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The Effects Of Public Finance Operations On Unemployment Rate In West African Monetary Zone Countries

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ABSTRACT
The objective of the study was to examine the effects of public finance operations on unemployment rate in West African Monetary Zone (WAMZ) Countries. The study employed Pooled Mean Group/ Autoregressive Distributed Lag technique to achieve this objective. Data on public expenditure, public revenue and public debt (used in capturing the operations of public finance) which were the independent variables and unemployment rate as the dependent variable were gathered and used for the estimation analysis. One of the findings from the analysis revealed a positive effect of public finance operations on unemployment rate but the effect was found to be statistically non significant. Consequently it was recommended that the government of WAMZ countries should increase investments in specific industrial area; these investments are expected to increase the number of industries and create employment thereby reducing the rate
Keywords: public finance investments, unemployment

INTRODUCTION

The economics of public finance is fundamentally about the process of raising funds and the dispersion of funds for government economic activities. The scope of public finance is not first limited to public revenue and public expenditure but it covers the aspect of raising revenue which involves public debt and also the influence effect of government fiscal operations on the level of aggregate activity, prices in the economy, employment, economic growth and the standard of living of citizens within the economy (Yusuf and Mohd, 2021).

Therefore the dimensions of public revenue, public expenditure and public debt are expected to accelerate economic development, provide employment opportunities, encourage savings and investment, provide equitable distribution of income and wealth, manage the country's debt and improve the quality of life of the citizens (Saraireh, 2020).

The business of public finance is dealing with the need for efficiency and its implications for resource allocation, the distribution of income, employment, stability and the co-ordination functions of the economy as well as the interaction between the public and private sectors and hence the social well being of the society as a whole and people that constitute it (Ezekiel, Talloh and Abdul, 2022).

Public borrowing is an anti-inflationary measure. It is a useful tool in diverting resources from unproductive uses to productive uses within an economy while public expenditure is supposed to increase the growth rate of the economy, provide more employment opportunities, raises income and standard of living of citizens within the country; but the situation that exists in the countries under review is that

public debt has ripped the countries bare of any form of reserves and public expenditure has negated all forms of its expectations (Marire, 2022).

Public expenditures and government borrowings are on the high rise yet no meaningful evidence in the development of infrastructure and economic growth. Unemployment rate and inflation are on the galloping strides. A high level of government spending as mentioned earlier increases the cost of living through subsidies that further increases inflation. Fallout of this is that subsidies artificially increases demand and results to higher prices that harm the society by creating more inequality issues in the country and grater unemployment rates (Joy and Parda, 2020).

Furthermore, the bane of developing economies is the apparent lack of physical evidence of the effect of public finance on economic development particularly in rate of unemployment; others are: misplaced priorities misapplication and misappropriation of scarce fiscal resources, high domestic and external debt profile, corruption, lack of accountability and transparency and the lack of credible international image. These inadequacies have resulted in questioning the effects of public finance on economic development using unemployment rate basic economic development fundamentals in developing economics (West African Monetary Zone countries in perspective).

Consequently the aim of this study is to examine the effect of public finance operations on economic development in West African Monetary Zone countries. The study will use public expenditure, public revenue and public debt to capture the operations of public finance and unemployment rate as an indicator for economic development.

The WAMZ countries are Ghana, Guinea, The Gambia, Liberia, Sierra Leone and Nigeria.

Empirical Review

Akindele, Oloba and Mah, (2023) examined the peculiar drivers of unemployment intensity in the sub-Saharan region adopting the Pooled Mean Group (PMG) estimator and the utilized stochastic frontier to generate government efficiency index between the period 1991-2017. The study discovered that the endowments of national resources had a significant and positive relationship with employment generation but the operations of public finance were found inefficient towards increasing the objective of human development through the reduction of unemployment rate.

Okoye and Obi (2022) in their research work analysed the nexus between public debts, poverty and unemployment in Nigeria; With secondary data on internal and external public debts, poverty and unemployment rate collected from the Central Bank of Nigeria Bulletin and the National Bureau of Statistics and the use of unrestricted vector auto-regression model, the study showed that public debts had no significant impact on poverty but public debts were discovered to influence the level of unemployment rates in Nigeria. It was consequently recommended that public borrowings be targeted to specific productive sectors that will increase economic development evidenced in terms of job creations and poverty alleviation.

Celikay (2023) provided empirical evidence on the impact of social spending on chronic unemployment in some selected countries within the organization for economic co-operation and development countries. This was achieved through the use of auto-regressive distributed lag approach and the error correction model. The result shown was that change in the share of social expenditures in GDP within the selected countries affects unemployment in the same proportion. This result echoes that social expenditures with flaccid features have an increasing effect on long term unemployment.

The auto-regressive distributed lag approach and the error correction model was applied on data collected from 1985-2020 by Shuaibu, Muhammad, Abdullahi and Gwazawa (2021) to measure the impact of public debt on inflation and unemployment in Nigeria. The findings from the study showed that there is a long run relationship between public debt and unemployment. The results further showed that public debt increase in Nigeria causes increases in unemployment although the external public debt was shown to have more effects on unemployment than the domestic debt. Therefore it was recommended that public debts be reduced and if inevitable then domestic borrowing is advised

Government expenditures according to a-priori expectations are meant to increase human capital and also to reduce unemployment in developing countries. Using Nigeria as a case study; Obisike, Okoli, Onwuka and Mba (2020) examined the effect of government social expenditure on unemployment. The study used secondary data and employed the Ordinary Least Square regression method to reveal that government expenditure (both recurrent and capital) on health, education and other social activities do not contribute to unemployment reduction which do not conform to a-priori expectations, hence they recommend proper utilization of funds in productive spheres of the economy.

Methods and Model Specification

Using secondary data sourced from Central Bank of Nigeria statistical Bulletin, World Bank data base; the study employed the Panel Pooled Mean Group/Autoregressive Distributive Lag (PMG/ARD). The PMG/ARDL model is to basically ascertain the long and short run connection between public finance and unemployment rate of the WAMZ countries.

The model is thus specified

UER = f (TGR, TGE, TGD, INFL, EXCHR)

Estimated as

$UER = b_0 + b_1 logTGR + b_2 logTGE + b_3 logTGD + b_4 logINFL + b_5 logEXCHR + e_t$ (1)

Where: UER = Unemployment rate, TGR = Total government revenue, TGE =Total government expenditure, TGD = Total government debt, INFL = Inflation rate, EXCHR = Exchange rate

ARDL Equation specified as

$$\Delta UER_t = \alpha_0 \Delta UER_t = \alpha_0 + \sum_{k=1}^{n} \alpha_1 \Delta LogTGR_t \alpha_1 \Delta LogTGR_t + \sum_{k=1}^{n} \alpha_2 \Delta LogTGE_t \alpha_2 \Delta LogTGE_t +$$

$$\sum_{k=1}^{n} \alpha_3 \Delta LogTGD_t \alpha_3 \Delta LogTGD_t + \sum_{k=1}^{n} \alpha_4 \Delta INFL_t \alpha_4 \Delta INFL_t +$$

$$\sum_{k=1}^{n} \alpha_5 \Delta EXCHR_t \alpha_5 \Delta EXCHR_t + p1^{\Delta logTGR_{t-k} \Delta logTGR_{t-k}} + p2^{\Delta logTGE_{t-k} \Delta logTGE_{t-k}} +$$

$$p3^{\Delta logTGD_{t-k} \Delta logTGD_{t-k}} + p4^{\Delta INFL_{t-k} \Delta INFL_{t-k}} + p5^{\Delta EXCHR_{t-k} \Delta EXCHR_{t-k}} + e_t$$

(2)

PRESENTATION AND ANALYSIS OF DATA

Descriptive statistics analysis

Table 1 Result of descriptive statistics analysis

	UER	TGR	TGE	TGD	EXCHR	INFL
Mean	4.619917	12.45250	19.00908	62.39292	1158.759	12.18292
Median	4.260000	12.32000	17.79000	38.00000	54.91500	11.30000
Maximum	9.610000	27.09000	37.12000	600.1000	9840.590	34.70000
Minimum	2.080000	5.110000	8.670000	7.300000	0.870000	2.100000
Std. Dev.	1.819411	3.555406	6.317270	96.05635	2631.741	6.198812
Skewness	1.138621	1.122995	0.939376	4.116100	2.241627	1.250273
Kurtosis	3.971266	5.364508	3.390340	20.16672	6.524127	4.785737
Jarque-Bera	30.64593	53.17684	18.41037	1812.327	162.5952	47.20796
Probability	0.000000	0.000000	0.000101	0.000000	0.000000	0.000000
Sum	554.3900	1494.300	2281.090	7487.150	139051.1	1461.950
Sum Sq. Dev.	393.9205	1504.269	4749.039	1097992.	8.24E+08	4572.607
Observations	120	120	120	120	120	120

Source: Researcher's presentation from E-views 10.0 statistical software

The study began this section by comprehensively comparing the descriptive statistics of the data set employed in this study. Table 1 showed the result of the descriptive or summary statistics for both dependent, independent and control variables. It is important to state that for the summary statistics, the raw data in their untransformed state were used to enable an appraisal of the structure of the raw data used for the regression analysis. The summary statistics were used to compare the measures of central tendency, the measures of dispersion and the measures of normality of the data set. The measures of central tendency compared the mean and median values of the data set. While the mean considered the average values of the variables the median looked at the middle distribution of the data set.

From the result, it could be observed that the mean values were: 4.61percent for unemployment rate (UER) of WAMZ countries; 12.45 percent for total government revenue (TGR) of WAMZ countries; 19.00 percent for total government expenditure (TGE) of WAMZ countries; 62.39 percent for total government debt (TGD) of WAMZ countries; 1158.75 for exchange rate (EXCHR) of WAMZ countries; and 12.18 percent for inflation rate (INFL) of WAMZ countries. The median values of the variables were: 4.26 percent for unemployment rate (UER) of WAMZ countries; $707.45; 12.32 percent for total government revenue (TGR) of WAMZ countries; 17.79 percent for total government expenditure (TGE) of WAMZ countries; 38.00percent for total government debt (TGD)of WAMZ countries; 54.91for exchange rate (EXCHR)of WAMZ countries; and 11.30 percent for inflation rate (INFL) of WAMZ countries.

The measures of dispersion considered how widely spread the dataset was from their mean values. The measures of dispersion considered in this study were the minimum value, the maximum values and the standard deviation. From the E-view output, the maximum values were:9.61percent for unemployment rate (UER) of WAMZ countries; 27.09 percent for total government revenue (TGR) of WAMZ countries; 37.12 percent for total government expenditure (TGE) of WAMZ countries; 600.10 percent for total government debt (TGD) of WAMZ countries; 9840.59for exchange rate (EXCHR) of WAMZ countries; and 34.70 percent for inflation rate (INFL) of WAMZ countries.

The minimum values were: 2.08 percent for unemployment rate (UER) of WAMZ countries; 5.11 percent for total government revenue (TGR) of WAMZ countries;8.67percent for total government expenditure (TGE)of WAMZ countries; 7.30 percent for total government debt (TGD)of WAMZ countries; 0.87for exchange rate (EXCHR)of WAMZ countries; and 2.10 percent for inflation rate (INFL)of WAMZ countries. The standard deviation measures how far the observations are from their sampled averages. From the summary output, the standard deviation values were:1.81percent for unemployment rate (UER)of WAMZ countries; 3.55percent for total government revenue (TGR)of WAMZ countries;6.31percent for total government expenditure (TGE)of WAMZ countries; 96.05percent for total government debt (TGD)of WAMZ countries; 2631.74for exchange rate (EXCHR)of WAMZ countries; and 6.19 percent for inflation rate (INFL)of WAMZ countries.

Table 2 PMG/ARDL long run and short run estimates (joint countries' analysis): Unemployment rate (UER)

Dependent Variable: D(LUER)
Method: PMG/ARDL
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): LTGR LTGE LTGD LEXCHR LINFL
Fixed regressors: C
Number of models evalulated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
LTGR	0.130603	0.428219	0.304990	0.7612
LTGE	0.018799	0.567419	0.033131	0.9737
LTGD	-0.428503	0.217824	-1.967203	0.0530
LEXCHR	0.221385	0.149580	1.480047	0.1432
LINFL	0.959014	0.250495	3.828477	0.0003
	Short Run Equation			
COINTEQ01	-0.183072	0.176618	-1.036542	0.3034
D(LTGR)	0.300671	0.357969	0.839938	0.4037
D(LTGE)	0.199906	0.095337	2.096835	0.0395
D(LTGD)	0.011903	0.031093	0.382804	0.7030
D(LEXCHR)	-0.375408	0.294015	-1.276833	0.2057
D(LINFL)	-0.089694	0.041617	-2.155218	0.0344
C	0.034344	0.032716	1.049750	0.2973

Mean dependent var	-0.000846	S.D. dependent var	0.140811
S.E. of regression	0.122157	Akaike info criterion	-1.910637
Sum squared resid	1.089334	Schwarz criterion	-0.818870
Log likelihood	161.6382	Hannan-Quinn criter.	-1.467265

*Note: p-values and any subsequent tests do not account for model selection

Source: Researcher's presentation from E-views 10.0 statistical software

Given the result in Table 2, the long run coefficient measures the long run effect of individual independent variables controlled by exchange rate and inflation rate on the dependent variable. The PMG/ARDL long run estimates revealed that, all things being equal, a percentage increase in total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) will lead to a corresponding 0.13 percent increase in the unemployment rate (UER)of the WAMZ countries and was found to be statistically non-significant at five percent in the long run. Similarly, the analysis of the PMG/ARDL long run estimates revealed that, all things being equal, a percentage increase in total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) will lead to a corresponding 0.01 percent increase in the unemployment rate (UER)of the WAMZ countries and

was found to be statistically non-significant at five percent in the long run. Lastly, the PMG/ARDL long run estimates revealed that, all things being equal, a percentage increase in total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) will lead to a corresponding 0.42 percent decrease in the unemployment rate (UER) of the WAMZ countries and was found to be statistically significant at five percent in the long run.

Further analysis of the PMG/ARDL in Table 2 revealed that the error term adjustment coefficient (COINTEQ01) is negative and non-significant on a significance level of 5% against theoretical expectation. Thus, a deviation of 0.1830 or 18.30 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables but was statistically non-significant. Further analysis of the PMG/ARDL result in Table 6 revealed that the value of the intercept which is 0.03 revealed that unemployment rate (UER) of the WAMZ countries increased by 0.03 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically non-significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of the WAMZ countries in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.30 percent increase in unemployment rate (UER) of the WAMZ countries in the short run.On the other hand, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of the WAMZ countries in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.19 percent increase in unemployment rate (UER) of the WAMZ countries in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of the WAMZ countries in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.01 percent increase in unemployment rate (UER) of the WAMZ countries in the short run.

PMG/ARDL short run dynamics (individual country analysis): With respect to unemployment rate (UER) as a dependent variable

GAMBIA

The analysis of the PMG/ARDL in Table 3 about Gambia revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically expected. Thus, a deviation of 0.0085 or 0.85 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant.

Table 3 PMG/ARDL short run dynamics (Gambia): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-0.008590	0.001572	-5.465686	0.0120
D(LTGR)	0.047591	0.050181	0.948396	0.4129
D(LTGE)	0.236416	0.045427	5.204313	0.0138
D(LTGD)	-0.121582	0.019380	-6.273438	0.0082
D(LEXCHR)	-0.218909	0.138136	-1.584735	0.2112
D(LINFL)	-0.045941	0.004588	-10.01377	0.0021
C	-0.025030	0.001892	-13.22854	0.0009

Source: Researcher's presentation from E-views 10.0 statistical software

Further analysis of the PMG/ARDL result in Table 3 revealed that the value of the intercept which is -0.02 revealed that unemployment rate (UER) of Gambia decreased by 0.02 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of Gambia in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.04 percent increase in unemployment rate (UER) of Gambia in the short run. On the other hand, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Gambia in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.23 percent increase in unemployment rate (UER) of Gambia in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant negative effect on the unemployment rate (UER) of Gambia in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.12 percent decrease in unemployment rate (UER) of Gambia in the short run.

Table 4PMG/ARDL short run dynamics (Ghana): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-1.061435	0.073524	-14.43665	0.0007
D(LTGR)	2.040332	1.535629	1.328662	0.2760
D(LTGE)	0.626130	0.344680	1.816556	0.1669
D(LTGD)	0.013163	0.103867	0.126733	0.9072
D(LEXCHR)	-1.809237	0.972802	-1.859820	0.1599
D(LINFL)	-0.263935	0.075665	-3.488225	0.0398
C	0.159035	3.349284	0.047483	0.9651

Source: Researcher's presentation from E-views 10.0 statistical software

GHANA

The analysis of the PMG/ARDL in Table 4 about Ghana revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically expected. Thus, a deviation of 1.0614 or 106.14 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant. Further analysis of the PMG/ARDL result in Table 4 revealed that the value of the intercept which is 0.15 revealed that unemployment rate (UER) of Ghana increased by 0.15 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically non-significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of Ghana in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 2.04 percent increase in unemployment rate (UER) of Ghana in the short run. Similarly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of Ghana in the short run. The

implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.62 percent increase in unemployment rate (UER) of Ghana in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant positive effect on the unemployment rate (UER) of Ghana in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.01 percent increase in unemployment rate (UER) of Ghana in the short run.

GUINEA

The analysis of the PMG/ARDL in Table 5 about Guinea revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically expected. Thus, a deviation of 0.0458 or 4.58 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant. Further analysis of the PMG/ARDL result in Table 5 revealed that the value of the intercept which is -0.04 revealed that unemployment rate (UER) of Guinea decreased by 0.04 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a non-significant negative effect on the unemployment rate (UER) of Guinea in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.02 percent decrease in unemployment rate (UER) of Guinea in the short run.

Table 5 PMG/ARDL short run dynamics (Guinea): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-0.045822	0.001195	-38.33345	0.0000
D(LTGR)	-0.028108	0.025799	-1.089493	0.3556
D(LTGE)	0.066409	0.001821	36.46551	0.0000
D(LTGD)	0.091355	0.004091	22.33109	0.0002
D(LEXCHR)	-0.061432	0.011033	-5.568032	0.0114
D(LINFL)	-0.021436	0.000480	-44.67810	0.0000
C	-0.048581	0.006545	-7.422366	0.0051

Source: Researcher's presentation from E-views 10.0 statistical software

On the other hand, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Guinea in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.06 percent increase in unemployment rate (UER) of Guinea in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Guinea in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.09 percent increase in unemployment rate (UER) of Guinea in the short run.

LIBERIA

The analysis of the PMG/ARDL in Table 6 about Liberia revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically

expected. Thus, a deviation of 0.0471 or 4.71 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant. Further analysis of the PMG/ARDL result in Table 6 revealed that the value of the intercept which is -0.002 revealed that unemployment rate (UER) of Liberia decreased by 0.002 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically non-significant at five percent level of significance.

Table 6 PMG/ARDL short run dynamics (Liberia): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-0.047113	0.001823	-25.84370	0.0001
D(LTGR)	0.160578	0.017274	9.295790	0.0026
D(LTGE)	0.125334	0.016941	7.398255	0.0051
D(LTGD)	0.078659	0.002376	33.10873	0.0001
D(LEXCHR)	-0.227711	0.074290	-3.065181	0.0548
D(LINFL)	-0.085277	0.003671	-23.22946	0.0002
C	-0.002503	0.005172	-0.484076	0.6615

Source: Researcher's presentation from E-views 10.0 statistical software

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Liberia in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.16 percent increase in unemployment rate (UER) of Liberia in the short run. Similarly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Liberia in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.12 percent increase in unemployment rate (UER) of Liberia in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Liberia in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.07 percent increase in unemployment rate (UER) of Liberia in the short run.

Table 7 PMG/ARDL short run dynamics (Nigeria): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-0.075775	0.002169	34.94014	0.0001
D(LTGR)	0.024403	0.001522	16.03181	0.0005
D(LTGE)	-0.057550	0.003133	-18.36733	0.0004
D(LTGD)	-0.007668	0.001031	-7.436529	0.0050
D(LEXCHR)	0.205548	0.024656	8.336679	0.0036
D(LINFL)	0.020868	0.000788	26.49478	0.0001
C	0.102318	0.009306	10.99499	0.0016

Source: Researcher's presentation from E-views 10.0 statistical software

NIGERIA

The analysis of the PMG/ARDL in Table 7 about Nigeria revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically expected. Thus, a deviation of 0.0757 or 7.57 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant. Further analysis of the PMG/ARDL result in Table7 revealed that the value of the intercept which is 0.10 revealed that unemployment rate (UER) of Nigeria increased by 0.10 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Nigeria in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.02 percent increase in unemployment rate (UER) of Nigeria in the short run.On the other hand, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant negative effect on the unemployment rate (UER) of Nigeria in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.05 percent decrease in unemployment rate (UER) of Nigeria in the short run.

Table 8 PMG/ARDL short run dynamics (Sierra Leone): With respect to unemployment rate (UER) as a dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
COINTEQ01	-0.011244	0.000261	-43.09689	0.0000
D(LTGR)	-0.440769	0.009965	-44.23040	0.0000
D(LTGE)	0.202696	0.005442	37.24858	0.0000
D(LTGD)	0.017487	0.005131	3.408379	0.0422
D(LEXCHR)	-0.140707	0.034235	-4.110096	0.0261
D(LINFL)	-0.142442	0.001951	-73.02061	0.0000
C	0.020825	0.000588	35.42964	0.0000

Source: Researcher's presentation from E-views 10.0 statistical software

Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant negative effect on the unemployment rate (UER) of Nigeria in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.007 percent decrease in unemployment rate (UER) of Nigeria in the short run.

SIERRA LEONE

The analysis of the PMG/ARDL in Table 8 about Sierra Leone revealed that the error term adjustment coefficient (COINTEQ01) is negative and significant on a significance level of 5% as theoretically expected. Thus, a deviation of 0.0112 or 1.12 percent from the balance in short-term is balanced in long-term, that is, it can be stated that there is a long-term cointegration relationship between the variables and was statistically significant. Further analysis of the PMG/ARDL result in Table 8 revealed that the value of the intercept which is 0.02 revealed that unemployment rate (UER) of Sierra Leone increased by 0.02 percent in the short run when all other variables (TGR, TGE and TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) are held constant and was statistically significant at five percent level of significance.

In addition, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government revenue (TGR) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a

significant negative effect on the unemployment rate (UER) of Sierra Leone in the short run. The implication is that a percentage increase in TGR controlled by EXCHR and INFL will lead to a corresponding 0.44 percent decrease in unemployment rate (UER) of Sierra Leone in the short run. On the other hand, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government expenditure (TGE) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Sierra Leone in the short run. The implication is that a percentage increase in TGE controlled by EXCHR and INFL will lead to a corresponding 0.20 percent increase in unemployment rate (UER) of Sierra Leone in the short run. Lastly, the examination of the PMG/ARDL short-run estimates revealed that changes in the value of total government debt (TGD) controlled by exchange rate (EXCHR) and inflation rate (INFL) had a significant positive effect on the unemployment rate (UER) of Sierra Leone in the short run. The implication is that a percentage increase in TGD controlled by EXCHR and INFL will lead to a corresponding 0.01 percent increase in unemployment rate (UER) of Sierra Leone in the short run.

Short run findings

Relationship between total government revenue and unemployment rate

The PMG/ARDL result revealed that total government revenue was found to have a positive but non-significant effect on unemployment rate of WAMZ countries in the short run. This finding was not in consonance with the study by Abubakar (2016) which investigated the effects of fiscal policy shocks on unemployment and output, using Nigeria as his case study and findings from the structural vector autoregression showed that shocks from the public expenditure has a positive long run effect on output, this effect was similar to the one shown by public revenue although the effect from public expenditure was greater. However, the effect on unemployment from the public expenditure was positive while that of the public revenue was found to be negative.

Relationship between total government expenditure and unemployment rate

The PMG/ARDL result revealed that total government expenditure was found to have a significant positive effect on unemployment rate of WAMZ countries in the short run. This finding was not in consonance with the studies by Saraireh (2020) which used Jordan as a case study of a country to estimate the effects on government financial activities on unemployment. His studying showed that in the long run a negative yet statistically significant relationship existed between government spending and unemployment rate, while a positive effect of government financial activities on unemployment is only in the short run; and Marire (2022) which examined the relationship between fiscal deficits and unemployment, and found that in the short run fiscal deficit reduces unemployment but in the long run, it increases unemployment thus, confirming the neoclassical theory of the relationship between fiscal deficits and unemployment.

On the other hand, the study agreed with the study by Abubakar (2016) which investigated the effects of fiscal policy shocks on unemployment and output, using Nigeria as his case study and findings from the structural vector autoregression showed that shocks from the public expenditure has a positive long run effect on output, this effect was similar to the one shown by public revenue although the effect from public expenditure was greater. However, the effect on unemployment from the public expenditure was positive while that of the public revenue was found to be negative.

Relationship between total government debt and unemployment rate

The PMG/ARDL result revealed that total government debt was found to have a non-significant positive effect on unemployment rate of WAMZ countries in the short run. This finding was not in consonance with the study by Elom-Obed, Odo and Anoke, (2019) which using the vector error correction model (VECM) and annual data from 1980 to 2015, and the study revealed a significant negative impact of foreign and domestic debt on economic growth in Nigeria.

On the other hand the findings of this work is in consonance with the findings of Akinyele, Oloba and Mah (2023) in their study where public finance operations were found to have a positive effect on the reduction of unemployment rate in the sub-Saharan countries under review.

CONCLUSION AND RECOMMENDATION

Summarily the results from this research work revealed that public finance operation options (TGR, TGE and TGD) controlled by EXCHR and INFL had a positive effect on the unemployment rate of WAMZ countries. This effect was found to be statistically non significant. Since public finance operations have no discernible effect on the unemployment rate in the WAMZ countries, it follows that a large part of public finance in these economies is unable to boost or diversify the zone's productive capacity, which should improve and increase job opportunities for residents and raise standards of living.

The study therefore recommends that the governments of the WAMZ countries should try to increase investment by enacting tax holidays for specific industrial areas and by subsidizing the production costs of the established private sector to promote engagement in specific activities; this is expected to increase the number of growing industries thereby reducing unemployment in WAMZ countries. Additionally, since government actions (borrowing, spending, and revenue) affect how resources are allocated as well as absolute and relative pricing, the main goal of this policy measure should again be emphasized and implemented to lower the zone's excessively high unemployment rate.

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