

## **Impact of Contributory Pension Scheme on Workers' Investments and Savings in Nigeria**

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### **Abstract**

*This paper analyses the Impact of Contributory Pension Scheme on employee savings and investment in Nigeria. The study derived its source of data mainly from Secondary Data and not a Primary Data. The paper concentrated on information and data on publications from National Pension Commission (PENCOM), from Journals from Insurance Brokers, Pension Fund Custodians, Pension Fund Administrators, Office of the Accountant General of the Federation and Pension Transitional Directorate (PTAD). The information gathered from majority of the publications showed that, younger people in both the Public and Private Sectors who commenced work shortly before the advent of the Contributory Pension Reform or Scheme or those who commenced work in 2004 or beyond will save more of their contributions since they have longer years in the service compared with workers who worked a longer years before the advent of Contributory Pension Act in 2004. The Defined Benefit Pension Scheme which is unfunded but totally provided in the Annual Statutory Budget is administered by the Pension Transitional Arrangement Directorate (PTAD), which will exist until the last pensioner under that scheme is dead. Accrued Pension Liabilities which attract a coupon rate 5% kept as a Bond with the Central Bank of Nigeria are also paid to Employees who were in service on or before the advent of the Contributory Pension Scheme on the 30<sup>th</sup> of June, 2004, repealed and re-enacted on the 1<sup>st</sup> of July, 2014 and are also part of the Contributory Pension Scheme. The study therefore concludes among others that the Nigerian Government should create more awareness and enlightenment campaign on the workers' contributory pension scheme geared towards retirements. The scheme also encourages personal contribution, above the mandatory contribution of 8% by the Employee and 10% by the Employer as re-enacted in 2014.*

Keywords: Pension Schemes, Contributory Pension Scheme, Defined Benefit Pension Scheme

### **INTRODUCTION**

There is no gain saying the fact that individual and collective savings and investments are key to individual and family development including National Development. Contributory Pension Scheme ensures that a savings habit when imbibed by workers will lead to investments necessary for economic development. Moreover, the benefit provided by pension scheme like tax incentives for both Employers and Employees encourages savings among the Employees (Adetola, 2006). Accordingly, he further posited that since pension scheme saving is long-term in nature, it is useful as a macro-economic tool for National Development through the investment process, which in turn promotes economic growth. A Pension Fund is any collective arrangement or scheme which has the objective of providing retirement benefits for working persons either in the form of regular income during retirement years or a lump sum at retirement. Pension Funds are usually established by the constitution with the declaration that the funds would be managed in accordance with the rules governing the fund. The reason why Employers offer pension benefit is mainly to attract Employees; meanwhile, Employees rely on retirement benefits as a form of financial security during period of retirement.

Nigeria had operated a Defined Benefit Pension Scheme which was largely unfunded and Non-Contributed before the enactment of the Pension Reform Act of 2004, which establishes a contributory pension scheme for all Employees in Nigeria. However, it must be noted that the earlier pension scheme led to massive accumulation of pension debts and lack adequate and timely budgetary provisions, as well as increase in salaries and pensions. The administration of the scheme was very weak, inefficient, less transparent, leading to bureaucracy and highly liable to corrupt practices. Due to lack of reliable records of pensioners, huge amount of resources on what became yearly verification exercises were expended which did not result into the timely and efficient payment of pension benefit. In the private sector, on one

other hand, the employees were not covered by the pension schemes put in place by their employers and many of these schemes were not funded, where the schemes were funded, the management of the pension funds was full of malpractices between the fund managers and the Trustees of the Pension Funds. This bad scenario within the pension administration led the Nigeria Government in the year 2004 to introduce a pension scheme the Government believed would be sustainable and has the capacity to achieve the ultimate goal of providing a stable, predictable and adequate source of retirement incomes for each worker in the country (Eme and Uche, 2014). The Pension Reform Act of 2004 ushered in a Contributory Pension Scheme (CPS) that is fully funded, privately managed and based on individual accounts for both the public and private sector Employees in Nigeria (PENCOM, 2005). The Act also established the National Pension Commission (PENCOM) as the sole Regulator and Supervisor of all pension matters in the country. Under the new contributory scheme, the Employees contributed a minimum of 7.5% of Basic Salary, Housing and Transport Allowances and 2.5% for the Military, while the Employers contributed 7.5% in the case of the public sector and 12.5% in the case of the Military. But in 2014 when the Contributory Pension Act was re-enacted, the contribution rates were increased to 10% for the Employers and 8% for the Employees, translating to a total of 18% from the 15% that it was in 2004. The Military was eventually exempted or removed from the contributory pension scheme and placed back to the Defined Benefit Pension Scheme funded through the Annual Statutory Budgetary Allocation managed by Military Pension Board. Employers and Employees in the private sector also contributed 7.5% each in 2004 Act and 10% and 8% respectively as stipulated in the 2014 Act.

The advantage of the new pension scheme is that participants are allowed to open individual Retirement Savings Accounts where contributions are credited and accumulated with interest on investments till retirement. The scheme also permits members to make voluntary contributions as an additional percentage of their salaries into their individual capitalized accounts and are also allowed to change their Pension Fund Administrators (PFAs) once in a year with the transfer of their contributions or savings to the new PFA effortlessly. Similarly, the mandatory requirement for PFAs to provide regular/periodic statement of accounts to Retirement Savings Account (RSA) holders ensures that close monitoring of the account which could also guarantee quick report and correction of the errors. Since the introduction of the contributory pension scheme in Nigeria, one still doubts whether the scheme has been able to address the problem of scarcity of funds for long term investment in Nigeria. Empirical studies have shown that only 27 States in Nigeria have signed into the Contributory Pension Scheme, aside the Federal Government and this accounted for 75% of the working population of the country. Again, low coverage of the scheme suggests that the scheme is still operating far below its capacity. Problems of corruption, poor monitoring, evaluation and supervision of pension fund still characterizes the contributory pension scheme. The overall objective of this study is to examine the impact of the contributory pension scheme on workers' savings and investment in Nigeria.

## **LITERATURE REVIEW**

### **Conceptual Framework**

A Pensionable job can specify a Defined Benefit Pension Scheme (DBS) or a Contributory Pension Scheme (CPS). A Defined Benefit Pension Scheme usually states the entitlements of workers after qualifying years of service, while CPS defines pension entitlements in relation to stated contributions of the Employer and the Employee (Diamond, 1995). The CPS is funded in the sense that the contributions and the returns from the investment of such funds provide the resources for meeting the pension obligations. The DBS, on the other hand, is unfunded because the pension obligations are met from the general current revenue, taxation in the case of the Government and this is the reason why it is referred to as a 'pay-as-you-go' system. Payment of pension obligations in the unfunded pension scheme thus depends on general productivity and tax revenue growth in the economy as well as a host of demographic features of the economy. In the funded pension system, payment of pension obligations would encounter problems if there were earnings problems with pension investments due to management problems and adverse movements in macroeconomic variables. Pensioners under both schemes face risks as to what the future value of their benefits would be, with pensioners under a publicly managed system facing largely political risks and

the privately managed CPS facing investment risks. While the risks are spread through market mechanism in the CPS, in the DBS it is through the legislative mechanism, which modifies the benefits plan in the future. A DBS is said to have more potential choice, limited requirement for reporting to individual accounts regularly by Fund Managers, low expenditures on advertisement and sales personnel. A major advantage of CPS with the mandated investments in private assets is its potential contribution to the development of capital markets. A CPS is also recommended for its potential in raising national savings which increases investment and National Income (Orszag and Orszag, 2000, Barr, 1995). The world over, pension schemes are in trouble due to mismanagement of pension funds, adverse macroeconomic developments, unfavourable demographic trends and fiscal indiscipline among Governments (World Bank, 1994).

A pension is a contract for a fixed sum to be paid regularly to a pensioner, typically following retirement from service. It is different from severance pay, because the former is paid in regular installments while the latter is paid in one lump sum (Eme and Uche, 2014). A pension plan created by an employer for the benefit of employees is commonly referred to as an occupational person or employer. Labour Unions, the Government and other organizations also fund pensions. Many pension plans also contain an additional insurance aspect, since they often will pay benefits to survivors or disabled beneficiaries. Ayegba et al (2013) described the term pension as payments a person receives upon retirement, usually under pre-determined legal and/or contractual terms. The Nigerian new Pension Scheme increased the coverage of the Defined Contributory Pension Scheme in the private sector entities with three employees and above, in line with the drive towards informal sectors participation.

### **Contributory Pension Scheme In Nigeria**

The Nigerian Contributory Pension Scheme came through the Pension Reform Act 2004. The new pension scheme is called contributory because it is fully funded, on individual accounts that are privately managed by Pension Fund Administrators (PFAs) with the pension fund assets held by Pension Fund Custodians (PFC). Under the system, in the 2014 Contributory Pension Act, the employees now contribute a minimum of 8% of their Basic Salary, Housing and Transport Allowances, while the employers shall contribute 10% in the case of public sector. Employers and Employees in the private sector will contribute a minimum of 10% and 8% respectively. An Employer may elect to contribute on behalf of the Employees such that the total contribution shall not be less than 18% of the Basic Salary, Housing and Transport Allowances of the Employees. The recent amendments to the Act exempted military personnel from contribution. According to PRA, an Employer is obliged to deduct and remit contributions to a PFC within 7 days from the day the Employee is paid his salary while the PFC shall notify the PFA within 24 hours of the receipt of contribution. However, the contribution and retirement benefits have tax exemption. The employee opens an account known as 'Retirement Saving Account' in his name with a PFA of his choice. This individual account belongs to the employee and will remain with him throughout his life time. He may change employers or PFAs but the account remains the same. The employee may only withdraw from this account at the age of 50 or upon retirement thereafter. Meanwhile every employer shall maintain Life Insurance Policy in favour of an employee for a minimum of three times the Annual Total Emolument of the Employee. Based on the guidelines of Pension Commission of Nigeria (PENCOM) and National Insurance Commission (NAICOM) for Group Life Insurance, Employers must bear all costs related to life insurance for its employees, separate from contributions made under the scheme. The contributory pension scheme requires pension funds to be kept by PFCs and privately managed by PFAs. PFAs are private organizations that have been duly licensed to open retirement savings accounts for employees, invest and managed the pension funds in fixed income securities listed and other instruments as the commission may from time to time prescribe, maintain books of accounts on all transactions relating to the pension funds managed by it, provide regular information on investment strategy to the employees or beneficiaries and pay retirement benefits to employees in accordance with the provision of the Act. The Table 1 below shows a breakdown of the Pension Fund Operators from 2011 to 2018:

<b>PENSION OPERATORS</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>PENSION FUND ADMINISTRATORS</b>	24	20	20	21	21	21	21	21
<b>PENSION FUND CUSTODIANS</b>	4	4	4	4	4	4	4	4
<b>CLOSED PENSION FUND ADMINISTRATORS</b>	7	7	7	7	7	7	7	6
<b>TOTAL</b>	35	31	31	32	32	32	32	31

SOURCE: 2018 ANNUAL REPORT OF PENCOM

### **Membership of the RSA Scheme**

The total RSA Registration in the private and public sectors recorded an increase of 475,883 as total registration moved from 7,823,911 in 2017 to 8,410,184 in 2018, representing an increase of 7.49%. The private sector accounted for a larger proportion of total registration in 2018 at 4,800,834 which was 57.08% of the RSA registrations. The increase in private sector RSA registrations could be explained by such factors as the activities of Recovery Agents to recover outstanding pension contributions from private sector employers as well as interest penalties on the outstanding contributions and also to ensure that private sector organizations that employ 3 or more employees comply with the scheme. In addition, there was the enforcement of the requirement of the Public Procurement Act 2007 that bidders for Federal Government contracts must provide evidence of compliance with PRA 2014. Similarly, the level of awareness created in the private sector through intensive sensitization workshops and seminars by the Commission and Operators had facilitated increased registration from the private sector. A review of RSA registration by age distribution shows that the contributors in the age bracket of 30 – 39 accounted for the largest proportion of RSA holders in 2018 as shown in Table 2 below:

<b>AGE BRACKET</b>	<b>PUBLIC SECTOR</b>		<b>PRIVATE SECTOR</b>		<b>TOTAL</b>		<b>GRAND TOTAL</b>	<b>WEIGHT (%)</b>
	<b>MALE</b>	<b>FEMALE</b>	<b>MALE</b>	<b>FEMALE</b>	<b>MALE</b>	<b>FEMALE</b>		
LESS THAN 30 YEARS	92,146	50,744	434,536	226,469	526,682	277,213	803,895	9.56
30 – 39	699,052	353,531	1,428,686	569,073	2,127,738	922,604	3,050,342	36.27
40 – 49	661,128	403,449	994,954	289,474	1,656,082	692,923	2,349,005	27.93
50 – 59	571,858	330,075	507,172	102,914	1,079,030	432,989	1,512,019	17.98
60 – 65	221,090	90,917	140,744	17,914	361,834	108,831	470,665	5.60
ABOVE 65	105,917	29,443	80,793	8,105	186,710	37,548	224,258	2.67

YEARS								
<b>TOTAL</b>	<b>2,351,191</b>	<b>1,258,159</b>	<b>3,586,885</b>	<b>1,213,949</b>	<b>5938,076</b>	<b>2,472,108</b>	<b>8,410,184</b>	<b>100.00</b>

SOURCE: 2018 ANNUAL REPORT OF PENCOM

The implication of the foregoing is that, RSA Holders are relatively young, thus providing ample opportunity for investing pension funds in relatively long-term investments such as alternative assets, without the risk of investment mismatch. It is expected that RSA registration will continue to grow with the kick-off of Micro Pension Plan in 2019 and also increased participation by the organized private sector in view of compliance efforts of PENCOM and the marketing strategies of the Pension Fund Administrators.

Tables 3 and 4 show the Pension Contributions from 2004 to 2018.

#### **Public Sector Pension Contribution**

YEAR	AMOUNT(₦ BILLION)	PERCENTAGE OF TOTAL
2004	15.6	0.68
2005	34.68	1.51
2006	37.38	1.63
2007	80.63	3.51
2008	99.28	4.30
2009	137.1	5.90
2010	162.46	7.07
2011	228.92	9.90
2012	302.24	13.15
2013	278.50	12.12
2014	237.49	10.35
2015	200.05	8.71
2016	225.86	9.83
2017	257.11	11.19
2018	266.84	10.41
<b>TOTAL</b>	<b>2,564.41</b>	<b>100.00</b>

SOURCE: 2018 ANNUAL REPORT OF PENCOM

#### **Private Sector Pension Contribution**

**Table 4**

YEAR	AMOUNT(₦ BILLION)	PERCENTAGE OF TOTAL
2006	23.03	0.91
2007	68.34	2.70
2008	80.81	3.19
2009	91.21	3.60
2010	103.03	4.07
2011	119.53	4.72
2012	159.52	6.30
2013	225.42	8.91

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2014	343.89	13.59
2015	358.91	14.18
2016	262.33	10.37
2017	353.73	13.98
2018	340.72	13.46
<b>TOTAL</b>	<b>2,530.47</b>	<b>100.00</b>

SOURCE: 2018 Annual Report of Pencom

The implementation of the Multi-Fund Structure for RSA Funds took effect in July, 2018, which led to the creation of two additional Funds, bringing the total RSA Funds to four. Table 5 below gives a breakdown of the various Fund Types and their respective assets allocation as at 31<sup>st</sup> December, 2018:

ASSET CLASS	RSA				AES	CPFA	TOTAL	
	FUND I	FUND II	FUND III	FUND IV				
	AMOUNT (N' Bn)	AMOUNT (N' Bn)	AMOUNT (N' Bn)	AMOUNT (N' Bn)	AMOUNT (N' Bn)	AMOUNT (N' Bn)	AMOUNT (N' Bn)	WEIGHT (%)
QUOTED ORDINARY SHARES	0.76	401.05	85.81	6.65	79.18	32.8	606.25	7.02
FGN SECURITIES	5.351	2828.45	1698.02	502.35	638.8	640.13	6313.101	73.09
STATE GOVT. SECURITIES	0.073	68.05	30.52	12.11	13.74	14.23	138.723	1.61
CORPORATE DEBT INSTRUMENTS	0.82	168.15	70.43	46.49	41.05	141.73	468.67	5.43
MONEY MARKETS INSTRUMENTS	0.65	312.57	172.2	105.71	84.77	33.25	709.15	8.21
OPEN/CLOSE-ENDED/HYBRID FUNDS	0	11.81	0.84	0	1.53	9.85	24.03	0.28
SUPRANATIONAL BONDS	0	2.84	0.64	2.19	0	1.24	6.91	0.08
PRIVATE EQUITY FUNDS	0	18.61	0	0	0.09	12.65	31.35	0.36
INFRASTRUCTURE	0.1	13.72	0	0	0.64	4.05	18.51	0.21



FUNDS								
REAL ESTATE PROPERTIES	0	0	0	0	109.41	122.1	231.51	2.68
FOREIGN INVESTMENTS	0	0	0	0	0	59.07	59.07	0.68
- FOREIGN EQUITIES	0	0	0	0	0	55.86	55.86	0.65
- FOREIGN MONEY MARKET SECURITIES	0	0	0	0	0	3.21	3.21	0.04
CASH & OTHER ASSETS	0.15	1.09	5.77	8.35	8.72	6.47	30.55	0.35
<b>NET ASSET VALUE</b>	<b>7.90</b>	<b>3,826.34</b>	<b>2,064.23</b>	<b>683.85</b>	<b>977.93</b>	<b>1,077.57</b>	<b>8,637.82</b>	<b>100.0</b>

SOURCE: 2018 ANNUAL REPORT OF PENCOM

**Note:**

RSA = RETIREMENT SAVINGS ACCOUNT

CPFA = CONTRIBUTORY PENSION FUND ASSETS

AES = APPROVED EXISTING SCHEME FUND

The Table above indicated that investments were predominantly in Federal Government Securities(FGN Bonds, Treasury Bills, and Agency Bonds), which accounted for about 73% of total pension fund assets, an increase of 3% from the 70% allocation as at 31<sup>st</sup> December, 2017. This was due to several factors, such as subdued investor sentiment that characterized the financial markets leading up to the general elections that held in 2019. These prompted pension operators to adopt a ‘flight to safety’ strategy by investing in FGN Securities pending the outcome of the 2019 elections and a clearer view of the direction of macro/micro economic policy. Several studies have tried to provide a comprehensive insight into the Contributory Pension Scheme but none has shown its relationship with private domestic saving in Nigeria. The new contributory pension scheme in Nigeria has its relationship with capital market development (Walker and Lefort 2002, RaddatzandSchmukler, 2008, Meng and Pfau 2010; Mesike and Ibiwoye; 2012 and Gunu, and Tsado, 2012), but large proportion of the pension funds are been taken by Government as Bond (PENCOM). Athukorala and Sen(2004) for India discovered a significant positive effect of increasing real interest rates on private savings. Yet, no scholar has shown any findings on defined contributory scheme and private savings across the countries especially developing Nation like Nigeria. Against this backdrop, this study tends to fill the gap. To add to the existing body of knowledge, the study employed ordinary least square (OLS).

**Empirical Literature**

The impact of contributory pension scheme has been overemphasized in the literature. Poterba, Venti and Wise (1996, 1998) examined the effect of tax deferred savings accounts on overall savings rate. They opined that tax deferred savings mechanism like Individual Retirement Accounts lead to a net increase in savings, while others(Gale and Scholz 1994, Engen et al, 1996; and Gale, 1998) argues that the balances in these savings vehicles are offset by reductions in other forms of household wealth(Card and Ransom,

2007). Thaler and Benartzi (2004) assessed the effectiveness of contributory pension scheme at increasing employee savings rate. From the study, employee who opted into an automatic annual 3% increase in their contribution rate saw their average contribution rate increase almost 4 folds from 3.5% of pay to 13.5% of pay, over the course of 4 years. In the opposite direction, employees who did not elect contribution pension scheme saw their average contribution rate increase by much less over the same time period, from 5.3% - 7.5%. Interestingly, this latter group started saving much more than those who opted into contributory pension scheme but the relative positions were reversed 4 years later. The literature is also of the opinion that people with a future orientation save more than people who live for here and now. (Munnell et al, 2000).

Further in the literature, Komolafe (2004) submitted that the Nigerian Pension System in general is fragmented, lacks an adequate overall policy, a legal and regulatory framework and an empowered coordinating body to supervise it. Babatunde (2012) on the Nigerian scenario summarized that there is significant relationship existing between contributory pension scheme and savings. He therefore reiterated on the advice of Adegbayi, that Nigeria must avoid minor pension reforms that are repeated periodically because of political problem associated with such adjustment. However, Eme and Uche(2014) has added to the fact that in the 10 year period, the pension industry in Nigeria has experienced phenomenal growth from a deficit of N2 Trillion in the form of pension liabilities in 2004 to an accumulation of pension fund assets of up to N4.1 Trillion by the end of 2013, a firm backing to the economy by the huge pool of funds. Umar and Tsado (2012) on the contributory pension scheme as a tool of economic growth in Nigeria reveals that pension fund investments in domestic quoted equities amounted to N240.38 Billion(2.36% of total market capitalization) in 2007, 3.17% in 2008, 4.42% in 2009 and 4.53% in 2010, also the value of total Pension Fund Assets stood at N2,029 Billion as at 2010. Robelo (2002) asserted that pension is also a method whereby a person pays into pension scheme a proportion of his or her earnings during his working life. The contributions provide an income (or pension) on retirement that is treated as earned income. This is taxed at the investors' marginal rate of income tax. On the other hand, gratuity entails a lump sum of money payable to a retiring officer who has served for a minimum period of time. Adams(2005) in his assessment of pension, declared that pension is the amount paid by Government or company to an employee after working for some specified period of time, considered too old or ill to work or have reached the statutory age of retirement. Similarly, Ozor (2006) explained that pension consists of lump sum payment paid to an employee upon his disengagement from active service. He further stated that pension plans may be contributory or non-contributory, fixed or variable, group or individual, insured or trustee, private or public, and single or multi-employer. According to Adebayo (2006) and Ugwu (2006), there are four main classifications of pensions in Nigeria, namely, retiring pension, compensatory pension, superannuating pension and compassionate allowance. This was supported by Amujiri (2009) who defined compassionate allowance as a pension scheme that is not incompetence or inefficiency. In the same vein, Dhameji and Dhameji (2009) tried to link commitment to motivation and opined that commitment is also tied to how well an employee is motivated. Motivation here entails the process of influencing employees' behavior towards the attainment of organizational goals. Accordingly, Sule and Ezugwu (2009) assert that a good pension guarantees employees' comfort and commitment to the organization during his or her active years.

### **Theoretical Discussion**

Many Theories have been developed in relation to Pension Reform across the globe. Three of them that are practically germane to this study are Utility and Preference, Life Cycle and Productivity Theories of Pension. But this study underpinned on the Theory of Life Cycle, which is related to the consumption pattern and saving decision of individuals who are involved in administering improved conditions of service, provisions of adequate resources etc are greatly off-set by the workforce, improved output or productivity. There is also the perspective that the supply side of the theory serves as an incentive for personnel to remain in the organization for a long time. The theory enhances the average wealth of a



pensioner, especially when the assets are invested to generate large income for redistribution to participants or contributors. The Theories and Concepts also inform that a good pension scheme motivates the workforce to put in their best in the work place as they look forward to a rewarding retirement period by virtue of their savings or contributions that are invested wisely.

**METHODOLOGY**

Time Series Data were used in the study and they are entirely secondary data. The Time Series covered the period 2004 – 2018. This period is believed to be long enough to capture both short and long-run relationship between contributory pension plan and private savings in Nigeria. The data were sourced from the publications of Central Bank of Nigeria, Statistical Bulletin and the National Bureau of Statistics. Since the study makes use of Time Series secondary data, my data analysis involves: checking the temporal properties of the variables in the model via unit root tests in order to determine the stationarity of the variables(The Augmented Dickey-Fuller(ADF) or Phillips-Perron(PP) tests); determination of a meaningful long-run equilibrium relationship among the variables, that is, to determine if the variables in the equation are co-integrated(using Johansen's multi-equation methods test) estimation of the dynamic(short-run and long-run) regression equation for the model(that is, the error correction model estimated by ordinary least square, instrumental variable test etc) and the application of a series of diagnostic tests to determine the sturdiness and significance of the empirical model(i.e. standard error test, correlation coefficient test, t-statistics test, F-test and serial autocorrelation test). Also, the study employs Error Correction Mechanism (ECM) to overcome the problem of spurious regression. The ECM reveals that the change on a variable, at times, is not only dependent on the variable, but also on its own lagged changes. This helps to induce flexibility by explaining the short run and long run dynamics in a unified manner in the estimated model for the period of 2004 – 1018 in Nigeria.

**Model Specification**

This study adopts Solow Swan (1956) model. According to him, savings(S) is a constant function of income(Y). The propensity to save determines the net output to be saved and invested. Hence:

$$S_y = SF(K)$$

Where: S = Saving

Y = Income

K = Stock of Capital

In reality, saving is not only determined by the stock of capital in any economy. The level of disposable income, interest rate differentials and some relevant variables can determine private saving in Nigeria by workers. In other to reflect the peculiarities of the Nigerian Pension Scheme, this study modified the Solow model by adding the aforementioned variables and re-specified equation (i) as follows:

$$S_y = SF(K)(PENF, INTR, DISP, SAV R).....(ii)$$

Equation (ii) can be written in linear form. By adding the stochastic term, we have:

$$PDS_t = \alpha_0 + \alpha_1PENF_t + \alpha_2INTR_t + \alpha_3DISP_t + \alpha_4SAVR_t + U_t..... (iii)$$

- Where: PDS = Private Domestic Savings
- PENF = Pension Funds
- INTR = Interest Rate
- SAVR = Saving Rate
- DSPI = Disposable Income
- U<sub>t</sub> = Error term

The study transforms the series on disposable income to lag-form while others were used at level. Equation (iii) is modified as:

$$PDS_t = \alpha_0 + \alpha_1PENF_t + \alpha_2INTR_t + \alpha_3InDISP_t + \alpha_4SAVR_t + U_t..... (iv)$$

From the model, the priori expectation may be denoted as:

$$\alpha_1 \geq 0, \alpha_2 \geq 0, \text{ or } \alpha_2 \leq 0, \alpha_3 \geq 0, \alpha_4 \geq 0$$

In line with economic theory, it is expected that the contributory pensions fund to a large extent determine the private saving in Nigeria. Holding other things equal, if individuals voluntarily save for retirement in any case, then a rise in mandatory institutional saving, either by legislation or by collective agreement to widen the scope of pensions will be largely offset by a fall in voluntary saving. Thus, positive relationship is expected between pension fund and private saving. The relationship between interest rate and private saving cannot be determined a priori. The relationship can either be positive or negative. Negative interest rates discourage saving mobilization and channeling of the mobilized savings through the financial system. However, when interest rate is relatively high and competitive, it encourages savings mobilization and motivates private investment and engenders economic growth (Obamuyi & Olorunfemi, 2011). In the standard neo classical view, a higher interest rates increase the opportunity cost of consumption, household increase their savings(the substitution effect), on the other hand, with higher interest rates, positive savers increase consumption because of their rising wealth(the income effect). Empirical evidence from cross-country studies shows that interest rates have little or no effect either on savings(Edwards, 1996, Masson, Bayoumi&Samiei 1998) or on consumption levels(Deaton, 1992). Similarly, positive sign is expected through the independent variables identified with the saving rates. This agreed with the study of Feldstein (1996) found that, one of the benefits claimed for the privatized Defined Contributory Pension Plan is that, it rises national saving. In relating to this, shifting to funding pensions will have a positive effect on economic growth and long term sustainability of the public finances; it is also assumed that private savings have positive sign on disposable income. Increase in disposable income will raise the level of private savings with decrease in consumption.

## **RESULT AND DISCUSSION**

This section is basically on data presentation, analysis and discussions of the data used from the secondary source for this study. Data used on the Variables(Savings, Pension Funds, Interest Rate, Disposable Income and Saving Rate were all in percentages) for the period 2004 – 2018. The paper tests for the stationarity of the variables, co-integration test and regression analysis to examine the implications of contributory pension scheme on workers' savings and investments in Nigeria.

### **Test for Stationarity**

<b>VARIABLES</b>	<b>TEST STATISTICS</b>	<b>CRITICAL VALUES</b>	<b>LEVEL S/NS</b>
WS	5.517062	2.967767	1(1)S
PENF	5.346532	2.967767	1(1)S
INTR	5.862222	2.971853	1(1)S
DISP	3.321254	2.967767	1(1)S
SAVR	3.507374	2.967767	1(0)S

The result from the above table reveals that workers' savings, pension fund, interest rate and disposable income were stationary at 5% level of significance at first difference whereas saving rate was stationary at a level of significance. This result means that the variables are not characterized by unit root problem, since their test statistics are greater than the critical values in absolute terms.

### **Co-Integration Result**

<b>HYPOTHESIZED NO. OF CE(S)</b>	<b>TRACE STATISTICS</b>	<b>0.05 CRITICAL VALUE</b>	<b>PROBABILITY</b>
NONE*	100.4904	69.81889	0.0000
AT MOST 1*	64.31726	47.85613	0.0007
AT MOST 2*	32.86544	29.79707	0.0215
AT MOST 3*	16.52326	15.49471	0.0349
AT MOST 4*	4.613394	3.841466	0.0317

Basically, differencing of variables to achieve stationarity, leads to loss of long –run properties. The next step after confirming the stationarity of the variables is to establish whether the variables which are not stationary at levels are co-integrated. The concept of co-integration implies that if there is a long - run relationship between two or more non-stationary variables, deviations from this long-run part are stationary. The table above shows that the trace statistics indicated one co-integrating equation at the 5% level. The implication is that a linear combination of all the five series was found to be stationary and thus, the variables are said to be co-integrated. In other words, there is a stable long-run relationship between them and so we can avoid both the spurious and inconsistent regression problems which otherwise would occur with regression of non-stationary data series.

**Regression Result**

<b>DEPENDENT VARIABLE:</b>	<b>WORKERS' WAGES &amp; INVESTMENTS</b>		
<b>METHOD:</b>	<b>LEAST SQUARES</b>		
<b>SAMPLE(ADJUSTED):</b>	2004 – 2018		
<b>INCLUDED OBSERVATIONS:</b>	15 AFTER ADJUSTMENTS		
<b>VARIABLE</b>	<b>PROB.</b>	<b>COEFFICIENT</b>	<b>STD. ERROR</b>
CONTRIBUTORY			
5.638848	0.0000	14.43551	2.560011
PENF			
2.234893	0.0359	0.057251	0.025617
INTR			
3.843352	0.0009	0.527295	0.137197
DISP			
0.006598	0.9948	0.000908	0.137673
DISP(-2)			
-3.908741	0.0008	-0.532216	0.136160
SAVR			
2.366608	0.0272	0.254014	0.107333
ECM(-1)			
4.315118	0.0003	-0.655617	0.151935
R-SQUARED	0.890093	MEAN DEPEND. VAR.	8.3
75862			
ADJUSTED R-SQUARED	0.860119	S.D. DEPEND. VAR.	5.103756
S.E. OF REGRESSION	1.908840	AKAIKE INFO. CRITERION	4.337373
SUM SQUARED			
RESIDUAL 10	80.16072	SCHWARZ CRITERION	4.6674
LOG LIKELIHOOD	-55.89192	HANNAN-QUINN CRITERION	4.440737
F-STATISTIC			
464260	29.69499	DURBIN-WATSON STAT.	2
PROB(F-STATISTIC)	0.000000		

From the Table above, the signs and size of the co-efficient of the estimated variables revealed the theoretical implications of the model for the period 2004 – 2018. As revealed by the results, the coefficient of contributory pensions fund is correctly signed being positive. This implies that a unit percent increase in pension fund (PENF) will contribute 5.7% to workers' savings (WS) in the economy. This result is in accordance with the theoretical proposition as expected and agreed with the claim by Feldstein (1996) claim that privatized Defined Contributory Pension Plan raises National savings. Shifting to funding pension's scheme will have a positive effect on economic growth and long-term

sustainability of the public finances. The coefficient of interest rate (INTR) shows a positive relationship with workers savings (WS) and statistically significant in the estimated model. This result simply means that 1% increase in interest rate (INTR) leads to 53% rise in workers savings (WS) within estimated years. In consonance with this result, (Obamuyi and Olorunfemi, 2011) opine that when interest rate is relatively high and competitive, it encourages savings mobilization and motivates private investment and engenders economic growth. Also, in the standard neoclassical view, this result indicates that a higher interest rates increase the opportunity cost of consumption. Therefore, household increase their savings (the substitution effect). On the other hand, with higher interest rates, positive savers increase consumption because of their rising wealth (the income effect). Disposable income has a positive sign in the long run as expected with a priori expectation but not statistically significant, but in two lagged periods it turns negative and statistically significant. The result means that, a percentage change in disposable income will bring about a reduction in workers savings by 0.0053 units in Nigeria. This is in conformity with the study of Loayza, Schmidt-Hebbel, and Serven (2000), which found that a one percentage point increase in the ratio of credit flows to income reduces the long-term savings rate and workers savings. This shows that a unit percent rise in saving rate bring about 25 percent increases in Workers Savings (WS) in the estimated model. In support of this, Nwachukwu, et al (2011) found that, the coefficient estimate shows that a unit change in income growth will bring about a 0.3 percent change in savings.

Furthermore, the value of the adjusted R<sup>2</sup> is pegged at 0.860119 or 86.0%. The value of the R<sup>2</sup> implies that contributory pension fund, interest rate, disposable income and saving rate explained about 86.0% systematic variation in the workers savings in Nigeria over the observed years while the remaining 14% variation is explained by other variables outside the model. The standard error test revealed that the contributory pensions fund, interest rate, saving rate and disposable income were statistically significant. When compared half of each coefficient with its standard error, it was found that the values of the standard errors were less than half of the values of the coefficients. The disposable income was not statistically significant at level but turns negative at second difference. The t-test statistics confirms the standard error test. Testing at 5% level, the variables fall within the acceptance region to confirm the alternative hypothesis that contributory pensions fund, interest rate, saving rate and disposable income are statistically significant. In other worlds they do contribute significantly to workers savings in Nigeria. Disposable incomes were statistically significant in the long –run and have an inverse relationship with workers savings in Nigeria. The F-statistics is used to test for stability in the regression parameter coefficient when sample size increases, as well as the overall significance of the estimated regression models. Thus, we compare the calculated (F\*), with the critical value at 5% level. From the statistical table, the F- statistics is 2.512255, while estimated F\* is 29.69499. Obviously, the estimated F\* is greater than the F value obtained from the table (that is 29.69499 greater than 2.53). This implies that, there exist significant relationship among the identified independent variables and the dependent variables and that the regression coefficients are stable.

## **CONCLUSION AND RECOMMENDATION**

This study was to investigate the impact of contributory pension reform on workers savings and investments in Nigeria. The study employed ordinary least square method approach to examine the relationship between contributory pension funds and savings in Nigeria for the period from 2004 to 2018. The findings report the existence of a positive relationship between contributory pension funds and workers savings. This implies that a unit percent increase in contributory pension funds will contribute 5.7% to workers savings and investment in the economy. There is also positive relationship between interest rate, savings rates and workers savings and investments in Nigeria. The study reveals that a unit percentage increase in interest rates and saving rates contribute 53% and 25% rise in workers savings and investments. The result shows that a higher interest rates increase the opportunity cost of consumption. Furthermore, disposable income signed positive in short-run but not statistically significant, at the second differenced turns negative and statistically significant. The result means that, a unit rise in disposable income caused 52% decrease in workers savings and investments in Nigeria. Note that, workers savings

and investments constitute the main source of capital accumulation for investment purposes. Amongst other things, Savings serve as the main source of financing investment and related economic activities. The paper concluded that contributory pensions fund, interest rate, disposable income and saving rate influenced workers savings and investments in Nigeria. A jointly funded pension programme is naturally better than one that is not funded. The study suggested the need for massive enlightenment concerning the scheme to address the issues of ignorance of the retirement scheme by workers especially those in the private sector like artisans. Workers should plan well for retirement by saving ahead and investment in fixed income. Also effective supervision and regulation of the system in compliance with modern approach which stipulate a percentage contribution by both employer and employee and managed by an independent pension administrator is of immense value to the Scheme.

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