

The Impact of Nigeria’s New Pensions Reform on National Savings: *Empirical Evidence*

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Abstract

The study used a simple Keynesian macroeconomic framework to examine the effect of the new pension reform scheme on national savings in Nigeria during 2007-2016. Annual data of the relevant variables were obtained from secondary sources that include the National Pension Commission (Pencom), National Bureau of Statistics 2016, World Bank country data 2016, and the Central Bank of Nigeria bulletin 2016. The ordinary least squares (OLS) regression technique was utilized for the analyses. Empirical results show that pension assets have a significant negative effect on national saving, hence, an increase in pension assets hinders the growth of national savings in Nigeria. This situation can be explained by the continuous pension debt paid by the government to individuals who transitioned from the old to the new pension scheme. The results also show that income and deposit rates have a significant positive impact on savings. Finally, budget deficit and national savings are inversely related, with the former having a significant influence on the latter. The study recommends that the government should finance pension debt using tax; and that the pension fund should be invested in infrastructural development.

Keywords: *funded systems, transition, life-cycle model, tax financing, infrastructural development*

1 Introduction

It is a common knowledge in economic literature that savings is an engine of economic growth. A study in China by Chow (1993) revealed that countries with sustained accumulation of fixed capital—through adequate savings mobilization—can attain higher and more sustained levels of economic growth and development compared to countries without such mobilization. Low levels of national savings constrain a country’s capacity to invest in capital formation. Loayaza (2002), in his study on sub-Saharan African (SSA) countries, discovered that while East Asian countries had savings that averaged 30%, SSA countries only saved what amounted to an average of 15% of its gross national disposable income (GNDI), highlighting the depth of the problem relating to savings. In Nigeria, for instance, the growth rate in national savings fell to 34.4% between 2001 and 2003, from 75.8% between 1999 and 2001. However, this negative trend occurred at a period when the earlier pension scheme—the pay-as-you-go (PAYG)—was in operation, which was characterized by massive accumulation of pension debts, coupled with a continuously unproductive engagement of deficit budgeting by the government.

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It was observed that the PAYG scheme lacked adequate and timely budgetary provisions. The administration of the scheme was very weak, inefficient, less transparent, excessively bureaucratic, and highly liable to corrupt practices. Due to the lack of reliable records of pensioners, huge amount of resources on what became yearly verification exercises were expended, which did not result into timely and efficient payment of pension benefits. In the private sector, on the other hand, employees were not covered by pension schemes put in place by their employers, and many of these schemes were not funded; and where the schemes were funded, the management of the pension funds was full of malpractices by both fund managers and trustees of the pension funds (Eme & Uche, 2014). This situation had severe implications on national savings.

The Pension Reform Act of 2004 was enacted to enhance national savings by establishing a contributory pension scheme (CPS) that was fully funded, privately managed and based on individual accounts for both the public and private sector employees in Nigeria (PENCOM, 2005). Reports show that the value of total pension fund comprising of diversified assets rose to ₦2tr as at 2010 up from ₦815bn in 2007. Underlining the importance of the fund to any financial system, policy makers have been looking towards pension savings as a veritable source of fund to boost the national savings for the benefit of economic growth and development.

Given the significant link between savings and pension funds in any economy, this study sets out to investigate the effect of the new pension scheme (contributory pension) on national savings in Nigeria. Section two contains theoretical and empirical literature, while section three dwells on issues of government expenditure on pensions and the new pension reform in Nigeria. Section four looks at the methodology used in the analysis. Section five presents the empirical analysis and discusses policy implications, before finally concluding with some policy recommendations in section six.

2 Literature Review

The theories explaining the effect of pension on savings can be categorized into micro- and macroeconomics. The microeconomics aspects involve some theories like the life cycle model, bequest model, and the precautionary motive model; while the macroeconomics aspect looks at the overlapping generational model.

2.1 Microeconomics Aspects

(a) Level of Net Pension Wealth

Murphy and Musalem (2004) suggest that the most useful framework used in studying the impact of mandatory pension programs on savings at a microeconomic level is the simple life cycle model that is well-documented in Atkinson and Stiglitz (1980). According to the framework, an individual lives for two periods: in the first period when s/he earns wage from his/her fixed labour supply, and in the second when s/he retires. Savings from wage income are made in the first period to provide for consumption in the second period with a constant rate of interest. Given that the major purpose of the life cycle model is to smoothen consumption, an individual will save now to transfer purchasing power to the future during retirement.

Therefore, a mandatory pension ensures that a tax cut on wage in the first period is meant to enable an individual to pay for her/his retirement needs in the second period. The framework introduces the net pension wealth as used in Liebman and Feldstein (2001). The net pension wealth reflects the difference between the present value of benefits and the value of contributions. To them, the net pension wealth plays a key role in understanding the effect of a mandatory pension program on individual savings. The theory suggests that an individual's savings, outside the pension scheme, will fall by the same amount of her/his pension contribution that leaves her/his income, if the net pension wealth is zero. In other words, her/his intertemporal budget constraint will not change, thus her/his total savings is unchanged. On the other hand, if net pension wealth is positive, it shows that the budget constraint is relaxed, and s/he would reduce savings outside the pension scheme by more than the amount of her/his pension contribution. This leads to a fall in her/his total savings because s/he would want to increase her/his consumption in the two periods. Lastly, if the net pension wealth is negative, showing that the budget constraint is tightened, an individual would reduce her/his savings outside the pension scheme by less than the amount of her/his pension contribution. This means that her/his total savings would increase.

(b) Time of Retirement

Where the mandatory pension scheme motivates an individual to retire early as captured in Feldstein (1974), the individual would increase her/his savings outside the pension scheme. This will eventually increase total savings. Again, the individual would want to save more during the working period of her/his life so as to finance her/his retirement.

(c) Precautionary Purpose

Since an individual is not allowed to withdraw from his/her mandatory pension scheme before the due date stipulated by law, s/he is forced to save for unforeseen events in the future. These events could be unexpected expenditure on health, education, extended family needs, etc. As a result of this, savings outside the pension scheme will increase more than his/her pension contributions, thus total savings will increase.

(d) Bequest Motive

Also, due to the fact that an individual would want to keep wealth for her/his children, s/he would have to increase savings outside the pension scheme, given that s/he has no control over what her/his contributions should be invested in, and this will increase total savings.

2.2 Macroeconomic Aspects

Several studies have explained the use of the overlapping generational (OLG) model of consumption as the basic framework to analyse the effect of pensions on aggregate savings in macroeconomic contexts (Arrau, 1990; Arrau & Schmidt-Hebbel, 1993; Cifuentes & Valdes-Prieto, 1996; Kotlikoff et al., 1997; Samwick, 1999). To them, the OLG framework is more appropriate in analysing an unfunded pension scheme, like the PAYG system, on savings. On the other hand, some

studies used the OLG in analysing the effect of pension transition (from unfunded to fully funded system) on savings in relation to both inter- and intra-generational distribution on wealth (Samwick, 1999).

(a) Pensions Using the OLG Model

Given the assumption of the OLG model on the growth rates of population and economic growth (as per the Ricardian Equivalence), the model predicts that the introduction of an unfunded system will see the transfer of wealth from the current and future generations to the past generation, who are now the present and current retirees, which will thereby reduce aggregate savings. This is because individuals in both generations (intergenerational transfer) would want to increase their consumption, thus reducing the aggregate savings of current workers in the economy.

(b) Pension Transition Using OLG (Intergenerational Distribution on Wealth)

In evaluating how the transition from the PAYG program to the fully-funded system or the defined contributory pension scheme affects national savings, the framework explains that a group of workers that witness the transition is faced with the problem of paying for two retirement programs: theirs and that of the current pensioners of the old (PAYG) system. The treatment of this additional financial requirement is crucial on the effect of pensions on national savings in several ways.

First, the government can issue explicit debt to replace the debt that was initially implicit in the PAYG system. In this situation, there are no further life-cycle reasons for individual savings to be altered apart from little changes that would come up due to a new distribution of the burden of financing explicit debt (Samwick, 1999). Therefore, a switch to explicit debt financed by a progressive income tax would transfer resources from high-income to low-income employees relative to the current implicit debt financed by a regressive payroll tax. This would reduce national savings because of the higher propensity of low-income workers to consume (Holzmann, 1997; Schmidt-Hebbel, 1998; Samwick, 1999).

Second, the government can liquidate its assets. The government can draw funds already accumulated in a social security trust fund to finance initial contributions to a defined contributory system. The effect of this liquidation on national savings will depend on whether the overall distribution of resources shifts towards consumers having high or low marginal propensities to consume, relative to the total population (Samwick, 1999). If resources are shifted to consumers with high marginal propensity to consume, then national savings will decrease. The reverse is the case for consumers with low marginal propensity to consume.

Third, the government can increase taxes to pay for the cost of the two retirements during transition. The effect of a tax increase is to reduce the disposable income of present workers. If their consumption remains the same as before a tax increase, or their consumption is reduced by less than a tax increase, then national savings will fall (Samwick, 1999).

Therefore, all the three theories explained above show that, under a tax-financed transition, private savings will decrease to offset some of the tax increase, but by an amount not more than or equal to the predicted amount by the standard life-cycle model. However, the means of financing the transition is an important factor in determining savings, as it involves the transfer of funds from the current young generations (with lower propensities to consume) to the current old generations (with high propensities to consume).

(c) Pension Transition Using OLG (Intragenerational Distribution on Wealth)

Here, the transition may also affect the savings response based on the transfer between members of the same group (cohort) with different income levels (income redistribution), which is one of the objectives of a fully funded scheme. Given that the marginal propensity to consume generally decreases with the level of income, transferring wealth within a generation from low-income to high-income workers will increase savings.

Although the relationship between pension wealth and savings is inconclusive in academic literature, a few researchers have attempted to empirically test the relationship between both variables. Though this area has been sparsely researched, studies by Barro (1978), Diamond-Hausmann (1984) and Diamond-Hausmann (1984) indicate varying results. Barro (1978) observed that if current generations feel altruistic towards their offspring, who will be financing current pay-outs, an expansion of a social security system may lead to increased private savings to compensate for larger future contributions. Diamond-Hausmann (1984) stated that credit market imperfections reduce the importance of the life-cycle motive for savings, as borrowing constraints limit the extent to which social security crowds out private savings. On their part, in a study conducted using aggregate time series Canadian data, Dicks-Mireaux and King (1984) found no significant relationship between social security and savings.

In a study employing open-ended questionnaires administered to 200 selected households with retirement savings account with particular PFA managers in Nigeria, Adewunmi's (2015) concluded that there was an inverse relationship between pension reform and households' savings. The finding indicated that households had been unable to save because of pension reforms on workers' disposable income. A study by Feldstein (1974) that examined the relationship between pension wealth and household savings, using time series behaviour of aggregate savings rate, also showed a large negative effect of pension wealth on savings rate. Feldstein (1974) largely affirmed the basic prediction of the life-cycle hypothesis of a negative relationship between savings and pension wealth.

Reisen and Bailliu (1997) examined the relationship between pension fund and savings rate, using data from 11 countries, including both OECD and non-OECD countries. Their findings showed that pension assets growth had no significant effect on national savings. This was due to governments running deficit budgets, which offset private savings at the national level. However, a study by Basworth and Burtless (2004) across

eleven (11) advanced OECD countries showed that an increase in pension and life insurance assets reduced private savings by crowding-out other forms of and/or discretionary private savings. Schmidt-Hebbel (1999a) showed that a pension reform in Chile spurred the national savings rate. On the other hand, in a study using panel data, Somwick (1995) found that all the countries studied (except Chile) experienced increase in gross national savings after reforms towards funded pension systems.

What is obvious from the foregoing brief review is that, even when tested empirically, deep divisions still exist as to the relationship between pension funds and savings. This study, therefore, proceeds to examine the situation in the Nigerian context.

3. Government Expenditure on Pensions and the New Pension Reform Scheme in Nigeria

3.1 Government Spending on Pensions and Gratuities

In many occasions, the Nigerian government has been making budgetary allocation of funds to pensions and gratuities before the new pension scheme of 2004. Most of the time government spending has been inadequate to cover the pension expenditure requirements. By June 2004 the Federal government budgetary pension deficit stood at ₦2tr (Pencom,2017). Fig. 1 shows the pension and gratuities expenditure by government before and during the introduction of the new pension scheme.

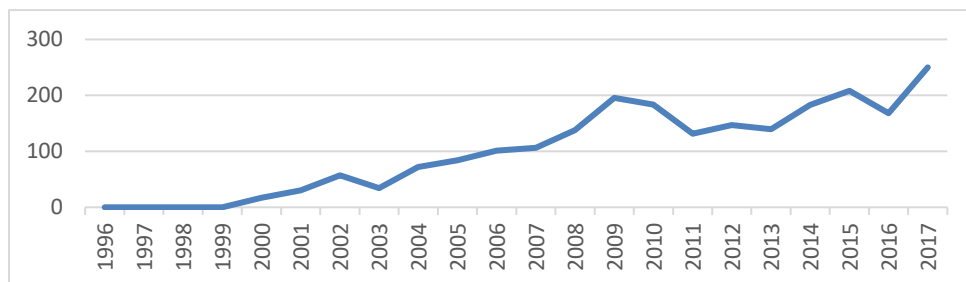


Figure1: Government Expenditure on Pensions and Gratuity
Source: CBN 2017

Fig. 1 shows that no expenditure was made on pension and gratuity from 1996 to 1998, thus increasing the government's pension deficit during the period. There was a slight increase in pension payment during the 2000–2002 period, before falling in 2003. The figure shows that government expenditure on pensions and gratuities started increasing gradually from 2004, when the new pension scheme was introduced, till 2009. This increase may be due to the government's efforts to settle all outstanding pension arrears, and also to pay the pension amounts of those in the old scheme that joined the new scheme. Although there was a fall in pensions payments between 2009 and 2011, all pension payments steadily increased from 2011–2015. However, there was a slight fall between 2015–2016, followed by a significant increase from 2017 onwards. A large proportion of these pension payments were paid into the retirement savings account (RSA) of each employee through the PFAs.

3.2 The New Pension Reform Scheme in Nigeria

The new pension scheme for public and private sectors was introduced under the Pension Reform Act 2004, which was later repealed and replaced by the Pension Reform Act 2014. The Act provides for a mandatory minimum contribution of ten and eight% of employee's monthly emoluments by the employer and employee, respectively. Each employee is required to open a retirement savings account (RSA) into which the contributions are to be made, with a pension fund administrator (PFA) licensed by the National Pension Commission (NPC). The NPC was established under the Act to regulate and supervise pension schemes in the country. The PFA must manage and invest the fund in the RSA, from where a contributor will draw his/her retirement benefits.

The pension scheme is mandatory by law for all employees and employers in both public and private sectors. A withdrawal benefit from the RSA is within the condition that an individual must have attained the age of 50 years if not yet retired. Upon retirement, an RSA holder will use the accumulated funds to purchase an annuity from a life insurance company with programmed monthly or quarterly payment that is calculated based on an expected life span.

As mentioned earlier, the pension reform act established a corporate body known as the National Pension Commission (NPC), which is responsible for the regulation and supervision of all stakeholders in the Nigerian pension scheme. The NPC is majorly empowered to:

- (a) Approve, license, regulate and supervise pension funds administrators, custodians and other institutions related to pension matters;
- (b) Formulate, direct, and oversee the overall policies on pension issues;
- (c) Establish standards, rules, and guidelines for the management of pension funds under the Act, and issue guidelines for pension funds investment;
- (d) Promote capacity building and institutional strengthening of PFAs and PFCs, and also enlighten and educate the public on pensions; and
- (e) Receive and investigate complaints of impropriety levelled against any employer, PFA, PFC or any of their staff or agent and impose administrative sanctions or fines on erring employers, PFAs and PFCs.

3.3 Membership of Pension Schemes

By the end of 2007, the total membership of the pension schemes for both the public and private sectors stood at 2,543,178; with the public and private sectors accounting for 1,754,028 (68.97%) and 789,150 (31.03%) members, respectively. This shows an increase of 1,038,881 (69.06%) members over the cumulative registration. The membership further increased from 4,012,498 in 2009 to 4,542,250 in 2010, an increase of 529,752 or 13.20%; before increasing again from 6,950,503 in 2015 to 7,412,653 in 2016, representing an increase of 6.65% (Pencom, 2016). This scenario shows that the financial contribution from the new pension scheme will also be increasing progressively.

3.4 Pension Contributions

By 2017, the total pension contributions into the RSA of employees in both the private and public sectors amounted to ₦610.84bn (Pencom, 2017). As Fig. 2 shows, the public sector accounted for ₦257.11bn, which represents 42.1% of the total pension contributions in the year. Consequently, the total pension contributions had cumulatively amounted to ₦4,487.40bn as at 31 December 2017. This was due to the ₦2,297.6bn contributions from the public sector, which represents 51.2% of the total contributions; and ₦2,189.8bn from the private sector, which represents the remaining balance of 48.8%. We can also see from Fig. 2 that the contribution from the private sector overtook that of the public sector, especially from 2014 onwards.

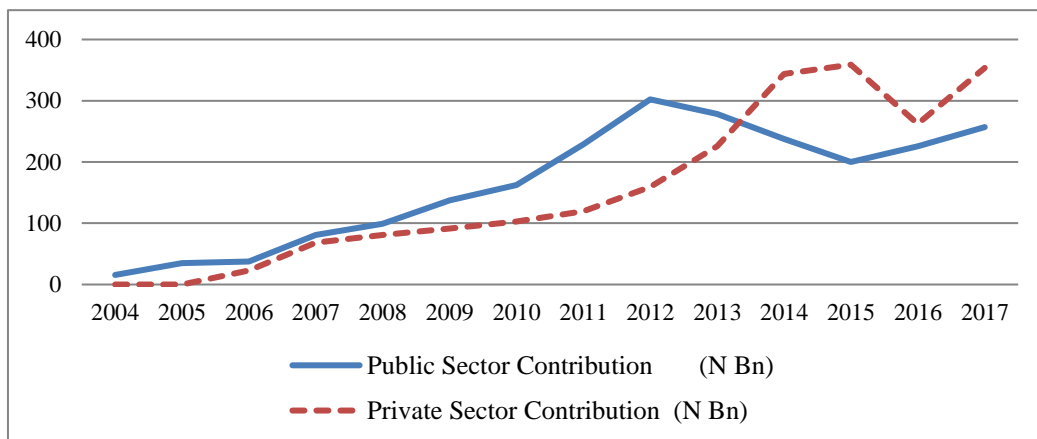


Figure 2: Trend of Pension Contribution of Public and Private Sector from 2004 -2017

Source: Pencom. 2017

4. Investment Structure of the RSA

By December 2017, the net assets value of pension assets under the contributory pension scheme had risen to ₦7.5tr from 816.2bn in 2007 (Table 1). Of the net assets value of ₦7.5tr of the pension investment, 70.4% was invested in FGN securities, 10.3% in ordinary shares, 9.1% in local money market securities, 2.0% in states government's securities, and 2.7% in real estate properties. The fund was also invested in supra national bonds, mutual funds, specialized funds (infrastructure and private equity), etc. In 2015 and 2016 further investments were made into treasury bills, thereby giving the government the opportunity for cheap funds (i.e., funds with little or at no cost). Also, the huge investment in FGN securities shown in Table 1 can be of a great advantage to the Federal Government due to cheap funds provided by the pension scheme.

Table 1: Trend of Pensions Investment in Different Asset Class (2007 – 2017)

Asset Class	2017 (N BN)	2015 (N BN)	2014 (N BN)	2013 (N BN)	2010 (N BN)	2009 (N BN)	2008 (N BN)	2007 (N BN)
Local Ordinary Shares	672	519.79	542.29	334.56	358.03	220.71	220.54	240.38
FGN Securities	5292.4	3,061.48	2,398.15	1622.2	829.2	498.88	350.67	279.69
Treasury Bills		471.68	498.78	-	-	-	-	-
State Govt. Securities	152.4	152.79	172.38	135.2	69.6	33.71	0.16	0.05
Corporate Debt Securities	268.12	171.13	118.88	30.13	50.73	31.18	15.12	0.24
Local Money Markets Securities	681.35	565.81	539.33	306.53	489.25	542.22	332.44	159.92
Open/Close Funds	24.99	22.82	20.36	14.71	8.61	5.74	9.03	4.46
Supranational Bonds	11.43	12.82	12.88	1.25	-	-	-	-
Real Estate Properties	205.33	214.19	213.5	-	170.52	142.96	125.5	79.08
Unquoted Securities	25.44	15.4	11.87	2.71	8.18	6.18	6.86	4.43
Infrastructure Fund	5.72	0.98	0					
Foreign Investment								
(i) Equities	104.61	68.35	59.5	-	24.1	2.8	2.23	26.09
(ii) Money Mkt. Securities	35.39	0.13	0.12	-	7.36	17.72	17.25	-
Cash and other Assets	35.1	25.39	23.58	20.33	14.19	27.53	19.19	17.13
Total	7,614.28	5,302.89	4,611.62	2,647.57	2,029.77	1,529.63	1,098.99	816.18

Source: Pencom 2007, 2009, 2011, 2013 2015, 2017

4. Methodology

4.1 Theoretical Framework

In the simple Keynesian macroeconomic framework, aggregate income in an economy can be calculated by summing up total consumption expenditures and total savings in that economy, abstracting from taxation, with an assumption that the economy is closed, i.e., there is no foreign interference. This implies that aggregate consumption plus aggregate savings equals aggregate income; and this can be denoted as:

$$C + S = Y \quad (1)$$

Where C and S represent total consumption and total savings respectively, while Y is total income in a closed economy.

From equation (1) it can be deduced that savings is a residual between income and consumption; so that we have:

$$S = Y - C \quad (2)$$

Equation (2) is an identity, showing that the subtraction of consumption from aggregate level of income gives savings. Representing it as a functional equation gives:

$$S = f(Y, C) \quad (3)$$

Equation (3) assumes that higher income will lead to higher level of savings, and the higher the level of consumption the lower the level of savings. Thus, for total

savings to rise in an economy, aggregate income must rise, or total consumption must fall, or a combination of both should occur. Therefore, income and consumption are major determinants of savings.

Another factor that determines aggregate savings is the rate of returns on savings. Thus, the higher the interest rate received from savings, the higher the volume of savings. So, a positive relation holds between the two variables, expressed as:

$$S = g(r) \quad (4)$$

Where r equals the interest rate received from savings.

Hence, a combination of equations (3) and (4) implies that aggregate savings in an economy depends positively on the total income and interest rate received from saving. This is shown in equation (5) as:

$$S = h(Y, C, r) \quad (5)$$

Equation (5) indicates that aggregate savings is a function of total income, consumption, and interest rate received for savings, that is, the deposit rate. Therefore, this equation will serve as the fundamental framework on which the empirical model for this study is developed.

4.2 Empirical Model

Based on the framework established above, the empirical model for this study is specified to examine the impact of pension funds asset on national savings in Nigeria. It is stated in its functional form as:

$$SAV = f(TPA, PCI, DEPRBDEF) \quad (6)$$

Where:

SAV = Saving

TPA = Total Pension Assets, proxy for new pension scheme

PCI = Per Capita Income, proxy for income

DEP = Deposit rate, a proxy for rate of returns on savings

$BDEF$ = Budget deficit

In econometric estimation form, equation (6) can be expressed as:

$$SAV_t = a_0 + a_1TPA_t + a_2PCI_t + a_3DEP_t + a_4BDEF_t + u_t \quad (7)$$

Equation (7) is drawn from equation (6) as TPA and PCI take the position of income (Y), DEP represents the deposit rate (r), and $BDEF$ is assumed to represent consumption due to its negative relationship with savings. Also, from Equation (7) u is the error term, subscript t denotes the time-period, and a_i s are the coefficients to be estimated. SAV , TPA and $BDEF$ are expressed as ratios of GDP . The *a-priori* expectations are that all the a_i s for $i = 1, 2$ and 3 (a_1 , a_2 and a_3) are greater than zero, but a_3 is less than zero. This is expected according to the economic theory since increases in pension assets, aggregate income and deposit rate would cause

total savings to increase; while increases in budget deficit, like consumption in equation (3), will draw down aggregate savings. Equation (7) is estimated using the ordinary least squares (OLS) estimation technique.

4.3 Ordinary Least Squares (OLS) Estimation Technique

Regression analysis involves the estimation or prediction of the mean or average value of the dependent variable based on the observed fixed values of the explanatory variables (Ekanem et al., 2015). Regression analysis may be of the simple or multiple regression forms based on the ordinary least squares (OLS) technique. The OLS is an econometric estimation technique where the parameters of a regression model are estimated by simply minimizing the sum of squares of the stochastic error term under some given assumptions of the error terms. Some assumptions of the error terms are that the residual series have zero mean, constant variance, zero covariance, independent, and are identically distributed. It entails that the error terms are free from auto correlation, that is, the error terms are not systematically related in any form.

This study adopts the multiple regression estimation technique where a dependent variable Y , say, is explained by more than one explanatory variable, X_i s. The reason for this technique is because the annual time series data used for this study is very short: 2007–2016. This is due to the late establishment of the new pension scheme in 2004, when compared with other countries in Europe and South America; and the fact that the collection of relevant data by PENCOM started in 2007. Due to this, the OLS is seen as the best technique that can handle this small sample size of data when compared with other techniques like co-integration and error correction, structural VAR, generalized method of moments (GMM), etc. Nevertheless, with the correlation check between the independent variables for possible multi-collinearity on the variables, the results obtained from the analysis will be robust, adequate, and reliable.

4.4 Data Source and Measurement

The data used for the estimations are time series annual data obtained from secondary sources for the period 2007–2016. Specifically, the TPA data are from the National Bureau of Statistics 2016; PCI and DEP are from the World Bank data on Nigeria for 2016; while SAV and BDEF are from the Central Bank of Nigeria statistical bulletin for 2016. The dependent variable—national savings—is measured by the share of gross domestic savings in gross domestic product (GDP) in percentage. The administration of pension funds in the country was captured by the share of total pension assets in GDP, also in percentages. Aggregate income in the country was measured using GDP per capita at 2010 constant prices; deposit rate is a proxy for the rate of returns on savings; while budget deficit was measured by total government revenue less expenditure.

5 Empirical Results and Discussion

5.1 Trends Analysis

Fig. 3 highlights trends of saving-GDP ratio over the study period. In the figure, the saving-GDP ratio fluctuated over the period. It rose from 12.25 in 2007 to 23.12

in 2008; and dropped afterwards to 11.83 in 2009. From the 2009 value, it increased steadily to 33.41 in 2012, and later fell to 15.63 in 2015, and the value stood at 23.86 in 2016. From this observation, the volatility of savings-GDP is very high.

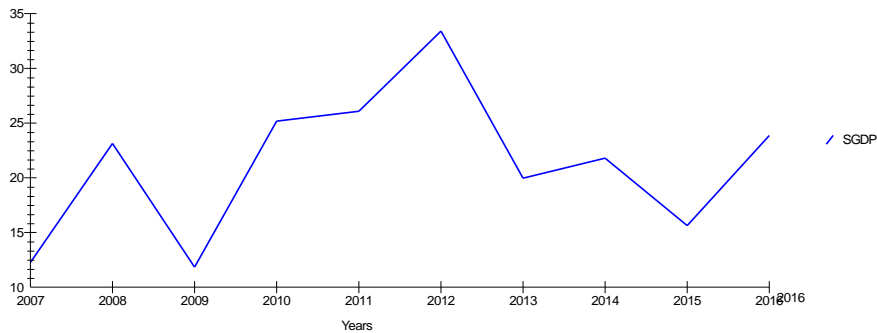


Figure 3: Trend of Saving-GDP Ratio

Fig. 4 shows that the pension assets-GDP ratio rose sharply from 3.89 in 2007 to 6.06 in 2009, after which it dropped drastically to 3.72 in 2010; and then increased steadily to reach 6.0 in 2016.

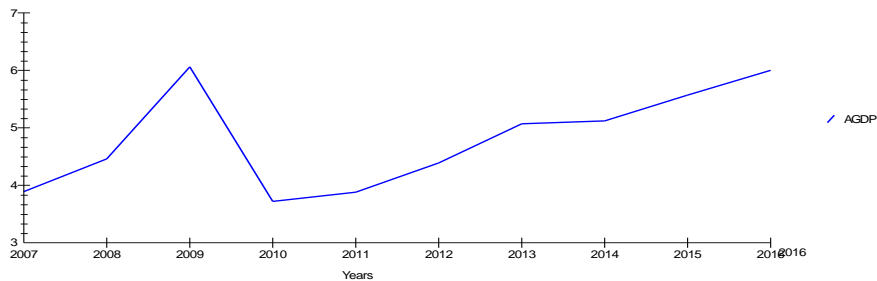


Figure 4: Trend of Pension Assets-GDP Ratio

Fig. 5 shows that per capita income recorded an upward surge from ₦2056.84 per man in 2007 to ₦2563.09 in 2014; and later dwindled to ₦2457.81 in 2016.

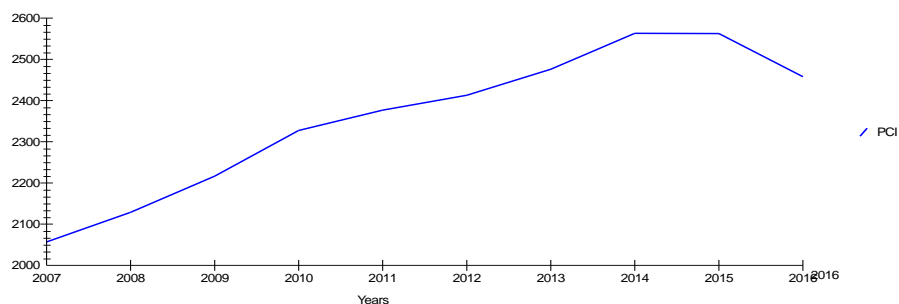


Figure 5: Trend of per Capita Income

As per Fig. 6, the deposit rate was 11.61, 4.19 and 23.70% in 2007, 2008 and 2009, respectively. It fell to -42.31% in 2010, before rising sharply by 5.94% in 2011. It then gradually rose to 13.60% in 2015, but declined to 6.65% in 2016.

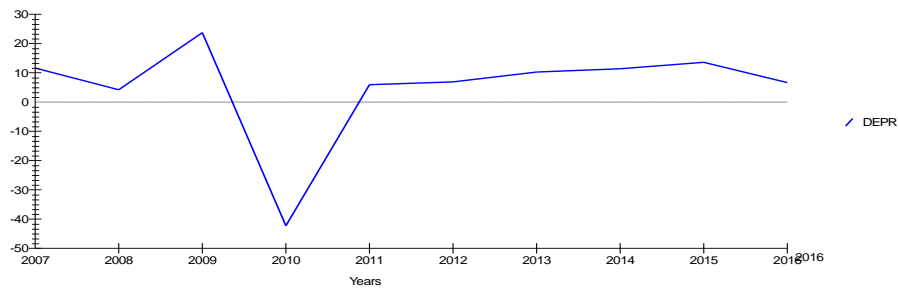


Figure 6: Trend of Deposit Rate

Fig. 7 shows that budget deficit recorded negative values in the study period. Its values fluctuated from -0.57 in 2007 to -1.82 in 2011, and -2.15 in 2016.

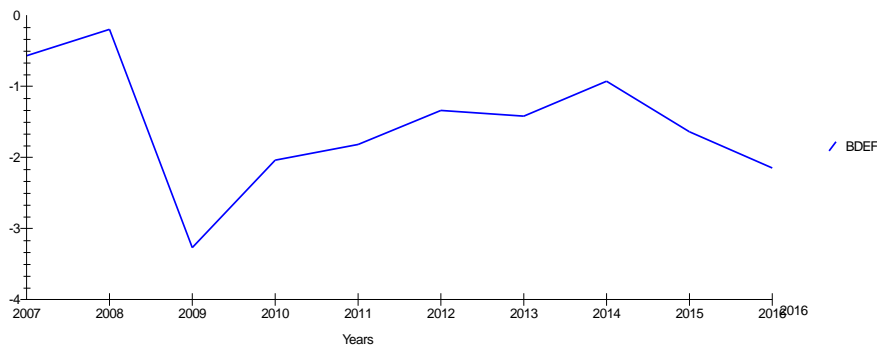


Figure 7: Trend of Budget Deficit

5.2 Regression Analysis

First, the correlation between each variable in Table 2 shows that there was a low correlation between all the variables used, except for the one between DSVRAT and AGDP that has a value above 50%. This situation does not cause any threat to the overall estimations of the regression coefficient of the model.

The estimated regression results in Table 2 are quite good after correcting for serial correlation among the errors using the Cochrane-Orcutt approach. The Durbin-Watson statistic value of 2.33 indicates that there is no threat of serial correlation after making corrections. The R-squared value of 0.799 suggests that about 80% of the variations in savings are explained by the explanatory variables, leaving only about 20% unexplained. This shows a high predictive power of the variables used.

Table 2: Regression Results

Dependent Variable SGDP				
Independent Variables	OLS Estimation		Cochrane - Orcutt Estimation for Correction	
	Coefficient	P- value	Coefficient	P- value
AGDP	-3.317 (-0.754)	0.485	-10.823*** (-4.352)	0.007
PCI	0.019 (1.293)	0.253	0.019** (3.284)	0.022
DEPR	-0.071 (-0.397)	0.708	0.400* (2.422)	0.060
BDEF	0.343 (0.104)	0.921	-5.749* (-2.414)	0.061
INTP	-7.028	0.831	-18.043	0.232
R ^{Bar} Square		0.4055		0.7998
F-Statistic	(-0.2248)	0.85	(1.361)	2.40
DW- Statistic		2.2		2.33

Note: *Significant at 10% level

**Significant at 5% level

***Significant at 1% level

The *t* - statistics are presented in parentheses below the coefficients

Source: Researchers' estimations

Estimated coefficients of the model were all significant at various levels. All the coefficients meet the *a-priori* expectation postulated by economic theories, except that of pension funds administration. Specifically, the coefficient of pension assets is -10.82, which is significant at the 1% level. This implies that a percentage rise in pension funds reduces savings by about 10.8%, other variables being constant. The coefficient of per capita income was 0.02 and significant at 5% level. It indicates that, on average, a percent increase in per capita income will cause savings share in GDP to increase by 0.02%. The deposit rate and budget deficit coefficients are significant at 10% level. The deposit rate and budget deficit have coefficients 0.4 and -5.75, respectively. This shows that a percent rise in deposit rate increases savings by about 40%, while a percent increase in budget deficit decreases savings by about 6%, other variables held constant.

7. Findings and Discussion

Interestingly, the study findings show that pension fund administration captured by total pension asset's share in GDP had a significant negative influence on aggregate savings in the country. It is important to note that the government is still paying pension debt from the old pension scheme, and for those who transited from the old into the new pension scheme. Therefore, even though these payments increase the total pension assets, however, they drain the national savings of the economy. This

negative relationship between the total pension assets and national savings is likely to continue until all outstanding pensions and debts from the old pension scheme are covered. This result indicates further that the pension debt being paid by the government is financed through financial bonds, which at the same time will bring down nation savings. To reverse this situation, tax financing may have to be employed. Also, fund administrators could explore other areas of investment, like infrastructure, or other capital projects of the economy. The Federal Government of Nigeria should also be held more accountable for the funds it borrows to ensure a more judicious use of borrowed funds, and not crowd-out productive investors that require such funds.

On the other hand, rising aggregate economic activities increases the aggregate income level in the economy, which in turn significantly promotes gross domestic savings as observed from the study results. This connotes that total savings increase as more income is made available in the economy, which further supports economic growth. Thus, ensuring adequate management of aggregate demand of the real sector would promote output, and thus income, in the larger society. Consequently, the level of savings would also rise since what is saved is some fraction of the income generated.

From the empirical results, the deposit rate has an impressive link with savings due to its significant positive impact on the latter. Higher deposit rates result in higher returns to savings, and people are encouraged to save higher portions of their disposable income. Increased savings will mean increased investments, and aggregate investment expenditures will increase as investors would have more loanable funds to borrow from commercial banks. This will further increase gross domestic product or output in the economy. The implication is that the deposit rate has a significant influence on savings during the period. Hence, to promote savings in the country, efforts should be made to increase the deposit rate to its optimal level so that more savings will be accessible to investors to borrow, and thus boost economic activities.

Budget deficit does not support savings in the country following its negative significant effect on savings. This finding indicates that savings are being depleted to finance fiscal deficits that may arise in budgets. Thus, policies aimed at increasing government revenue or reducing expenditure—or both—would help reduce the ugly impact of budget deficit on savings in the country.

5. Conclusion and Policy Implications

Evidence from the study shows that pension funds administration, aggregate income, deposit rate and budget deficit are significant determinants of the savings culture in the country. The existing trend of pension funds administration in the economy stifles overall savings; while an increased income level would translate into increased savings, higher deposit rates will support savings in the country, and budget deficit will draw down savings. Increased pension funds have not had the expected effect on national savings due to the huge pension debt from the old pension scheme, and the mode of financing the debt.

In line with the findings of the study, the following recommendations are pertinent:

- (a) The government should finance pension debt using tax financing. Increasing taxes will reduce the burden on national savings. In addition, the outstanding pension debt from the old scheme should be quickly paid so as remain only with those in the new scheme.
- (b) Regulators of pension fund managers should—as a matter of urgency and in the overall interest of Nigeria’s economy—compel pension fund managers to invest in productive sectors of the economy. While the importance of secure investments cannot be overemphasized, the idea of dumping a huge chunk of pension funds in federal government securities should be discouraged as such funds do not add to the quantum of savings.
- (c) Policies that enhance effective aggregate demand management should be supported to increase the level of income in the Nigerian economy as this has a desirable influence on the savings culture. Policy directives should influence increase in domestic production, and hence aggregate income that will generally improve savings.
- (d) Relevant authorities should make conscious efforts to formulate and implement policies that would promote and stabilize interest rate at an optimal level to further spur aggregate savings and investment in the economy. Such efforts on the rate of interest on savings will encourage a good savings culture in the country.

References

- Adams, R.A. 2005. *Public Sector Accounting and Finance*. Lagos, Corporate Publisher Ventures.
- Adebayo, Y. K. 2006. *Essentials of Human Resources Management*. Benin City: Weliscops Services.
- Adewumi, F. 2015. Effects of Pension Reform on Household Savings in Nigeria. *International Journal of Public Administration and Management Research*, 3(1): 12–32.
- Admad, M.K. 2006. The Contributory Pension Scheme: Institutional and Legal Frameworks. *CBN Bullion*, 30(2): 1–18.
- . 2008. Pension Reforms in Nigeria: Transition from the Defined Benefits to Defined Contribution: A paper presented at the IOPS Workshop in Pension Supervision in Dakar on February 5.
- Arrau, P & K. Schmidt-Hebbel. 1993. Macroeconomic and Intergenerational Welfare Effects of a Transition from Pay-As-You-Go to Fully-Funded Pension Systems. Manuscript, *The World Bank*, June
- Atkinson, A. & J. Stiglitz. 1980. *Lectures on Public Economics*, McGraw Hill.

- Ayegba, O., I. James & L. Odok. 2013. An Evaluation of Pension Administration in Nigeria. *British Journal of Arts and Social Sciences*, 15(11): 97–108.
- Barro, R.J. 1978. The Impact of Social Security on Private Savings: Evidence from the U.S Time Series. *American Enterprise Institute for Public Policy Research*, Washington DC.
- Bosworth, B. & G. Burthless. 2004b. Pension Reform and Saving. Working paper at the Brookling Institute prepared for a conference of the International Forum of the Collaborators Projects, Tokyo.
- Central Bank of Nigeria (CBN). 2016. *Statistical Bulletin 2016*.
- Chow, G. 1993. Capital Formation and Economic Growth in China. *The Quarterly Journal of Economics*, 108(3): 809–842.
- Cifuentes, R. & S. Valdes-Prieto. 1997. Transition and Credit Constraints. In S. Valdes-rieto, (ed.). *The Economics of Pensions*. Cambridge University Press.
- Dhameji, S.K. & S. Dhameji. 2009. *Industrial Psychology*. New Delhi: S.K. Kataria and Sons.
- Diamond, P & J. Hausmann. 1984. Individual Retirement and Savings Behaviour. *Journal of Public Economics*, 23(1–2): 81–114.
- Diamond, P. 1995. Government Provision and Regulation of Economic Support in Old Age. In M. Bruno & B. Pleskovic (eds.). *Annual World Bank Conference on Development Economics*. World Bank.
- Dicks-Mireaux, L. & M. King. 1984. Pension Wealth and Household Saving: Tests of Robustness. *Journal of Public Economics*, 23(1–2): 115–139
- Ekanem, O. T., M.A. Iyoha & H.T. Kanwanye. 2015. *Introductory Econometrics*. Mareh Publishers Benin City, Edo State.
- Eme, O.I., O.A. Uche & I.B. Uche. 2014. Pension Reform Act 2014 and the Future of Pension Administration in Nigeria. *Arabian Journal of Business and Management Review (OMAN) Chapter* 4(2): 156–166.
- Feldstein, M. 1974. Social Security, Induced Retirement and Aggregate Capital Accumulation. *Journal of Political Economy*. 82(5): 905–926.
- Finance Map of World. 2013. Savings and Economic Growth. Available @ [http:// finance.Maps of world.com /savings/account/economic-growth.html](http://finance.Maps of world.com /savings/account/economic-growth.html). Retrieved June 28. 2013.
- Gill, I., T. Packard & J. Yermo. 2005. *Keeping the Promise of Social Security in Latin America*. Pal Alto, CA: Stanford University Press and World Bank.
- Holzmann, R. 1997. Fiscal Alternatives of Moving from Unfunded to Funded Pensions. OECD Development Centre, Technical Paper No. 126. Available at <https://www.oecd.org/els/public-pensions/2429222.pdf>
- Hu, Y. 2006. Pension Reform, Economic Growth and Financial Development: An Empirical Study. Civil Service Pension Schemes Around the World. *Social Protection*, The World Bank.
- Jagadeesh, D. 2015. The Impact of Savings on Economic Growth: An Empirical Study Based on Botswana. *International Journal of Research in Business Studies and Management*, 2(19): 10–21.

- Kalu C. & N. Attamah. 2015. Impact of Contributory Pension Scheme on Workers' Savings and Investment in Nigeria: Anambra State Case Study. *IOSR Journal of Economics and Finance*, 6(2): 9–20.
- Kotlikoff, L. 1979. Testing the Theory of Social Security and Life Cycle Accumulation. *America Economic Review*, 69(3): 396–410.
- Kotlikoff, L.J., K Smetters, and J. Walliser. 1997. Privatizing U.S. Social Security – A Simulation Study. Manuscript, The World Bank (EDI).
- Leyira, M. & G. Wobiarari. 2016. Pension Fund Administration and Infrastructure Financing in Nigeria. *British Journal of Economics, Management & Trade*, 13(2): 1–13.
- Loayza, N. 2002. Savings in Developing Countries, An Overview. *The World Bank Economic Review*, 14(3): 393–414.
- McCarthy, D. & A. Neuberger. 2004. *Pension Policy: Evidence on Aspects of Savings Behaviour and Capital Markets*. London: Centre for Economic Policy Research.
- Momoh, A. & A. Idomen. 2008. Rationale for Pension Reform in Nigeria. *Business Day*, May 05.
- Murphy, P. & P.A. Musalem. 2014. *Pension Funds and National Saving*. Washington, DC: World Bank.
- Myners P. 2001. Institutional Investment in the UK. *Journal of Economic Review*, 8(4),23–28.
- Odia, J.O. & A. Okoye. 2012. Pensions Reform in Nigeria: A Comparison Between the Old and New Scheme, *Afro Asian Journal of Social Sciences* 3(3.1) Quarter I.
- Ojonugwa, A., J. Isaiah & O. Longinus. 1993. An Evaluation of Pension Administration in Nigeria. *British Journal of Arts and Social Sciences*, 15(II): 97–108.
- Orszag, J. M. & P. R. Orszag. 2000. The Benefits of Flexible Funding. Implications for Pension Reforms in an uncertain world. A Paper presented at the World Bank ABCDE 2000 Conference April 20. 2000.
- Ozor, E. 2006. Review of Factors that Slow Down the Processing of Retirement Benefits. A paper presented at the workshop organized by the institute of character secretaries and administration of Nigeria, Held at Modotel, Enugu between 14th and 16th May.
- PWC. 2015. *The Nigerian Pension Industry Securing the Future*. A Price Water House Cooper Publication. September 2015
- Reisen, H. & J. Bailliu. 1997. Do Funded Pension Contribute to Higher Aggregate Savings: A cross-country analysis, *OECD Development Centre Technical Papers*,134(4): 692–711
- Robelo, M. 2002. Comparative Regulation Private Pension Plans. Available at <https://www.robefogvsp.br>.
- Robolino, D. 2005. Parametric Reform – Objective Options and Experience. A Paper presented at World Bank Core Course on Pension Organized by the World Bank Institute Washington D.C. Nov. 7–18.
- Samwick, A. 1999. Is Pension Reform Conducive to Higher Saving? *The World Bank*, Washington, DC.
- . *Is Pension Reform Conducive to Higher Savings?* The World Bank.

- Schmidt-Hebbel, K. 1998. Does Pension Reform Really Spur Productivity, Saving, and Growth? Manuscript. The World Bank. Available at <http://si2.bcentral.cl/public/pdf/documentos-trabajo/pdf/dtbc33a.pdf>.
- Sule, K.O. & C.I. Ezugwu. 2009. Scheme on Employee Retirement Benefits of Quoted Firms in Nigeria. *African Journal of Accounting, Economics, Finance and Banking Research*, 4(4): 48–58.
- Wolassa K. 2011. Investment Efficiency, Savings and Economic Growth in Sub Saharan Africa. Available at <http://www.politicalarticles.net/blog/2011/09/05/investment-efficiency-savings-and-economic-growth-in-sub-saharan-africa/>. retrieved on 5th September 2011.
- World Bank. 2005. *Pension Reform and the Development of Pension Systems: An Evaluation of the World Bank Assistance*. Washington D.C.

APPENDIX

Table A1: Test Multi Collinearity

	SGDP	AGDP	PCI	DSVRAT	BDEF
SGDP	1.0000				
AGDP	-0.36802	1.0000			
PCI	0.31624	0.39268	1.0000		
DSVRAT	-0.41970	0.57176	0.034869	1.0000	
BDEF	0.15918	-0.49103	-0.20044	-0.0045476	1.0000