FISCAL SPACE AND GOVERNMENT PENSION BENEFITS SPENDING

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ABSTRACT. The objective is to test whether the concept of fiscal space plays a role in explaining government expenditure on pension Principal component analysis technique was used to reduce four proxies of fiscal space variables to two principal components. Several tests were conducted on the time series data collected between 1990 and 2018. The findings show that fiscal space has a significantly positive relationship with Government spending on pensions. Based on the findings, the study recommends the strengthening of tax revenue collection, reprioritization of government expense and attracting cheaper sources of external finance such as official development assistance into the country.

Keywords: Government pension; fiscal space; government spending; elderly; tax revenue.

INTRODUCTION

The National Pension Act, 2008 (Act 766) was supposed to repeal several legislations that permitted some public servants to draw pension benefits directly from government burse within four years of its implementation. However, in the course of the implementation, new legislations such as the Audit Service Regulations, 2011(C. I 70); Police Service Regulations, 2012 (C.I 76); Bureau of National Investigation Regulations, 2015 (L.I 2227); and Prisons Service Regulations 2016 (C.I 92) and others re-emerged within the 4 years' deadline. All these legislations came against the provision to repeal CAP30 with enhanced and generous pension packages compared to what was to be repealed (i.e. old CAP30). For example, in the 'old CAP30', the benefit computations were based on basic salaries but in the 'enhanced CAP30', the benefits are on the consolidated salaries (i.e. includes allowances) and some even retire on a 100% of their final salaries. The concern is whether these emerging new schemes help to extend coverage (Romp & Beetsma, 2020) to the vast majority of persons in the country or simply paying pensions to well-paid public officials (IMF, 2011; Ahmed, 2003).Another concern for any Government is whether or not there is the needed fiscal space to finance non-contributory pensions and its possible debts burden that may arise (Jafaru, 2019). The Government's ability to finance the increasing spending without disturbing its debt sustainability reflects the fiscal space it possesses (Gaspar, Obstfeld, & Sahay, 2016; Barta, 2015). The Government of Ghana directly pays a pension to only a selected category of public sector workers. The vast majority of Government workers and non-Government workers draw their pension benefits under a contributory system manage by a parastatal entity called Social Security and National Insurance Trust (SSNIT). The Government makes contributions on behalf of its staffs to the SSNIT scheme but does not directly pay pension under SSNIT. The Government of Ghana has in recent occasions been struggling to keep up with the regular monthly contributions, as it delays and accumulates large arrears of social security contributions. The implications of such Government actions to the scheme members is the loss of interest income. This occurs as long as the Government keeps holding unto the cash especially, with the private defined

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contribution schemes. The concern is if the Government faces such financial difficulties in making regular contributions, what about its financial ability to pay additional increase in government pension. The government pension or CAP30 continues to pose a financial risk to the Government fiscal system. There has been numerous failed attempts to stop new joiners into the CAP30 pension. The CAP30 cannot be extinguished as long as benefits continue to be generous for the non-contributory system. For instance, in 1971/72 when SSNIT offices were built, an attempt was made to stop workers from joining it and were encouraged to join the SSNIT scheme. But that was not possible a few years afterwards. The section of public sectors workers, especially the Security Services left the SSNIT scheme to re-joined CAP30 in the 1980s (Agblobi, 2011; Government of Ghana, 2006).

Another landmark attempt was made in 2008 with the passage of the National Pension Act 766 to unified all parallel public pension schemes under one Basic National Social Security scheme. Additionally, an attempt was made by the Government towards the 2019 May Day celebration as a Pension Day in Ghana. At this time, an attempt was made by the Government to stop newly recruited police officers from joining the scheme starting from 2021. However, the Government made a U-turn following opposition from Minority Members of Parliament and some staff of Ghana Police Service. The attraction of the public sector workers onto such a scheme is the non-contributory nature of the scheme and its generous benefits. As long as it is perceived as a Government-sponsored arbitrageur opportunity, it will be very difficult to stop new joiners into the scheme. The public expenditure in developing countries is constrained by previous debts and debt services burden (Ahmed, 2003). The cause of such fiscal deteriorations come from both the expenditure and revenue side. Whereas sudden upward revision of public workers' pays and pensions, increase in interest payments on public debts and untargeted proliferation of subsidies and transfers expenditure overruns, reduction in taxes and shortfalls in donor supports also reduces revenue (Rao, 2009). Ghana went through a three-year credit facility programme with the IMF to boost confidence in its fiscal management between 2015 - 2018. However, one year after the completion of the programme, the country was reclassified as High-Risk Debt Distress country by the International Monetary Fund (MF) and World Bank (2019).

Fiscal space is the gap between government expenditure and government revenue generation to finance its programmes within a particular period. By this definition, a widening gap between government expenditure against government revenue implies difficulty that suggests deficit financing system. A sustain government deficit financing increases public debt stocks that eventually impacts government debt servicing. Fiscal space is the ability of the central government to service its debt as they fall due (Kose, Kurlat, Ohnsorge, & Sugawara, 2017). Heller (2005, p.5) defines fiscal space as "the capacity of Government to provide an additional resource for the desired purpose without jeopardising its long-term financial position and economic stability." Asher and Bali (2017) studied 'creating fiscal space for pension expenditure in Asian' and proposed the promotion of economic growth, improvement in revenue and expenditure management as three broad strategies in a framework to generate fiscal space. Mencinger (2008) researched on 'do pensioners endangers fiscal stability in European Union (EU) countries'. The author stated that the root problem was Government expenditures for pension from the active population. For instance, the study stated that there were differences in the share of pension to gross domestic product (GDP) across the 27 EU countries. The question of concern is whether the Government have the needed fiscal space to cater for increasing expenditures on pension in Ghana?

This paper focuses on the share of national GDP that the government use to pay pension benefits (i.e. gratuity and old age pension) for only those public servants who are not part of the SSNIT scheme but draw their pension directly from the public burse. That is the Audit Service Staffs, a section of the Judicial Staffs and the Security Services such as the Police, Immigration and National Security etc. The

payment of pension benefits under a non-contributory system to a section of public servants who could have at least contributed some portion of their salary towards the running of the scheme, especially, during the period of COVID-19 while the nation is classified as a High-Risk Debt Distress country, should be worth investigating. Any lack of fiscal space to support Government pension payment may put the economy into serious jeopardy (Barta, 2015; Matsaganis, 2011). This may worsen the country's budget deficit situation and rump up the debt stock to unsustainable levels. It may also mean the postponement of vital infrastructural needs and the sacrifices of essential services to keep up with the payment of pension benefits. It is, necessary to investigate the effects of fiscal space on Government pensions in Ghana.

Following the aftermaths of the 2007-2008 global financial crisis, Greece economy was cash-strapped and had to embark on fiscal austerity path. Greece had to seek debt relief from the IMF and its European counterpart to get its economy back on track. The international investors lost confidence in Greece sovereign bonds with large pension indebtedness. Greece had to reduce its pension benefit, increase the retirement age and increase the number of years to qualify for pension (Orenstein, 2011).

The finding of this study should assist policymakers to resolve the challenge of increasing government expenditures and potential high fiscal cost in paying pension benefits to a section of public servants. Again, the study empirically contributes to establishing the relationship between fiscal space and Government pension in the context of a developing country. The concern of fiscal space is a major issue for developing countries compared to the advance economies. This is because governments in developing countries have limited funding sources and at the same time have high expenditure outlay that is competing for the poor infrastructural development, unemployment and expose to the severe impact of economic shocks. The fiscal policy authorities are constrained with the lack of fiscal space that leaves little room for policy manoeuvring (Gaspar et al., 2016).

The rest of the study is structured such that Section 2 presents the method and materials, Section 3 discusses the results and Section 4 concludes the study with policy implications.

METHOD AND MATERIALS

Type and source of data: The data was a time-series data consisted of Government expense (% of GDP), net lending/ net borrowing (% of GDP), official development of assistance (% of GNI) and tax revenue (as % of GDP). Other data collected were real GDP growth rates and Consumer Price Index Inflation rates. Specifically, the data on Government expense (% of GDP), Net lending/net borrowing (% of GDP), Net ODA/GNI, Tax revenue (% of GDP), GDP growth rate and inflation rate were extracted from the World Bank's World Development Indicators database. The data on pension was obtained from various year's Budget Statements (using actual instead of budgeted) of the Ministry of Finance and the Controller and Accountant General's Department. The secondary data was used because the data already exists with the institutions from which they were sought for and besides it was less expensive to obtain compared to the primary data. The period of the investigation was between 1990 and 2018. This has been largely due to data availability.

Method of Analysis: The paper employed principal component analysis to transform four proxy variables for fiscal space. The fiscal space could not be defined with a single variable. For example, Kose, Kurlat, Ohnsorge, and Sugawara (2017) identified 28 indicators for fiscal space. Therefore, to defined fiscal space, four similar indexes used by (Fattah 2017; Aguzzoni, 2011) were used to study the Ghanaian fiscal space and pension. Instead of including variables just because they were fiscal variables, Aizenman, Hutchison, and Jinjarak (2013) used only those variables that would be good predictors of the outcome. One major tool that helped to resolve such as issue was the principal component analysis (PCA). The components for the fiscal space were written in a functional form as an expense, lend, ODA, and tax in equation (1) as follows:

$$Fiscal = \alpha_1 Expense + \alpha_2 Lend + \alpha_3 ODA + \alpha_4 Tax$$

(1)

where α_1, α_2, α_3 and α_4 are the correlation coefficient. The principal component analysis was employed to maintain the key variables and discarded the less important once. This was essential to minimised information loss even if fewer primary variables were used for the analyses. It also lessens the rate of errors that could come from the computations of many variables. The analysis eliminated all the number of eigenvalues that were less than one.

Empirical model specification: The effect of fiscal space on Government pension was specified with a pension as a share of GDP similar to Mercinger (2008). The share of Government pension spending in GDP of a country depends on its fiscal space, level of economic development and inflation rate. Therefore, the empirical model was specified in equation (2) as follows:

$$P_{G_t} = b_0 + b_1 FS_t + b_2 GG_t + b_3 Infl_t + u_t$$

(2)

where P_G was Government pension spending as a share of GDP, FS denotes the fiscal space computed using the principal component analysis; GG represents a real GDP growth rate that represents the level of the country's economic development and Inf denotes CPI inflation rate. The b_0 is the intercept while b_1, b_2, b_3 represents the coefficients that were to be estimated and u is the error term. The a priori expectation of the relationship between the fiscal space and pension is positive. With that understanding, policymakers need to ensure availability of fiscal space before increasing Government pension payment.

1. **Dependent variable**

The paper used Government spending on pensions as a percentage of GDP as the dependent variable. The Government spending on pension was summation of old-age pension and gratuity paid for each year (i.e. 1990-2018) under the CAP30 pension. The main reason accounting for the use of pension as percentage of GDP, was GDP as a measure of output reflects the country's productivity and its ability to have the needed fiscal space. Therefore, pension as a percentage of GDP represents pension per GDP which reflects the share of pension in GDP (Whitehouse, D'Addio, Chomik, & Reilly, 2009; Mencinger, 2008). Thus, it indicates the percentage of GDP that would be needed to pay Government pension benefits.

2. **Independent variables**

The independent variable for the regression analysis of the effect of fiscal space on Government pension stated in equation (2) was fiscal space, with real GDP growth and CPI Inflation rate as the control variables. The fiscal space was considered as a composite index of varieties of fiscal proxies as Government expense, Net lending over net borrowing, Official development assistance and Tax revenue (Aizenman et al., 2013; Aguzzoni, 2011).

Method of estimation: The method used for the estimation was the ordinary least square (OLS). This was a useful estimator as long as the assumption of the linear regression are satisfied. The OLS was used because the model was linear with a dependent variable that has continuous time series data. The OLS assumptions were tested. The tests include unit root test for stationarity, Bresch-Pagan test for heteroskedasticity, the Shapiro-Wilk W test for normality of the error term, and Variance inflation test for multicollinearity of the independent variables.

RESULTS AND DISCUSSIONS

Descriptive Statistics: The data on Net Lending/Net Borrowing as a percentage of GDP fluctuates between negative -1.3% and negative -10.5% over 1990 -2018 (See part A of Figure 1). The official development assistance also fluctuates between 2.1% to 16.3% within the period of the study. However, the figure has been on a downward trend for some years now (See part C of Figure 1). 16.3% was in 2004 while 2.1 per cent was in 2017. In fact, from 2010 through to 2018, the figure has

been between 5 and 2 per cent of GDP. Three reasons account for this trend are, first the expansion of GDP through the rebasing to become a Middle-income country in 2010. Second, the country has become an oil-exporting nation, and third, the Government agenda of 'Ghana beyond aid' places more emphases on domestic revenue mobilisation as well as raising of funds through the international capital market. The tax revenue was expected to be expanding as the oil export inflows come in and GDP keeps expanding. However, the Tax data as a percentage to GDP fluctuates as low as 10.9% in 2014 and as high as 21.95% in 2004 (See part D of Figure 1). In 2014, the country had a prolonged period of electrical power outages that affected businesses and productions. On a whole, the tax as a percentage of GDP has been on average about 14% for the period of study. The tax revenue mobilization has not been encouraging over recent years. As a Lower Middle-income country, tax revenue should constitute a sizable proportion of the entire revenue envelope. The real GDP growth rate of the country has been fluctuating between 2.2% (in 2015) and 14% (in 2011)   throughout 1990 and 2018. The country has had a sustained real GDP growth rate on average of about 5% for some time (See part H of Figure 1). The consumer price index annual inflation rate was very high in the 1990s. For instance, between 1990 and 2000, an average inflation rate of 27.3% was recorded. However, between the period between 2001 and 2010, the average inflation rate was approximately 16.8%. Again, from 2011 to 2018, the average inflation has been 12.4% and shows a remarkable sign of reduction (See part G of Figure 1). The lowest inflation rate was 7.1% in 2012 and the highest was 59% in 1995. The pension as a percentage of gross domestic product has had a continuous increase even after the recent pension reforms to stop new joiners into the CAP30 pension (See part F of Figure 1). The Government expenses had consistently been in double digits and had its highest rate of 30.5% (in 2015) (See part B of Figure 1). The lowest Government expenditure on the gross domestic product was 15.6% in 2006.

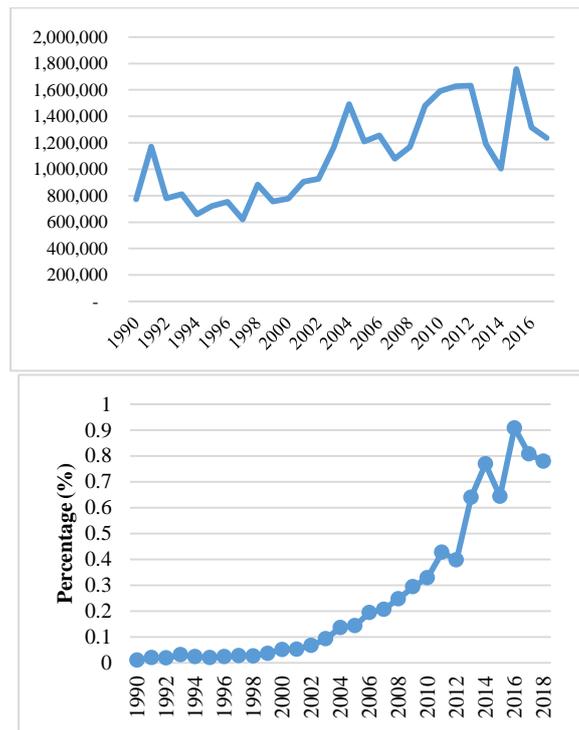A: Net Lending/Net Borrowing (% of GDP)   B: Government Expense (% of GDP)
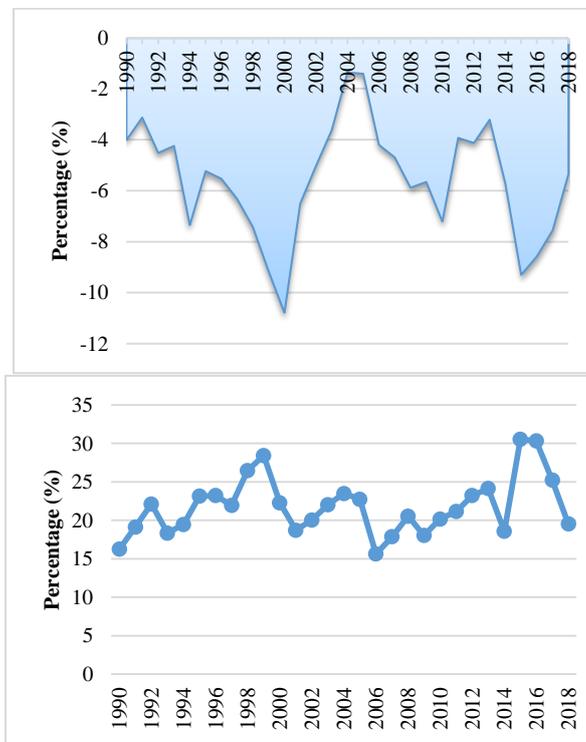
C: Net ODA received (% of GNI)   D: Tax revenue (% of GDP)
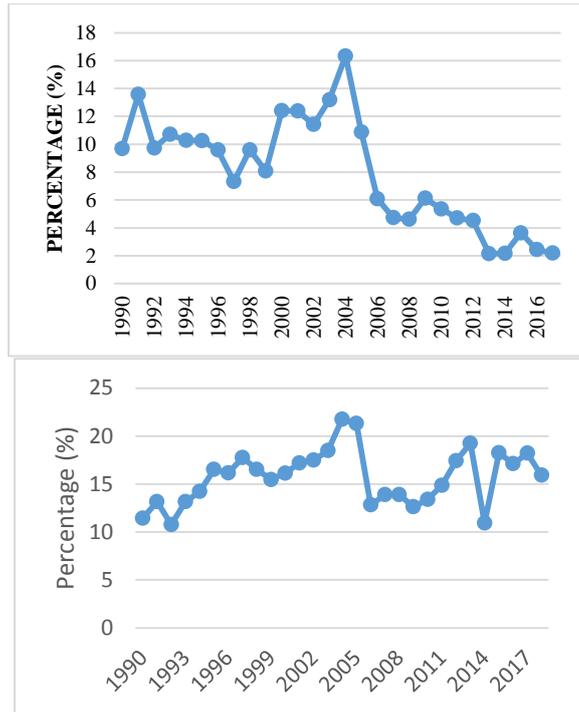
 E: Net ODA and official aid received (2015)   F: Government Pension (% of
GDP)

 G: Inflation, Consumer prices (annual %)   H: GDP growth (annual %)
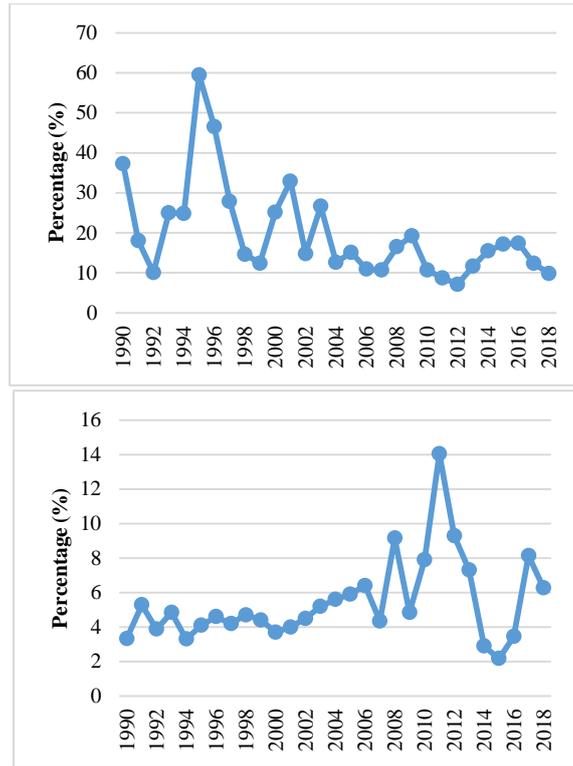
FIGURE 1 Descriptive statistics of variables

3Results of principal components analysis: Table 1 indicates eigenvalue, the percentage of variance explained by the principal components and the cumulative percentage of the variance. It shows that two of the principal components have over 76% of the information that is contained in the primary variables. Therefore, adopting the eigenvalue criterion, the third was less than 0.75. By this selection criteria, only the first two principal components in Table 1 could be chosen. These first two principal components have eigenvalue greater than one at 1.36 and 1.68 respectively.

TABLE 1 Percentage of variance explained by succession principal components

Component	Eigenvalue	% of variance	Cumulative %
Comp1	1.6826	42.06	42.06
Comp2	1.3624	34.06	76.12
Comp3	0.7295	18.24	94.36
Comp4	0.2255	5.64	100

Source: Author's estimate.

This implies that only the first two principal components were used in the final analysis of the fiscal space. Table 2 indicates the details of the first two principal components that were used for the analyses.

TABLE 2 First two principal components

Variable	Comp 1	Comp 2	Unexplained
Expense	0.7185	0.1399	0.1048
Lend	-0.4835	0.4698	0.306
ODA	-0.2574	0.5848	0.4227
Tax	0.4287	0.6464	0.1216

Source: Author's estimate.

$$C1 = 0.7185 \text{ expense} - 0.4835\text{lend} - 0.2574ODA + 0.4287\text{tax} \qquad (3)$$
$$C2 = 0.1399\text{expense} + 0.4698\text{lend} + 0.5848ODA + 0.6464\text{tax} \qquad (4)$$

The first two principal components are summed up to have fiscal space represented by its proxies as follows:

Fiscal space = 0.8584expense – 0.0137lend + 0.3274ODA +1.0751tax   (5)

The finding in equation (5), shows that reprioritize Government expenditure (expense), official development assistance(ODA) and tax revenue(tax) have a positive impact on the fiscal space with deficit financing as net lending over net borrowing (lend) having a negative impact.

Correlation coefficient: The findings in Table 3 showed a significant relationship between pension and the predictor values. From Table 3, a correlation coefficient of 0.447 for fiscal space shows that there was a positive linear relationship between pension and fiscal space, which means that government expenditure on pension increases with a corresponding increase in fiscal space. The correlation coefficient of 0.225 for GDP growth indicates a positive linear relationship between GDP growth and pension. This means that GDP growth increases with a corresponding increase in government expenditure on pension. The correlation coefficient for inflation rate was -0.4291 indicating a negative relationship between inflation and government expenditure on pension, that means that inflation increases with a corresponding decrease in the value of government expenditure on pension.

TABLE 3 Correlation coefficient

Variable	Pension	Fiscal	GDP	Inflation
Pension	1			
Fiscal	0.447	1		
GDP	0.225	-0.0744	1	
Inflation	-0.4291	-0.0963	-0.4061	1

Source: Author's estimate.

Results of unit root test: Table 4 indicates the t-statistics, 5% critical value, 10% critical value and the p-values for the unit root test. At a significance level of 5% and 10%, the Augmented Dickey Fuller (ADF) test results show that the test statistics of Fiscal space, GDP and inflation are negatives and the are larger than the critical values in Table 4. Therefore, we reject the null hypothesis of unit root at a series of the variables (in level) and indicate that there is no unit root and the variables are stationary. The government expenditure on pension variable was stationary at the first difference.

TABLE 4 Results of unit root test

Variable	T-statistics	5% Critical value	10% Critical value	P-value
Fiscal	-2.965	-2.992	-2.626	0.0383
GDP	-3.177	-2.992	-2.626	0.0213
Inflation	-3.018	-2.992	-2.626	0.0333
Pensions	-7.359	-2.992	-2.626	0.0000

Source: Derived by the author.

Results of variance inflation test

Table 5 presents the results of variance inflation factor test. The results show that there was no multicollinearity among the associated independent variables in the model used for the study. The overall low variance inflation factor of 1.15 confirms that the model was well specified and does not have an issue of multicollinearity.

TABLE 5 Variance Inflation Test for Multicollinearity Results

Variable	VIF	1/VIF
Inflation	1.22	0.818973
GDP	1.22	0.822058
fiscal	1.03	0.975298
Mean VIF	**1.15**	

Source: Author's estimate.

Results of heteroskedasticity and normality test

Another test that was carried out was heteroskedasticity and normality test as illustrated in table 6. Table 6 shows that there was no heteroskedasticity. The results

of the test for normality of the error term using the Shapiro-Wilk W test also shows that the variables are normally distributed (see Figure 2).

TABLE 6 Results of heteroscedasticity Test and Normality of the Residual

Diagnosis test	t-statistic	p-value
Breusch-Pagan	2.81	0.0935
Shapiro-Wilk W test	0.723	0.2350

Source: Author's estimates.

The result of the Shapiro-Wilk W test shows that the prediction intervals are valid with a p-value of 0.2350. This was greater than 0.05 and shows that the data was normally distributed. With the residuals been normally distributed, the model was useful in making predictions. This means that the data collection follows a simple random sampling technique which indicates that the data were representatives and gave fair chance for each observation.
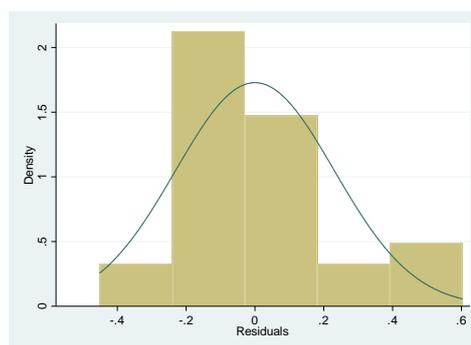

FIGURE 2 Result of Normality Test of Residual

Source: Author's estimate.

Results of the regression estimates of fiscal space on Government pensions

All the tests that were done on the model indicate that there was no heteroscedasticity, multicollinearity and the variables were stationary. Table 7 shows the effect of fiscal space on Government pension between 1990 and 2018. The results show that for every one per cent increase in fiscal space, there is a corresponding increase of 9.4% of government expenditure on pension as a share of GDP, all other things being equal. This means that as the gap between government expenditure and revenue widens, government expenditure on pension as a share of GDP becomes larger and widen the gap of government spending compared to its revenue that have serious fiscal imbalances as the deficit situation increases and debt stocks accumulate.

TABLE 7 Results of regression estimates of fiscal space on pensions

Pension	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Fiscal space	0.0942	0.0360	2.6100	0.0150	0.0200	0.1684
Rea GDP growth	0.0140	0.0208	0.6700	0.5080	-0.0289	0.0568
Inflation	-0.0082	0.0043	-1.9300	0.0650	-0.0170	0.0006
Constant	0.3417	0.1726	1.9800	0.0590	-0.0139	0.6972
R-square	0.3617					
Adjusted R-square	0.2851					
F-statistic	4.2900					
Prob.(F-statistic)	0.0096					

Source: Author's estimates.

The results also indicate that a 1% increase in the inflation rate, would lead to 0.0082 fall in the value of government expenditure on pension benefits. The result is significant at 5% level. Now, considering the fiscal space results in equation (5), tax mobilization was the most important proxy variable impacting fiscal space. It has the highest positive impact on fiscal space. Therefore, increasing tax revenue mobilisation would improve upon the fiscal situation as well as reduce the gap between expenditure and revenue. However, over the years Governments have had

to deal with tax revenue shortfalls. The second important variable for the fiscal space was Government expenditure as shown in equation (5). If the Government expense is managed such that they are targeted to prioritize and productive programmes, the fiscal space would be influence positively. The official development assistance constitutes the third important proxies. The net official development assistance (ODA) has been grants in the form of budgetary support or capital grants tied to a specific project. Foreign assistance has been an important source of revenue for the Government over the decades. The net lending over net borrowing was the proxy with a negative impact on fiscal space. Overall, the country's borrowing or debts levels have been going up. As the country increase its borrowing, especially external debts, the fiscal space would be affected as the debts must be repaid.

CONCLUSION

The objective of the study was to investigate the effect of fiscal space on Government's spending on pension in Ghana. The procedure of investigation followed a sequence of processes such as principal component analysis, series of tests and estimation of the regression equation to address the objective.

The principal component analysis investigation was based on four proxies for fiscal space. As the entire variables could not be captured into the model, the study used principal component analysis to reduce the variables to two retaining approximately 76% of the total variance in the data. The diagnostic tests that were conducted show that the data was stationary, and there was no multicollineality, no heteroscedasticity, and error term was normally distributed. The results show that fiscal space has a significantly positive impact on government's expenditure on pension benefit. Additionally, the result also indicates that the high inflation rate reduces the value of government expenditure on pension. The principal component analysis results indicate that fiscal space was sensitive to the choice of proxy that was used. For example, using tax revenue to GDP ratio was positive and was statistically significant for fiscal space. However, the same cannot be the case for using deficit financing such as net lending over net borrowing as a proxy for fiscal space. The net lending over net borrowing was found to be significantly negative with fiscal space. Overall, the results show that increasing the gap between government expenditure and government revenue generation does have a corresponding increase in government expenditure on pension as a share of GDP. This, implies that as the government continues to spend on a non-contributory pension scheme for a section of the public servant, it will continue to increase the fiscal gap between expenditure and revenue, however, if the government should reduce the gap by increasing revenue either through a collection of contributions or other means it will be able to reduce the fiscal gap.   There is the need to reform the tax revenue collection system and to eliminate the bottle-neck associated with the tax administration in the country. By strengthening tax revenue collections areas, especially making government pension contributory, the tax revenue generation should be boosted to narrow the gap to enhance the fiscal space. The tax revenue collection can be increased through the application of information technology systems (i.e. IT software) and reforms that would block linkages in the tax administration. The Government must re-prioritize it spending to ensure they are targeted to productive activities. There is the needed to keep attracting less expensive source of finance such as the official development assistance to boost the fiscal space. Therefore, policymakers should initiate policies that reduce or maintain the inflation rate at a reasonable level.

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