EFFECTS OF CONTRIBUTORY PENSION ON GROSS DOMESTIC PRODUCT OF NIGERIA: A TIME SERIES ANALYSIS

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Abstract: *This study evaluated contributory pension on gross domestic product of Nigeria-a time series analysis. The study tried to find out how contributory pension enhance gross domestic product. The major problem was the dearth of investment outlets for pension assets, taking into consideration the enormous savings from pension contributions since the inception of the contributory scheme. It also seems that there is inappropriate combination of investments that could increase economic growth with regard to gross domestic product. Methodically, data were collected from quarterly reports of National Pension Commission and Central Bank of Nigeria Statistical Bulletin covering a period of 24 quarters from 2011 to 2016. The population of this study was 50 firms which consisted of 24 Pension Fund Administrators (PFAs), 7 Closed Pension Fund Administrators (CPFAs) and 19 Approved Existing Scheme (AESs). The entire population was used. The research design was Ex-post facto research design. Ordinary Least Square was used in analyzing the data collected and findings revealed that there is a significant relationship between contributory pension and gross domestic product. The study recommended that the Federal Government should try to increase the coverage of the Pension Scheme to further increase contributory Pension since it contributes to gross domestic product.*

Keywords: *Contributory Pension, Gross Domestic Product, Pension Acts, Pension Reforms*

1. INTRODUCTION:

In some climes the government takes it as its responsibility to provide for citizens at their old age in the form of payment of pensions also known as defined benefit scheme. In recent times this onerous responsibility has placed a huge burden on various governments Nigeria inclusive. Quah (2002) asserts that the increasing ageing population worldwide alongside the attendant explosion of public pension liabilities necessitated according to him rethinking of the public-private funding mix. In Nigeria alone, the pension liabilities grew as high as 2 trillion Naira making its continuous funding obviously impossible. It became eminent that the pension scheme was inevitably unrealistic which gave rise to the Pension Reforms in 2004 in which the defined benefit scheme metamorphosed to a defined contributory scheme where both employer and employee are required by law to make contributions towards an employees retirement (Ahmad, 2005). PenCom (2010) annual reports indicate that these contributions have grown from about N15.60billion in 2004 to about N168.29billion in 2007 from public sector alone, whereas the private sector had contributed about N91.34 billion as at 2007. The total contributions from both the public and private sectors as at 2015 amounted to N3.29trillion (See PenCom Report, 2015). These contributions are then invested in restricted securities which give rise to Pension Assets. In the Nigeria context what constitutes Pension Assets include investments of Pension contributions by Closed Pension Fund Administrators (CPFA), Already Existing Schemes (AES) and Retirement Saving Accounts (RSA). These pension assets are local ordinary shares, Federal Government of Nigeria securities, State Government Securities, Corporate Bonds, Financial Institution Deposits, Open and Closed-End Funds, Foreign Money Market Securities, Real Estate Properties, Unquoted Securities and Cash /Other Assets (Barrow 2008). The value of the total Pension assets as at 2015 stood at N5.3trillion. It is pertinent to note that the bulk of the pension fund contributions were invested in Federal Government of Nigeria Securities, quoted stocks and domestic money market instruments and real estate properties (Pencom Report, 2015).

Since the advent of the pension reforms, Pension fund assets have grown to almost unbelievable heights which are a huge relieve from what it used to be, owing to the fact that the pension liabilities where about 2 trillion naira prior to the establishment of the reforms, Orifowomo (2016).

Considering in mind that these pension savings are long term in nature, it becomes a useful macro-economic tool for national development by enabling money to be in circulation for long term investments, which in turn promotes economic expansion Adetola (2006). In like manner, Nwanne (2015) purported that the contributory pension scheme is expected to mobilize savings for financial market development and economic growth. Pension funds are one of the most important players in the financial markets of Organization for Economic Co-operation and Development

OECD countries, managing more than $15 trillion of assets in 2003, which represents over 80 percent of the OECD's area Gross Domestic Product (GDP) (OECD, 2009). According to Hu (2012), the savings from pension reforms in no small measure aids financial development, which may also stimulate growth.

Pension fund assets have increased markedly across the world (OECD, 2009), thereby contributing intensively to economic growth in such countries like the United Kingdom (UK) pension assets were equivalent to US$115.6 billion in 1980, accounting for 21.5% of Gross Domestic Product (GDP) but rose to US$ 1.6trillion (or 73% of GDP) in 2011.The same trend applies in many other OECD countries (OECD 2011). In the Asia-Pacific region, pension assets have also contributed to economic growth significantly. A study of 10 selected Asia-Pacific Countries conducted by Hu (2012) indicates that pension assets increased from US$ 369 billion in 2001 to US$1.7 trillion in 2010, signifying a four-fold increase over ten years. This put the average annual growth rate of the region over the period at 19.1%. In an assessment of the contribution of pension assets to the GDP in these countries, Australia came first with 2010 pension assets accounting for 105% of GDP, followed by that of Malaysia and Singapore. Average pension assets to GDP ratio growth in the 10-country region over the 10-year period was 19.9% in 2001 and 29.9% in 2010 (Balogun, 2006).

Gross domestic product is standardized as an economic indicator by United Nations System of National Accounts, measuring the total output of goods and services of a state during a certain period of time.

Gross Domestic Product (GDP), represents the total market value of all final goods and services produced within a given time period by factors of production located within a country. GDP does not include intermediate goods, but only "new" products and services; this is to avoid double counting (Hu, 2006a).

This study intends to evaluate whether contributory Pension in Nigeria have actually impacted on gross domestic product (GDP).

1.2   STATEMENT OF THE PROBLEM

The problem facing the administration of pension fund assets in Nigeria is the dearth of investment outlets as the investments of Pension fund administrators seem suboptimal (Nwanne, 2015). There seem not to be a selection of the right type of investment outlet that increases economic growth in terms of GDP. For instance, there are only 11 classes of investment available for investment of pension assets (See S.86 (a-i) of the Pension Reform Act 2014). .The fear is that the limited investment outlets may not be enough to assimilate the accumulated pool of pension fund assets, indicating that the huge pension funds may be chasing relatively few quality investments to realize increase in economic growth in terms of GDP (Hu, 2006b).

Globally Pension fund assets are acclaimed to be essential towards economic growth especially in developed countries, could this however be said of developing countries like Nigeria as well. This study consequently investigates if the Pension contribution have had any significant impact on GDP.

1.3   OBJECTIVE OF THE STUDY

The specific objective of this study is to;
   a.   examine the causal relationship between contributory pension and gross domestic product in Nigeria;

1.4   RESEARCH QUESTION

The following are the research question which is formulated in line with the objective of the study:
a.   Is there an underlying causal relationship between contributory pension and gross domestic product of Nigeria?

2. REVIEW OF RELATED LITERATURE:

This study reviewed the related literature in the area of the study purview. Nwanne (2015) examined the impact of contributory pension scheme on economic growth in Nigeria for the period 2004-2012. The objectives of the study were to determine the impact of pension funds on economic growth and as well as to ascertain the impact of pension savings mobilized on economic growth. The study used Ex-post-facto research design. Ordinary Least Square Regression method was used in data analysis. The study finds that pension funds (PFA) have negative and significant impact on economic growth while pension savings (PFS) had positive and significant impact on economic growth. The implication of the finding is that the contributory pension scheme has achieved the objective of using pension funds to provide long term capital that will promote economic growth. It also implies that pension savings contribution is low an indication of low coverage of the scheme.

Michiel, Casper and Ferry (2014) studied economic growth and funded pension systems. The study used data from 69 industrial sectors in 34 OECD countries for the period 2001-2010 using cross industry, cross-country difference-in-difference regression. Their findings reveal a significant impact of higher level of pension savings on economic growth. Their findings further reveal that increasing pension savings is in particular beneficial for firms heavily relying on external finance which suggests that an increased amount of assets held by pension funds and other institutional investors is associated with more efficient financial markets and therefore higher economic growth.

Edogbanya (2013) assessed the impact of contributory pension scheme to Nigerian economic development. The study used survey design, with a sampling size of 100 respondents comprising of 30 staff of a pension fund Administrator and 70 customers. Correlation analysis and analysis of variance (ANOVA) were used to analyze the data collected. The study revealed that contributory pension scheme has significant impact on the gross domestic product on one hand and the risk prevalent has positive effect on pension fund management on the other hand.

OECD (2010) studied the relationship between funding pensions and economic growth using a sample size of 58 countries which constitutes both OECD and non-OECD countries over an 8 year period (2001-2008). The study concluded that funding of pensions do not lead to higher economic growth rate.

This study hinged on the Endogenous "AK" Growth Theory which states that an economy's long-run growth rate depends on its saving rate and that financial intermediation could affect economic growth through three channels namely: changing productivity of capital, savings funneled to investment and savings rate. Hence the pension contributions (savings) funneled to investments would increase capital productivity and GDP.

3. RESEARCH METHODOLOGY:

The population of this study consists of all the pension fund administrators (PFAs) which are 24; closed pension fund administrators (CPFAs) which are 7; and Approved existing Schemes (AES) which are 19 making a total of 50 firms (See Annual Report of PenCom 2016). The entire population was considered hence there was no sampling technique.

Secondary sources of data were utilized while data was sourced from the annual reports of Pension Commission (PenCom) and Central Bank of Nigeria (CBN) Statistical bulletin and the National Bureau of Statistics (NBS). Data were analyzed using multiple regression models.

In order to have a more robust result, quarterly reports of PenCom were used from 2011 to 2016 as well as quarterly Real GDP from the CBN Statistical Bulletin, which resulted to 24 quarters to enable the researcher have a more robust regression result.

4. DATA PRESENTATION AND ANALYSIS:

The table below shows the total pension assets and its' various classes for the various quarters from 2011 to 2016, as well as the real gross domestic Product for the respective quarters.

Table 4.1: Quarterly data for Pension Asset classes and Gross Domestic Product

YEAR	QTR	LNLOS (N'bn)	LNFGNS (N'bn)	LNLMMS (N'bn)	LNREP (N'bn)	LNOTH (N'bn)	LNTPA (N'bn)	LNGDP (N'b)
2011	1	397.23	918.05	401.59	171.42	196.59	2084.88	14501.45
	2	421.22	1060.01	390.75	178.07	201.07	2251.12	15054.96
	3	344.69	1124.68	398.52	178.08	197.91	2243.88	16450.36
	4	319.82	1362.93	312.35	186.05	269.23	2450.38	17260.35
2012	1	319.24	1527.16	287.8	171.385	248.965	2554.55	16450.36
	2	310.06	1727.82	279.85	189.678	231.272	2738.68	17743.63
	3	360.14	1729.03	418.33	206.743	233.327	2947.57	18521.6
	4	364.06	1771.62	487.27	189	341.16	3153.11	18998.34
2013	1	455.24	1851.81	521.71	188.93	364.73	3382.42	18295.63
	2	480.26	2066.71	408.58	193.19	373.17	3521.91	19931.02
	3	501.14	2224.72	416.73	195.63	390.21	3728.43	20464.4
	4	591.54	2384.28	475.39	193.43	414.23	4058.87	21401.52
2014	1	548.75	2667.2	355.25	228.46	407.97	4207.63	20169.78
	2	637.85	2554.77	527.43	228.72	470.35	4419.12	21734.83
	3	656.4	2763.98	562.96	204.68	403.91	4591.93	22933.14
	4	543.54	2894.33	541.39	213.25	418.78	4611.29	24205.86
2015	1	512.74	3142.9	436.27	210.14	443.95	4746	21041.7
	2	560.88	3160.62	571.27	213.08	454.25	4960.1	22859.15
	3	540.92	3439.37	475.11	209.55	448.03	5112.98	24313.64
	4	517.76	3515.18	561.07	230.34	478.53	5302.88	25930.47
2016	1	469.96	3684.45	574.35	212.26	519.78	5460.8	21951.32
	2	561.45	3866.3	494.51	212.84	594.21	5729.31	24041.64
	3	524.7	4183.9	413.18	214.86	624.91	5961.55	25777.23
	4	500.7	4451.42	395.19	234.35	577.27	6158.93	27777.95

Source: CBN Statistical Bulletin and Quarterly reports of Pension Commission

Table. 4.2 Total Pension Assets as a Percentage of Gross Domestic Product

Year	Total Pension Assets (Nbn)	Gross Domestic Product (Nbn)	TPA/GDP Ratio
2011	9,030.26	63,267.12	14%
2012	11,393.91	71,713.93	16%
2013	14,691.63	80,092.57	18%
2014	17,829.97	89,043.61	20%
2015	20,121.86	94,144.96	21%
2016	23,310.65	99,548.14	23%

Source: Researchers' Computation 2018..

DATA ANALYSIS
The Causal Relationship between Variables
The result of the estimated causal relationship between total pension assets and gross domestic product; various classes of pension assets and gross domestic product are presented in table 4.3 below.

Table 4.3 Pairwise Granger Causality tests Result

Direction of Causality (Null Hypotheses):	No. of Lag	F-Statistic	Probability	Decision
LNTPA does not Granger Cause LNGDP	2	15.0394	0.00017	Reject
LNGDP does not Granger Cause LNTPA	2	0.25089	0.78094	Accept
LNREP does not Granger Cause LNGDP	2	0.85521	0.44270	Accept
LNGDP does not Granger Cause LNREP	2	4.86912	0.02129	Reject
LNLMMS does not Granger Cause LNGDP	2	0.14386	0.86705	Accept
LNGDP does not Granger Cause LNLMMS	2	1.99283	0.16691	Accept
LNFGNS does not Granger Cause LNGDP	2	10.2613	0.00119	Reject
LNGDP does not Granger Cause LNFGNS	2	0.86800	0.43759	Accept
LNLOS does not Granger Cause LNGDP	2	1.32792	0.29116	Accept
LNGDP does not Granger Cause LNLOS	2	3.37161	0.05844	Accept
LNOTH does not Granger Cause LNGDP	2	9.01375	0.00214	Reject
LNGDP does not Granger Cause LNOTH	2	2.45017	0.11614	Accept

Source: extracted from e-view output in appendix II

The result from table 4.3 indicates that there is a unidirectional causal relationship that runs from total pension assets (LNTPA) to gross domestic product (LNGDP).

Relationship between Total Pension Assets and Gross Domestic Product

$LNGDP = \alpha + \beta LNTPA + \mu$

$LNGDP = 5.81 + 0.50 LNTPA$

SE=   0.27   0.03

t =   (21.32)   (15.07)

p =   0.000   0.000

R^2 = 0.92; F-stat = 227.03; DW = 2.21; RATS= **-**5.187715.

The coefficient of determination (r^2) is 0.92. This indicates that about 92 percent variation in Gross Domestic Product (LNGDP) was explained by Total Pension Assets (LNTPA). The remaining 8 percent was explained by other uncontrollable factors captured by the error term. The F-statistic value of 227.03 is significant at p-value of 0.00. This implies that there is an evidence of existence of linear relationship between Total Pension Assets (LNTPA) and Gross domestic Product (LNGDP). The RATS of -5.187715 indicates that the regression model is sustainable.

From the regression result, total pension asset (LNTPA) is positive and significant in achieving Gross domestic product. The coefficient of total pension assets is 0.50. This indicates that Gross Domestic Product will increase by 0.50 percent for every one percent increase in total pension assets (LNTPA). The critical values of t under two-tailed tests at α = 0.05 and 0.01 are 2.069 and 2.807 respectively. Since the calculated t (15.07) is greater than the critical table value at both levels of significance, the null hypothesis (H_0) is rejected and therefore the alternative hypothesis is accepted, which states that there is a significant relationship between Total Pension assets (LNTPA) and Gross Domestic Product (LNGDP).

5. DISCUSSION OF FINDINGS:

The main objective of the study was to determine the relationship that exists between contributory pension and gross domestic product in Nigeria. The results of the analysis indicated that total pension assets significantly and positively improved gross domestic product in Nigeria. This implied that total pension assets significantly contributed to Gross domestic product in Nigeria. This finding agrees with the views of Nwanne (2015), Edogbanya (2013), Michiel et al. (2014) which revealed that pension savings (PFS) had a positive and significant impact on gross domestic product.

The finding of this study also aligned with the endogenous "AK" economic growth theory which states that an economy's long term growth rate depends on its savings rate and that financial intermediation could affect economic growth through three channels namely: changing productivity of capital, savings funneled to investment and savings rate (Pagano, 1993). In other words, financial development reduces the loss of resources needed to allocate resources, encourage greater savings ratio, and increase capital productivity. The results indicated that the contributory pension scheme had given rise to huge pension savings funneled to investments which significantly contribute to gross domestic product.

6. CONCLUSION AND RECOMMENDATION:

The study evaluated the effects of pension assets and gross domestic product in Nigeria- a time series analysis (2011-2016). The results showed that:

- There is a unidirectional causal relationship that runs from contributory pension to gross domestic product.
- Based on the major findings of the study, the following recommendation are suggested:
- Government should ensure that pension scheme coverage is increased and more employees outside the public sector are enrolled and most states should be encouraged to embrace the scheme.

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