

Pension Fund Management and Performance of Public Corporations in North Central Nigeria

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Abstract

This study focused on pension fund management (PFM) and performance of public corporations in North Central Nigeria. The study investigated the mediating effect of compliance, prompt remittance, non-bureaucratic bottlenecks and benefit adequacy between PFM and sustainability of contributory pension of public corporations. To achieve the study's goal, survey research design was used. Purposive sampling was used as the sampling strategy in the quantitative study, where the study attracted 365 participants. The internal consistency of all constructs in the instrument used was determined using Cronbach's alpha coefficient. Composite reliability (CR) and average variance extracted (AVE) were also conducted for validity test (where CR value > 0.70; AVE value > 0.50). The discriminant validity was conducted using Fornell-Larcker criteria. Hypotheses were tested using OLS regression at a 5% level of significance. Findings revealed that regulatory compliance, prompt remittance, non-bureaucratic bottlenecks, and benefit adequacy positively and significantly mediate the relationship between PFM and the sustainability of the CPS in public institutions. The study concludes that PFM contributes significantly to the sustainability of the CPS and to decision-making in public institutions when it is supported by effective institutional and governance mechanisms. The study recommended that National Pension Commission, public organizations and Pension Fund Administrators should pay more attention to better compliance, timely remittance of contributions, better governance practices, transparency, and better oversight of the boards.

Keywords: *Pension Fund, Pension Fund Management, Public Universities, Performance, Financial Security.*

INTRODUCTION

It is generally expected in social welfare theories that an employee who has worked for an organization for some years is entitled to some benefits which could be in form of gratuity and pension payable to such employee by its employer at the time of retirement (Ajala 2022, Fiiwe, 2020 and Farayibi, 2016). Retirement benefits are any entitlements, rights or privileges that accrue to a worker or employee upon leaving the services of an employer for reason of having worked or provided service to the employer (National Pension Commission, 2017). Such benefits could be paid in either lump-sum, periodically or a combination of both.

Over the past decades, the issue of pension has received much attention in many countries of the world (Hartley and Abels, 2025). This is due to its significant economic and social benefits. Kidd and Tran (2018) submitted that pensions contribute to economic growth through

a range of pathways at household, community and national levels. Within households, they are used to invest in children, tackling stunting and enabling them to attend and perform well in school, thereby helping them become a more effective and productive workforce. Pensioners and their families use the cash they receive to invest in income-generating activities while working age household members are better able to gain employment, increasing overall productivity of the labour force. They also enable households to recover their productivity more quickly following shocks.

Across communities, the injection of cash into markets can stimulate local economies, with significant multiplier effects. Many entrepreneurs can benefit from the increased economic activity in local markets and there is good evidence of traders, in particular, doing well. Others, including unemployed young people, can sell their labour to pensioners. Governments can also use the payment of pensions to encourage financial service providers to increase their presence in more remote parts of the country. At national level, the increased consumption and demand generated by people spending their pensions can be a significant stimulus to national economies, bringing benefits to business. Inclusive pensions can strengthen social cohesion, generating more peaceful and equitable societies and building an improved investment climate. Universal tax-financed pensions can also underpin contributory schemes, helping them grow their funds and offering resources for large investments in the economy. Furthermore, as the IMF argues, high levels of inequality can hinder growth and old age pensions have proven to be a key tool in reducing inequality.

Akpan and Ukpang (2014) opined that pension issues affect both public and private sectors of any economy. Therefore, for any economy to efficiently and effectively handle pension matters, there must be a sound retirement or pension scheme empowered by law to manage the pension fund. That is why various governments' organizations as well as labour unions have emphasized the need for sound, good and workable retirement or pension scheme (International Labour Organization, 2022 and Salisu and Ibrahim, 2024). A retirement or pension scheme consists of plans, procedures, legal and administrative process of acquiring and setting aside of funds to accumulate in order to meet the social obligation of care which employers owe their employees on retirement or their dependents should the employee dies before retirement (Ebegbunam (2015) in Okechukwu, Nebo and Eze (2016).

It is interesting to note that, pension provision in most countries is a combination of public (unfunded) schemes, publicly mandated contributory schemes, and voluntary private retirement savings (World Bank, 2003). Specifically, pension scheme is broadly divided into two namely: the defined contribution plan and the defined benefits plan. Defined Contribution Plan or contributory pension scheme (CPS) is an arrangement where both the employer and the employee contribute a portion of an employee's monthly emolument towards the payment of the employee's pension at retirement (National Pension Commission, 2020). In defined contribution plan, a contribution rate is fixed. Traditionally, pension systems operated on a Pay-As-You-Go basis, which meant that workers did not have to contribute to their pensions but would have the guaranteed pension benefits when they retire (Mazreku et al., 2020). This system has been stable for the last four decades since the number of workers far exceeded the number of retirees. The Pay-As-You-Go pension system puts current workers to the responsibility of paying pensions (taxes to support current retirees) while at the same time taking responsibility for future generations (current child care) (Ngetich, 2012). As time went on, many countries of the world including Nigeria opted for various forms of contributory pension scheme where employers and their employees are supposed to pay a certain percentage

of the employee's monthly earnings to a retirement savings accounts (RSA) from which they would be drawing their pension benefits after retirement (Organization for Economic Cooperation & Development, 2021). This is because of the challenges encountered in the defined benefit pension plan (Kida & Sambo, 2018). In Nigeria for instance, the pay –as - you - go - system of pension was characterized by many problems which made the payment of the retirement benefit a failure. The old pension scheme lacked adequate and timely budgetary provision coupled with rising life expectancy, increasing number of employers, poor implementation of pension scheme in the private sector due to inadequate supervision and regulation of the system and the fact that too many private sector employees were not even covered by the pension scheme. The problems associated with the old pension system in Nigeria necessitated the systematic pension reform which changed the defined benefit scheme to the defined contributory scheme (Salisu and Ibrahim, 2024). The new Pension Reform Act, predicated upon a defined contributory scheme, was established in 2004 to ameliorate the inadequacies of the old scheme.

The Nigeria's pension industry, no doubt, has shown significant growth over the years, especially between 2023 and 2025, driven by strong stock market performance, increased contributions, and high-interest rates. For instance, the industry's total assets saw an aggressive upward trajectory during this period, with an increase from ₦18.36 trillion in December, 2023 to ₦27.45 trillion in December, 2025 representing 21.9% annual growth. Furthermore, while Federal Government of Nigeria (FGN) securities remain the backbone of the portfolio, there has been a notable shift toward domestic equities to capture higher returns. More so, there has been significant increase in the Total Retirement Savings Account (RSA) Registrations and Micro Pension Plan (MPP). Specifically, the Total Retirement Savings Account (RSA) Registrations reached 10.58 million by the end of 2024 and grew to approximately 10.93 million by September 2025 while Micro Pension Plan (MPP) which is now called “Personal Pension Plan” grew to over 215,000 participants by late 2025.

However, while the Pension Reform Act (PRA) 2014 successfully addressed many of the systemic failures of the old "Defined Benefit" system, there still exist some identified gaps such as Compliance and Remittance Delays, Bureaucratic Bottlenecks, Benefit Adequacy and investments diversion amongst others. For instance, while the Act mandates strict timelines for remittances, enforcement remains a challenge, particularly at the state level and among SMEs. Some employers deduct pension contributions from salaries but fail to remit them to the Pension Fund Administrators (PFAs). In February 2025 for instance, the National Pension Commission (pencom) issued a press release that it has inaugurated 41 recovery agents to recover contributions from 911 employers who failed to remit their pension contributions. The implication of late or non-remittance may result in diversion of funds, corruption, embezzlement, mismanagement, late investment of contributions among others. This may lead to a situation where there will be shortage of funds for prompt payment of retirement benefits to retirees, hence the urgent need for this study.

Objectives of the Study

The central objective of is to examine the effect of pension fund management (PFM) on the performance of public corporations in North Central Nigeria. Its specific objectives are to:

- 1) Investigate the mediating effect of compliance, prompt remittance, and non-bureaucratic bottlenecks and benefit adequacy between PFM and sustainability of contributory pension of public corporations.

- 2) Assess the mediating effect of compliance, non-bureaucratic bottlenecks and accountable governance between PFM and decision making of public corporations.
- 3) Ascertain the extent to which governance structure of PFM affects effective decision making of public corporations in North Central Nigeria

LITERATURE REVIEW

Theoretical Framework

The major theory adopted for this study is the deferred wage theory. Malaski, Capele and March were the proponents of the Deferred Wage Theory in year 1980. According to the theory, the pension plan is a method to defer some compensation until an employee provides pension payment in exchange for current services. The deferred funds often result in individual tax savings. The employer derives immense advantage in providing a pension plan. Thus, under this theory, firms offer pension plans because of economies of scale in administrative portfolio management and other costs (Freeman, 1981 in Udoh, 2021). The theory argues that it is possible for the employer to receive cash flow benefits to the extent that the present value of deferred wages exceeds the required funding. The wage theory incorporates a long term or lifetime implicit labour contract between the employer and the employee that has various implications for the dual relationship (Udoh, 2021). The Deferred Wage Theory aligns with the Life-Cycle Hypothesis, which suggests individuals want to maintain a stable standard of living from their working years into retirement.

Another theoretical framework for the study is the Endogenous “AK” Growth Theory. According to Endogenous “AK” growth theory, an economy’s long-run growth rate depends on its saving rate. The endogenous “AK” growth theory offered by Pagano (1993) assumes that financial intermediation could affect economic growth through three channels namely: changing productivity of capital, savings funneled to investment and savings rate. In other words, financial development reduces the loss of resources needed to allocate resources, encourages greater savings ratio, and increase capital productivity.

Hypothetical Development

In the context of contributory pension schemes, compliance, prompt remittance, non-bureaucratic bottlenecks, and benefit adequacy serve as important mechanisms through which PFM influences the sustainability of contributory pension schemes in public corporations. The effectiveness of PFM would lead to better regulatory compliance, timely remittance of contributions, reduced unnecessary administrative delay, and provision of adequate pensions to retirees (Egye & Ramli, 2024). These, in turn, would boost confidence of contributors, improve operational efficiencies, and sustain the pension scheme over time. According to National Pension Commission (2020), compliance with pension regulations and timeliness in remitting contributions are key aspects needed for effective management of the CPS. In similar view, Adeola (2013) asserts that adequacy of fund and regulatory compliance are fundamental for maintaining stability of pension schemes. Aliu et al. (2023) discovered that transparency is a major contributor to sustainable CPS in Nigeria, while regulatory compliance has a positive but insignificant impact on sustainability. It has, however, recommended stringent regulatory enforcement to enhance compliance of pension scheme stakeholders. Likewise, Badmus (2024) is of the opinion that regulatory compliance would enhance risk management and sustainability of pension administration.

Evidence from pension management studies further demonstrates the importance of prompt remittance, non-bureaucratic bottlenecks, and benefit adequacy in sustaining contributory pension schemes (Jensen, 2024; Mneni et al., 2025; Oigbochie & Chenge, 2023). Prompt remittance allows pension contributions to be invested immediately, thereby increasing fund growth and protecting contributors' retirement savings, whereas delays reduce investment opportunities and weaken public confidence in the pension system (National Pension Commission, 2020). Similarly, reducing bureaucratic bottlenecks improves administrative efficiency by ensuring that registration, documentation, and benefit payments are processed without unnecessary delays. Odia and Okoye (2012) argue that one of the major objectives of Nigeria's pension reforms was to eliminate administrative delays that affected retirees under the previous pension system. Benefit adequacy also strengthens sustainability because contributors are more willing to participate in a pension scheme that guarantees sufficient retirement income. Hartley and Abels (2025) observe that pension systems remain sustainable when retirees receive benefits that adequately meet their financial needs throughout retirement. Furthermore, studies show that effective governance and sound investment management improve pension fund performance, thereby increasing the capacity of pension schemes to provide adequate and timely retirement benefits (Bregnard & Salva, 2022; Dopierała & Mosionek-Schweda, 2020). Hence, the hypothesis that:

- H1a: Compliance mediates between PFM and sustainability of contributory pension of public corporations.
- H1b: Prompt remittance mediates between PFM and sustainability of contributory pension of public corporations.
- H1c: Non-bureaucratic bottlenecks mediates between PFM and sustainability of contributory pension of public corporations.
- H1d: Benefit adequacy mediate between PFM and sustainability of contributory pension of public corporations.

PFM influences organizational decision-making not only through the management of retirement assets but also through the quality of the administrative processes that support the pension system (Ekezue et al., 2024; Koedijk et al., 2019; Xu et al., 2020). Compliance with pension regulations, prompt remittance of contributions, the absence of bureaucratic bottlenecks, and the provision of adequate retirement benefits create the conditions through which PFM can improve decision-making in public corporations. These factors ensure that pension obligations are fulfilled efficiently, thereby reducing uncertainty, improving employee confidence, and providing managers with reliable information for financial and administrative decisions. Pillah and Gwimi (2025) posit that effective funding and strict compliance strengthen the credibility and efficiency of pension administration.

Xu et al. (2020) posit that the application of good governance principles in the operation of public defined benefit pension schemes has a significant positive impact on their performance through fostering accountability, monitoring and effectiveness. In the same way, Andonov et al. (2018) have indicated that governance mechanisms and stakeholders' involvement in decision-making processes affect investments in public pensions.

In addition, Trönnberg and Hemlin (2022) argue that pension fund decision-making improves when managers critically evaluate investment alternatives and challenge existing assumptions instead of relying on routine practices. The effectiveness of organizational

decision-making depends on how efficiently pension administration is carried out. Ortiz et al. (2018) argue that strong public pension systems require adequate benefits, effective governance, and efficient administration to maintain public confidence and institutional stability. Thus, we formulate hypothesis that:

H2a: Compliance mediates between PFM and decision making of public corporations.

H2b: Non-bureaucratic bottleneck mediates between PFM and decision making of public corporations.

H2c: Accountable governance mediate between PFM and decision making of public corporations.

H3: Governance structure of PFM has effect on decision making of public corporations in North Central Nigeria

METHODOLOGY

Research Design

To achieve the study's goal, survey research design was used. The survey was conducted electronically and patiently; taking a period of 8 months (March-October 2024). We screen filled survey instrument for the period of 3 months (November-January 2025). The idea was to ensure authenticity in the data collection process. The researchers ensured adequate participation through follow up email, and response rate and accuracy were appreciated.

Population and Sampling

The population of this study involves the management and senior officers of selected public institutions in the North Central, Nigeria, who participate directly in the process of pension management, finances, human resources management, and decision-making in their respective organizations. The selection of these officers as respondents is justified by the fact that they have sufficient knowledge of pension management procedures, compliance with pension requirements, timely payment of pension funds, and decision-making processes. Purposive sampling was used as the sampling strategy in the quantitative study, where the study attracted 365 participants who met the requirements of the study. The requirements were that the participant had sufficient knowledge of the subject matter, full-time employment, and had access to information on pension management. The study also employed snowball approach as a strategy to ensure the expansion of the target sample and legit data. Also, the strategy worked out as it helped to access the hard-to-reach participants whose activities were tight and scheduled appointments failed.

Description of Instrument

The study measured compliance, prompt remittance, non-bureaucratic bottlenecks, and benefit adequacy using structured questionnaire items adapted from the contributory pension literature. Compliance was measured through items that assessed the extent to which public corporations and pension operators comply with the provisions of the Contributory Pension Scheme. The items covered adherence to pension regulations, timely fulfilment of statutory obligations, proper documentation, and observance of guidelines issued by the National Pension Commission. The measurement was informed by Aliu et al. (2023), who examined the role of compliance in the sustainability of the Nigerian contributory pension scheme, Badmus (2024), who identified regulatory compliance as an important element of effective pension

administration and risk management, and the National Pension Commission (2020), which provides the operational guidelines for pension operators and employers. Prompt remittance was measured using items that examined whether employers remit pension contributions to employees' RSA within the period required by law. The items assessed the regularity, timeliness, and consistency of pension contribution payments and were developed from the guidelines of the National Pension Commission (2020) and the work of Adeola (2013), which emphasized that timely funding is necessary for an effective contributory pension scheme.

Non-bureaucratic bottlenecks were measured using questionnaire items that assessed the ease, speed, and efficiency of pension administration. The items examined delays in documentation, approval procedures, communication, record processing, and benefit administration. These measures were informed by Odia and Okoye (2012), who explained that pension reforms in Nigeria were designed to reduce administrative delays, and Ebegbunam (2015), who stressed the importance of efficient pension management practices in improving service delivery. Benefit adequacy was measured through items that assessed whether pension benefits are sufficient, paid regularly, and capable of meeting retirees' financial needs. The instrument also examined respondents' confidence in the adequacy of retirement income provided under the Contributory Pension Scheme. The measurement was informed by Ajala (2022), who linked contributory pensions with workers' financial security, Hartley and Abels (2025), who argued that sustainable pension systems should provide adequate retirement income, and Kidd and Tran (2018), who emphasized that adequate pension benefits are essential for long-term social protection. Together, these four dimensions provide a comprehensive assessment of the operational conditions that influence the effectiveness of pension administration and the overall performance of the CPS.

Reliability and Validity

The internal consistency of all constructs in the instrument was determined using Cronbach's alpha coefficient. Hair et al. (2010) posit that Cronbach's alpha value of 0.70 or more is considered adequate for measuring internal consistency of an instrument. Reliability and validity were achieved using composite reliability (CR) and average variance extracted (AVE). A CR value of 0.70 or more, an AVE value of 0.50 or more, and an indicator loading value of 0.70 or more were considered acceptable (Hair et al., 2010). The outcome shows that the instrument had acceptable reliability and construct validity.

Table 1: Construct Reliability and Validity

Indicator Variable	Loading	AVE	CR	CA(α)
COM1	.916	0.824	0.908	0.990
COM2	.944			
COM3	.926			
COM4	.901			
COM5	.850			
PRR1	.890	0.796	0.892	0.993
PRR2	.905			
PRR3	.908			
PRR4	.884			
PRR5	.873			
NBB1	.767	0.789	0.888	0.981
NBB2	.813			
NBB3	.955			

NBB4	.939			
NBB5	.949			
BEA1	.937	0.839	0.916	0.992
BEA2	.923			
BEA3	.918			
BEA4	.917			
BEA5	.885			
ACG1	.811	0.630	0.794	0.967
ACG2	.811			
ACG3	.778			
ACG4	.755			
ACG5	.811			
GSP1	.958	0.854	0.924	0.991
GSP2	.922			
GSP3	.942			
GSP4	.902			
GSP5	.896			
PFM1	.980	0.846	0.920	0.977
PFM2	.919			
PFM3	.919			
PFM4	.946			
PFM5	.827			
SCP1	.988	0.905	0.951	0.986
SCP2	.855			
SCP3	.954			
SCP4	.982			
SCP5	.971			
DMP1	.991	0.929	0.964	0.990
DMP2	.944			
DMP3	.973			
DMP4	.973			
DMP5	.938			

KMO (0.872 > 0.5); Bartlett's Test of Sphericity: (0.01 < 0.05); $\chi^2 = 1599.898$; Total Variance Explained %: (74.872 > 50%); Eigenvalue (2.040 > 1.00)

As shown in Table 1, an analysis on the outer loadings, AVE, CR, and Cronbach's Alpha (α) for the indicator variables has been conducted to ascertain construct validity and reliability. Loadings were above 0.70, ranging from 0.755 to 0.991. This implies that the indicators were appropriate representations of the constructs. The AVE was within the range of 0.630 and 0.929. The AVE estimates are above the minimum requirement value of 0.50. This proves that all the constructs had adequate convergent validity. Further, CR is within the range of 0.794 and 0.964 while Cronbach's Alpha ranges from 0.967 to 0.993, all exceeding the threshold value of 0.70. The results indicate that the measurement model had convergent validity and internal consistency reliability.

The results of the principal component analysis (PCA) is present (below Table 1) to ascertain common method variance. The results show KMO (0.872 > 0.5), Bartlett's Test of Sphericity (0.01 < 0.05), TVE (74.872 > 50%), and Eigenvalue (2.040 > 1.00) in the data set. These shows that the data supplied are represented across different dimensions, and that they are not driven by a single common source. The KMO value (0.872 > 0.5) proves that there is a

presence of adequate sampling adequacy, while Bartlett's Test of Sphericity was significant ($\chi^2 = 1599.898$, $p\text{-value} < 0.01$), showing that the data were suitable for the model.

Table 2: Discriminant Validity

	COM	PRR	NBB	BEA	ACG	GSP	PFM	SCP	DMP
COM	.908	.006	.017	.882	.032	.004	.014	.135	.001
PRR	.006	.892	.001	.052	.813	.013	.110	.016	.007
NBB	.017	.001	.888	.071	.005	.907	.038	.112	.013
BEA	.882	.052	.071	.916	.048	.061	.009	.144	.045
ACG	.032	.813	.005	.048	.794	.027	.055	.000	.016
GSP	.004	.013	.907	.061	.027	.924	.026	.108	.019
PFM	.014	.110	.038	.009	.055	.026	.920	.051	.001
SCP	.135	.016	.112	.144	.000	.108	.051	.951	.059
DMP	.001	.007	.013	.045	.016	.019	.001	.059	.964

Source: IBM

The discriminant validity of constructs using Fornell-Larcker criteria has been provided in Table 2. The composite reliability of each construct is more than the correlation. For example, the composite reliability for COM (0.908), PRR (0.892), NBB (0.888), BEA (0.916), ACG (0.794), GSP (0.924), PFM (0.920), SCP (0.951), and DMP (0.964) is more than the correlation of that construct with other constructs. It can be inferred that the measurement scales are different from each other.

Methods of Data Analysis

Data were analyzed using descriptive statistics and inferential statistics. The personal profile or characteristics of the participants were presented in table using percentage method. Construct validity was tested using CR and AVE. This was combined with discriminant validity using Fornell-Larcker criteria. To ascertain the absence of common bias, Harman's Single Factor Test was used through principal component analysis (PCA). Hypotheses were tested using OLS regression at a 5% level of significance.

DATA ANALYSES AND RESULTS

Table 3: Personal Profile of Participants

Demography	Freq.	Percent
Gender		
Female	184	50.41
Male	181	49.59
Age		
18 – 24 years	9	2.47
25 – 31 years	48	13.15
32 – 38 years	109	29.86
39 – 45 years	86	23.56
> 45years	113	30.96
Education level		
OND/Equivalence	95	26.03
HND/B.Sc	112	30.68
MBA/M.Sc	101	27.67
PhD	57	15.62

Work Experience		
< 5 year	12	3.29
6 – 11 years	158	43.29
12 – 17 years	123	33.70
> 17 years	72	19.73

Source: Field-survey (2025)

Table 3 shows that 50.41% of the participants were female, while 49.59% of the participants were male. The study achieved a nearly equal gender distribution. The largest percent (30.96%) of participants were above 45 years, followed closely by 29.86% participants between 32–38 years. 23.56% participants were between 39–45 years, while those between 25–31 years were 13.15%. 2.47% of the participants were the least represented age group between 18–24 years. Participants (30.68%) with HND/B.Sc. qualifications were the largest group. This was followed by 27.67% participants with MBA/M.Sc. degrees, while 26.03% participants held OND or equivalent qualifications. 15.62% of the participants held PhD. Majority of participants (43.29%) had between 6 and 11 years of work experience. 33.70% of the participants had 12–17 years of experience, while 19.73% participants had more than 17 years of work experience. Only 3.29% participants had less than five years of work experience.

Table 4: Regression Results For Hypothesis One

SEA	Column I	Column II	Column III	Column IV
Direct Effect (PFM)	0.152346*	0.164847*	0.354475*	0.341125*
Interaction (COMxPFM)	0.022460*	-	-	-
(PRRxPFM)	-	0.022340*	-	-
(NBBxPFM)	-	-	0.007545*	-
(BEAxPFM)	-	-	-	0.012072*
R ²	0.425900	0.366063	0.184469	0.245474
Adjusted R ²	0.422729	0.362560	0.179964	0.241306
S.E. of regression	4.466765	4.774436	5.194145	5.255858
Sum squared resid	7222.620	8251.878	9766.450	9999.905
Log likelihood	-1062.689	-1087.002	-1117.756	-1122.067
F-statistic	134.2763	104.5172	40.94141	58.88579
Mean dependent var	16.82466	17.58082	17.77534	17.50685
S.D. dependent var	5.878995	5.980018	5.735847	6.034068
Akaike info criterion	5.839391	5.972614	6.141126	6.164749
Schwarz criterion	5.871445	6.004668	6.173180	6.196803
Hannan-Quinn criter.	5.852130	5.985353	6.153865	6.177488
Durbin-Watson stat	1.809794	1.641773	1.759432	1.818083

Source: Field Survey (2025)

Note: * = P-value <0.05; column I (t = 2.601, p-value = 0.0097); column II (t = 2.649, p-value = 0.0084); column III (t = 5.073, p-value = 0.0000); column IV (t = 4.914, p-value = 0.0000)

Table 4 shows the regression results for hypotheses 1a to 1d. Column I shows the direct effect of PFM ($\beta = 0.152$, $t = 2.601$, $p\text{-value} = 0.05$). This means that 15.2% change in PFM will lead to proportional change in sustainability of the contributory pension scheme. The interaction term between PFM and compliance (COM*PFM) has a positive coefficient of 0.022460 and a p-value (<0.005). This indicates that compliance has a significant positive

mediating effect on the relationship between PFM and sustainability of the CPS. The model explains 42.59% ($R^2 = 0.4259$) of the variation in sustainability. This means that PFM accounts for 42.59% variation in sustainability of contributory pension of public institutions. The F-statistic (134.276) with p-value less than 0.001 indicates that the regression model provides a good fit to the data. The Durbin-Watson statistic (1.810) unveils that there is no serious problem of autocorrelation in the model.

The column II shows that the direct effect of PFM is also positive and significant ($\beta = 0.164847$, $t = 2.649$, $p\text{-value} < 0.05$). This implies that 16.5% mean improvement in PFM will result to proportional change in the sustainability of the CPS. The interaction term between prompt remittance and PFM (PRR*PFM) has also shown a positive coefficient ($\beta = 0.022340$; $p\text{-value} < 0.05$). This shows that prompt remittance also mediates significantly between PFM and the sustainability of the CPS. The model explains 36.61% ($R^2 = 0.3661$) of the variation in sustainability. That is, PFM accounts for 36.61% variation in the sustainability of the CPS even as PRR mediates. The F-statistic ($F = 104.517$; $p\text{-value} < 0.05$) indicates that the model provides a good fit. The Durbin-Watson statistic (1.642) shows that there is no problem of autocorrelation.

Column III presents the direct effect of PFM ($\beta = 0.354475$, $t = 5.073$, $p\text{-value} = 0.05$). This means that a 35.4% change in PFM will result to about a 35.4% change in the sustainability of the CPS. The interaction term between non-bureaucratic bottlenecks and PFM (NBB*PFM) has a positive coefficient (given that $\beta = 0.007545$ & $p\text{-value} < 0.05$). This implies that a non-bureaucratic bottleneck has a significant positive effect on the relationship between PFM and the sustainability of the CPS. The model explains 18.45% ($R^2 = 0.1845$) of the variation in sustainability. That is, when a non-bureaucratic bottleneck mediates, PFM accounts for 18.45% of the variation in sustainability of the CPS. The F-statistic ($F = 40.941$, $p\text{-value} < 0.05$) shows that the regression model provides a good fit to the data. In this column, the Durbin-Watson statistic (1.759) shows that there is no serious problem of autocorrelation.

The regression results (in column IV) show the direct effect of PFM to be positive and significant (given $\beta = 0.341125$, $t = 4.914$, $p\text{-value} = 0.0000$). That is, 34.1% effective change in PFM will enhance proportional change in sustainability of the CPS. The interaction term between benefit adequacy and PFM (BEA*PFM) signifies a positive coefficient ($\beta = 0.012072$, $p\text{-value} < 0.05$). This simply means that benefit adequacy has a significant positive effect on the relationship between PFM and sustainability of the CPS. The model explains 24.55% ($R^2 = 0.2455$) of the variation in sustainability. That also means when benefit adequacy mediates, PFM explains 24.55% variation in sustainability of the CPS. The F-statistic ($F = 58.886$, $p\text{-value} < 0.05$) confirms that the regression model shows a good fit to the data. The Durbin-Watson statistic (1.818) also shows issue of autocorrelation is absent in the model.

Table 5: Regression Results for Hypothesis Two

SEA	Column I	Column II	Column III
Direct Effect (PFM)	0.267359*	0.507620*	0.407648*
Interaction (COMxPFM)	0.017237*	-	-
(NBBxPFM)	-	0.003429	-
(ACGxPFM)	-	-	0.008113
R-squared	0.378080	0.234716	0.202115
Adjusted R-squared	0.374643	0.230488	5.372128
S.E. of regression	4.464014	4.951873	10447.23

Sum squared resid	7213.726	8876.619	-1130.053
Log likelihood	-1062.464	-1100.321	47.10292
F-statistic	110.0340	55.51341	0.202115
Mean dependent var	16.95068	16.95068	16.99452
S.D. dependent var	5.644971	5.644971	6.014175
Akaike info criterion	5.838159	6.045594	6.208510
Schwarz criterion	5.870213	6.077648	6.240564
Hannan-Quinn criter.	5.850898	6.058333	6.221249
Durbin-Watson stat	1.850445	1.989516	2.134101

Source; Field Survey (2025)

Note: * = P-value < 0.05; column I (t = 4.568, p-value = 0.0000); column II (t = 7.621, p-value = 0.0000); column II (t = 5.781, p = 0.0000).

Table 5 shows the regression results of hypotheses 2a to 2c. The first column the direct effect of PFM ($\beta = 0.267359$, $t = 4.568$, p-value < 0.05). This means that 26.7% mean change in effective PFM will lead to proportional change in organizational decision-making. The interaction term between compliance and PFM (COM*PFM) has a positive coefficient ($\beta = 0.017237$, p-value < 0.05). This implies that regulatory compliance has a significant positive effect on the relationship between PFM and organizational decision-making. The model explains 37.81% ($R^2 = 0.3781$) of the variation in decision-making. This signifies that when regulatory compliance mediates PFM accounts for 37.81% variation in decision making of public institutions. The F-statistic ($F = 110.034$, p-value < 0.05) confirms that the regression model provides a good fit. The Durbin-Watson statistic (1.850) shows that there is no issue of autocorrelation.

Ccolumn II shows the direct effect of PFM ($\beta = 0.507620$, $t = 7.621$, p-value < 0.05). It shows that 50.8% change in effective PFM will independently contributes to almost the same change in decision-making in public institutions. The result shows that interaction term between non-bureaucratic bottleneck and PFM (NBB*PFM) has no significant effect ($\beta = 0.003429$, p-value > 0.05). This means that reducing bureaucratic bottlenecks does not significantly strengthen the relationship between PFM and decision-making of public institutions.

The model explains 23.47% ($R^2 = 0.2347$) of the variation in decision-making. That is the mediation of non-bureaucratic bottleneck only exert 23.47% of the explanatory power of PFM in decision-making of public institutions. The F-statistic ($F = 55.513$, p-value < 0.05) shows the regression model. Also, the Durbin-Watson statistic (1.990) points to the absence of autocorrelation.

The regression results (in Column III) show the direct effect of PFM ($\beta = 0.407648$, $t = 5.781$, $p = 0.05$). That is, 40.8% mean change in effective PFM will lead to almost 40.8% change in decision-making in public institutions. The interaction term between accountable governance and PFM (ACG*PFM) shows a positive coefficient ($\beta = 0.008113$, p-value < 0.05). This means that accountable governance significantly and positively mediates the relationship between PFM and decision-making of public institutions. The model explains 20.65% ($R^2 = 0.2065$) of the variation in decision-making.

That is, effective PFM explains 20.65% variation in decision-making of public institutions. The F-statistic ($F = 47.103$, p-value < 0.05) confirms that the regression model has

a good fit. The Durbin-Watson statistic (2.134) proves that no issue of autocorrelation in the model.

Table 6: Regression Results for Hypothesis Three

Variable	Coefficient	Std. Error	t-Statistic	P-value
C	11.37607	0.843217	13.49127	0.0000
GSP	0.342197	0.047666	7.179115	0.0000
R-squared	0.124330	Mean dependent var		16.98904
Adjusted R-squared	0.121918	S.D. dependent var		6.438627
S.E. of regression	6.033384	Akaike info criterion		6.437957
Sum squared resid	13213.82	Schwarz criterion		6.459327
Log likelihood	-1172.927	Hannan-Quinn criter.		6.446450
F-statistic	51.53969	Durbin-Watson stat		2.133652
Prob(F-statistic)	0.000000			

Source; Field Survey (2025)

Table 6 shows that the coefficient for GSP ($\beta = 0.342197$, $t\text{-value} = 7.179$, $p\text{-value} < 0.05$). This means that 34.2% mean change in GSP will result to proportional change in decision-making in public institutions. The coefficient of determination explains 12.43% ($R^2 = 0.1243$) of the variability in decision making.

In other words, governance structure explains 12.43% of decision making. It is important to note that the value of F-statistic ($F = 51.540$, $p\text{-value} < 0.05$) proves the goodness of fit of the regression model. Additionally, the value of Durbin-Wat (2.134) proves that there is no serious problem of autocorrelation.

DISCUSSION

H1a: Compliance mediates between pension fund management and sustainability of contributory pension of public institutions.

Findings revealed that regulatory compliance positively and significantly mediates the relationship between PFM and the sustainability of the CPS in public institutions. This implies that effective PFM is more likely to produce a sustainable pension system when employers, pension fund administrators, and other stakeholders comply with the provisions of the CPS. This suggests that sound pension fund management alone is insufficient to guarantee sustainability unless it is supported by strict adherence to pension regulations, timely fulfilment of statutory obligations, and effective regulatory oversight. The finding supports the assumptions of the Deferred Wage Theory, which views pension benefits as deferred earnings that employees are entitled to receive after retirement. The finding also agrees with the study of Aliu et al. (2023), who found that transparency significantly improves the sustainability of the Nigerian CPS and reported a positive relationship between compliance and sustainability. Likewise, Badmus (2024) found that compliance improves risk management and accountability in the management of pensions, while the National Pension Commission (2020) asserts that compliance with statutory regulations is critical for the proper functioning of the CPS. The consistency of the finding is also supported by the work of Xu et al. (2020), who have shown that good governance practices enhance the performance of pension programs in the public sector due to increased accountability and oversight. The significance of the present study is associated with the fact that compliance can be seen not only as an obligatory measure, but also as a means of increasing the sustainability of pensions.

H1b: Prompt remittance mediates between pension fund management and sustainability of contributory pension of public institutions.

Finding showed that prompt remittance positively and significantly mediates the relationship between PFM and the sustainability of the CPS in public institutions. This implies that PFM contributes positively to the sustainability of the pension system when pension contributions are remitted promptly into RSA. Timely remittance ensures that pension contributions are available for investment without unnecessary delays. This finding supports the assumptions of the endogenous "AK" growth theory, which argues that sustained economic growth depends on the efficient mobilization of savings into productive investment. The finding is consistent with the position of the National Pension Commission (2020), which emphasizes that employers must remit pension contributions within the statutory period to ensure effective pension administration and continuous fund growth. It also agrees with Adeola (2013), who argued that regular and timely funding is essential for the effectiveness of the CPS. Similarly, Oigbochie and Chenge (2023) found that the new CPS has improved the prompt and regular payment of pension benefits in Nigeria because of improved remittance practices. While previous studies largely examined the direct effects of prompt remittance or pension administration on pension performance, this study provides empirical evidence that prompt remittance serves as a mediating mechanism linking pension fund management with pension sustainability in public institutions.

H1c: Non-bureaucratic bottlenecks mediates between pension fund management and sustainability of contributory pension of public institutions.

Findings revealed that non-bureaucratic bottlenecks positively and significantly mediate the relationship between PFM and the sustainability of the CPS in public institutions. This implies that the benefits of effective PFM are strengthened when pension administration is free from unnecessary delays, excessive procedures, and administrative inefficiencies. The finding agrees with the work of Odia and Okoye (2012), who explained that one of the major objectives of Nigeria's pension reforms was to eliminate the administrative inefficiencies and delays that characterized the former pension system and undermined its effectiveness. Pillah and Gwimi (2025) observed that addressing administrative weaknesses and improving operational efficiency are critical to strengthening pension administration in Nigeria, while Ortiz et al. (2018) argued that efficient administration and strong institutional arrangements are necessary for maintaining sustainable public pension systems. Abdurauf and Phua (2023) found that sound operational and financial management practices improve the performance of Pension Fund Administrators. The importance of the present finding lies in its demonstration that reducing bureaucratic bottlenecks is not merely an administrative improvement but an important mechanism through which PFM enhances the sustainability of the CPS.

H1d: Benefit adequacy mediate between pension fund management and sustainability of contributory pension of public institutions.

Finding showed that benefit adequacy positively and significantly mediates the relationship between PFM and the sustainability of the CPS in public institutions. This implies that effective PFM is more likely to produce a sustainable pension system when the retirement benefits provided are sufficient to meet the financial needs of retirees. The finding supports the assumptions of the Deferred Wage Theory, which assumes that employers and pension managers have a responsibility to preserve and manage these deferred earnings so that retirees receive benefits that are adequate to maintain their standard of living. The finding is consistent

with Ajala (2022), who found that contributory pension funds significantly improve workers' financial security by providing reliable retirement income. It also agrees with Hartley and Abels (2025), who argue that the long-term sustainability of pension systems depends largely on their ability to provide adequate retirement income that protects retirees from financial hardship. Similarly, Kidd and Tran (2018) maintain that adequate pension benefits are essential for ensuring social protection and strengthening confidence in public pension systems. The importance of the present finding is that it demonstrates that benefit adequacy is not merely an outcome of PFM but an important mechanism through which pension fund management promotes the sustainability of the CPS.

H2a: Compliance mediates between pension fund management and decision making of public institutions.

Finding showed that compliance positively and significantly mediates the relationship between PFM and decision-making in public institutions. This implies that effective PFM is more likely to improve organizational decision-making when public institutions comply with pension regulations and statutory requirements. The finding is consistent with the study of Xu et al. (2020) who found that sound governance and compliance practices improve the performance of public defined benefit pension systems by promoting effective oversight and better administrative decisions. Andonov et al. (2018) reported that stronger governance arrangements influence the quality of investment and management decisions in public pension funds. The importance of the present finding is that it demonstrates that compliance is not only essential for meeting regulatory obligations but also serves as a mechanism through which PFM enhances decision-making in public institutions.

H2b: Non-bureaucratic bottleneck mediates between pension fund management and decision making of public institutions.

Finding showed that non-bureaucratic bottleneck does not significantly mediate the relationship between PFM and decision-making in public institutions. This implies that although reducing administrative delays and simplifying pension procedures are desirable, these factors do not significantly strengthen the influence of PFM on decision-making in public institutions. The finding partly agrees with Odia and Okoye (2012), who observed that Nigeria's pension reforms reduced administrative inefficiencies and improved pension administration, but their study did not establish that these improvements directly affected decision-making. The finding differs from Pillah and Gwimi (2025), who argued that reducing administrative bottlenecks improves institutional efficiency and overall pension administration, and from Ortiz et al. (2018), who emphasized that efficient institutional arrangements strengthen the effectiveness and sustainability of public pension systems. The difference may be explained by the fact that these earlier studies focused primarily on pension administration and system performance rather than organizational decision-making as an outcome.

H2c: Accountable governance mediate between pension fund management and decision making of public institutions.

Finding revealed that accountable governance positively and significantly mediates the relationship between PFM and decision-making in public institutions. This implies that the effectiveness of PFM in improving decision-making depends largely on the presence of transparent, accountable, and responsible governance practices. This finding corroborates the

findings of Trönnberg and Hemlin (2022) that good governance, oversight, and robust decision-making processes lead to sound investment decision-making within pension funds. The research by Bregnard and Salva (2022) shows that good investment decisions are made by pension funds having strong governance systems due to the high level of financial expertise.

H3: Governance structure of pension fund management has effect on decision making of public institutions.

Finding revealed that the governance structure of PFM has a positive and significant effect on decision-making in public institutions. This means that a good governance structure will have the ability to make good decisions because it will promote efficient oversight, delegation of roles, transparency and accountability within the PFM. The finding is consistent with the findings by Stalebrink (2017), who discovered that governance structures are key in enhancing the oversight, accountability, and quality of investment decisions in public pension funds. It is also consistent with the findings by Trönnberg & Hemlin (2022) who noted that good governance structures help in rigorous assessment of the investment options and thereby improve the quality of decisions in pension funds, as well as Namagwa et al. (2025) who noted that governance of the board improves the efficiency of pension schemes. The significance of the current finding is its contribution in illustrating that governance structure is not just an administrative but a strategic issue that impacts decisions in public institutions.

CONCLUSION

The study concludes that PFM contributes significantly to the sustainability of the CPS and to decision-making in public institutions when it is supported by effective institutional and governance mechanisms. Specifically, regulatory compliance, prompt remittance, non-bureaucratic bottlenecks, and benefit adequacy can strengthen the relationship between PFM and the sustainability of the CPS. Compliance and accountable governance can strengthen the relationship between PFM and decision-making. The governance structure of PFM can enhance decision-making.

Contributions to Knowledge

The study advances knowledge by moving beyond the direct effects of PFM to establish the mediating roles of compliance, prompt remittance, non-bureaucratic bottlenecks, benefit adequacy, and accountable governance, as well as the direct effect of governance structure, thereby providing a more comprehensive explanation of how PFM improves both pension sustainability and decision-making in public institutions.

Theoretical and Practical Implication

The study has important theoretical implications for pension fund management and public sector governance. First, it extends the Deferred Wage Theory by demonstrating that the sustainability of the Contributory Pension Scheme and effective organizational decision-making depend not only on prudent management of pension funds but also on regulatory compliance, benefit adequacy, accountable governance, and sound governance structures. The findings show that these factors serve as important mechanisms through which pension fund management produces better organizational outcomes, thereby broadening the explanatory scope of the theory beyond its traditional focus on protecting employees' deferred earnings. The study also extends Pagano's (1993) endogenous "AK" growth theory by providing empirical evidence that the timely remittance and efficient mobilization of pension

contributions into productive investment enhance the long-term sustainability of the Contributory Pension Scheme. Furthermore, by establishing the mediating roles of compliance, prompt remittance, non-bureaucratic bottlenecks, benefit adequacy, and accountable governance, as well as the direct effect of governance structure on decision-making, the study moves beyond the direct relationships emphasized in earlier studies and provides a more comprehensive explanation of how pension fund management influences both pension sustainability and organizational decision-making in public institutions.

The study also has important practical implications for policymakers, regulators, pension fund administrators, and managers of public institutions. The study shows that better regulatory compliance, timely remittance of contributions, provision of sufficient pension benefits, good governance and proper governance systems are necessary for the development of the sustainability of the CPS as well as organization's decision making process. Moreover, the study shows that simply decreasing bureaucracy is not enough for making better management decisions without good governance, transparency and accountability. Thus, the National Pension Commission, public organizations and Pension Fund Administrators should pay more attention to better compliance, timely remittance of contributions, better governance practices, transparency, and better oversight of the boards. The implementation of these recommendations will not only help improve the sustainability of the CPS but will also allow public organizations to make better management decisions.

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