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PUBLIC SECTOR DEFINED CONTRIBUTION PENSION SCHEME AND CONSUMPTION SMOOTHENING IN NIGERIA

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Abstract. *Pension schemes are to ensure adequate consumption after retirement by ensuring adequate savings during work life. However, the pension crises being witnessed the world over are pointers that the industry has been underperforming. This research was therefore initiated to ascertain the capability of the Nigerian Public Service Pension Scheme to ensure consumption smoothening of the average employee. A Mixed methodology was employed using an online questionnaire while the NPV was used to confirm the sustainability of the pension scheme on consumption smoothening. It was found that the pension scheme cannot guarantee adequate consumption among retirees. It was also found that the scheme did not provide for adequate financial education as the workers lacked the skills to decide on the investment of their pension savings. It was also found that the scheme lacks transparency on the part of pension operators. It was concluded that the scheme is not sustainable. Besides wage increases, urgent reforms of the scheme were recommended towards moving away from the PFA-run scheme to an MDA-run scheme in line with their peculiarities especially the introduction of a Progressive Contribution System.*

Keywords: *pension, savings, consumption smoothening, leaving wage, transparency, rebalancing, Progressive Pension Contribution.*

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Introduction

The Lifecycle Hypothesis (LCH) requires an employee to take responsibility for his life after retirement since the rationale behind savings has been identified as the desire to maximize consumption at a future date such as during retirement (Jappelli, 2005). This is achievable through workplace compensation plans – pensions, which are payments made to ex-employees of an organisation to take care of their basic needs during retirement. The adequacy of a retirement pension depends on its design vis-à-vis the demographics of the plan participants. However, contemporary pension plans by their designs do not seem to support this philosophy since there are no visible incorporated mechanisms to inculcate financial awareness and discipline among employees by forecasting adequate pensions at retirement that would guarantee a smoothened consumption over the lifecycle. Pension managers have also neglected stress testing as a necessary tool for ensuring adequate replacement ratios should there be contingencies (Chan-Lau, 2017). Recent developments globally have necessitated the adoption of stress testing by fund managers towards evaluating investment risk, and guaranteeing adequate cash flow, timely pay outs both current and future obligations. Most Pension funds by their designs are not insulated from financial shocks; also, not favourably disposed to hedging. They are not Pareto efficient. The overreliance on the employer for the post-service living of its employees has proved ineffective. Consequently, Pension Funds (PF) in the early 2000s were characterised by migrations from the traditional Defined-Benefit (DB) scheme to the Defined-Contribution (DC) scheme (Thomas, Spataro, & Matthew., 2014). Such movements may have been triggered by its negative impact on the

macroeconomic structure occasioned by either globalisation or structural changes in the industry and in the labour markets (Thomas et al 2014), or the increasing longevity (Michael Millar, 2009) (Franco, Marino, & Tommasino, 2010). Deficiencies in savings and investment have been responsible for the lagged development in Sub-Saharan Africa countries (Kumo, 2012), this is in contrast with the aggressive development in China characterised by a high rate of capital accumulation (Chow, 1990). The DB scheme is bedevilled with accumulated accrued pension rights with national budgets being overwhelmed with expenditures on pensions.

With the conviction that the then Pay-As-You-Go pension plan could not deliver on its mandate, the World Bank in its 1994 report proposed a total reform of pension administrations in line with changing realities (Singh, 1996). As a response to the foregoing, many countries developed new pension plans to cope with their inability to fund the DB pension schemes and curb the pension crises. Initial flaws notwithstanding, DC schemes could develop the economy (Apilado, 1972; Ennis, 2017), while ensuring consumption smoothening over the lifetime.

Literature Review

2.1 Conceptual Review

2.1.1 Pension and Pension Reforms

Pensions are a form of post-service remuneration. They are compensations made by employers to their erstwhile employees. The Nigerian Pension Reform Act of 2014 replaced that of 2004 and increased the ceiling for the investment of pension funds from 25% to 35% in domestic equities (Kwairanga, 2013; Ekpulu & Bingilar, 2016). The initial Act (2004) introduced the Contributory Pension Scheme (CPS) in which both the employer and the employee made commitments towards ensuring a smooth retirement life for the employees. These were adjusted upwards in the 2014 amendment. The CPS, however, does not give room for individual financial decision-making apart from the choice of fund manager and has instead vested such powers in institutions- Pension Fund Administrators (PFAs) with guidelines from the Central Bank of Nigeria (CBN) through the National Pension Commission (PenCom). Pensions could be Funded, Unfunded or overfunded. Defined Benefit schemes are unfunded pension systems whereas Defined Contributions are a form of funded pensions. The former refers to a design where the pension liability is solely borne by the employer, while the latter connotes adequate preparations by way of worktime savings by employees to cater for their retirement needs. The discount rate if varied could render a funded pension scheme overfunded, which implies a surplus of pension assets over pension liabilities at a point in time; or underfunded. The Nigerian pension industry has been largely underfunded, giving rise to its inability to meet pension obligations. This has compelled many agencies such as the Nigerian Customs Services (Popoola, 2023), Nigeria Police Force, etc. to demand exemptions from the DC scheme being operated in the country.

2.1.2 Pension Operators

Under the current pension regime, PenCom supervises other pension operators including PFAs, Closed PFAs, Pension Fund Custodians (PFCs), Pension Operators Secretariat, and the Pension Transitional Arrangement Directorate (PTAD). The CPS under the PRAs requires that pension assets be privately managed by limited liability companies licenced by PenCom (PenCom, 2004; Pension Talk, 2022). These are responsible for the maintenance of Retirement Savings Accounts (RSA) for both public and private sector employees, investment and management of pension fund assets, payment of retirement benefits and accounting for transactions relating to pension funds under their management. The Pension Operators are as in Table 1 below.

Pension custodians are responsible for the safekeeping of pension fund assets on trust for contributors. They receive pension contributions from employers on behalf of PFAs who are then notified of such receipts within 24 hours. They settle transactions and undertake activities relating to the administration of pension fund investments.

The Closed Pension Fund Administrators (CPFA) are pension vehicles allowed to manage private DB pension schemes that existed before the reform of 2004 subject to guidelines issued by PenCom. The 2014 reform foreclosed new entrants into the scheme effective 1st July 2014, and

they can open RSA with any PFA of their choice while existing employees can pull out for the CPFA to a PFA under the CPS.

Table 1. Pension Operators in Nigeria

PFAs	PFCs	CFPAs
Access Pensions Limited	First Pension Custodian Nigeria Limited	Chevron CPFA Limited
Arm Pension Managers Limited	UBA Pensions Custodian Nigeria Limited	Nestle Nigeria Trust CPFA limited
Crusader Sterling Pensions Limited	Zenith Pensions Custodian Nigeria Limited	Nigerian Agip CPFA Limited
FCMB Pensions Limited		Progress Trust CPFA Limited
Fidelity Pensions Managers Limited		Shell Nigeria CPFA Limited
Guaranty Trust Pensions Managers Limited		Total Energies EP Nigeria Limited.
Leadway Pensure PFA Limited		
National University Pension Management Company (NUPEMCO)		
NLPC Pension Fund Administrators Limited		
Norrenberger Pensions Limited		
NPF Pensions Limited		
OAK Pensions Limited		
Pension Alliance Limited		
Premium Pensions Limited		
Radix Pension Managers		
Stanbic IBTC Pension Managers Limited		
Tangerine APT Pensions Limited		
Trustfund Pensions Limited		
Veritas Glanvills Pensions Limited		

Similarly, public pension schemes prior to the CPS and administering DB pensions of different departments of the Federal public service retirees were merged into the PTAD. It is responsible for the payment of pension benefits to this set of employees who retired up to June 2007 and are exempted from the CPS. The Directorate ceases to exist after the demise of the last pensioner under the DB scheme of the FGN. It has six liaison offices around the country.

Other key players in the Nigerian pension industry are the Pension Fund Operators Association of Nigeria (PenOP), and the Recovery Agents, The PenOP is an independent, non-governmental, non-political, non-profit-making body established to ensure efficiency within the industry. It comprises PFAs, CPFAs, and PFCs, and strives to ensure international best practices in pension administration. The Recovery Agents are private consultants engaged by PenCom to monitor compliance of employers with remittances of pension deductions and also recommend for defaulting employers over non-remittance or under-remittance.

2.1.3 The Contributory Pension Scheme (CPS)

This is an arrangement in which both the employer and the employee make financial commitments towards the retirement pension of the latter. The CPS became effective in Nigeria with the enactment of the Pension Reform Act 2004 which was later repealed and reacted in 2014 (PenCom, 2023). It is a fully funded pension scheme meant to ensure that the employee receives his retirement benefits as and when due. The current rate of contribution is 18% with the employer contributing 10% while the employee contributes 8%. However, there is an option for the employee to make voluntary contributions beyond the statutory 8%, but not less. Individual employees are expected to open a Retirement Savings Account (RSA) with a PFA of choice through which combined contributions are saved and managed by the PFA on their behalf. Such Savings cannot be

accessed except at retirement, loss of job, medical incapacitation or in the event of death. The CPS covers all employees in public service of the Federation, Federal Capital Territory (FCT), States, Local Government and private sector organizations with 3 or more employees, but exempts judicial officers, members of the Armed Forces, the Intelligence and Secret Services of the Federation, retirees under any pension scheme that existed before 30th June 2004, and employees who had 3 or less years to retire as at 30th June 2004.

2.1.4 RSA Funds

The CPS operates a Multi-Fund Structure with different funds for investing pension contributions based on the age and risk profiles of the RSA holders (PenCom, 2023). The structure contains four distinct funds and two special funds as captured in the Table 2 below.

Table 2. Multi-Fund Structure

S/No.	Fund	Category of Contributors
1	Fund I	Contributors ≤ 49 years, but strictly on request. An aggressive fund with the principal purpose of return maximization with 75% investment in variable income instruments.
2	Fund II	Contributors ≤ 49 years. A balanced fund with the principal purpose of capital preservation and fair LR returns with 55% investment in variable income instruments.
3	Fund III	Contributors ≥ 50 years. A conservative fund with the principal purpose of capital conservation with only 20% investment in variable income instruments.
4	Fund IV	Strictly for retirees. An ultra-conservative Fund with only 10% investable in Variable income instruments.
5	Fund V (Special)	Contributors in the Micro Pension Plan
6	Fund VI (Special)	Contributors interested in non-interest financial instruments

PenCom allows contributors to choose the fund under which his/her pensions would be invested. Contributors who are 49 years or below by default under Fund II but can choose to move to Fund I. While those 50 years or more are under Fund III by default but can choose to move to Fund II, Contributors under Funds IV and VI cannot move to any other Fund but those under Fund V can move to Funds II or III if they secure formal employment. Such movements are free once a year, but subsequent requests attract nominal fees prescribed by PenCom.

2.1.5 Pension Adequacy

This entails the equilibrium in pension administration - the adequacy of pension savings to pay sustainable retirement benefit specifically (OECD, 2013), and improve the performance metrics of the economy generally as is being investigated by this research. This could be measured by the equality of the savings with the replacement ratios under the DB scheme, or the IRR with the NPV under the DC scheme. The present value of future pension payments could be determined considering the risk characteristics of pension plan participants and the prevailing interest rate. Pension adequacy does not only mean equilibrium, but it could also be the excess of pension assets over pension liabilities, or the surplus of pension assets over pension liabilities.

2.1.6 Replacement Rate

In other words, called replacement ratios, replacement rates simply refer to pension payments that replace work-life salaries and wages. Whereas disposable incomes are a function of the tax rate, replacement rates are a function of pension savings and the returns on their investments. Sustainable Replacement Rates should ensure consumption smoothening by leaving the consumption of the pensioner unchanged when compared to the work-life period. They should also be regular over the residual lifespan of the participants depending on their life expectancies.

2.1.7 Sustainable Pension

A sustainable pension is one whose design accommodates both risk-seeking and risk-averse investors. Such a scheme would ensure adequate savings by plan participants that would guarantee a smooth consumption at retirement. It should be fully funded by both the employer and the employee with strict regulation to ensure security of pension assets. A sustainable scheme must

specify appropriate investment of pension funds to avoid a mismatch given the demographics of the participants. The designs would guard against procrastinations and promote portfolio rebalancing aimed at ensuring optimum return on investments. It should ensure adequate and regular pension payments. Unfortunately, the crisis facing the Nigerian pension industry has cast some doubt on its sustainability even though the RSA Multi-fund structure provides four different funds among others under which contributions could be invested depending on the age of the participant.

2.1.8 Consumption Smoothening

Employees should be able to meet their basic needs and save for their retirement. These savings would then provide for their basic needs after retirement when their salaries must have been stopped. However, the poor working conditions of the Nigerian labour market do not support a consumption smoothening where the average worker is expected to maintain his level of consumption after retirement. This is due to the low minimum wage, low salaries and wages, general macroeconomic conditions, and corruption within the public service of the FGN.

2.2 Theoretical Review

2.2.1 Absolute Income Hypothesis (AIH)

As postulated by Maynard Keynes, the AIH also known as the Savings function implies that consumption is a function of disposable income. Consumption increases as disposable income increases, however, at a lesser rate since the APS is greater than MPC. The law explains the distribution of disposable income between consumption and savings. Pension designs should ensure more than proportional savings when there is a pay rise.

2.2.2 The Permanent Income Hypothesis (PIH)

Friedman's Permanent Income Hypothesis (PIH) provides that people save not only for their future but for their descendants too (Jappelli, 2005). Pensions by their designs could regulate borrowing and savings even for the children of employees by incorporating arrangements for housing buffers and health insurance and possibly extend social security to include scholarships for the children of a retiree/deceased of a certain bracket who may have been caught underway through their university education by their parent's retirement/death.

2.2.3 The Rationality Theory

Also known as the self-interested or rationality assumption of neoclassical economics provides that individuals base their decisions on rational calculations to achieve outcomes that align with personal objectives. Economists believe that people forego alternatives that are not relatively valuable and compelling to them in favour of those with the greatest personal benefit. This also applies to DC pension participants. However, their degrees of rationality are often constrained by both demographic and market realities. The level of financial education, or the amount of information at the disposal of contributors often makes a mockery of this rationality assumption. It is not clear how the Nigerian labour market supports workplace financial education to ensure near-adequate retirement planning.

2.2.4 Inter-Temporal Choice

Irvin Fisher postulated that rational consumers make decisions on current consumption and savings for the future, but that such decisions are constrained by their levels of income. The Inter Temporal Budget Constraint affects retirement planning among workers as the income is often too low to even finance current consumption. Governments, in in their pension designs should consider this fact and ensure proactive periodic income adjustments in line with market realities rather than being reactive to industrial actions.

2.2.5 The Lifecycle Hypothesis (LCH)

The Life Cycle Model would be considered a foundation towards evaluating the robustness of pension designs in providing adequate consumption both during working life and at retirement using the consumption-investment optimisation approach. The desire for smooth consumption during the accumulation and decumulation phases of pension management requires careful decisions concerning optimal asset allocation, optimal contribution rates and optimal replacement ratios (Alwohaibi & Roman, 2018). The authors applied the ALM in Saudi Arabia to minimise the risk of financial planning under a DB scheme.

Whereas consumption is an increasing function of the disposable income subject to the marginal tax rate, savings/investment are a decreasing function of interest rate. To ensure adequate consumption, there is a need to harness savings/investment policies with those of the government in the forms of contribution rates, interest rates and tax rates that would leave the pensioner near indifferent after retirement.

2.3 Theoretical Framework

This study adopts the Keynesian Savings Function as the framework for the study. The function provides that as the disposable income increases, consumption also increases but at a lower rate. This implies that more of the increased income is saved rather than consumed. This underlies the smoothened consumption notion of the lifecycle hypothesis. If the minimum wage is increased, incomes will increase and more of it will be saved. For pension contributions to increase for a guaranteed retirement income, salaries and wages must first be increased.

2.4 Empirical Review

Many actuarial researchers have lent their voices to the state of pensions globally, with varying degrees of advocacy for both funded and unfunded systems. Unfunded pension schemes are exposed to demographic, wage and longevity risks since expenditures on them are typically financed by the contributions of the working population (Alonso-García, 2017). The author examines the sustainability and fairness of both Defined Benefit (DB) and Defined Contribution (DC) schemes and urges policymakers to ensure that pension contributions during working life correspond with pension rates at retirement while always maintaining an adequate level of liquidity. This has been the rationale for the movement from DB to DC pension schemes in recent times with a view to making pension systems sustainable thus guaranteeing replacement incomes. Similar voices have been lent on the feasibility of these schemes in delivering the desirable outcomes of high investment returns, certainty of retirement income, non-negative performance, efficiency and liquidity and a smoothened consumption over the lifecycle (O'Dea, 2018; Kolsru, Camille, Reck, & Spinnewijn, 2019; Browning & Crossley, 2001). These authors postulate that in a bid to smoothen consumption, economic agents tend to hold the Marginal Utility of money constant over time. Others examined the factors that affect the consumption smoothening process of these agents (Japelli & Pistaferri, 2017). Temporal discounting as a central theme in behavioral economics and neuroeconomics, determines the level of consumption smoothening (Hayes, 2023), also known as hyperbolic discounting, its often leads to poor financial decisions that are skewed towards short term pleasure. The age, education, health, income, savings, family size, among other factors determine the level of consumption smoothening (Honea & Marisennayya, 2019). Some studies concluded that countries are better-off under mixed pension systems (Boado-Penas, Godinez-Olivares, & Serrano, 2020). Indirectly, pension savers aim to derive the maximum utility possible from their contributions given their demographic and market constraints such as income, age, education, gender, interest rate, and risk represented by the discount rate. The dexterity and disposition towards numbers also affect the financial choices people make (Skagerlunda, Lind, Strömbäck, Tinghög, & Västfjäll, 2018). These authors employed the Liquidity Ratio and the Replacement Rate methodologies in determining the liquidity and adequacy of a scheme in alleviating poverty and ensuring decent retirement living.

Methods

3.1 Sample and Data Collection

To test the above hypotheses, a mixed online questionnaire was administered through social media groups and in-person interviews with members of the Nigeria Police Force.

Both primary and econometric tools were employed to assess the behavioural characteristics of pension contributors to ascertain the extent of their financial education (Hastings & Mitchell, 2020), their level of involvement or willingness to be involved in their pension arrangements, and how these would impact their retirements.

Data for this research was obtained largely from the questionnaire and other data repositories like the WDI, National Salaries, Incomes and Wages Commission, National Pension

Commission, and the Global Economy, Office of the Accountant-General of the Federation, to mention a few.

If the DC pension plan participants are found to be rational in their savings and investment decisions which should ultimately translate into adequate replacement rates, the scheme would be termed as sustainable and in line with the lifecycle theory.

3.2 Tools of Data Analysis

The author adopted a mixed research approach by administering a questionnaire, conducting interviews, and also analysing data from secondary sources. Data analytical tools like Spreadsheets, bar charts and tables were used to analyse and present the data on pension savings and household consumption.

3.3 Models Specifications

To adequately capture the parameters at work and their constraints in determining an appropriate equilibrium between savings, investment, and retirement welfare, this research evaluated the working conditions and spending behaviours of participants using the questionnaire and the NPV. The Net Present Value (NPV) is a financial model ling tool that discounts the present value of future pensions. This would enable us to determine the adequacy of pension assets and their future values in guaranteeing pension payments after retirement. The technique would bring to the fore the financial behaviour of individuals under pension plans and how these impact their retirement planning, bearing in mind the various constraints individuals and funds encounter in making savings and investment decisions.

This approach mirrored both the bias and the variance in the key parameters that determine adequate pension arrangements, especially in the accumulation phase towards a smooth decumulation phase (Zhang & Guo, 2020; Peijnenburg, 2018). The technique will ascertain the presence or otherwise of automatic rebalancing in the pension designs with respect to both the required contributions and the required rate of returns (Godinez-Olivares, Boado-Penas, & Habemen, 2016). Through these techniques, the sustainability and the adequacy of the plan would be measured.

To arrive at the NPV, we will proceed thus:

$$PV = PMT\ \frac{1-(1+r)^{-n}}{r} \tag{1}$$

$$NPV = \frac{CF}{(1+r)^{n}} \tag{2}$$

Where

PMT – annualised pension payment (Monthly pension contributions x 12);

n – the number of years the pension is expected to last after retirement (which is equal to life expectancy less the retirement age);

r – the rate of return (the RSA ROR);

CF – Cash flows (PV).

To determine today's value of future pension, first, we determine the total value of the said pension when it begins (retirement date). Secondly, we discount that amount to the present using an appropriate discount rate (Gellert, 2019). The most applicable discount rate in this case is the Return on Investment (ROI) for pension funds as reported by PensionNigeria (PensionNigeria, 2021) generally, and NPF Pensions Limited particularly (NPF Pensions Ltd, 2024). Equation 1 provides the present value of the pension at the time of retirement, and equation 2 discounts this figure to an employee's current age using the number of years left until retirement when the pension payout begins. This technique is helpful for long-term financial planning as it places the future income streams at one's fingertips. With this information, employees could decide to switch careers or increase savings and/or investment if the desired consumption at retirement must be attained.

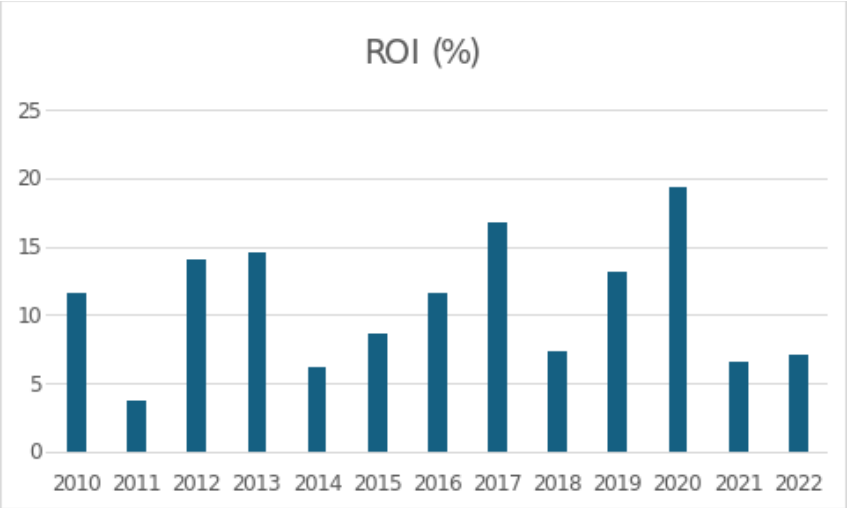

Figure 1. Trend of RSA Funds Return on Investment

Source: NGX, 2017

On the relationship between pension savings and economic growth and development, econometric tools will be used to test the actual impact of quarterly pension assets on the growth of consumption and investment in Nigeria.

These would be supported by both pre- and post-analysis tests to ensure the appropriateness of the techniques and the reliability of results. The analytical tools have been chosen to account for endogeneity biases inherent in time series and avoid a spurious regression while also acknowledging the long-term outlook of pension decisions.

Results

The online questionnaire which has a total of 30 questions received a total of 55 responses and the results are hereunder analysed.

4.1 Analysis of Questionnaire

4.1.1 Age Composition of Respondents?

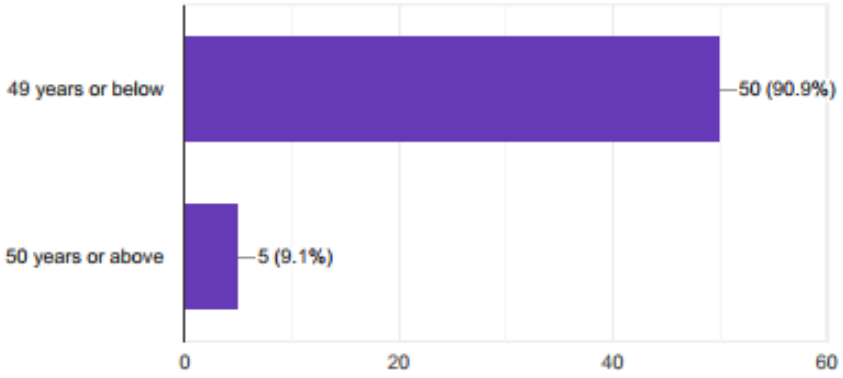

Figure 2. Age Composition of Respondents

From Figure 2 above, a majority of the respondents are in the accumulation phase of their lifecycle as 90.9% of them are below 50 years of age while 9.1% are above 50 years of age. In the first stage, the respondents are expected to work, earn more and save enough for their retirement as they are still young. Their demand for health is low compared to those above 50 years. Of this number, about 10.9% of the respondents are female while 89.1% are male. This may be due to the fact that it was an online survey, and the male gender has more screen time than females.

4.1.2 Salary Grade Level and Salary

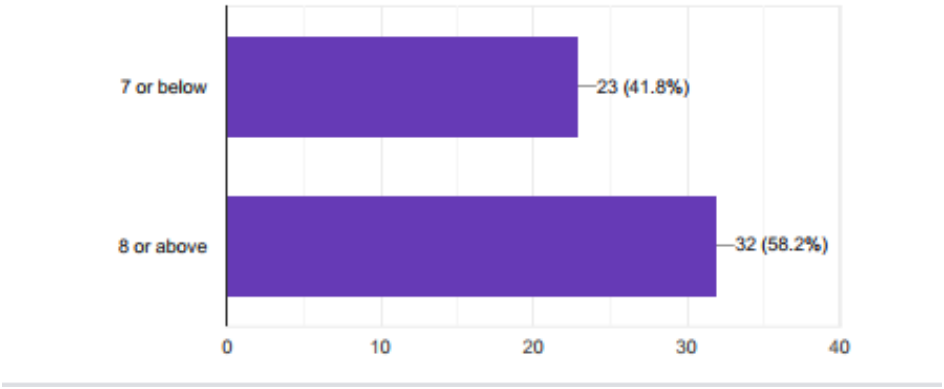

Figure 3. Salary grade level of Respondents

A 58.2% majority of the respondents are on salary grade level 8 or more while 41.2% are on salary grade level 7 or below. This implies that most of the respondents can save more.

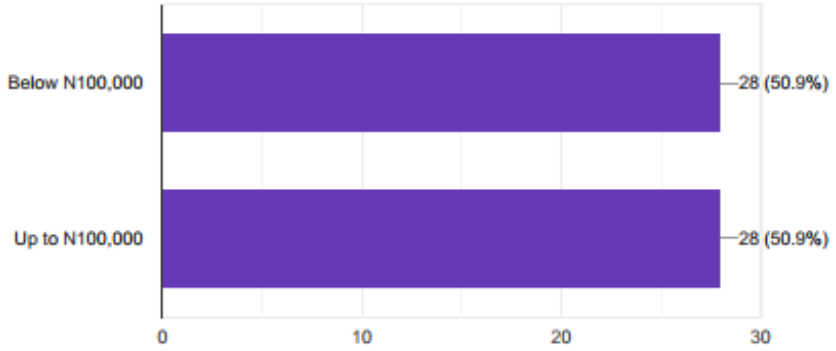

Figure 4. Basic Salary of Respondents

About half of the respondents earn below a hundred thousand naira as salary while half also receive a hundred thousand naira or more as salary income. The implication of this is that, of those on grade level 8 or more, some still earn less than a hundred thousand naira.

4.1.3 Adequacy of Net Pay for Consumption?

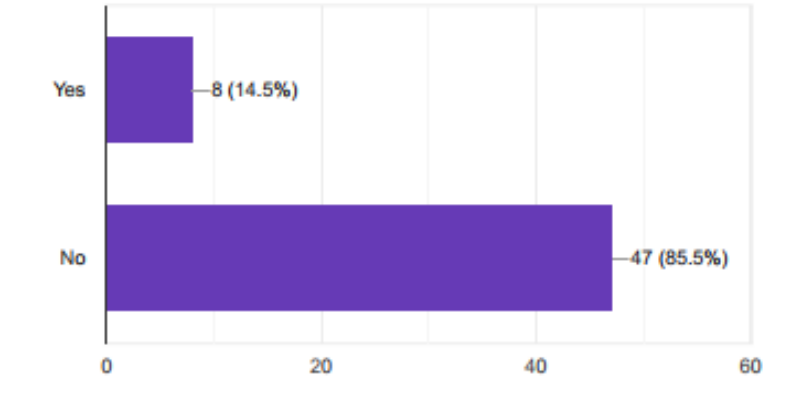

Figure 5. Adequacy of Net Pay for Consumption

As to whether the take-home pay of the respondents is enough for their consumption, only a negligible 14.5% responded in the affirmative while a majority 85.5% reported that their net salaries are not adequate for their consumption. This means that the respondents, besides their compulsory savings, cannot save for retirement since they barely meet their consumption needs. For such a category of workers, the DC pension scheme is the best since pension contributions are deducted from the source. They recourse to borrowing for consumption.

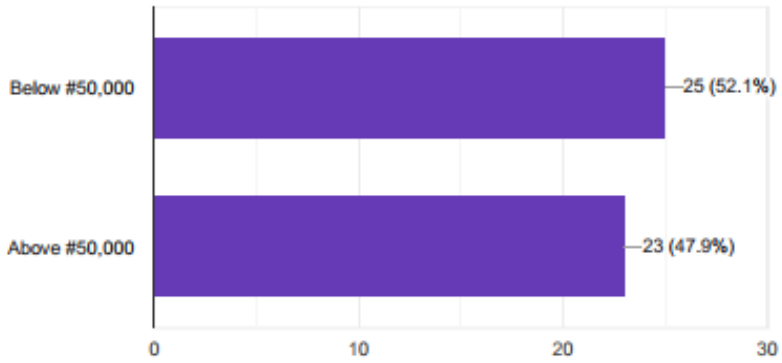

Figure 6. Borrowing for Consumption Augmentation

Of the 85.5% who reported not meeting their consumption needs, 52.1% and 47.9% borrowed below and above N50,000.00 respectively to augment their salaries towards meeting their consumption needs. For a smoothened consumption, the FGN has to repeal the National Minimum Wage Act and enact the National Living Wage Act of 2024 to provide for adequate consumption and savings for retirement while also boosting aggregate demand for the economy.

4.1.4 Respondents' Marginal Propensity to Consume/Save

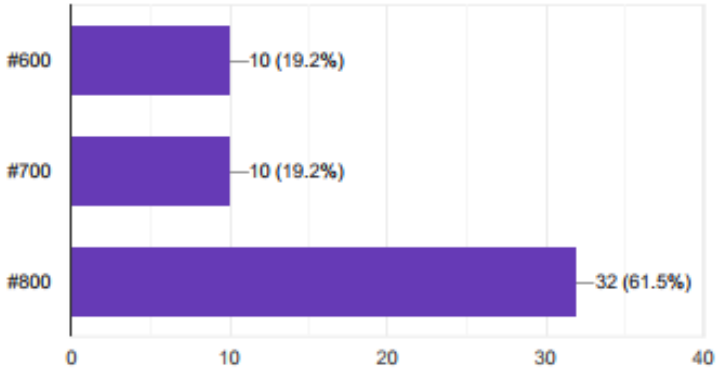

Figure 7. MPC/MPS of Respondents

About 61.5% of the respondents reported an MPC of 0.8 while 19.2% each reported 0.6 and 0.7 MPC for every thousand-naira addition to salary. This implies that all the respondents have low marginal propensities to save, and the best pension design supports automatic deduction and rebalancing.

4.1.5 Years to Retirement and Level of Financial Awareness

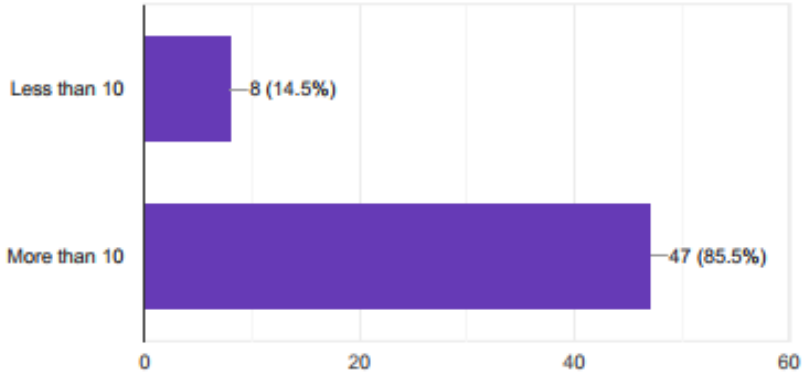

Figure 8. Years to Retirement

About 14.5% of the respondents have less than 10 years before retirement and pension while about 85.5% have more than 10 years before retirement.

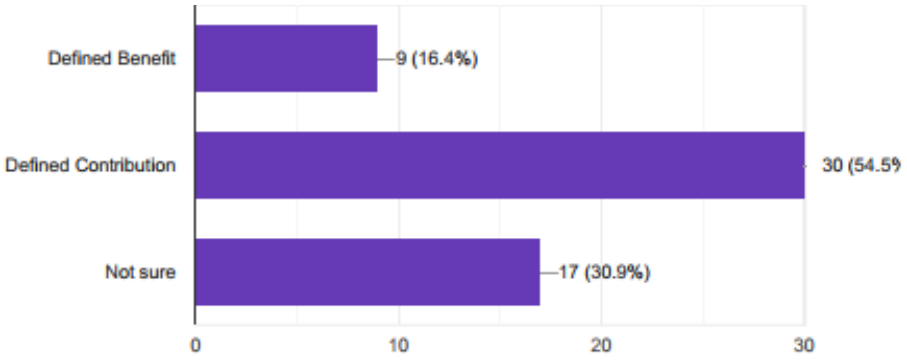

Figure 9. Knowledge of Scheme Enrolled

However, only 54.5% displayed basic knowledge of the pension scheme they are enrolled in. This puts a burden on the FGN and indeed other employers of labour to intensify efforts at providing workplace financial education to their employees.

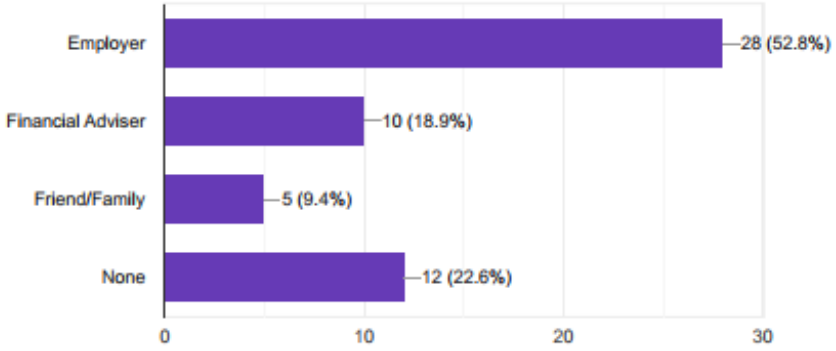

Figure 10. Sources of Pension Advice

As to the source(s) of pension advice, 52.8% get their pension advice from their employer; 18.9% from financial advisers including PFA; 9.4% get their advice from friends and family members while a whopping 22.6% reportedly do not seek or receive advice from any of the above. In addition, 30.9% prefer an employer-administered pension; 34% prefer an independent pension manager; and 30.9% do not trust anyone to manage their pensions. About 16.4% assumed high knowledge of financial matters, 43.6% assumed moderate knowledge; 16.4% assumed fair knowledge and 25.5% admitted a lack of financial awareness. Responses to many other questions confirm no to low knowledge of finance.

However, due to a lack of trust in pension operators, 92.5% prefer to make pension decisions for themselves while only 9.4% prefer someone else to decide for them concerning both savings and investment choices. This spells disaster for the pension industry and requires immediate action to avert a time bomb. There is an urgent need to intensify financial education among pension plan participants by both employers and PFAs to ensure adequate retirement planning and sustainable aggregate demand for the economy.

4.1.6 Choice of PFA

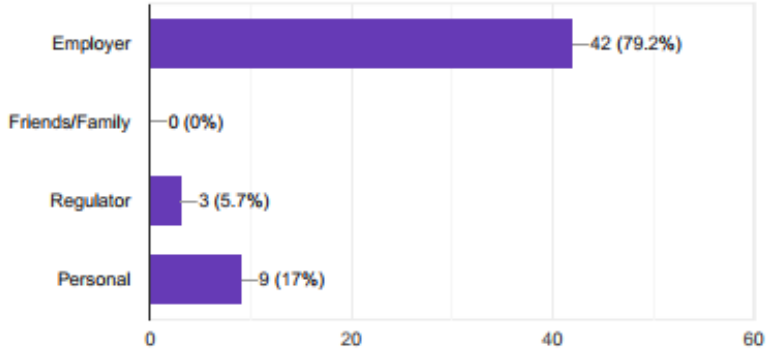

Figure 11. Choice of PFA

About 79.2% of the respondents reported that their PFAs were chosen for them or on the advice of their employers, and 62.3% have not switched their PFAs since enrollment in the scheme. Even though a majority 62.3% do receive account statements every quarter from the PFAs, a majority 40.7% complained that queries relating to their Retirement Savings Accounts are not promptly resolved by the PFAs while 31.5% reported that similar complaints are not at all resolved.

4.1.7 Voluntary Savings

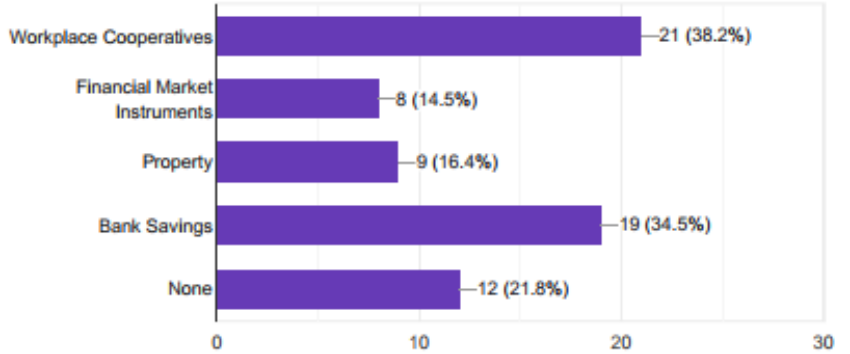

Figure 12. Voluntary Savings by Respondents

Apart from the statutory pension contributions, 38.2% save with workplace cooperatives; 14.5% have savings in capital market instruments; 16.4% in property; 34.5% in bank savings; and 21.8% reported no voluntary savings. This collaborates with the low MPS earlier deduced. More so, only 16.4% have reported attempts at estimating their retirement needs with 41.8% reporting inability to estimate and another 41.8% reported no attempts. Also, of the total respondents, 3.6% and 9.1% said they are saving too much and enough respectively, while 87.3% said their savings are too little to guarantee consumption smoothening at retirement. This is in tandem with the fact that they are even borrowing to survive.

Furthermore, 15.7% suggested 2.5% pension savings; 23.5% of the respondents suggested 7.5% pension contribution; 27.5% suggested 12.5% pension savings; and 33.3% suggested 17.5% pension savings. This means, that about 60.8% of the 87.3% who acknowledged the inadequacy of their savings have suggested higher (12.5 or 17.15%) pension contributions against the current 8%.

A majority 56.4% of respondents blamed their low savings on lack of transparency or corruption in pension administration; 29.1% blamed it on a low income, 10.9% have plans to save more while another 10.9% are afraid of losing their savings, and 1.8% lack interest in financial matters.

4.1.8 Scheme preference and confidence about retirement

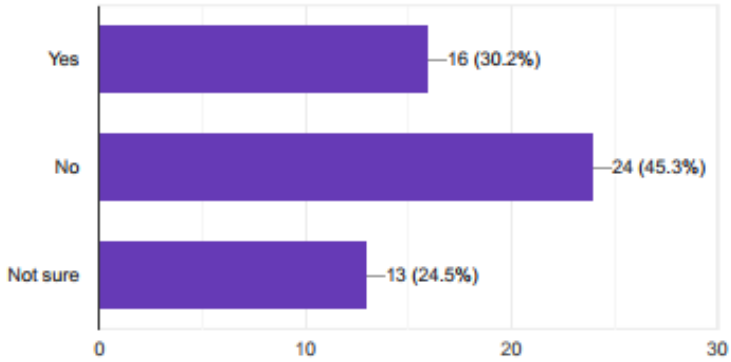

Figure 13. Preference of DC over DB

When asked to choose between the old DB and the current DC pension schemes, 45.3% prefer the DB while 30.2% prefer the DC scheme, and 24.5% reported indifference due to lack of financial knowledge.

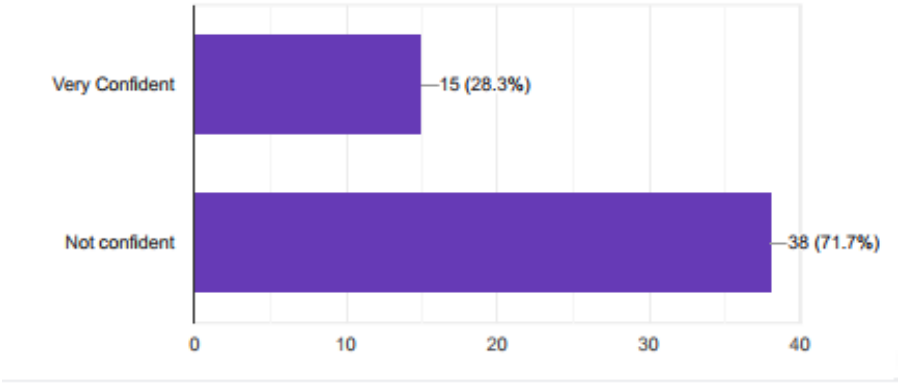

Figure 14. Confidence about Retirement

Only 28.3% of the respondents are confident about their retirement while a majority 71.7% are not confident of survival during retirement. This implies that they are aware their savings are inadequate and cannot guarantee consumption unless deliberate efforts are made by way of an increased salary, a reformed scheme with an aggressive financial education.

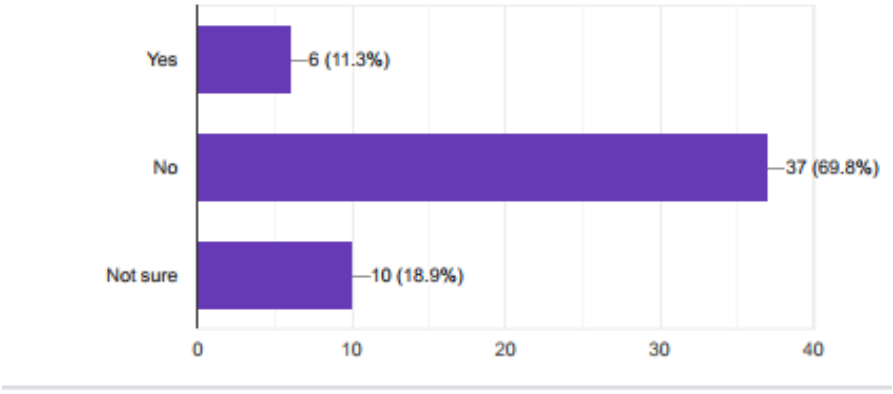

Figure 15. Adequacy of Pension Savings for Retirement Consumption

Further still, 69.8% said their pension savings cannot afford their current consumption after retirement while a negligible 11.3% expressed confidence in the adequacy of their pension savings.

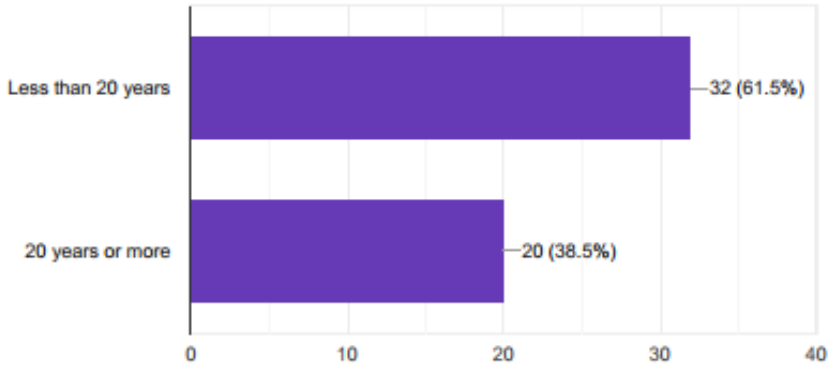

Figure 16. Life Expectancy for Public Servants

There is also the fear that Nigerian public servants do not live more than 20 years after retirement as reported by 61.5% while 38.5% of respondents reported that Nigerian public servants live more than 20 years after retirement. This confirms the low life expectancy in the country and is attributable to the poor working conditions within the public service of the Federal Government of Nigeria. This lack of confidence about retirement due to poor worker welfare is also the cause of corruption within the public service.

4.2 The Net Present Value Calculation

The result of the Net Present Value is presented in Table 3 below:

Table 3. Net Present Value Result

NPV CALCULATIONS FOR PENSION				
ASSUMPTIONS:				
Grade Level / Contribution Rate	10 / 8%	11 / 15%	12 / 17.5%	13 / 20%
Consolidated Salary (BHT)	₦ 150,000.00	₦ 160,000.00	₦ 180,000.00	₦ 200,000.00
Life Expectancy	54	54	54	54
ROI (r)	13.29%	13.29%	13.29%	13.29%
FUND II	>=45 yrs	>=47 yrs	>=48 yrs	>=49 yrs
Years Before Retirement (n)	7	5	4	3
Employee Contribution	₦ 12,000.00	₦ 24,000.00	₦ 31,500.00	₦ 40,000.00
	Present Value			
PMT	₦ 144,000.00	₦ 288,000.00	₦ 378,000.00	₦ 480,000.00
$(1+r)^{-n}$	2.40	1.87	1.65	1.45
$1-\frac{(1+r)^{-n}}{r}$	10.50	6.52	4.87	3.42
$PV = PMT\ \frac{1-(1+r)^{-n}}{r}$	-₦ 1,511,724.67	-₦ 1,877,089.75	-₦ 1,841,010.06	-₦ 1,639,853.96
	Net Present Value			
$NPV = \frac{CF}{(1+r)^n}$				
CF	-₦ 1,511,724.67	-₦ 1,877,089.75	-₦ 1,841,010.06	-₦ 1,639,853.96
$(1+r)^n$	0.42	0.54	0.61	0.69
$\frac{CF}{(1+r)^n}$	-₦ 3,620,876.70	-₦ 3,503,022.46	-₦ 3,032,651.24	-₦ 2,384,404.33
Monthly Pay-Out on Retirement	₦ 43,105.68	₦ 58,383.71	₦ 63,180.23	₦ 66,233.45

Source: Author's Computations

Discussion

From Table 3 above, RSA Fund II was used as a sample based on the responses from the questionnaire. It is obvious the current pension design cannot ensure consumption smoothening unless there are reforms by way of wage increases, contribution increases, increased financial education, retirement postponement, and most importantly transparency in pension funds management. The findings collaborate Honea & Marisennayya, (2019) who posited factors such as education, health, income etc. affect the level of consumption smoothening.

There is also the need for additional and urgent reforms on the existing scheme with a view to its unbundling into separate schemes specific to the scheme of service, and to be managed by MDAs as against the present PFA-run pension savings. This position is in line with Boado-Penas, Godinez-Olivares, & Serano (2020) who recommended mixed pension systems for developing countries.

Conclusion

From the above analysis, it is concluded that the Contributory Pension Scheme by its current design is unsustainable. This is because the contribution rates are too low, and the management of the same including their investments is not transparent.

It is therefore recommended that pension contributions be increased, and replacement rates too increased while retirement should be postponed. These would ensure adequate consumption at retirement and will provide guaranteed consumption after retirement. It is also recommended that employers step up their financial awareness schemes to enlighten their employees on the benefits of savings and investment for a decent retirement life. This will instil rationality in financial decisions generally and pension decisions particularly among employees. it is recommended that financial

literacy be included as a core subject of study in the education curriculum from secondary to tertiary schools. Finally, it is recommended that urgent reforms within the pension industry be carried out to unbundle the PFAs with MDAs having their peculiar pension schemes. A Progressive Pension Contribution Rate should be introduced instead of the current flat rate.

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Appendix

Research Questionnaire

You are invited to participate in a survey in respect of a research titled "Public Sector Defined Contribution Pension Scheme and Consumption Smoothening in Nigeria." Your responses are anonymous and would immensely contribute to the success of the study. Thank you.

1. How old are you? A) 49 years or below B) 50 years or above
2. Your Gender A) Male B) Female
3. Your Salary Grade Level A) 7 or below B) 8 or above
4. How much is your monthly Basic salary? A) <₦100,000 B) >=₦100,000
5. Is your monthly net pay enough for your consumption? A) No B) Yes
6. What is your total indebtedness? ₦…….
7. If your monthly income increases by ₦1,000.00, how much is spent on consumption? A) ₦600 B) ₦700 C) ₦800
8. How many years left before retirement? A) <10 years B) >=10 years
9. What type of pension scheme are you registered? A) Defined Benefit B) Defined Contribution C) Not Sure
10. From whom do you get pension advice? A) Employer B) Financial Adviser C) Friend/Family D) None
11. Which other savings do you have? A) Employer Cooperatives B) Bank Savings C) Property D) Financial Market Instruments E) None
12. Have you ever tried to calculate how much you need to save for retirement? A) Yes B) Yes, but I was unable to work it out C) No
13. With your present income, are you saving? A) Too much B) Too little C) Enough D) Not sure
14. What pension savings rate would you prefer? A) 2.5% B) 7.5% C) 12.5% D) Above 17.5%
15. Who do you trust most for your pension plan? A) Employer B) Financial Adviser C) Pension Operator D) None
16. In your opinion, what is the major barrier to your pension saving? A) Low-income B) Lack of Transparency/Corruption by Pension Administrators C) Competing financial issues D) Plan to save more in the future E) Fear of losing my savings F) Not interested in financial matters
17. How knowledgeable about financial issues are you? A) Not at all knowledgeable B) Fairly knowledgeable C) Moderately knowledgeable D) Very knowledgeable
18. If an investment has an annual return of 7%, roughly how long do you think it will take the value of that investment to double? A) 5 Years B) 10 Years C) 15 Years D) 20 Years E) Not sure
19. If long-term interest rates were to rise, what effect do you think this would have on the value of a pension fund invested in bonds (fixed-income securities)? A) The value of the Pension Fund will rise B) The Value of the pension fund will fall C) The Value of the pension fund will remain unchanged D) Not sure
20. As regards your contributions/investment choices for your pension scheme, do you prefer to: A) Make the decisions myself or B) Have someone else make the decisions for me
21. Have you changed PFA since you registered for this pension scheme? A) Yes B) No
22. What informed the choice of your present PFA A) Employer C) Friends/Family C) Regulator D) Personal
23. How often do you receive account statements of your RSA? A) Quarterly B) Annually C) Never
24. How promptly, are pension complaints resolved by your PFA? A) Very much promptly B) Not very promptly C) Not at all D) Not sure
25. By your assessment, is the present pension scheme better than the old one? A) Yes B) No C) Not sure
26. With the present pension arrangement, would you say you are confident about your post-service life? A) Confident B) Not confident
27. Can your pension savings afford your current level of consumption at retirement? A) Yes B) No C) Not sure
28. By your assessment, how long, on average, do Nigerian Public servants live after 35 years of active service? A) less than 20 years B) 20 years or more
29. As a country, do you think the current pension regime is better for the economy? A) Yes B) No C) Not sure
30. Overall, would you recommend changes to the current pension scheme? A) Yes B) No C) Not sure