the other two countries bi-directional causality was detected. The author concluded that higher growth rates of real GDP contribute to a higher growth of savings.

Anoruo and Ahamad (2001) investigated the causality of savings and economic growth in seven African countries using VEC model. The authors found that in four out of seven countries, economic growth granger causes the growth rate of domestic savings.

However, they obtained bidirectional causality in Cote-Ivoire and South Africa. Only in Congo, the opposite result prevailed: the growth rate of domestic savings granger caused economic growth. Mavrotas and Kelly (2001) used the Toda and Yamamoto method to test for granger causality. Using data from India and Srilanka, the relationship between gross domestic product, gross domestic savings, and private savings was examined in this study. The authors found no causality between GDP growth and private savings in India. However, bi-directional causality was found in Srilanka.

Baharrumshah et al (2003) investigated growth rate of savings behaviour in five Asian countries: Singapore, South Koera, Malaysia, Thailand, and the Philippines. Based on time series data from 1960-1997 and using VECM, the authors found that growth rate of savings does not granger cause economic growth rate in these countries except for Singapore.

Aylit Romm (2003), using Johansen (VECM estimate technique to examine the direction of association between savings and growth in South Africa, found that aggregate private saving rate has a direct and indirect influence on growth. The indirect effect, as argued by Romm is through private investment rate. Romm concluded that the direction of causality runs from saving to growth and from growth to saving.

Dewit Sheggu (2005) used co-integration and vector Error Correction Model (VECM) to examine the causal relationship between real economic growth and growth rate of real gross domestic savings for Ethiopia. The estimated results indicate one order of integration or I (1) for the two series. Furthermore, (the results of the co-integration tests indicate that there is a long run relationship between real (GDP and real gross domestic savings, and that the casual relationship between the two variables is bidirectional. This implies that an increase in savings is needed to enhance growth in the economy, and also economic growth is needed to increase savings through investment rate.

The Saving Investment Link

Feldstein and Horioka (1980), updated by Feldstein and Bacchetta, (1991), found that in the long run saving and investment rates show a strong positive correlation. On a sample of industrial countries, Feldstein and Horioka find a correlation coefficient close to 0.9 (virtually the same found in Feldstein and Bacchetta's up date).

Other studies (Dooley, Frankel and Matheson 1987); summers 1998) find a similar correlation for EDC's although somewhat lower in magnitude for industrial countries.

Dippendra Sinha and Tapen Sinha (1993) in their research on the long run relationship between saving and investment in India carried out a co integration tests between the two variables using the Johansen-Juselius framework. The result shows that saving and investment ratios have a long run relationship for India. The test also shows that one cannot reject the null hypothesis of a one-to-one correspondence between saving rate and investment rate.

Agrawwal (2000) using panel data techniques to determine the direction of association between saving, investment and economic growth in five South Asian countries found that higher saving rates causes higher growth rate of real GDP in two countries and that higher growth rates granger cause higher saving rates in the other three countries. The study also found that low saving rate is a significant constraint on growth by restricting the supply of funds available for capital formation (investment) and growth.

Urma and Wilson (2004) analyzed the interdependencies between saving, investment, foreign capital flow and economic growth for India. The study, employing the time series analysis, found that saving limit investment in the country. This supports the model of Rostow.

Shahbaz Nasir and Mahmood Khalid (2005) examined saving -investment relationship in Pakistan using OLS method to regress saving and investment on their theoretical and potential determinants concluded that high income leads to high saving, thereby confirming Mcknnon effect. This according to them suggests that if there is any arbitrary big push in GDP growth for some periods, it would lead to higher savings, which would positively affect investment, and increase in investment would increase GDP which again increase savings. Thus, by initiating that 'push', a cycle of development can be started.

The Investment-Growth Relationship

Anderson (1990) tried to find the role of investment in economic growth and development by deriving an accounting relationship between the rate of economic growth variables representing the rate, allocation and efficiency of investment. His analysis shows that investment plays greater role in a country's growth if it is used efficiently to increase the output. On the other hand if investment is made inefficiently it results in lower rate of growth of output. Khan Reinhart (1990) used a simple and growth model to test the effect of private and public investment separately on economics growth for 24 countries. Their finding shows that private and public investment has different effect on the long-run rate of economic growth. Private investment plays larger and more important role in economic growth than public investment.

Potiowsky and Qayum (1992) studie the effect of domestic capital formation foreign assistance on the rate of economic growth for 58 domestic countries. Their result do not show any great effect on domestic capital formation and foreign assistance on pre capital rate of growth during the period of 1970-1980.

Chow (1993) studied the role capital formulation in china's economy as well as in the five major sectors; agriculture, industries, construction, transportation and commerce. He found rate of return to capital in 1880 as 0.16, 0.20, 0.17, 0.26, 0.04 and 0.02 for aggregate economy, agriculture, industry, construction, transportation and commerce respectively. His analysis shows that from 1952 to 1985 China's aggregate income grew by an average rate of 0.06 and capital rate increased by 0.076. During this period, capital growth contributed in the growth of economy by an average rate of 0.045.

Blomstorm et al (1996) in their analysis of fixed investment and economic growth used Grager-Sim causality framework for 101 countries. Their findings show that growth has more causal effect on subsequent capital formation rather than capital formation on subsequent growth, and fixed investment does not have a key role in economic growth.

Muhammad and Sampath (1999) on their study on investment and economic growth using unit root and co integration techniques to determine the long run relationship between GDP and investment for 90 countries observed that; GDP and investment integrated of different orders for 33 countries, showed no-co-integration for 25 countries and co-integration for 25 countries with both variables of order I (1). The remaining 7 countries variables of order I (0) have long run relationship and do not need co-integration test. Also using Granger causality test, they found that there is causality in the short run for 15 countries and in the long run for 23 countries. Bi-directional causality for 10, unidirectional causality from GDP to investment is positive for 11 countries and from investment to GDP for 6 countries. Bi-directional causality is mostly positive between the two variables.

Presenting evidences from Nigeria, Michael (2000) analyzed saving-growth relationship in Nigeria, using quarterly data from 1970:1 to 1998:4. The causal link between savings and growth was investigated using granger causality test and impulse response analysis of VAR models. The results show that growth, using per capital income is sensitive to and has an inverse effect on savings.

Obadan and Odusola (2001) conducted a study on savings, investment and economic growth connection in Nigeria using granger causality test based on OLS techniques, and data from 1970 to 1996. The result shows that; a unidirectional relationship exists between savings and investment, with saving granger causing investment, a unidirectional relationship exists between real income and real investment, with causality running from investment to income; and finally, a unidirectional relationship exists between savings and growth, with saving rate granger causing per capital income. This tends to suggest that savings is not income and investment induced in Nigeria, and investment is also not growth induced.

Anoruo and Ahamad (2001) utilized co-integration and Vector Error Correction Model (VECM) to explore the causal link between economic growth and growth rate of domestic savings using seven African countries, including Nigeria. The study, using data from 1970-1997 concludes that there is no co-integration, and hence long run relationship between economic growth and growth rate of savings in Nigeria. The causality test performed based on VAR indicates unidirectional causality, running from economic growth to growth rate of domestic savings. This result contradicts the findings of Obadan and Odusola, perhaps due to the different methodology used.

Adelaja (2003) used VAR estimates techniques to study the relationship between savings and growth in Nigeria. The result shows a unidirectional relationship from growth to savings, supporting the result of Anoruo and Ahamad (2001). This suggests that savings is income or growth induced in Nigeria. Mohan and Remesh (2006) examined the casual relationship between savings and economic growth in countries with different income levels, Nigeria inclusive. The empirical result shows lack of co-integration, and thus absence of long term relationship between economic growth rate and growth rate of gross domestic savings. On the other hand, the study finds a unidirectional causality running from economic growth to growth rate of savings. This also confirms the result of Anoruo and Ahamad (2001), and that saving is growth induced in Nigeria.

From the foregoing, it is quite glaring that much work has not been done on the relationship between savings, investment and economic growth in Nigeria for the following reasons;

i. Little efforts have been geared towards exploring the time series properties of the series data used in the analysis. Using the simple OLS or VEC techniques without prior tests for the stationarity or co-integration between the variables in use will definitely lead to model misspecification, and give misleading or spurious results.
ii. Comparatively, while there appears that much work has been done between savings and economic growth in Nigeria, little attention has been directed towards examining the relationship between savings and investment, and between investment and growth. Knowing this will better our understanding of the subject, and help us to know if truly saving is pre-requisite to investment and thus growth ' in Nigeria or not. This we need to know, especially, in a country where saving has been said to be generally low.

METHODOLOGY

The empirical model of this study was based on the conclusion of our theoretical framework, in an effort to establish a link between savings, investment and economic growth.

Special reference was made to the work done by Sarkar and Amor (2009), which is modified for the purpose of the study;

$$Y_t = f(I_t, S_t)$$

The mathematical form of the model is stated below:

$Y_t = b_o + b_1I_t + b_2S_t + U_i$

With:

Y = Economic Growth
I = Investment in period t
S = Savings in period t

The analysis of the study was conducted using the multiple regression model based on the OLS analysis. Further, the apriori, statistical and econometric tests were conducted in order to ensure adequate analysis of the data.

The data used for this study were majorly sourced from the Central Bank of Nigeria Bulletin (2014). The Ordinary Least Square estimation technique was used while the cointegration, ADF and Granger Causality tests were also conducted. Further, the Error Correction Model (ECM) framework was employed in this study to correct the short-term differences of the non-stationary time series. The choice of the ECM is to enable it account for the explanatory potent of the regressors in both the short run and long run as well as ascertaining the dynamics of attaining long run equilibrium, an issue, which is the key to studies related to macroeconomic variables one of which is the exchange rate.

Augmented Dickey-Fuller Tests

ADF: GDP

ADF Test Statistic	4.761829	1% Critical Value*	- 4.1958
		5% Critical Value	- 3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Source: *Eview 7.0*

ADF: Investments

ADF Test Statistic	- 2.916586	1% Critical Value*	-4.2092
		5% Critical Value	-3.5279
		10% Critical Value	-3.1949

*MacKinnon critical values for rejection of hypothesis of a unit root.

Source: *Eview* 7.0

Augmented Dickey-Fuller Test on Savings

ADF Test Statistic	- 1.129664	1% Critical Value*	- 4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Source: *Eview 7.0*

In order to do justice to the above, Unit Root Test; Augmented Dickey Fuller (ADF) was conducted on the series in order to detect the presence of unit root, the presence of which could make the regression result spurious (Granger and Newbold, 1974). The unit root test also helps ascertain the order of integration of the series, which is necessary to explore the long run relationship amongst the variables via the co-integration test. A necessary condition for cointegration is that they are integrated of the same order, which would have been ascertained via unit root test result. The Johansen Co-integration test is employed in this study, to test for the presence of a long run relationship between the dependent variable (GDP) and the independent variables. In this test type, the number of co-integrating relations is tested on the basis of trace statistics and maximum Eigen statistics. Once the long run relationship has been established, we estimate an Error Correction Model (ECM) that captures both the long and short run dynamics.

Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Probability
In does not Granger Cause GDP	33	3.43115	0.05326
GDP does not Granger Cause In		2.26853	0.29422
S does not Granger Cause GDP	33	3.91558	0.03124
GDP does not Granger Cause S		1.90282	0.52104
In does not Granger Cause S	33	0.84597	0.53773
S does not Granger Cause In		10. 0720	0.00035

Source: *Eview 7.0*

The relationship between two variables does not necessarily determine the causality between the variables. Therefore, the Granger Causality Test, tests the direction of cause that may exist between variables used in the analysis. The results show that GDP granger causes investments (f = 3.43115, 2.26853) and vice versa. Again, savings granger causes GDP and investments.

Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic
None	0.550444	61.47785
At most 1	0.316817	18.29249
At most 2	0.211293	7.243730

Source: *Eview 7.0*

Having discovered that the series are 1 (1) (ie. Cointegrated), it therefore informs the need to difference them (series) before OLS can be used. This co-integration test is based on the argument that "given that time series have unit roots, a long run relationship could possibly exist between such series." It therefore implies that the residual of such regression should be stationary at levels using the ADF, since there is a unique stochastic trend amongst the variables.

The cointegration results as revealed show that the trace statistics and the maximum eigen values are greater than the critical values at 5% level of significance; while we also have four cointegrating factors in the two cases (trace statistics and the maximum eigen value). The implication of the above is that there is long run relationship between Investments, Savings, and economic growth, as the null hypothesis of no co-integration cannot be accepted at 5% level of significance, showing that there is a unique long run relationship among Y, S, and I.

The coefficient of the ECM is significant at 5 percent level of significance and has the correct negative sign. This indicates a feedback of approximately 68% of the previous year's disequilibrium from the long run Economic growth elasticity and it is significant, which suggests that any short run disequilibrium in the system will be adjusted in the long run. The coefficient is reasonably high and suggests that adjustment to equilibrium is reasonably fast.

The result shows that investments and savings are statistically significant in determining economic growth, when considered at 5% and 10% respectively.

IMPLICATIONS OF THE STUDY

From the above result presented, it is obvious that savings itself does not significantly determine economic growth, but it shows a positive relationship. However, the variables, which an effective savings management policy is deemed to affect; investment is found to affect economic growth. This therefore points to the fact that investments really do significantly affect economic growth through its control variables (Export and foreign direct investment). Evident from the result also is the fact that investment positively affects economic growth, which is an expected relationship, based on economic theory. Managing the economy's consumption rate, especially, foreign made goods, does affect quite a number of economic variables, which in turn affects growth in the economy.

Relating these findings to the submission of Unugbro (2007), Akpan (2008) and Abounooriand Zoebeiri (2010), it is obvious that savings, investments do affect economic growth owing to the fact that the key control variables; export, import and foreign direct investment are found to statistically affect the Nigerian economic growth. Also worthy of note in this study is the fact that the response of GDP to policy initiatives on the key economic variables does not take long before it takes noticeable effect as the adjustment of the variables to yield same long run result is relatively fast, with the 68% recorded as the Error Correction Coefficient.

In line with the scope and focus of the study, export, foreign direct investment are combined to form total investments over the period, with the expectation that their alteration is bound to either cause a shrink or stimulate economic growth. This fact therefore was confirmed from this study, as it is revealed that all control variables has the potential to stimulate the Nigerian economic growth in the right direction if well managed especially through the foreign exchange management policy.

Against the backdrop of the above findings, it is recommended that effort be made to increase the consumption of made in Nigeria goods, which includes the usage of raw material that can be sourced locally by Nigerian industries in order to increase foreign exchange earnings. The implication of this is that local industries should be encouraged to look inward for their raw materials.

Again, measures must be put in place to encourage savings from the public. These measures must be aimed towards persuading savers to leave their savings longer in the money markets e.g. banks, etc. so as to give the investment public the opportunity of having access to investible funds. With the availability of investible funds at the right interest rates, investments will increase and consequently, economic growth will increase.
Having uncovered from the-study that the nexus between economic growth and savings and investments, being a short run relationship, it is necessary that the fiscal management policy initiatives be made to satisfy the short-run behavioural expectations of the variables used in uncovering this fact.

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Appendix

ECM: Error Correction Model

Variables	Coefficients	Std Error	t-statistics	Prob.
GDP (-1)	2.463680	0.62770	3.92495	0.0000
C	0.233755	66019.51	0.344761	0.0018
Investment	341.1101	749.8794	2.311877	0.8805
Savings	499.1281	3211.124	4.622752	0.1044
ECM(-1)	-0.672357	0.244068	-4.034328	0.0002
R-squared	0.6758811	Mean dependent var		92840.06
Adjusted R-squared	0.858426	S.D dependent var		50503.38
S.E of regression	45497.18	Akaike info criterion		24.51882
Sum squared resid	2.69E+10	Schwarz criterion		24.76615
Log Likelihood	-215.6694	F-statistic		3.101165
Durbin Watson stat	2.001	Prob(F-statistic)		0.156018

Source: Eview 7.0

Granger Causality Test

Pairwise Granger Causality Tests
Date: 27/08/15 Time: 09:34
Sample: 1980 2014
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Probability
In does not Granger Cause GDP	33	3.43115	0.05326
GDP does not Granger Cause In		2.26853	0.29422
S does not Granger Cause GDP	33	3.91558	0.03124
GDP does not Granger Cause S		1.90282	0.52104
In does not Granger Cause S	33	0.84597	0.53773
S does not Granger Cause In		10.0720	0.00035

Source: Eview 7.0

Augmented Dickey-Fuller Test on GDP

ADF Test Statistic	4.761829	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 27/08/15 Time: 12:51
Sample(adjusted): 1980 2014
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	0.039039	0.051243	-4.761829	0.4510
D(GDP(-1))	0.102242	0.179505	1.569580	0.5724
C	-3010.690	7693.372	-0.391335	0.6978
@TREND(1980)	422.3054	822.6261	0.513363	0.6107

R-squared	0.325360	Mean dependent var	20077.71
Adjusted R-squared	0.270659	S.D. dependent var	25741.20
S.E. of regression	21983.36	Akaike info criterion	22.92643
Sum squared resid	1.791310	Schwarz criterion	23.09360
Log likelihood	-465.9917	F-statistic	5.948011
Durbin-Watson stat	1.989782	Prob(F-statistic)	0.002043

Source: E-view 7% Researcher's computation 2015.

Augmented Dickey-Fuller Test on Investment

ADF Test Statistic	-2.916586	1% Critical Value*	-4.2092
		5% Critical Value	-3.5279
		10% Critical Value	-3.1949

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(In)
Method: Least Squares
Date: 28/08/15 Time: 08:12
Sample(adjusted): 1980 2013
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
In(-1)	0.034298	0.017896	-7.916586	0.0635
D(In(-1))	0.640995	0.125223	5.118842	0.0000
C	214.3795	86.03349	2.491814	0.0176
@TREND(1980)	-6.118817	3.115213	-1.964173	0.0575

R-squared	0.689789	Mean dependent var	4.230769
Adjusted R-squared	0.663200	S.D. dependent var	282.8947
S.E. of regression	164.1765	Akaike info criterion	13.13668
Sum squared resid	943386.9	Schwarz criterion	13.30730
Log likelihood	-252.1652	F-statistic	25.94218
Durbin-Watson stat	2.188918	Prob(F-statistic)	0.000000

Augmented Dickey-Fuller Test on Investment

ADF Test Statistic -1.129664	1% Critical Value*	-4.1958
	5% Critical Value	-3.5217
	10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(S)
Method: Least Squares
Date: 27/08/15 Time: 08:13
Sample(adjusted): 1980 2013
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
S(-1)	0.098438	0.087139	-7.916586	0.0635
D(S(-1))	0.102262	0.178047	5.118842	0.0000
C	-28764.23	21855.72	2.491814	0.0176
@TREND(1980)	2728.293	1384.772	1.970211	0.0575

R-squared	0.689789	Mean dependent var	4.230769
Adjusted R-squared	0.663200	S.D. dependent var	282.8947
S.E. of regression	164.1765	Akaike info criterion	13.13668
Sum squared resid	943386.9	Schwarz criterion	13.30730
Log likelihood	-252.1652	F-statistic	25.94218
Durbin-Watson stat	2.188918	Prob(F-statistic)	0.000000

Augmented Dickey-Fuller Test on Investment

ADF Test Statistic -1.129664	1% Critical Value*	-4.1958
	5% Critical Value	-3.5217
	10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(S)
Method: Least Squares
Date: 27/08/15 Time: 08:13
Sample(adjusted): 1980 2013
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
S(-1)	0.098438	0.087139	-1.129664	0.2659
D(S(-1))	0.102262	0.178047	0.574355	0.5692
C	-28764.23	21855.72	-1.316096	0.1962
@TREND(1980)	2728.293	1384.772	1.970211	0.0563

R-squared	0.135185	Mean dependent var	11738.65
Adjusted R-squared	0.065065	S.D. dependent var	52598.98
S.E. of regression	50859.01	Akaike info criterion	24.60397

Source: Eview 7.0

Augmented Dickey-Fuller Test on GDP

ADF Test Statistic	4.761829	1% Critical Value*	-4.1958
		5% Critical Value	-3.5217
		10% Critical Value	-3.1914

*MacKinnon critical values for rejection of hypothesis of a unit root.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 27/08/15 Time: 12:51
Sample(adjusted): 1980 2014
Included observations: 33 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
S(-1)	0.039039	0.087139	-4.761829	0.4510
D(S(-1))	0.102242	0.178047	1.569580	0.5724
C	-3010.690	7693.372	-0.391335	0.6978
@TREND(1980)	422.3054	822.6261	0.513362	0.6107

R-squared	0.325360	Mean dependent var	20077.71
Adjusted R-squared	0.270659	S.D. dependent var	25741.20
S.E. of regression	21983.36	Akaike info criterion	22.92643
Sum squared resid	1.791310	Schwarz criterion	23.09360
Log likelihood	-465.9917	F-statistic	5.948011
Durbin-Watson stat	1.989782	Prob(F-statistic)	0.002043

Source: Eview 7.0

Augmented Dickey-Fuller Test on GDP

ADF Test Statistic	-2.916586	1% Critical Value*	-4.2092
		5% Critical Value	-3.5279
		10% Critical Value	-3.1949

*MacKinnon critical values for rejection of hypothesis of a unit root.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(In)
Method: Least Squares
Date: 28/08/15 Time: 08:12

Sum squared resid	9.57E+10	Schwarz criterion	24.77115
Log likelihood	-500.3814	F-statistic	1.927913
Durbin-Watson stat	1.9897890	Prob(F-statistic)	0.141976

Source: Eview 7.0

Johansen Cointegration Test
Date: 27/08/15 Time: 12:40
Sample (adjusted): 1980 2014
Series: D(GDP) I S

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic
None	0.550444	61.47785
At most 1	0.316817	18.29249
At most 2	0.211293	7.243730

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic

 www.iiste.org

None	0.550444	23.18535
At most 1	0.316817	11.04876
At most 2	0.211293	6.883449

D(GDP)	1	S
4.66E-07	-2.16E-05	4.08E-05
-6.77E-07	6.53E-06	2.11E-06
-1.71E-06	6.17E-06	9.47E-06
-1.62E-6	7.36E-06	-3.85E-06

D(GDP)	-201146/1	620996.6
D(1)	16269.51	6152.337
		1185.678
D(S)	-15015.60	

1 Cointegrating Equation(s):	Log likelihood	
D(GDP)	1	S
1.000000	-46.24589	87.53269
	(7.88500)	(16.9812)
D(I)	-0.093741	
	(0.12208)	
D(S)	0.007582	
	(0.00197)	

2 Cointegrating Equation(s):	Log likelihood	
D(GDP)	S	I
1.000000	0.000000	-27.05172
		(6.41793)
0.000000	1.000000	-2.477721
		(0.18294)
D(I)	0.513870	8.393064
	(0.18708)	(5.12860)
D(S)	0.003420	-0.310441
	(0.00331)	(0.09071)

3 Cointegrating Equation(s):	Log likelihood	
D(GDP)	S	I
1.000000	0.000000	0.000000
0.000000	1.000000	0.000000
0.000000	0.000000	1.000000
D(S)	-0.956596	9.988555
	(0.42031)	(5.16668)
D(I)	0.002156	-0.305887
	(0.00765	(0.09398)

Source: Eview 7.0