



## Private Domestic Savings Mobilization by Commercial Banks and Economic Growth in Nigeria

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### Abstract

*This study discusses private domestic savings by commercial banks and economic growth in Nigeria and reviews theories on the determinants of private domestic savings and the impact of savings on economic growth. It also examines the determinants of private domestic savings in Nigeria during the period covering 1986 – 2010. The broad objective is to identify instruments to be used by commercial banks to mobilize savings and to also examine the impact of that private domestic savings on economic growth of Nigeria. It makes an important contribution to the literature by evaluating the magnitude and direction of the effects of money supply, interest rate, inflation rate, exchange rate and per capita income on private domestic savings. We went further to examine the impact of private domestic savings and commercial banks credit to private sector on economic growth of Nigeria. The framework for analysis involves the estimation of a private domestic savings function and economic growth function derived from the Life Cycle Hypothesis. The study employed classical least squares method with the aid of Error-Correction modeling procedure, co-integration, granger causality and stationarity test which minimize the possibility of estimating spurious relations, while at the same time retaining long-run information in the work; as well as the nature of causality between independent variables and dependent variables of our two functions specified in this research work. The results of the analysis show that the money supply and per capita income are strong determinants of private domestic savings for the period under study and private domestic savings and commercial banks credit to private sector turnout to be the leading factors that propel economic growth in Nigeria according to this research results. It was also revealed that, unethical banking practices by Nigerian commercial banks have rendered interest rate impotent to drive savings mobilization.*

**Key Words:** Domestic, saving mobilization, Economic growth, Commercial banks' credit, Per capita income, Money supply

## **1. Introduction**

As capital formation is an important factor in economic growth, countries that are able to accumulate high level of capital tend to achieve faster rates of economic growth and development. The effects of investment on economic growth are three folds. Firstly, demand for investment goods forms part of aggregate demand in the economy. Thus a rise in investment demand will, to the extent that the demand is not satisfied by imports, stimulate production of investment goods which in turn leads to high economic growth and development. Secondly, capital formation improves the productive capacity of the economy. Furthermore investment in new plants and machinery raises productivity growth by introducing new technology and innovation which would also lead to faster economic growth. To finance investment required for economic growth, the economy needs to generate sufficient savings or borrow from abroad. However, borrowing from abroad may not only have adverse effects on the balance of payment as these loans will have to be serviced in the future but it also carries a foreign exchange risk. Therefore, domestic savings are necessary for economic growth because they provide the domestic resources needed to fund the investment effort of a country.

This study is necessitated by the consistent decline of Private Domestic Saving in Nigeria. To finance investment required for economic growth, the economic need to generate sufficient savings. This research work will be of immense help to policy formulators particularly those involved in the development of the Nigerian economic agenda. It will help them in choosing the appropriate policy in the macroeconomic policy management, particularly those affecting savings mobilization by commercial banks in Nigeria. Also, through the findings and suggestions of this research project work, a greater awareness will be generated in the financial arena or sectors so as to appreciate the efforts being carried out by the federal government of Nigeria through the Central Bank of Nigeria and Federal Ministry of Finance via money deposit banks in improving the policies affecting positively savings in recent years due to the important of savings to capital formation which subsequently brings economic growth and development. Finally, this study will assist in a modest way to increasing student's knowledge on the practical and real-life situations of the theories they learn in the classroom. The study will add to existing stock of knowledge on the private savings mobilization by commercial banks and economic growth in Nigeria and will educate economists, the government, facilitate the institution and implementation of appropriate measures to mobilize desired quantum of savings for investment that gears economic growth, members of the academia and the public on the influences of interest rate, per capita income, inflation rate, money supply, exchange rate variables as adduced to be the major determinants of savings mobilization by commercial banks going by theoretical framework and the extent of the impact of savings on economic growth in Nigeria.

Section 2 reviews some theoretical and empirical evidence on the private domestic savings mobilization by commercial banks in Nigeria, Section 3, research methodology and specification of the model, section 4,

present the empirical results and discussion of findings and section 5 provides the policy implication and conclusion

## **2. Literature Review and Theoretical Framework**

Banks are statutorily vested with the primary responsibility of financial intermediation in order to make funds available to all economic agents. The intermediation process involves moving funds from surplus economic units of the economy to deficit economic unit Uremadu (2002); Nnanna, Englama and Idoko, (2004).

Financial intermediation is an important activity in the economy because it allows funds to be channeled from people who might otherwise not put to productive use of people who will. In this way financial intermediation helps to promote a more efficient and dynamic economy. According to Gershenkon (1962), banks more effectively finance industrial expansion than any other form of financing in developing economies. In Nigeria, banks are the largest financial intermediaries in the economy. Financial intermediaries help to bridge the gap between borrowers and lenders by creating a market with two types of securities, one of the lender and the other for the borrower Vane and Thompson, (1982).

However, the extent to which this could be done depends on the level of development of the financial sector as well as the savings habit of the populace. The availability of investible funds is therefore regarded as a necessary starting point for all investment in the economy which will eventually translate to economic growth and development Uremadu, (2006).

Conceptually, savings represent that part of income not spent on current consumption. When applied to capital investment, savings increase output Olusoji,( 2003). Institutions in the financial sector like deposit money banks (DMBS) or commercial banks mobilize savings deposits on which they pay certain interest. To effectively mobilize savings in an economy the deposit rate must be relatively high and inflation rate stabilized to ensure a high positive real interest rate, which motivates investors to save from their disposable income. The recent consolidation initiative which has reduced the number of banks from eighty-nine (89) to twenty-four (24) is a step towards this market-based direction. It aims at reducing the cost of capital by allowing domestic economic units to achieve efficient portfolio diversification in order to increase the liquidity of investments; and opening the financial industry to foreign investors. Ultimately, the reform initiative is meant to produce a sound and healthy financial service sector, which is crucial if the country must avail itself of the windows of opportunity opened up by globalization, to develop the economy and further the country's industrialization.

Access to financial services is important for growth and poverty reduction. Access to credit that enables an individual to accumulate funds in a secure place over time can strengthen productive assets by enabling investment in micro-enterprises, in new tools, equipment or fertilizers, or in education or health, all of which can play an important role in improving their productivity and income.

However, in many developing countries like Nigeria, commercial banks lending or access to formal financial services for the poor majority of the population remains very limited. Credit is the main channel through which savings are transformed into investments. However, not all savings are used to finance investment despite high demand for credit because the credit market in Nigeria is rationed Soludo, (1987), Azege, (2007), Indeed, the lack of credit has been cited by firm managers in Africa as their most important constrain Bigstein and Soderbom, (2005).

Lack of funds has made it difficult for firms to invest in modern machines, information technology and human resources development which are critical in reducing production costs, raising productivity and improving competitiveness. Low investments have been traced largely to banks unwillingness to make credits available to manufacturers, owing partly to the mis-match between the short-term nature of banks' funds and the medium to long term nature of funds needed by industries. In addition, banks perceive manufacturing as a high risk venture in the Nigerian environment, hence they prefer to lend to low-risk ventures, such as commerce, in which the returns are also very high. Even when credit is available, high lending rate, which was over thirty percent (30%) at a time, made it unattractive, more so when returns on investments in the sub-sector have been below ten percent (10%) on the average Nwasilike, (2006).

Be that as it may the National Economic Empowerment and Development Strategy (NEEDS), which guided the government's programme of development for the period 2003-2007, provided a medium term development package to enhance the performance of the nation's financial sector using the instrument of monetary policy guidelines, however, NEEDS (2004) did not fail to acknowledge the challenges which have made our financial sector potentials unrealized. These include;

*Imbalance in the structure of credit allocation between the public sector and the private sector; High real lending interest rates; Uncompetitive and unstable exchange rate regime; Banking sector quest for deposits at the expense of its resolve to credit giving, etc.*

In fact, some "watchers" of developments in the industry have accused banks of enjoying abnormal profits by charging high rates on credits while paying considerably lower rates on deposits. Bankers on their own part have argued that the perceive high spread is necessitated by the high cost of running banking business arising from regulating costs as well as those induced by the environment where they operate such as costs of power and infrastructural decays, etc Afolabi, et al, (2003).

Following the liberalization of the financial sector in 1986, interest rate became market determined and soon sources above repression regime values. Despite high inflation rate; Interest rates as at 2000 was once 15% Central Bank of Nigeria,( 2007). The high spread of lending and deposit rate has also constituted a serious disincentive to effective financial intermediation in Nigeria.

The performance of savings mobilization in Nigeria has not been encouraging, instead of increasing to match the development challenges, there is clear indication of savings decline in Nigeria, in spite of various

policy measures. Also there is huge gap between financing needs and the available financing capacity; this represents major constraints to growth opportunities in business financing.

Illiteracy rate in Nigeria which has made many liquid cash holders not to maintain an account in the bank and this group of illiterate Nigerians have control over large amount of liquid cash in the economy which has rendered interest rate incapacitated in realizing the macroeconomic objectives and also banks inability to extend their branch network to places where rural dwellers can access it and facilitate savings mobilization, this constraint is due to lack of structural facilities like good road network, power supply and majorly security.

Despite the fact that Nigeria has implemented some economic policies that are based on financial liberalization as elucidated in the structural adjustment programmes (SAP) and other banking reforms, the issue of the persistent low level of economic development in Nigeria still remains a matter of great concern. It has been argued that this is the outcome of capital shortage Yohannes, (1994). To this end, it becomes imperative to carry out an empirical investigation on the performance of the banking sector as a financial intermediary.

The Classical Economists did the first theoretical explanation of the determinants of savings and its importance. Smith (1776) recognized the importance of savings when he observed that, “Capital is increased by parsimony and diminished by prodigality and misconduct”. Prior to 1936, the classical economists propounded their theory on the savings and asserted that a negative relationship existed between savings and interest rate.

Keynes (1936) defined savings as the excess of income over expenditure on consumption. Meaning that saving is that part of disposable income of the period which has not passed into consumption Umoh, (2003), Uremadu, (2005). Given that income is equal to the value of current output; and that current investment (i.e Gross Capital Formation) is equal to the value of that part of current output which is not consumed, savings is equal to the excess of income over consumption. Hence, the equality of savings and investment necessarily follow thus:

$$\text{Income} = \text{Value of output} = \text{Consumption} + \text{Investment} \dots\dots\dots (1)$$

$$\text{Savings} = \text{Income} - \text{Consumption} \dots\dots\dots (2)$$

From (1)

$$\text{Savings} = \text{Investment} \dots\dots\dots (3)$$

Keynes maintains that on the aggregate, the excess of income over consumption (otherwise called savings) cannot differ from addition to capital equipment (i.e. Gross fixed capital formation or gross domestic investment).

Savings is therefore a mere residual, and the decision to consume and the decision to invest between them determine the volume of national income accumulated in a period. In the Keynesian view therefore, rising income would result in higher savings rates. As a matter of fact, savings is regarded as being complementary to the consumption function. In its simplest form, the savings function is derived from the linear consumption function when the autonomous consumption expenditure is separated off Umoh, (2003).

However, MacKinnon (1973) and Shaw (1973) show that savings is not determined by income as postulated by Keynes (1936) and Kaldor (1940) but by real interest rate. They viewed low interest as a course of low saving which means that firms or business enterprises are discouraged to invest funds through the formal banking system. High real interest rate is seen as strengthening the market institution and increasing the level of savings.

Rose (1986), sees the importance of savings beyond capital formation, savings are catalysts for capital formation but equally a major determinant of the costs of credits based on the law of scarcity which holds that when the former is low and scarce, it becomes more costly to obtain.

Accordingly, Balassa (1993), MacKinnon (1973) and Shaw (1973), also considered financial liberalization as the main stay of economic reform in developing countries. They postulated that low interest is detrimental to increased saving mobilization which can be utilized for investment. If the real rate of return of holding money is low, a significant proportion of the physical capital of the economy will be embodied in inventories of finished and semi-finished goods. The authors argued that financial liberalization brings forth a shift from lower productivity investment to higher productivity investment intermediated by the financial sector. It can equally discourage savings, especially if the saver targets a given level of future income Dornbush, (1990).

Kaldor (1940), using business cycle paradigm corroborated Keynes' postulation that income is a major determinant of savings He stated that savings is sensitive to changes in income both at relatively low and high levels. In recession, economic agents curtail their normal standard of living. In the early stages of recovery, however, economic agents increase their saving sharply to restore previous level.

Duesseembery (1949) postulated the theory that saving is determined by previous savings rate in his past and relative income hypotheses. He elaborated on this by adding that there are adjustment lags in saving behaviours as the full reaction of savers to changes in the environment is not happening at once, but occurs over time due to habit, persistence, inertia, customs and so on. The economic agents react slowly to changes in income in making saving decision Mwege, et al, (1990).

Friedman (1957) in his Permanent Income Hypothesis (PIH) attempts to explain proportional and non-proportional relationship between consumption and disposable income. In his new theory, he attributed the causes of proportional relationship between income and disposable income on changes of wealth rather than

measured income. He classified actual income and consumption into permanent and transitory components. According to him, the effect of a change is permanent or temporary, if such change affects consumption.

Ando and Modigliani (1963) propounded theories on life –cycle saving which agreed with Fridmena’s line or argument. They postulated the Life-Cycle Income Hypothesis (LIH) in which an individual maximizes present value of labour income over the remaining working life. Hence, the determinants of savings are current income, expected labour income and non-wealth.

The existence of some inequality may spur saving among middle class because of the desire for prestige and status. Redistribution of income tends to reduce the share of the rich in the national income, both through fairer distribution of the benefits of economic expansion and also through progressive taxation. As a result, the rich will have smaller income out of which they could save. Other things being equal this will reduce the amount of investment and economy’s rate of expansion. However, it is argued that the validity of this western economic theory is questionable in the context of the Less Developed Countries (LDCS). The rich in the LDCs are not particularly high savers. They are accused of indulging in conspicuous consumption. Most of the saving by the rich in the LDCs are lodged in foreign bank accounts (and therefore not available to finance domestic investment) or it is invested in controlling population growth in LDCs which has adverse effect on aggregate savings and hence on investment. Both personal and government saving may be affected Killick, (1981). With low per capital income, a greater proportion is spent on bringing up additional children and little on saved for capital formation (Jhinghan, 2003).

Anyanwu and Oaikhenan (1995) classified the determinants of savings into objectives and subjective factors respectively. The objective factors are the quantifiable and verifiable determinants of savings. These include; the level of income, the rate of interest, inflation rate, expectation about inflation rate, and saving facilities. On the other hand, the subjective determinants of savings are the non-quantifiable and non-traceable factors that influence savings behaviors and which are largely psychological in nature. These include; the instinct of precaution, the desire for bequest, habits and cultural factors.

The soundness of any theory whether economic or otherwise is tested by its behavior when subjected to empirical analysis. Several attempts have been made to empirically investigate the determinants of savings and also model the relationship between financial intermediation and economic growth.

Schmidt (1973) in a case study of area using the ration of private saving to private disposable income as dependent variable, found past period rates to be statistically significant at 1 percent level in all the equations. In addition the elasticity changes with the inclusion of lagged saving ration. Mac Donald (1983) in a study of 12 Latin American countries found evidence of a positive relationship between real interest rate and private savings.

Lewis and Mackinnon (1986) used 14 observations pooled data selected from some African countries, to regress private saving on lagged private domestic saving and rate of interest. In all the equations, they found

interest rate to be positively related to saving and highly significant if change (s) in income is introduced in the equations. Hansen and Neal (1986) in their review of the interest rate policies in developing countries found that interest rate policy did not mobilize savings in these countries.

Mwega et al (1990) attempted to ascertain the determinants of saving using the ordinary least square technique of economic research. They found out that real interest rate was an important determinant saving in Kenya.

Soyibo (1994) conducted a research on the determinants of savings in Nigeria by adopting the descriptive statistical analysis approach. Using primary data, he measured the effect of real interest rates as a mechanism for the transmission of savings to investment.

In addition, studies dealing with saving and interest rates are categorized into two. Those who argue that high interest rates induce savings include Mckinnon (1973), Shaw (1973), and Uremadu (2006) found negative correlation between real interest and savings. Inflation has been found to exert influences on savings. First, it encourages the holding of real assets rather than assets fixed in nominal values, and thus reduced saving Howard, (1998). Secondly, inflation creates a feeling of uncertainty and pessimism about the future and thereby encourages savings Deston, (1977), and Gylfason, (1981).

### **3. Research Methodology and Specification of Empirical Model**

There is no doubt that a lot of research works have been carried out on financial sectors this is to show how important finance is especially on private domestic savings and commercial bank credits in Nigeria.

Soyibo (1994) conducted a research on the determinants of savings in Nigeria by adopting the descriptive statistical analysis approach, using primary data he measured the effect of real interest rate as a mechanism for the transmission of saving to investment. According to classical theoretical proposition saving is determined by interest rate while Keynesian theory also added that, not only interest rate, that determine saving; increase in disposal income of people can also affect saving and other relevant factors such as inflation rate. We therefore, specify the factors that determine our private domestic savings mobilization by commercial banks base on these theoretical propositions.

In the view of the fact that the objectives of this study involve the testing of hypotheses and making inferences based on the findings, this research adopts an econometric methodology. The regression model shall be kept as simple as possible. This model is as specified below.

#### ***The Function Model (I)***

$$Pdsm_t = b_0 + b_1 inExch_t + b_2 inInf_t + b_3 inInt_t + b_4 inMs_t + b_5 inPci_t + U_{t1}$$

#### ***The Functional Model (II)***

$$Gdp_t = \alpha_0 + \alpha_1 inTpds_t + \alpha_2 inPrey_t + U_{t2}$$



where: Tpd<sub>s</sub>= Total Private Domestic Saving, MS= Money Supply, Int= Interest Rate, Inf= Inflation Rate and Exch= Exchange Rate, Pci= Per capita income,

Gdp = Gross domestic product (proxy for economic growth in Nigeria) at current market prices, Tpd<sub>s</sub> = Total private domestic savings (made up of savings, time and demand deposits in the commercial banks as a proxy), Prcy = The Ratio of commercial Bank’s private sector credits to GDP (Measures the degree of bank loan financing to the private sector in the economy).

Where,  $b_0$  and  $\alpha_0$  are the constant terms, of the equations respectively while  $b_1$  to  $b_5$  are the regression coefficients of the equation (I) and  $\alpha_1$  to  $\alpha_2$  are the regression coefficients of the equation (II). The U! is the random variable or error term. It is the surrogate of all other variables that influence the dependent variable which are not included in this regression equation.

The data employed in this research work are basically secondary data; they are sourced from Central Bank of Nigeria online annual Bulletin of 2010, In this study the equation will be estimated in order to know the extent to which the predetermined variables chosen influence the endogenous variables in the our equations . The E-View 3.1 econometric packages shall be utilized in analyzing the data.

#### 4. The Empirical Results and the Analysis

From the multiple regression results of the private domestic savings function in Table1, the analyses of the sample period of 1986 to 2010 as follow:

if all the explanatory variables for private domestic savings function are fixed at zero the percentage decrease in private domestic savings in Nigeria would have been about 480%; very often the mechanical value of this intercept is that, it has no physical or economic meaning (perhaps it reflects the influence of all the omitted variables). It indicates that all other omitted variables have negative effect on private domestic savings mobilization by commercial bank in Nigeria.

**Table 1.** Regression Results of Private Domestic Savings Function.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.804794	1.667303	-2.881775	0.0099
INEXCH(-1)	-0.003394	0.018284	-0.185633	0.8548
ININF(-1)	-0.024150	0.038696	-0.624107	0.5404
ININT(-1)	-0.008270	0.145328	-0.056903	0.9552
INMS(-1)	1.339157	0.129621	10.33130	0.0000
INPCI(-1)	-0.427053	0.138437	-3.084822	0.0064
R-squared	0.995294			
Adjusted R-squared	0.993987			
F-statistic	761.4539			
Durbin-Watson stat	1.266295			

**Table 2.** Regression Results of Economic Growth Function.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.558103	0.281878	16.17049	0.0000
INTPDS(-1)	1.064196	0.016909	62.93610	0.0000
INPRCY(-1)	-1.144414	0.089625	-12.76896	0.0000
R-squared	0.994730			
Adjusted R-squared	0.994228			
F-statistic	1981.788			
Durbin-Watson stat	1.143290			

The partial regression coefficient of effective nominal exchange rate of .34% indicates that when other variables employed in this model are held constant a unit or one digit increase in the nominal exchange rate will bring about .34% decrease in our private domestic savings of Nigerians over the research period. Private domestic savings is a decreasing function of exchange rate. The rate of decrease as revealed by this result is infinitesimal given the economic potential of Nigeria. This is an indication that, selecting exchange rate as a monetary policy instrument to cajole commercial banks to mobilize savings will not have significant effect on the economic growth and it may not help to achieve the nation macroeconomic objectives, which will therefore render the monetary policy ineffective in Nigeria. By the same measure if inflation rate changes by a unit, where other variables are fixed, private domestic savings will change by 2.415%. The relationship between private domestic savings and inflation rate is inverse. This research result reveals that, if inflation rate increases or decreases the private domestic savings will respond in the same way but the percent change in savings mobilization is very small compare to the potential need of the private domestic savings to boost investment that will gear economic growth. Its effect on savings is a bit better than that of exchange rate, but the expectation of the monetary authorities in curbing inflation to encourage Nigerians to save is more than the percentage we have achieved in this research work; because the percentage increase in private domestic savings recorded over this research period is not enough to tackle the huge capital need for economic growth of our nation.

The estimate of the coefficient of interest rate indicates that a unit change in the rate of interest either by market forces or monetary authority regulation; it will bring about .83% changes in our private domestic savings in Nigeria when other variables specified in the model are held constant. Interest rate has been the most challenging monetary instrument in Nigeria. Many Nigerians are unbanked due to wide range of financial illiteracy and not only that the commercial banks in Nigeria are not richly spread across the nation to reach the rural dwellers, that is why changes in interest rate has no much impact on private domestic savings mobilization in Nigeria. More to that, the low capital base of the commercial banks; if not until this recent recapitalization exercise; unethical banking practices by the management has render interest rate that

would have be the basic monetary policy instrument to use to achieve desirable private domestic savings mobilization void. The deposit interest rate offer by commercial banks in Nigeria has been very low to attract savings while the lending rate is always on the increase which has resulted to negative result appeared in this research work which negates the a priori expectation.

The parameter estimate of the coefficient of money supply reveals that a unit change in money supply will bring about 133.916% increase in private domestic savings in Nigeria where all other variables in operation are fixed. The money supply as an instrument of monetary policy is the most dominant instrument that can impact private domestic savings mobilization by commercial banks and make monetary policy effective in order to achieve economic growth as desire by the government in power in our nation Nigeria. The impact of money supply is very significant compared to other variables employed for this analysis. The reason is that most people will take their money into the bank when they know; their money will be in safe custody base on the path the current government in power may toll. But over this research period, it was revealed that private domestic savings will be successful in Nigeria if money supply is well managed by the monetary authority.

The partial regression coefficient of per capita income stood at 42.71%. It shows a negative relationship with private domestic saving, meaning a unit increase in disposable income of the households lead to 42.71% decrease in their savings. This completely negate absolute income hypothesis by Keynesian theory; which state that, average propensity to save is the proportion of disposable income that households want to save but not to the full extent of the increment as certain percentage will be used for consumption purpose. Reasons accounted for this outright deviation could be the low income position of our economy. Many households income earners are living below international poverty line which is one of the worse situation in sub-Sahara Africa countries and the psychological attitudes; Nigeria societies are by nature not savings cultured rather they consume almost everything they earn at the end of the period in which their income comes into their accounts or pockets. The last but not the least is the side of the government. Nigeria government; if not of recent time does not have compulsory saving schemes, where people, especially workers, are forced to keep some portion of their income. Despite the negative relationship, the size of the income shows is the most dominant factor that determines private domestic savings in any society. From this research work it was revealed to be one of the major variables that determine savings mobilization by commercial banks in Nigeria.

The following coefficients of the private domestic savings regression equation such as effective nominal exchange rate, inflation rate, interest rate, and money supply conformed to the economic theory underline the relationship between savings and those selected independent variables as stated in the theories reviewed in this research work; this is a strong indication that these variables are instruments commercial banks can use to mobilize savings in Nigeria while per capita income negate the theory as explored in the literature

review. We discovered that money supply and per capita income are statistically significant; meaning that they do impact on private domestic savings via a multiplier effect.

From Table 2; if all the explanatory variables for economic growth function are fixed at zero the percentage increase in growth in Nigeria would have been about 455.81%; very often the mechanical value of this intercept is that, it has no physical or economic meaning (perhaps it reflects the influence of all the omitted variables). It indicates that all other omitted variables have positive effect on economic growth in Nigeria. From the economic growth table in Table 2 it was revealed that, a unit increase in total private domestic savings in Nigeria will lead to 106.42% increase in growth. It is established a positive relationships between economic growth and private domestic savings. Base on the classical theory; savings equal investment and determine economic growth of a nation, as such there is direct proportional relationships via multiplier effect between private domestic savings and economic growth of Nigeria. We can then say, total private domestic savings is a major determinant of economic growth in Nigeria. While that of commercial banks credits to private sector of the economic shows a decrease of 114.441%. Commercial banks credits to private sector supposed to boost real sector of the economic, but the reverse is what we found this research result; this might be due to credits diversion by private borrowers. Many obtain credits from the banks in Nigeria for investment in real sector of the economy but, most of these credits are used to finance trading businesses, marry more wives and finance consumable goods instead of investment goods which therefore, create a gap between commercial banks credits to private sector and economic growth.

The downturn we are experiencing in the real sector today in Nigeria which supposed to be the bedrock of economic growth is due to this credits diversion.

**Autocorrelation Test:** From the Durbin-Watson tables, we find that for our 25 observations and 5 explanatory variables of private domestic savings model the lower and upper limits are shown as follows:  $d_L = 0.953$  and  $d_U = 1.886$  at 5% level of significance. Since the estimated DW-value of 1.266 is  $d_U < d < 4 - d_U$  ( $1.886 < 1.266 < 2.114$ ), it is therefore, an evidence of absence of serial correlation. While that of growth equation is as follow:  $d_L = 1.206$  and  $d_U = 1.553$  at 5% level of significance. Since the estimated DW-value of 1.1433 is  $d_U < d < 4 - d_U$  ( $1.553 < 1.1433 < 2.447$ ), it is therefore, an evidence of absence of serial correlation.

*4.1 Unit Root/Stationarity Test:* The unit root/stationary is a test conducted to ascertain if the variables under consideration are stationary. We take the following decision rule: if the absolute value of the Augment Dickey Fuller (ADF) test is greater than the critical value either at 1%, 5% or 10% level of significance at the order of zero, one, or two, it shows that variables under consideration are stationary otherwise they are not. For the variables under consideration, the following values were obtained:

**Table.3** Augument Dickey Fuller (ADF) Test Result

Variables	Order of Integration	Estimated Value of ADF	Absolute Value of ADF
D(Tpds)	(-1)	-3.455072	3.455072
D(Exch)	(-1)	-3.647593	3.647593
D(Inf)	(-1)	-6.071001	6.071001
D(Int)	(-1)	-4.838903	4.838903
D(Ms)	(-1)	-2.990392	2.990392
D(Pci)	(-1)	-3.069797	3.069797
D(Gdp)	(-1)	-3.064369	3.064369
D(Prcy)	(-1)	-3.549393	3.549393

The 1%, 5% and 10% critical values computed by Mackinnon are -3.7667,

-3.0038 and -2.6417, respectively. In absolute terms, the values of the calculated ADF of all the variables under consideration exceeded any of these critical values. So that we can now reject the null hypothesis, that the coefficients of the selected variables for this work is zero. That is, the first-differenced of the data representing our variables do not exhibit a unit root, which is to say that the data are stationary. That is they are 1(0).

#### 4.2 Co-integration Test and Error Correction Mechanism

**Table 4.** Co-integration Test Results of both Models I &II.

When we subjected the residual ( $\hat{U}_t$ ) estimated from these regressions to the DF unit root test. We obtained the following results:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\hat{U}_{t1}(-1)$	0.415017	0.343487	1.908248	0.0418
$\hat{U}_{t2}(-1)$	0.121333	0.217928	1.856759	0.0836

The Engle-Granger 1%, 5% and 10% critical values are less than the calculated absolute value of  $t = 1.908248$  and  $1.856759$  respectively. The conclusion would be that the estimated  $\hat{U}_t$  is stationary (i.e., it does not have a unit root) therefore, the endogenous and exogenous variables, in case they might be individually non-stationary and co-integrated we can then go into the Error Correction Mechanism.

**Table 5.** Vector Error Correcting results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14407.71	251857.6	-0.057206	0.9551
EXCH(1)	-2244.618	1493.642	-1.502782	0.1537
INF(1)	210.8432	1937.836	0.108803	0.9148
INT(1)	1380.552	9108.396	0.151569	0.8815
MS(1)	0.681683	0.045385	15.02006	0.0000
PCI(1)	-51809.93	29827.97	-1.736958	0.1029
$\hat{U}_{t1}(-1)$	-1.246595	0.586601	-2.125117	0.0506
C	12525697	1906315.	6.570632	0.0000
TPDS(1)	7.706210	0.542048	14.21684	0.0000
PRCY(1)	-816831.7	146900.7	-5.560433	0.0000
$\hat{U}_{t2}(-1)$	4652796.	1629171.	2.855929	0.0098

The result below shows the result of the VECM estimates for both private domestic savings and economic growth models. Since the estimated coefficients of one period lagged error term are statistically significant at absolute value of t-calculated of 2.125 and 2.856 at 5% level of significance respectively; we can therefore, conclude that, there is absence of the problem of non-stationarity and co-integration. From the results, it can be seen that the models fit the observed data highly well as indicated by being free from non-stationarity or unit root problem.

*4.3 Granger Causality*

**Table 6.** Granger Causality Results of both private domestic Savings and Growth:

Null Hypothesis	Obs	F-Statistic	Probability
EXCH does not Granger Cause TPDS		5.89486	0.01074
TPDS does not Granger Cause EXCH	23	0.15969	0.85360
INF does not Granger Cause TPDS		0.72837	0.49639
TPDS does not Granger Cause INF	23	0.66393	0.52698
INT does not Granger Cause TPDS		0.86047	0.43965
TPDS does not Granger Cause INT	23	0.25733	0.77591
MS does not Granger Cause TPDS		28.0782	2.9E-06
TPDS does not Granger Cause MS	23	6.13975	0.00927
PCI does not Granger Cause TPDS		14.9924	0.00015
TPDS does not Granger Cause PCI	23	3.93895	0.03811
TPDS does not Granger Cause GDP		5.03918	0.01829
GDP does not Granger Cause TPDS	23	17.5039	6.0E-05
PRCY does not Granger Cause GDP		1.70894	0.20915
GDP does not Granger Cause PRCY	23	4.63136	0.02384

The results above show causality between private domestic savings and economic growth as well as their independent variables as used in this study. The null hypothesis in case of money supply and private domestic savings; there is a bilateral relationship and they granger cause themselves. As stated in the methodology, null hypothesis is rejected if  $F_{cal} > F_{tab}$ ; accept otherwise. At 5% level of significance. From result presented we say likewise, that bilateral relationship exists between private domestic savings and per capita income as they granger causes each other. While unilateral relationships exist between private domestic savings and nominal exchange rate in Nigeria. There is a bilateral relationship between economic growth and its determinants as shown in the table above.

Thus, in general, we reject null hypothesis and conclude that total private domestic savings has causality relationship with economic growth; meaning that it is one of the major factors that government can use to achieve economic growth via a proper management of money supply which stands out of the monetary policy instruments we adopted to examine their impact on private domestic savings mobilization by commercial banks in Nigeria.

## **5. Conclusions**

To start with we would like to say that, the maintenance or improvement of money supply and per capita income are what should be thought about as they can be used as instruments to drive private domestic savings which can be culminated into investment that will act as bedrock for economic growth of Nigeria. This is base on the fact that, there is causality between money supply, per capita income and private domestic savings as well as private domestic savings and economic growth. This technical linkage can be rooted in classical and Keynesian theories of saving- investment equality.

The issue of low deposit rate offer by commercial banks has rendered interest rate inactive to savings mobilization drive by commercial banks in Nigeria; we therefore, recommend that, monetary authorities should focus on ways of increasing the abysmally low real interest rate on bank deposits. It should also devise means of substantially reducing the interest rate spread.

Some major recommendations for policy can be drawn from the analysis. First, the focus of commercial banks credit to private sector in Nigeria should be to increase investment in real sector in order to boost the productive base of the economy in order to promote real income growth and reduce unemployment. For this to be achieved, a diversification of the country's resource base is indispensable. This policy thrust should include a return to agriculture; the adoption of a comprehensive energy policy, with stable electricity as a critical factor because it helps reducing cost of running banks with generator, which in turn reduce their interest rate spread; it therefore, enable commercial banks to increase deposit rate which will attract savings mobilization and reduce interest rate on credit to private sector, the establishment of a viable iron and steel industry; the promotion of small and medium scale enterprises, as well as a serious effort at improving information technology.

Lastly, it is pertinent to note that even though this research work has concentrated on Nigeria, its results can be applied to other African countries not previously studied. They contain some valuable lessons for informing policy measures in the current thrust towards greater mobilization of private domestic saving in the African continent.

In conclusion, we would say that from the analysis, a proper management of money supply and per capita real income variables will help to increase the rate of private domestic savings mobilization by commercial banks, this will bring increase in economic growth of Nigeria via increase in private domestic savings by commercial banks and their credits to private sector when adequately monitored for the purpose in which the credit was availed for. The interest rate has played little proportion in mobilizing savings due to shallow nature of the financial sector of Nigeria.

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