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MACROECONOMIC PRESSURES, HOUSING POLICY, AND RETIREMENT INCOME SECURITY: AN EMPIRICAL ASSESSMENT OF INFLATION AND THE 25%RESIDENTIAL MORTGAGE WITHDRAWAL POLICY ON RETIREMENT BENEFITS ADEQUACY UNDER NIGERIA'S CONTRIBUTORY PENSION SCHEME

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ABSTRACT

Retirement income adequacy under Nigeria's Contributory Pension Scheme (CPS) depends on the interaction between accumulated pension wealth, investment returns, inflation, longevity and policy decisions that affect access to Retirement Savings Account (RSA) assets. This study assesses, through an actuarial simulation, the implications of inflation and the 25% residential mortgage equity-contribution facility for retirement benefits adequacy. The original manuscript contained several numerical and conceptual inconsistencies, including the use of the historical inflation benchmark as Nigeria's October 2025 headline inflation rate, an inconsistent programmed-withdrawal calculation, and an interpretation that treated a deterministic simulation as if it were an econometric causal estimate. These issues are corrected in this version. The simulation uses an illustrative RSA balance of ₦20,076,923.08, a maximum mortgage-equity contribution of 25% (₦5,019,230.77), a residual retirement balance of ₦15,057,692.31, an illustrative nominal annual investment return of 19.07% nominal ROI, and an October 2025 inflation benchmark of 16.05%. The corrected real return is approximately 2.60%. Using an annuity-equivalent 30-year income conversion, the annual retirement payment is approximately ₦2.887 million after the mortgage contribution, compared with approximately ₦3.849 million without the withdrawal. The analysis demonstrates that mortgage access creates an intertemporal trade-off: it can support homeownership and reduce future housing insecurity, but it reduces financial pension wealth available for retirement. Inflation further reduces the purchasing power of a constant nominal pension. The paper recommends real-return monitoring, retirement-impact projections before mortgage access, periodic policy evaluation and stronger inflation-risk management. The findings are interpreted as scenario results rather than population-level causal estimates.

1.1 Background of the Study

Retirement income security is a central objective of pension policy because individuals must convert labour-market earnings and accumulated savings into consumption during old age. Barr and Diamond (2008) explain that pension systems perform consumption-smoothing, insurance and income-protection functions. In a defined-contribution system, however, the retirement outcome depends heavily on the accumulated account balance, contribution history, investment performance, retirement age, benefit-conversion method and the purchasing power of money.

Nigeria's CPS operates under the Pension Reform Act 2014 and is administered through individual RSAs. The National Pension Commission (PenCom) regulates the scheme and pension operators. The long-term nature of pension accumulation exposes contributors to investment, inflation, longevity, liquidity and policy risks. Consequently, retirement benefits adequacy should be assessed in both nominal and real terms.

Inflation is particularly important because it reduces the purchasing power of pension savings and benefits. Sani, Sani and Hassan (2022), using an ARDL framework for Nigeria, found that inflation had a material in the actuarial simulation negative relationship with pension contributions in both the short and long run. Afolabi and Erasmus (2023) also emphasize the importance of macroeconomic conditions in evaluating pension-fund-manager performance. Onafalujo (2019) discusses inflation risk as an important factor affecting contributory pension wealth and old-age vulnerability.

Housing constitutes another important dimension of retirement welfare. Ebekozien et al. (2022) found that low-income Nigerian pensioners face substantial barriers to housing finance, including insufficient income, mortgage-finance constraints and inadequate collateral. In response to housing-finance needs, PenCom issued the 2022 Guidelines on Accessing RSA Balance Towards Payment of Equity Contribution for Residential Mortgage by RSA Holders. The Guidelines provide for eligible RSA holders to access up to 25% of their RSA balance as equity contribution toward a residential mortgage, subject to stipulated conditions (National Pension Commission [PenCom], 2022).

The mortgage facility therefore creates a trade-off between present housing wealth and future financial pension wealth. From a life-cycle perspective, housing can provide consumption and wealth benefits, but using pension assets for housing reduces the amount remaining in the RSA to compound for retirement. Modigliani and Brumberg (1954) provide the theoretical foundation for viewing saving, housing and retirement consumption as intertemporal allocation decisions.

The original seminar paper sought to combine these issues but contained several weaknesses requiring correction. In particular, the original simulation treated the historical inflation benchmark as October 2025 inflation, calculated a negative real return of approximately 4.80%, and described the outcome as an empirical effect without a corresponding econometric dataset. The revised paper corrects these issues and explicitly treats the numerical analysis as an actuarial scenario simulation.

1.2 Statement of the Problem

Retirement benefits adequacy cannot be inferred solely from the nominal balance in an RSA. A contributor may have substantial nominal savings while experiencing declining real purchasing power because of inflation. Similarly, the residential mortgage equity-contribution facility may improve housing security before retirement but reduce the financial assets available to fund retirement income. The actuarial problem is therefore to quantify the opportunity cost of pension-asset access and determine how inflation changes the real value of the resulting retirement income.

Existing Nigerian research has examined inflation and pension contributions, pension-fund performance, retirement welfare and housing-finance constraints separately (Sani et al., 2022; Afolabi & Erasmus, 2023; Ebekozien et al., 2022; Abere et al., 2023). Less attention has been devoted to a transparent actuarial

simulation that combines the 25% mortgage-equity contribution with inflation and retirement-income conversion. This paper addresses that gap.

1.3 Aim of the Study

The aim of the study is to assess the implications of inflation and the 25% residential mortgage equity-contribution facility for retirement benefits adequacy under Nigeria's CPS using actuarial simulation.

1.4 Objectives of the Study

1. To examine the effect of inflation on the purchasing power of retirement income under the CPS.
2. To determine the reduction in retirement capital associated with a 25% residential mortgage equity contribution.
3. To estimate the annuity-equivalent retirement income with and without the mortgage contribution.
4. To assess the combined implications of mortgage access and inflation for retirement-income adequacy.

1.5 Research Questions

1. What is the effect of inflation on the real purchasing power of retirement income?
2. How does a 25% residential mortgage equity contribution affect retirement capital?
3. What is the difference between the annuity-equivalent retirement income with and without the mortgage contribution?
4. What are the combined implications of mortgage access and inflation for retirement-income security?

1.6 Research Hypotheses

Because the present analysis is a deterministic actuarial simulation rather than an inferential econometric study, these hypotheses are treated as analytical propositions. Formal statistical rejection or non-rejection requires an empirical dataset and an appropriate inferential model.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Contributory Pension Scheme and Retirement Benefits Adequacy

Retirement benefits adequacy refers to the extent to which retirement resources can support an acceptable standard of living throughout retirement. Barr and Diamond (2008) emphasize consumption smoothing and insurance as central pension objectives. In Nigeria, Abere, Banjo and Saka (2023) found that the sufficiency of retirement benefits is a significant concern among low-income federal retirees. The implication is that adequacy must be assessed against retirement expenditure, inflation and the duration of retirement rather than by nominal account balance alone.

2.1.2 Inflation and Pension Wealth

Inflation is a sustained increase in the general price level that reduces the purchasing power of money. For a constant nominal pension P, its real value at time t is $P/(1+\pi)^t$. This relationship demonstrates why long retirement periods can produce large purchasing-power losses even when the nominal pension is unchanged. Sani et al. (2022) provide Nigerian evidence that inflation negatively affects pension contributions, while Onafalujo (2019) emphasizes the relationship between inflation risk, contributory pension wealth and old-age vulnerability.

2.1.3 Residential Mortgage Equity Contribution from RSA

PenCom's 2022 Guidelines permit eligible RSA holders to access up to 25% of their RSA balance for equity contribution toward residential mortgage financing. The facility is subject to regulatory eligibility and lender requirements; it should therefore not be described as an unrestricted withdrawal. PenCom reports that the policy has been implemented through approved requests for RSA equity contributions (PenCom, 2022; PenCom, 2024).

2.1.4 Housing and Retirement Security

Ebekozien et al. (2022) show that housing-finance inaccessibility remains a serious problem among Nigerian pensioners. This supports the welfare rationale for pension-backed mortgage access, but it also highlights the need to evaluate the retirement consequences of using pension assets for housing. The appropriate policy assessment is therefore a joint housing-and-pension assessment rather than a single-criterion homeownership assessment.

2.2 Theoretical Review

2.2.1 Life-Cycle Hypothesis

Modigliani and Brumberg (1954) propose that individuals allocate consumption and saving across the life cycle. Pension accumulation represents deferred consumption, while retirement represents a period of planned dissaving. Mortgage access from an RSA changes the timing and form of wealth by transferring part of financial pension wealth into housing equity before retirement. The theory therefore provides a strong basis for examining the trade-off between housing acquisition and retirement income.

2.2.2 Inflation and Real Wealth

The real-wealth perspective distinguishes nominal investment growth from purchasing-power growth. The ex-ante real return is $r = (1+i)/(1+\pi)-1$. If inflation exceeds the nominal investment return, the real return is negative; if the nominal return exceeds inflation, the real return is positive. Nevertheless, a fixed nominal retirement payment can continue to lose purchasing power even when the underlying fund earns a positive real return.

2.2.3 Inflation as a Burden on Long-Term Savings

Feldstein (1980) discusses the welfare implications of inflation for capital income and long-term saving. McKinnon (1973) and Shaw (1973) similarly emphasize the distortions that inflation can create in financial intermediation and saving. These perspectives are relevant to pension systems because pension assets are accumulated over long horizons and benefits are consumed over similarly long periods.

Sani et al. (2022) examined Nigerian pension contributions using annual data from 2004–2020 and found that inflation had a negative and material in the actuarial simulation relationship with pension contributions in both the short and long run. Afolabi and Erasmus (2023) examined financial performance adequacy among Nigerian pension-fund managers and highlight the importance of macroeconomic and institutional conditions. Ebekozien et al. (2022) investigated housing-finance inaccessibility among Nigerian pensioners and identified income, collateral and mortgage-finance constraints. Abere et al. (2023) examined retirement-benefit sufficiency among low-income federal retirees and highlighted continuing adequacy concerns.

These studies support the importance of inflation, housing and pension adequacy as connected policy issues. However, they do not provide the exact actuarial scenario tested in this paper: a 25% RSA equity contribution followed by a defined retirement-income conversion and an explicit inflation adjustment. The research gap is therefore a modelling and policy-evaluation gap.

3.0 METHODOLOGY

3.1 Research Design

The study uses an actuarial simulation design based on a representative-case scenario. The simulation is deterministic and is intended to demonstrate the mechanics of retirement-wealth depletion and inflation adjustment. It does not estimate a causal treatment effect for all Nigerian CPS participants.

The original manuscript's Section 3.1 was deficient because it named PenCom, NBS, CBN and PFAs as sources without presenting the underlying observations. This revision corrects that problem by presenting actual published observations in Tables 3.1–3.4 below and by explicitly identifying which values are observed and which are modelling assumptions. In particular, 19.07% nominal ROI is no longer described as an observed industry-wide ROI; it is retained only as an illustrative scenario. Likewise, the historical inflation benchmark is not used as the October 2025 observed inflation rate.

The study relies on secondary data from official Nigerian institutional sources, but the revised methodology now distinguishes observed data from actuarial assumptions. PenCom publications provide pension-fund rates of return, pension-industry net asset values and asset-allocation information. NBS Consumer Price Index (CPI) publications provide headline inflation observations. CBN Monetary Policy Committee (MPC) communiqués and economic reports corroborate inflation observations and provide monetary-policy and macroeconomic context. Published PFA/RSA-fund performance information is used where it corresponds with PenCom's reported fund-level returns.

Five-Year Secondary Data Window (2021–2025)

The revised methodology uses a five-year observation window covering 2021–2025. Actual historical observations are presented separately from actuarial assumptions. Inflation is measured using year-end headline inflation. ROI evidence uses RSA Fund II as the principal active-fund benchmark where comparable PenCom annualized Q4 observations are available; 2024 and 2025 published PFA annual returns are included as supplementary fund-specific observations and are not represented as national industry averages.

Year	ROI (%)	Source / classification
2021	10.05	PenCom RSA Fund II, Q4 annualized
2022	11.98	PenCom RSA Fund II, Q4 annualized
2023	17.75	PenCom RSA Fund II, Q4 annualized
2024	16.93	FCMB Pensions RSA Fund II published annual return
2025	24.13	Stanbic IBTC Pensions RSA Fund II published annual return

Source: PenCom Q4 2021–Q4 2023 reports; FCMB Pensions published 2024 RSA Fund II return; Stanbic IBTC Pensions published 2025 RSA Fund II return. The 2024–2025 observations are explicitly PFA-specific.

Year	Year-end headline inflation (%)	Source
2021	15.63	CBN/NBS, December headline inflation
2022	21.34	CBN/NBS, December headline inflation
2023	28.92	CBN/NBS, December headline inflation
2024	34.80	CBN/NBS, December headline inflation
2025	15.15	CBN/NBS, December headline inflation

Source: CBN/NBS. CBN reports December headline inflation of 15.63% (2021), 21.34% (2022), 28.92% (2023), 34.80% (2024), and 15.15% (2025).

3.2 Data Sources

RSA Fund	Q4 2023 (%)	Q1 2024 (%)	Change (pp)
RSA Fund I	18.15	36.66	+18.51
RSA Fund II	17.75	23.39	+5.64
RSA Fund III	15.10	20.94	+5.84
RSA Fund V	13.75	12.69	−1.06
RSA Fund VI Active	12.00	15.47	+3.47

Actual Secondary Data Extracted from Official Sources

To directly address the reviewer's major methodology comment, the following tables present actual observations from PenCom and official NBS/CBN publications. These observations establish the empirical environment used to construct the actuarial scenarios.

Methodological alignment: the study is a secondary-data-supported actuarial simulation, not a regression estimated from five annual observations. The five-year ROI and inflation series establish the observed economic environment; the actuarial model then evaluates retirement-wealth and retirement-income consequences under stated scenarios. This avoids presenting assumed point values as observed secondary data.

3.3 Correction of the Original Data Assumptions

A major correction is required concerning inflation. The original manuscript used the historical inflation benchmark as the October 2025 headline inflation rate. Following the CPI rebasing, the October 2025 headline inflation benchmark used in this revised analysis is 16.05%. Therefore, the original −4.80% real-return conclusion is not retained. The 19.07% nominal ROI investment return is retained only as an illustrative modelling assumption; it should not be described as the official industry-wide pension-fund return for October 2025.

The original manuscript also contained an internal inconsistency between the stated RSA balance, mortgage withdrawal, residual capital and annual pension. These quantities have been recalculated so that each stage of the actuarial model reconciles arithmetically.

3.4 Model Specification

The conceptual relationship is:

RBA = f(INF, RMW, ROI, RSA)

where RBA = retirement benefits adequacy; INF = inflation rate; RMW = residential mortgage equity contribution; ROI = investment return; and RSA = Retirement Savings Account balance. Because the paper does not contain an econometric dataset from which β coefficients can be estimated, the equation is treated as a conceptual functional relationship rather than a regression model.

3.5 Actuarial Simulation Equations

Phase I — Mortgage contribution:

$W = 0.25 \times RSA_o$

Phase II — Residual retirement capital:

$K_o = RSA_o - W - LS$

With no separate lump-sum deduction specified in the base case, LS = 0.

Phase III — Annuity-equivalent annual retirement income:

$P = K_o i / [1 - (1+i)^{-n}]$

Phase IV — Real value of the nominal pension:

$P(real,t) = P / (1+\pi)^t$

Phase V — Ex-ante real investment return:

$r(real) = [(1+i)/(1+\pi)] - 1$

3.6 Principal Simulation Assumptions

Parameter	Base-Case Value	Status / Explanation
RSA balance before mortgage contribution	₦20,076,923.08	Illustrative model input from original paper
Mortgage equity contribution	25% = ₦5,019,230.77	Maximum policy limit, subject to eligibility
Residual retirement capital	₦15,057,692.31	RSA balance less mortgage contribution
Nominal investment return	19.07%	Illustrative assumption retained from original paper
Inflation benchmark	16.05%	October 2025 headline inflation benchmark used in revised analysis
Retirement horizon	30 years	Simulation assumption
Separate lump sum	₦0	Not specified in original base case

4.1 Five-Year Historical Analysis of ROI and Inflation

The five-year evidence demonstrates a marked deterioration in Nigeria's inflation environment between 2021 and 2024. Year-end headline inflation rose from 15.63% in 2021 to 21.34% in 2022, 28.92% in 2023 and 34.80% in 2024, before declining to 15.15% in December 2025. CBN attributes the 2025 disinflation to sustained monetary tightening, exchange-rate stability, improved food supply and stronger fiscal-monetary coordination.

The ROI evidence is also time-varying. PenCom's RSA Fund II annualized Q4 return increased from 10.05% in 2021 to 11.98% in 2022 and 17.75% in 2023. Published PFA data provide supplementary observations of 16.93% for Fund II at FCMB Pensions in 2024 and 24.13% at Stanbic IBTC Pensions in 2025. These PFA observations are not treated as national industry averages.

Using the Fisher relationship $r = [(1+i)/(1+\pi)] - 1$, the selected ROI and year-end inflation observations indicate that nominal pension returns lagged the general price level during 2021–2024 under the benchmark series. This supports the central actuarial argument that retirement-benefit adequacy should be evaluated in real terms.

Because NBS rebased the CPI in December 2024, CBN cautions that direct mechanical comparisons between pre-rebase and post-rebase inflation figures are inappropriate. The five-year series is therefore used descriptively, while the actuarial sensitivity analysis uses explicitly stated period-specific inflation assumptions.

4.0 RESULTS AND DISCUSSION

4.1 Actuarial Results

The 25% mortgage-equity contribution equals ₦5,019,230.77. The residual retirement capital is therefore ₦15,057,692.31. Applying the 19.07% nominal ROI nominal return and 30-year annuity-equivalent conversion gives an annual payment of approximately ₦2,886,860.65. Without the mortgage contribution, the equivalent annual payment is approximately ₦3,849,147.53. The difference is approximately ₦962,286.88 per year, representing a 25% reduction under the linear annuity-equivalent framework.

Measure	Without Mortgage	With 25% Mortgage	Difference
RSA capital	₦20,076,923.08	₦15,057,692.31	−₦5,019,230.77
Annual annuity-equivalent pension	₦3,849,147.53	₦2,886,860.65	−₦962,286.88
Percentage reduction	—	—	25.00%

4.2 ROI Table

Table 4.1 presents a sensitivity analysis of nominal investment return using the residual retirement capital after the 25% mortgage contribution. It separates nominal ROI from real ROI and demonstrates how inflation determines whether investment growth represents a gain or loss in purchasing-power terms.

Nominal ROI	Inflation	Real ROI	Annual Annuity-Equivalent Pension	Interpretation
10.00%	16.05%	-5.21%	₦1,597,308.68	Negative real return
12.50%	16.05%	-3.06%	₦1,938,830.81	Negative real return

Nominal ROI	Inflation	Real ROI	Annual Annuity-Equivalent Pension	Interpretation
15.00%	16.05%	-0.90%	₦2,293,289.52	Negative real return
16.05%	16.05%	0.00%	₦2,444,872.27	Negative real return
19.07%	16.05%	2.60%	₦2,886,860.65	Positive real return
20.00%	16.05%	3.40%	₦3,024,278.90	Positive real return
25.00%	16.05%	7.71%	₦3,769,088.98	Positive real return

Source: Author's actuarial sensitivity analysis; mortgage contribution = 25% of illustrative RSA; n = 30 years.

4.3 Inflation Table

Table 4.2 shows the sensitivity of the real value of the post-mortgage annual pension to alternative inflation assumptions. This table is important because the original manuscript's central conclusion was driven by the the historical inflation benchmark inflation assumption. The revised analysis shows that the real-income outcome changes materially when the inflation benchmark is corrected or stress-tested.

Inflation	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30
10.00%	₦2,624,419	₦1,792,513	₦1,113,010	₦691,091	₦429,113	₦266,446	₦165,442
12.50%	₦2,566,098	₦1,602,003	₦888,998	₦493,331	₦273,763	₦151,919	₦84,304
16.05%	₦2,487,601	₦1,371,514	₦651,590	₦309,563	₦147,070	₦69,871	₦33,195
20.00%	₦2,405,717	₦1,160,165	₦466,244	₦187,373	₦75,301	₦30,262	₦12,162
25.07%	₦2,308,196	₦943,322	₦308,244	₦100,723	₦32,913	₦10,755	₦3,514

Source: Author's actuarial simulation. Base nominal annual pension = ₦2,886,860.65.

4.4 Simulation of Retirement Wealth Depletion

Year	Opening RSA (₦)	Interest @19.07% (₦)	Pension Payout (₦)	Closing RSA (₦)	Real Pension Value (₦)
1	15,057,692.31	2,871,501.92	2,886,860.65	15,042,333.58	2,487,600.73
2	15,042,333.58	2,868,573.01	2,886,860.65	15,024,045.95	2,143,559.44
3	15,024,045.95	2,865,085.56	2,886,860.65	15,002,270.86	1,847,099.91
4	15,002,270.86	2,860,933.05	2,886,860.65	14,976,343.26	1,591,641.45
5	14,976,343.26	2,855,988.66	2,886,860.65	14,945,471.27	1,371,513.53
6	14,945,471.27	2,850,101.37	2,886,860.65	14,908,711.99	1,181,829.84
7	14,908,711.99	2,843,091.38	2,886,860.65	14,864,942.72	1,018,379.87
8	14,864,942.72	2,834,744.58	2,886,860.65	14,812,826.65	877,535.44

Year	Opening RSA (₦)	Interest @19.07% (₦)	Pension Payout (₦)	Closing RSA (₦)	Real Pension Value (₦)
1	15,057,692.31	2,871,501.92	2,886,860.65	15,042,333.58	2,487,600.73
2	15,042,333.58	2,868,573.01	2,886,860.65	15,024,045.95	2,143,559.44
9	14,812,826.65	2,824,806.04	2,886,860.65	14,750,772.04	756,170.13
10	14,750,772.04	2,812,972.23	2,886,860.65	14,676,883.62	651,589.94
11	14,676,883.62	2,798,881.71	2,886,860.65	14,588,904.67	561,473.45
12	14,588,904.67	2,782,104.12	2,886,860.65	14,484,148.14	483,820.30
13	14,484,148.14	2,762,127.05	2,886,860.65	14,359,414.54	416,906.76
14	14,359,414.54	2,738,340.35	2,886,860.65	14,210,894.24	359,247.53
15	14,210,894.24	2,710,017.53	2,886,860.65	14,034,051.13	309,562.72
16	14,034,051.13	2,676,293.55	2,886,860.65	13,823,484.03	266,749.43
17	13,823,484.03	2,636,138.40	2,886,860.65	13,572,761.78	229,857.33
18	13,572,761.78	2,588,325.67	2,886,860.65	13,274,226.80	198,067.50
19	13,274,226.80	2,531,395.05	2,886,860.65	12,918,761.20	170,674.28
20	12,918,761.20	2,463,607.76	2,886,860.65	12,495,508.31	147,069.60
21	12,495,508.31	2,382,893.44	2,886,860.65	11,991,541.10	126,729.52
22	11,991,541.10	2,286,786.89	2,886,860.65	11,391,467.34	109,202.51
23	11,391,467.34	2,172,352.82	2,886,860.65	10,676,959.51	94,099.54
24	10,676,959.51	2,036,096.18	2,886,860.65	9,826,195.04	81,085.34
25	9,826,195.04	1,873,855.39	2,886,860.65	8,813,189.78	69,871.04
26	8,813,189.78	1,680,675.29	2,886,860.65	7,607,004.42	60,207.70
27	7,607,004.42	1,450,655.74	2,886,860.65	6,170,799.51	51,880.83
28	6,170,799.51	1,176,771.47	2,886,860.65	4,460,710.33	44,705.58
29	4,460,710.33	850,657.46	2,886,860.65	2,424,507.14	38,522.69
30	2,424,507.14	462,353.51	2,886,860.65	0.00	33,194.91

Asset Class	Amount (₦ billion)	Weight (%)
Domestic Ordinary Shares	2,241.92	9.96
Foreign Ordinary Shares	267.99	1.19
FGN Securities	14,114.34	62.70
Corporate Debt Securities	2,246.51	9.98
Local Money Market Securities	2,087.13	9.27
Foreign Money Market Securities	128.39	0.57
Mutual Funds	281.64	1.25
Real Estate Properties	147.86	0.66
Private Equity Fund	214.32	0.95
Infrastructure Fund	23.42	0.10
Cash & Other Assets	427.84	1.90
Total Pension Fund NAV	22,512.35	100.00

Period	Headline Inflation (%)	Source
January 2025	24.48	CBN/NBS
March 2025	24.23	CBN/NBS
April 2025	23.71	CBN/NBS
May 2025	22.97	CBN/NBS
June 2025	22.22	CBN/NBS
September 2025	20.52	CBN/NBS
October 2025	16.05	CBN/NBS

MPC Period	Inflation (%)	MPR (%)	Decision
February 2025	24.48	27.50	MPR retained
May 2025	23.71	27.50	MPR retained
July 2025	22.22	27.50	MPR retained
September 2025	20.52	27.00	MPR reduced by 50 bp
November 2025	16.05	27.00	MPR retained

Sources: National Pension Commission (PenCom), First Quarter Report 2024 and Fourth Quarter Report 2024; National Bureau of Statistics (NBS), Consumer Price Index publications; Central Bank of Nigeria (CBN), 2025 MPC communiqués and economic reports.

Interpretation: The observed PenCom returns vary materially across RSA fund categories, so 19.07% nominal ROI is treated only as a scenario assumption. Official inflation observations also show substantial disinflation during 2025, with October 2025 headline inflation at 16.05%; therefore the original the historical inflation benchmark October 2025 assumption is removed from the base case.

4.5 Effect of the 25% Mortgage Policy

The mortgage-equity facility has a dual welfare effect. It can facilitate homeownership and reduce exposure to rental costs, but it also reduces financial pension wealth. Ebekozien et al. (2022) demonstrate that housing-finance constraints remain significant for Nigerian pensioners, which supports the policy rationale for improving housing access. However, the actuarial simulation shows that a 25% reduction in RSA capital translates into a 25% reduction in the annuity-equivalent annual payment when other assumptions are held constant.

The result should not be interpreted as evidence that every contributor who uses the facility will experience exactly a 25% lower retirement income. Actual outcomes depend on the timing of the withdrawal, subsequent contributions, investment performance, salary growth, retirement age, benefit structure and housing expenditure saved by homeownership.

4.6 Effect of Inflation on Retirement Benefits Adequacy

Using the corrected 16.05% inflation benchmark, the ex-ante real return on the assumed 19.07% nominal ROI is approximately 2.60%. This corrects the original manuscript's negative −4.80% real-return claim. Nevertheless, a constant nominal pension of ₦2.887 million loses purchasing power over time. At 16.05% inflation, the payment has a real value of approximately ₦2.488 million after one year, ₦651,590 after ten years, ₦147,070 after twenty years and ₦33,195 after thirty years.

The implication is that a positive fund-level real return does not automatically guarantee adequate retirement income. Adequacy depends on whether the benefit payment itself is adjusted as prices rise. The result supports the broader literature on inflation and pension welfare in Nigeria (Onafalujo, 2019; Sani et al., 2022).

4.7 Longevity Risk

The 30-year horizon is a modelling assumption, not a guaranteed lifetime. A retiree surviving beyond the assumed horizon may face additional longevity risk if the retirement-income mechanism does not provide life-contingent protection. Therefore, the simulation should not be interpreted as proof that a retiree's account will necessarily last exactly 30 years.

4.8 Combined Effect

The combined effect is best understood as an intertemporal trade-off rather than a statistically estimated interaction effect. Mortgage access reduces the initial financial asset base, while inflation reduces the purchasing power of the resulting pension. The two mechanisms can jointly weaken retirement-income security even when the retiree owns a home. The appropriate measure of welfare is therefore the combined value of housing wealth and inflation-adjusted retirement income.

5.0 POLICY IMPLICATIONS

i. Retirement adequacy should be assessed in real terms as well as nominal terms.
ii. Mortgage applicants should receive standardized actuarial projections showing the expected impact of RSA access on retirement income under alternative investment and inflation scenarios.
iii. PFAs should monitor real investment performance rather than relying exclusively on nominal returns.
iv. PenCom should periodically evaluate the long-term retirement-income consequences of the mortgage-equity policy alongside its housing-access benefits.
v. Policy analysis should distinguish between a deterministic actuarial illustration and an econometric estimate of causal population effects.
vi. Inflation-risk management should form part of long-term pension investment and retirement-income design.

6.0 CONCLUSION

This revised seminar paper assessed inflation and the 25% residential mortgage equity-contribution policy under Nigeria's CPS using actuarial simulation. The analysis confirms that mortgage access reduces the financial pension asset base, while inflation can substantially erode the purchasing power of a constant nominal retirement payment.

The principal numerical correction is that the original use of the historical inflation benchmark as the October 2025 inflation benchmark and the resulting −4.80% real-return conclusion should not be retained. Under the revised 16.05% benchmark and the illustrative 19.07% nominal ROI nominal return, the real return is approximately +2.60%. The central policy concern therefore shifts from an asserted negative fund-level real return to the broader issue of whether retirement benefits are sufficiently indexed or otherwise structured to preserve purchasing power.

The paper also corrects the internal arithmetic of the original simulation. A 25% contribution from an RSA of ₦20,076,923.08 equals ₦5,019,230.77 and leaves ₦15,057,692.31. Using the stated 19.07% nominal ROI and a 30-year annuity-equivalent conversion gives an annual payment of approximately ₦2,886,860.65. The result is a scenario estimate and should not be interpreted as the statutory PenCom programmed-withdrawal formula.

7.0 RECOMMENDATIONS

i. Introduce mandatory retirement-impact illustrations for mortgage-equity applications, showing projected retirement income before and after the proposed RSA access.
ii. Adopt real-income reporting in pension adequacy assessments, including inflation-adjusted pension values and real-return measures.
iii. Strengthen inflation-sensitive investment and liability-management strategies within applicable investment regulations.
iv. Periodically review the residential mortgage equity-contribution policy using both housing-welfare and retirement-adequacy indicators.
v. Improve contributors' financial literacy on compound investment returns, inflation, opportunity cost and the long-term consequences of RSA access.
vi. Strengthen longevity-risk analysis by incorporating alternative survival horizons rather than relying on a single 30-year retirement assumption.
vii. Use scenario and stress testing in retirement projections, including low-return/high-inflation and high-return/low-inflation scenarios.

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