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Can Fiscal Deficit Reduce Unemployment? Empirical Insights from West African Economies

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ABSTRACT

Achieving full employment remains a fundamental challenge in West Africa, intensified partly by persistent fiscal imbalances. This study examined the impact of fiscal deficit on unemployment in eight selected West African countries (Ghana, Gambia, Nigeria, Sierra Leone, Burkina Faso, Cote d'Ivoire, Senegal and Guinea-Bissau) from 1991 to 2022. To account for cross-sectional dependence and slope heterogeneity, the study employs the panel autoregressive distributed lag pool mean group (ARDL-PMG) technique. The empirical results reveal that inflation exerts a positive impact on unemployment in both the long and short runs. Furthermore, while economic growth reduces unemployment in the short run, it exhibits a jobless growth phenomenon in the long run, positively correlating with unemployment. Conversely, government expenditure and investment significantly reduce unemployment in the long run. Interestingly, the direct long-run effect of fiscal deficit on unemployment remains insignificant in the full sample, though short-run dynamics vary significantly across individual economies. Based on these findings, the study recommends that ECOWAS policymakers should shift focus from mere deficit financing toward structural fiscal reforms, highlighting targeted capital expenditure, domestic production for export, and strict adherence to the macroeconomic convergence criteria.

Keywords: *ARDL-PMG, Fiscal Deficit, Unemployment, West African Countries,*

JEL Classification: E24, E62, H30, P52

1. INTRODUCTION

Achieving decent work and economic growth, as enshrined in Sustainable Development Goal 8 (SDG 8), remains a cornerstone of global and regional policy objectives. The goal aimed at promoting inclusive and sustainable growth, attaining full employment and decent work for all on or before 2030 (Kufeoglu, 2022; Chigbu & Nekhwevha, 2023). However, the pursuit of these crucial objectives is often dented by persistent fiscal imbalances, especially in developing countries (Akpan et al, 2024; Braide et al., 2026). In practice, fiscal imbalance arises when projected government expenditure exceeds raising capacities and estimated revenue (Wang & Liew, 2024). Authorities are obligated to finance the budget deficit through domestic or external debt. These debts often times jeopardizes long-run macroeconomic stability and spur overhang. In the aftermath of the 2007/2008 global financial meltdown, concerns over fiscal deficit widened across developed and developing economies, as the shocks triggered deficits and escalating public debt (Nguyen, 2018). In many African countries, reliance on official development assistance (ODA) and external debt has provided only momentary fiscal relief while intensifying long-term

debt sustainability crises (Nyaga, 2020). Rather than harnessing the productive capital essential for advancing the attainment of SDG 8 targets, Gyasi (2020) indicates that increasing fiscal deficits diverts financial resources that can be deployed for investment. Therefore, unsustainable fiscal trajectories not only escalate sovereign debt risk but also impede the policy space required to stimulate employment opportunities, promote inclusive growth, and attain sustainable development.

The linkage between fiscal deficits and sustainable development is rooted in labour market outcomes, principally unemployment| (Uford, 2017; Asuquo et al, 2024). Persistent fiscal deficits often demand excessive external or domestic debt, which can elevate lending interest rates and crowd out domestic investment (Kustepeli & Gulcan, 2004; Magehema, 2015). High costs of borrowing impede private capital formation, while the expected future tax burden to service debt may overwhelm current investment and aggregate demand (Gyasi, 2020). Accordingly, continuous fiscal imbalances can erode domestic savings, hamper productive investment and eventually hinder the ability of the economy to create jobs. In profound cases, the government may resort to unconventional monetary financing or seigniorage, prompting inflationary pressures that further alter the labour markets and aggravate unemployment rates (Gu et al., 2025).

The West African region demonstrates this macroeconomic pressure due to the fiscal indiscipline of its government. For instance, between 2009 and 2019, public debt stock of the region surged, with Francophone economies such as Burkina Faso, Côte d'Ivoire, and Senegal recording significant increases, while Anglophone countries like Gambia, Ghana, Nigeria and Sierra Leone experienced the worst debt-to-GDP ratios, often greater than the IMF sustainability threshold (International Monetary Fund, 2019). By 2019, the region's average aggregate debt-to-GDP ratio reached 36.53 per cent, slightly above the 35 per cent weak sustainability threshold, while fiscal deficits recurrently violate the ECOWAS macroeconomic convergence condition of 3 per cent of GDP (African Development Bank, 2019; ECOWAS, 2017). Deepening this fiscal tension is the persistent youth unemployment disaster, with the regional average rate rising from 5.2 per cent in 2018 to 6.3 per cent in 2019, still breaching the convergence target (African Development Bank, 2019). Despite expansionary fiscal policies targeted at stimulating aggregate demand and sustained economic growth, unemployment and poverty persist, raising crucial questions about the effectiveness of fiscal deficit development strategies (Charles & Uford, 2023; Ndaeyo et al, 2025).

Thus, despite expansionary fiscal policies targeted at inducing aggregate demand, unemployment and poverty persist, raising fundamental questions about the effectiveness of fiscal deficit approaches in the region. In addition, while there is abundant empirical literature on macroeconomic consequences of fiscal deficit, it suffers from three noteworthy limitations (Amos et al, 2021). First, few studies explicitly investigate the fiscal deficit-unemployment linkage across a panel of both Anglophone and Francophone West African countries, despite the monetary and policy divergences that may generate heterogeneous outcomes. Second, many previous studies rely on static models that fail to account for cross-sectional dependence (CSD) and slope heterogeneity (Eberhardt & Teal, 2012; Pesaran, 2004), which are prevalent in geographically and economically integrated regions like ECOWAS. Third, the dynamic link between fiscal deficits and unemployment needs an estimation procedure that captures both short-run adjustment and long-run equilibrium.

Against this backdrop, this study investigates the impact of fiscal deficit on unemployment in eight selected West African countries from 1991 to 2022. By employing the panel autoregressive

distributed lag pooled mean group (ARDL-PMG) estimation technique, this study captures dynamic heterogeneous relationships while controlling for cross-sectional dependence (CSD) in the model. Integrating the Keynesian unemployment and fiscal deficit models, this study delivers robust insights for policymakers steering fiscal convergence and employment generation in the ECOWAS subregion. In addition to the introduction, the remainder of this article is structured as follows: Section 2 discusses the theoretical and empirical literature, Section 3 presents the methodology and data, Section 4 presents the results, Section 5 discusses the findings, and Section 6 concludes with policy recommendations.

2. LITERATURE REVIEW

Theoretical Literature

To understand how fiscal deficits affect unemployment, the study reviewed the Keynesian theory of fiscal deficit and unemployment. The propositions of John Maynard Keynes highly influenced the history of economic thought in the 20th century. His ideas formed the basis for imposing active government intervention in an economy (Ahmad, 2019). Keynes propounded this theory in 1936 as one of the policies to the great depression through inducement to invest. Keynesian economists argued that some unemployed workers and individuals have limited access to credit in an economy. According to Eminer (2015), the Keynesian approach emphasized that the deficit arising from the budget positively affects the economy by increasing economic growth. This is because increased government spending on the fiscal deficit contributes to increased private consumption, aggregate demand and bank savings at a specified interest rate while assuming some economic resources are unemployed (Kanchori, 2020).

A fiscal deficit can increase capital investment and economic growth as national productivity rises. Aggregate consumption is responsive to a shift in disposable income due to many people being constrained by liquidity. Bernheim (1989) suggested that reducing fiscal deficit might be counterproductive. Hence, deficits, apart from the fact that they raise interest rates, can also stimulate aggregate savings and investment. Keynesian economists also suggested that a fiscal deficit instigated by increased government expenditure to curb recession could positively impact economic growth (GDP). This is because increased government spending has the potential to grow consumption and stimulate an economy out of recession (Eminer, 2015).

Based on the theory, it is argued that an ambitious fiscal policy that leads to a budget deficit and increased public debt increases aggregate demand through a budget multiplier mechanism and infrastructural development, increasing aggregate supply (Ukpong et al, 2022). Consequently, these combined effects stimulate economic growth. Conversely, the Keynesian theory prescribed a negative relationship between fiscal deficit and unemployment as opposed to the positive nexus between fiscal deficit and the real growth rate of an economy.

Akpan & Uford (2024) examined the theory by Keynes (1936) in his book titled "The General Theory of Unemployment, Interest and Money". The central argument of this theory of unemployment is that the level of employment is not determined by the prevailing wage rate as proposed by the classical approach. To the Keynesians, unemployment or employment is determined by the level of aggregate demand. Thus, if the total demand for goods at full employment is less than the total output, the economy must contract until equality is achieved. Keynes' theory focused on the level of aggregate demand and the expectations of businesses about profit in an economy. Keynes believed that even if wages did fall quickly in several labour markets,

this might do more harm than good. This is because workers with lower wages have a lower income to spend. Low workers' spending reduces demand for the goods and services businesses produce in an economy. If businesses cannot sell the bulk of their goods, they tend to cut down on investment and the number of employed workers. Hence, prices and wage rates may decline, keeping real wages constant and giving employers of labour no incentive to hire more workers. This low aggregate demand could lead to a vicious cycle of unemployment, low income, and low spending. Therefore, operationalizing the Keynesian theory of unemployment requires making the labour market run smoothly and stimulating aggregate demand through fiscal policy regulation, like tax cuts, by creating a relationship between government expenditure and unemployment.

In formulating the theoretical basis of this study, an eclectic approach was employed to draft the a priori expectations of this study. The Keynesian theory of unemployment and the Keynesian fiscal deficit theory guided the unemployment model. This study relied on the theories mentioned earlier to argue that an increase in fiscal deficit can lead to a surge in tax rate, which in turn reduces aggregate demand and creates unemployment.

Empirical Review

Empirical analysis on the relationship between fiscal deficit and unemployment has revealed inconsistent results, partly attributable to the estimation technique deployed. For instance, Ayogueze and Anidiobu (2017) examined the effect of government budget deficits on the unemployment rate in Nigeria using the OLS technique and annual data from 1986 to 2015. The empirical result indicates that the government budget deficit exerts a positive but insignificant impact on unemployment. Likewise, Nwaeze et al. (2017) used the VAR estimation technique to conclude that fiscal deficits financed through domestic debt promote unemployment in Nigeria within the study period. In a similar study using the ARDL technique, Akidi et al. (2025) find that the impact of debt servicing and external debt measures of fiscal deficit on unemployment is positive and insignificant, while the effect of domestic debt is negative and significant. Covering 1981 to 2023, Aduku and Amabienimigha (2025) indicate that the effect of fiscal deficit on unemployment rate is negative and insignificant using the OLS estimation technique. Similarly, Oduneneka and Odunek (2025) reviewed the literature and reported that fiscal deficit did not decrease inflation and unemployment in Nigeria for the period 1990 to 2025.

On the contrary, Fedeli et al. (2015) in the study of 22 OECD economies found that budget deficit exacerbates unemployment in the long run for the period 1980 to 2009. Marire (2022) indicates a negative relationship between fiscal deficit and unemployment in the short run but positive in the long run in South Africa, using the Toda-Yamamoto Granger non-causality and autoregressive distributed lag techniques for the period 1994 to 2019. In Palestine, Samarah and Yahya (2024) observed that budget deficit reduces unemployment using a VECM technique and data from 1996 to 2022. Using the system GMM technique, Mwigeka (2025) finds that budget deficits exert a negative impact on unemployment variation in 30 selected African countries.

3. METHODOLOGY AND DATA

Specification of Baseline equation

This equation captures the main objective of the study and is rooted in the Keynesian unemployment and the Keynesian fiscal deficit theories. Functionally, the relationship is expressed as:

$$UNEMP_{i,t} = f(FDE_{i,t}, RGDPR_{i,t}, GEX_{i,t}, INV_{i,t}, INF_{i,t}) \quad [1]$$

The econometric form of the baseline equation is expressed as:

$$UNEMP_{i,t} = \beta_0 + \beta_1 FDE_{i,t} + \beta_2 RGDPR_{i,t} + \beta_3 \mathrm{GEX}_{i,t} + \beta_4 INV_{i,t} + \beta_5 \mathrm{INF}_{i,t} + \varepsilon_{i,t} \quad [2]$$

Where: $UNEMP_{i,t}$ = unemployment rate measured in percentage, $FDE_{i,t}$ = fiscal deficit proxied by fiscal deficit expressed as a percentage of GDP, $RGDPR_{i,t}$ = real GDP per capita annual growth rate, $GEX_{i,t}$ = government expenditure expressed as a percentage of GDP, $\mathrm{INV}_{i,t}$ = investment proxied by gross capital formation as a percentage of GDP, $\mathrm{INF}_{i,t}$ = inflation rate, consumer prices annual percentage, i = number of countries, $1, 2, \ldots, N$, t = time dimension, $1, 2, \ldots, T$, β_j = parameters to be interpreted as elasticities, $\varepsilon_{i,t}$ = stochastic error term.

Data and Sources

This study used annual panel data for 8 West African countries from 1991 to 2022. The starting year is specifically chosen because of the availability of data for all the countries for that period. The variable code, description, measurement and sources are presented in Table 1.

Table 1: Code, Variable, Description, Measurement and Sources

Code	Variable	Description	Measurement	Data Source
UNEMP	Unemployment	The labour force that is without work	Percentage	IMF, 2023
FDE	Fiscal Deficit	Fiscal Balance	Percentage of GDP	AFDB, 2023
RGDPR	Real GDP Growth Rate	Annual Growth Rate of GDP	Percentage	WDI, 2023
GEX	Government Expenditure	Central Government's Total Expenditure	Percentage of GDP	WDI, 2023
INV	Investment	Gross Capital Formation	Percentage of GDP	AFDB, 2023
INF	Inflation	Consumer Prices	Percentage	AFDB, 2023

Note: IMF = International Monetary Fund; AFDB = African Development Bank; WDI = World Development Indicator

Source: Author's compilation (2024)

Estimation Techniques

Before subjecting the equations to the different estimation techniques discussed here, descriptive and correlation analyses were carried out to have a first impression of the nature of the data. In the event of cross-sectional dependence, variables were subjected to second-generation unit root tests. Specifically, the cross-sectionally augmented Im, Pesaran and Shin (CIPS) test proposed by Pesaran (2007) and the Fisher ADF tests developed by Maddala and Wu (1999) were employed. These techniques account for cross-sectional dependence among the constituent units in the panel. Additionally, the first and second-generation panel cointegration tests proposed by Pedroni (1999, 2004) were employed to determine if a long-run relationship exists among the variables. The null hypothesis of no cointegration was rejected at the 1% and 5% significance levels.

Within the panel ARDL-PMG technique framework, the study first tested for cross-sectional dependence using the Pesaran (2004, 2007) CD test. Similarly, the validity of the non-constancy of slope homogeneity was tested using the Pesaran and Yamagata (2008) delta test. The ARDL-PMG technique proposed by Pesaran et al. (1999) was employed because the variables of interest are a combination of I(0) and I(1) integrated of order 0 and 1. The superiority of this technique is that it can be applied regardless of whether the variables are integrated of pure order I(0), I(1) or a mixture of the two; it accounts for both heterogeneous and homogeneous coefficients, controls for cross-sectional dependence, and generates both short-run and long-run coefficient estimates. The panel ARDL-PMG equation is specified as:

$$\Delta UNEMP_{it} = \emptyset_i(UNEMP_{i,t-1} - \theta_i X_{it}) + \sum \delta_{ij} \Delta UNEMP_{i,t-j} + \sum \beta_{ij} \Delta X_{i,t-j} + \mu_{i,t} \quad [3]$$

Where $\emptyset$ represents the error correction speed of adjustment. Lastly, we deployed the fully modified ordinary least squares (FMOLS) technique developed by Pedroni (1999, 2001) for a robustness check.

4. ANALYSIS AND RESULTS

Summary Statistics

Table 2 presents the results of descriptive statistics, such as mean, minimum, and maximum values of selected variables for this study from 1991 to 2022 for the full panel. The average values of real GDP growth rate (RGDPR), foreign direct investment (FDI), and unemployment (UNEMP) are 3.85, 2.65 and 4.91, respectively, and are the lowest among the variables collected for this study. This indicates a low GDP growth rate, low gross capital formation and a relatively high unemployment rate in the selected West African countries. The inflation rate (INF) as a percentage of GDP; the average value is 10.50. It is safe to conclude that West Africa has one of the highest inflation rates. The possible explanation for this could be that these countries have a maximum inflation value of 102.69. The values of the standard deviation indicate wide dispersions from the sample mean for each variable used in this study.

Table 2: Descriptive Statistics of Full Panel

Variable	Observation	Mean	Median	Std. Dev.	Minimum	Maximum
UNEMP	256	4.907	4.082	2.073	1.900	10.460
FDE	256	-0.141	-0.196	3.123	-13.217	8.298
RGDPR	256	3.851	4.266	4.825	-28.099	26.524
INV	256	8.860	1.046	2.259	1.347	7.589
GEX	256	19.601	20.255	6.169	4.453	50.103
INF	256	10.502	5.936	14.431	-3.659	102.694

Source: Author's computation (2024)

Correlation Matrix

The result of the correlation matrix is presented in Table 3. The result indicates that there is no evidence of a perfect linear relationship among the regressors, given that most of the correlation coefficients are below the 0.80 threshold. Hence, they were not used in the same equation. Thus, there is no evidence of multicollinearity among the variables used in this study.

Table 3: Correlation Matrix Result

Variable	UNEMP	FDE	RGDPR	GEX	INV	INF
UNEMP	1.000					
FDE	-0.064	1.000				
RGDPR	-0.094	0.144	1.000			
GEX	-0.120	-0.105	0.076	1.000		
INV	-0.069	-0.026	0.051	-0.388		
INF	-0.069	-0.029	-0.167	0.043	0.059	1.000

Source: Author's computation (2024)

Unit Root Tests

The Pesaran (CIPS, 2007) and Fisher augmented Dickey-Fuller (Fisher-ADF) tests were employed to examine the time series properties of the variables included in the equations developed for this study. Table 4 presents the second-generation unit root test statistics results with auxiliary regressors of 0 and 1 lag. For both tests, real GDP growth rate (RGDPR), fiscal deficit (FDE), government expenditure (GEX) and inflation (INF) are stationary at level and integrated at order I(0) with trend specifications at 5 per cent level of significance. Conversely, unemployment (UNEMP) became stationary after first difference and integrated of order I(1) with trend specifications at a 5 per cent level of significance. Thus, variables included in the equations developed for this study exhibited a mixed order of integration and therefore, the generalised least squares (GLS), autoregressive distributed lag (ARDL) model and panel autoregressive distributed lag (Panel-ARDL) pool mean group (PMG) procedures were adopted.

Table 4: Unit Root Test Results

Variables	CIPS				FISHER ADF				Remark
	Level	Prob.	1st Difference	Prob.	Level	Prob.	1st Difference	Prob.	
UNEMP	0.534	0.703	-5.894	0.000***	-0.169	0.433	-4.141	0.000***	I(1)
FDE	-2.109	0.017	NA	NA	-2.223	0.013**	NA	NA	I(0)
RGDPR	-5.763	0.000***	NA	NA	-3.675	0.000***	NA	NA	I(0)
GEX	-3.070	0.001***	NA	NA	-1.681	0.046**	NA	NA	I(0)
INV	5.773	1.000	-7.072	0.000***	1.206	0.886	-6.303	0.000***	I(1)
INF	-6.520	0.000***	NA	NA	-5.289	0.000***	NA	NA	I(0)

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels; Prob. = probability; NA = not applicable

Source: Author's computation (2023)

Optimal Lag Selection

The results of the VAR lag order selection criteria for the unemployment model are presented in Table 5. Having examined the order of integration of the variables used in this study and the estimation technique to be employed, the study went further to determine the optimal number of lags used for the unemployment model. This was done using the Vector autoregressive (VAR) lag order selection criteria. The sequential modified LR test statistic (LR) selected six lags, final prediction error (FPE), and Akaike information criterion (AIC) chose two lags, while the Schwarz information criterion (SIC) and Hannan-Quinn information criterion (HQ) picked one lag. Thus, this study used the lag(s) with the smallest AIC value.

Table 5: VAR Lag Order Selection Criteria

Lag	LR	FPE	AIC	SIC	HQ
			Unemployment model		
0	NA	2.161	50.035	50.139	50.077
1	1422.663	1.031	42.388	43.122*	42.686*
2	70.0311	1.021*	42.370*	43.733	42.922
3	58.951	1.051	42.404	44.396	43.211
4	43.878	1.191	42.519	45.140	43.582
5	59.800	1.201	42.519	45.769	43.837
6	75.176*	1.081	42.399	46.279	43.971
7	38.554	1.241	42.518	47.025	44.344
8	34.582	1.461	42.652	47.789	44.734

Source: Author's computation (2023)

Panel Cointegration Test

After determining the optimum lag(s) to be used in each equation estimated, the study attempts to look for the generic long-run relationships between variables. Table 5 reports the within and between-dimension panel cointegration statistics for the fiscal deficit and unemployment model. In the unemployment model, the null hypothesis of no cointegration was rejected for two test statistics at the 5 per cent significance level. Conclusively, this finding indicates at least two cointegrating equations.

Table 5: Cointegration Test Results

Within Dimension	Statistic	Probability	Between Dimension	Statistic	Probability
			Unemployment model		
Panel v-Statistic	0.369	0.355	Group rho-Statistic	3.459	0.999
Panel rho-Statistic	2.032	0.978	Group PP-Statistic	-4.845	0.000***
Panel PP-Statistic	-5.968	0.000***	Group ADF-Statistic	1.973	0.975
Panel ADF-Statistic	2.601	0.995	Cross-sections	8.000	8.000

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels

Source: Author's computation (2023)

Cross-Section Dependence and Slope Homogeneity Test

To avoid spurious regression results, the Pesaran (2004) cross-section dependence test was conducted, and the results are presented in Table 6. The results reject the null hypothesis of no cross-sectional dependence at the 1% significance level, suggesting that any shock in one country may be transmitted to other countries among the selected West African countries. The plausible reasons for this dependence could be proximity and similarities among countries in the panel. In addition, all eight West African countries selected belong to ECOWAS and are primary commodity exporters. Hence, any regression equation with such cross-sectional dependence often leads to bad results and cannot be relied upon for policy formulation. However, the cross-sectional dependence among these West African countries is crucial for the attainment of the ten macroeconomic convergence criteria in the long run. It deepens international integration within the sub-region to attain balanced development.

In addition, the slope homogeneity test results presented in the lower part of Table 7 reveal that the effect of the regressors on the regressand differs from country to country. This heterogeneity is observed because the probability value of each equation is significant at the 5 per cent and 10

per cent levels of significance. This finding reinforces why the panel ARDL-PMG technique is appropriate for this study because of its ability to generate country-specific short-run coefficients.

Table 6: Residual Cross-Section Dependence and Slope Homogeneity Test Results

	Cross-section Dependence		
Test	**Statistic**	**d.f.**	**Probability**
Breusch-Pagan LM	75.683	28	0.000***
Pesaran scaled LM	6.372	28	0.000***
Pesaran CD	4.107	28	0.000***

	Slope Homogeneity	
Equation (Eq.)	**Delta ($\tilde{\Delta}$)**	**Adjusted Delta ($\tilde{\Delta}_{adj}$)**
Unemployment	1.669*	1.817**
	[0.095]	[0.069]

Note: [ ], ***, ** and * indicate significance at the 1%, 5% and 10% levels; d.f: = degree of freedom

Source: Author's computation (2023)

Panel ARDL-PMG results

Full Sample Estimate

The objective of this study was achieved using the panel autoregressive distributed lag (ARDL) pool mean group (PMG) technique, which was also employed for the full sample. The estimated homogeneous joint long and short-run coefficients for the full sample for the unemployment model are presented in Table 7. The coefficient of 0.0671 for RGDPR indicates that a 1 per cent increase in economic growth, all things being equal, increased unemployment by 6.71 per cent in the long run, while inflation (INF) increased unemployment by 2.02 per cent in the long run within the panel but contradicts the theoretical expectation of this study. The result indicates that economic growth (RGDPR) and inflation (INF) exert a positive and significant impact on unemployment (UNEMP) in the long run at the 5 and 10 per cent levels. This finding did not merely contradict the Keynesian theory of unemployment but accurately captures the well-reported phenomenon of jobless growth predominant in many developing African countries (International Labour Organization [ILO], 2024; United Nations Economic Commission for Africa [UNECA], 2023). A recent empirical study confirms this jobless growth in Africa, suggesting that economic growth often fails to translate to wage employment (Zhang et al., 2025).

Similarly, government expenditure (GEX) and investment (INV) also exert a negative and significant joint impact on Unemployment (UNEMP) at the 10 per cent level. The coefficient of -0.0469 and -0.0002 for GEX and INV, respectively, indicates that a 1 per cent increase in government expenditure and investment, all things being equal, reduces unemployment by 4.69 and 2 per cent in the long run. This finding conforms to the theoretical expectation of this study. However, the impact of the fiscal deficit (FDE) on unemployment is positive but not significant in the long run. The inflation rate (INF) exerts a positive and significant joint impact on the unemployment rate (UNEMP) in the long run. The coefficient of 0.0202 for INF indicates that a 1 per cent increase in the inflation rate increases unemployment by 2.02 per cent within the panel.

In the short run, for the full sample, the coefficient of one period lagged unemployment [UNEMP (-1)] exerts a positive and significant impact on the current year's unemployment rate (UNEMP) at the 5 per cent level. This finding indicates that the current year's unemployment depends on its past realization in the short run. The coefficient of 0.4044 for [UNEMP (-1)] shows that a 1 per cent increase in previous unemployment increases the current year's unemployment by 40.44 in the short run within the panel. In the same vein, economic growth (RGDPR) negatively and significantly impacts the unemployment rate (UNEMP) at the 10 per cent level. The coefficient of -0.0309 for RGDPR indicates that a 1 per cent increase in economic growth reduced unemployment by 3.09 per cent in the short run. This finding is in line with the theoretical expectation of this study and contradicts its long-run coefficient.

Similarly, fiscal deficit (FDE), investment (INV) and inflation (INF) exert negative and insignificant impacts on unemployment (UNEMP) in the short run. This finding contradicts the long-run coefficients for investment and inflation. Conversely, the impact of government expenditure (GEX) is positive but insignificant in the short run, contradicting its long-run coefficient. Lastly, the short-run error correction [ECT] coefficient indicates that the unemployment model has a low speed of adjustment of 17.16 per cent from the short-run disequilibrium to the long-run equilibrium for the full sample.

Table 7: Panel ARDL-PMG Estimate for Full Sample

Dependent Variable: D(UNEMP)				
Selected Model: ARDL(2, 1, 1, 1, 1, 1) Chosen Based on Akaike Information Criteria				
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Probability**
Long-Run Coefficients				
FDE	0.063	0.042	1.479	0.140
RGDPR	0.067	0.019	3.412	0.000***
GEX	-0.046	0.027	-1.731	0.085*
INV	-0.000	0.000	-2.055	0.041**
INF	0.020	0.010	1.942	0.053*
Short-Run Coefficients				
D(UNEMP(-1))	0.404	0.084	4.783	0.000***
D(FDE)	-0.032	0.031	-1.025	0.306
D(RGDPR)	-0.030	0.017	-1.727	0.085*
D(GEX)	0.005	0.018	0.292	0.769
D(INV)	-0.000	0.000	-0.546	0.585
D(INF)	-0.002	0.002	-1.223	0.222
CONSTANT	0.873	0.291	2.993	0.003***
ECT	-0.171	0.058	-2.943	0.003***
Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels				

Source: Author's computation (2023)

Country-Specific Short-Run Estimates

Similarly, the unemployment model short-run country-specific results based on the panel ARDL-PMG regression technique are presented in Table 8. For Ghana, one-period lagged unemployment

[UNEMP (-1)], fiscal deficit (FDE), and government expenditure (GEX) exert positive and significant impacts on unemployment (UNEMP) at the 5 and 10 per cent levels, respectively. These country-specific findings indicate that a 1 per cent increase in lagged unemployment, fiscal deficit and government expenditure, all things being equal, increased unemployment by 55.53, 8.85 and 1.09 per cent, respectively. Conversely, economic growth (RGDPR), investment (INV), and inflation (INF) exert a negative impact on unemployment. This finding indicates that a 1 per cent increase in economic growth, investment and inflation reduces unemployment by 15.09, 0.06 and 1.41 per cent, respectively. Lastly, the short-run error correction [ECT] coefficient for Ghana indicates that the unemployment model has a very low speed of adjustment of 29.31 per cent from the short-run disequilibrium to the long-run equilibrium.

For the Gambia, one-period lagged unemployment [UNEMP (-1)], government expenditure (GEX), and fiscal deficit index (FDE) exert a positive impact on unemployment (UNEMP) at the 5 per cent level of significance. These country-specific findings indicate that a 1 per cent increase in lagged unemployment, government expenditure and fiscal deficit, all things being equal, increased unemployment by 81.04, 7.42, and 5.48 per cent, respectively. On the other hand, economic growth (RGDPR), investment (INV), and inflation (INF) exert a negative impact on unemployment (UNEMP). These findings also indicate that a 1 per cent increase in economic growth, investment and inflation reduces unemployment by 2.66, 0.14 and 0.76 per cent, respectively. Lastly, the short-run error correction [ECT] coefficient for Gambia indicates that the unemployment model has a very low speed of adjustment of 10.49 per cent from the short-run disequilibrium to the long-run equilibrium.

For Nigeria, one-period lagged unemployment [UNEMP (-1)], government expenditure (GEX), fiscal deficit index (FDE), and investment (INV) exert a positive and significant impact on unemployment (UNEMP) at the 5 per cent level of significance. These country-specific findings indicate that a 1 per cent increase in lagged unemployment, government expenditure, fiscal deficit (deficit/surplus), and investment, all things being equal, increased unemployment by 30.02, 0.22, 0.14, and 0.03 per cent, respectively. On the other hand, economic growth (RGDPR) and inflation (INF) exert a negative and significant impact on unemployment (UNEMP) at the 5 per cent level. This finding indicates that a 1 per cent increase in economic growth and inflation reduced unemployment by 2.31 and 0.15 per cent in the short run. This diminishing effect of economic growth could be because Nigeria relies on crude oil export revenue, consequently creating jobless growth. Lastly, the short-run error correction [ECT] coefficient for Nigeria indicates that the unemployment model has a very weak speed of adjustment of 1.42 per cent from the short-run disequilibrium to the long-run equilibrium. Comparatively, the adjustment coefficient indicates that Nigeria is the weakest among the eight selected West African countries.

For Sierra Leone, one-period lagged unemployment [UNEMP (-1)], government expenditure (GEX), and investment (INV) exert a positive and significant impact on unemployment (UNEMP) at the 5 per cent level of significance. This indicates that a 1 per cent increase in the previous year's unemployment, government expenditure and investment, all things being equal, increased unemployment by 44.59, 0.55, and 0.08 per cent in the short run. Conversely, negative impacts were observed for economic growth (RGDPR), fiscal deficit (FDE, deficit/surplus), and inflation (INF). This implies that a 1 per cent increase in economic growth, fiscal deficit and inflation reduced unemployment by 1.21, 3.29, and 0.58 per cent, respectively. Lastly, the short-run error correction

[ECT (-1)] coefficient for Sierra Leone indicates that the unemployment model has a weak speed of adjustment of 21.19 per cent from the short-run disequilibrium to the long-run equilibrium.

For Burkina Faso, one-period lagged unemployment [UNEMP (-1)], government expenditure (GEX), investment (INV), and inflation (INF) exert a positive and significant impact on unemployment (UNEMP) at the 5 per cent level, except for government expenditure, which was significant at the 10 per cent level. These findings indicate that a 1 per cent increase in lagged unemployment, government expenditure, investment and inflation, all things being equal, increased unemployment by 28.77, 0.27, 0.02 and 2.9 per cent, respectively. Conversely, the impact of economic growth (RGDPR) and fiscal deficit (FDE) was negative and significant. These findings imply that a 1 per cent increase in economic growth and fiscal deficit reduced unemployment by 1.39 and 5.74 in the short run. Lastly, the short-run error correction [ECT (-1)] coefficient for Burkina Faso indicates that the unemployment model has a medium speed of adjustment of 43.23 per cent from the short-run disequilibrium to the long-run equilibrium.

For Cote d'Ivoire, one-period lagged unemployment [UNEMP (-1)], economic growth (RGDPR), and inflation (INF) exert a positive and significant impact on unemployment at the 5 per cent level in the short run. These findings indicate that a 1 per cent increase in lagged unemployment, economic growth and inflation, all things being equal, increased unemployment by 38.80, 1.65, and 0.65 per cent, respectively. On the other hand, government expenditure (GEX), fiscal deficit (FDE), and investment exert a negative and significant impact on unemployment (UNEMP). These findings also indicate that a 1 per cent increase in government expenditure, fiscal deficit, and investments reduced unemployment by 10.76, 17.18 and 0.08 per cent. Lastly, the short-run error correction [ECT] coefficient for Cote d'Ivoire indicates that the unemployment model has a low speed of adjustment of 30.92 per cent from the short-run disequilibrium to the long-run equilibrium.

For Senegal, one-period lagged unemployment [UNEMP (-1)], government expenditure (GEX), and investment (INV) exert a positive and significant impact on unemployment (UNEMP) at a 5 per cent level in the short run. These findings revealed that a 1 per cent increase in lagged unemployment, government expenditure and investment, all things being equal, increased unemployment (UNEMP) by 52.04, 5.26, and 0.02 per cent. Similarly, economic growth (RGDPR), fiscal deficit index (FDE), and inflation (INF) exert a negative and significant impact on unemployment (UNEMP) at the 5 per cent level. These findings show that a 1 per cent increase in economic growth, fiscal deficit and inflation reduced unemployment by 2.99, 14.55 and 0.2 per cent, respectively. Lastly, the short-run error correction [ECT] coefficient for Senegal indicates that the unemployment model has a low speed of adjustment of 2.81 per cent from the short-run disequilibrium to the long-run equilibrium.

For Guinea-Bissau, one-period lagged unemployment [UNEMP (-1)], economic growth (RGDPR), and inflation (INF) exert a negative and significant impact on unemployment in the short term. These findings indicate that a 1 per cent increase in lagged unemployment, economic growth and inflation rate, and all things being equal, reduced unemployment by 0.25, 0.73, and 0.06 per cent. On the other hand, government expenditure (GEX), fiscal deficit (FDE), and investment (INV) exert a positive and significant impact on unemployment in the short run. These findings revealed that increases in government expenditure, fiscal deficit, and investment increased

unemployment by 0.34, 0.06, and 0.04 per cent, respectively. Lastly, the short-run error correction [ECT] coefficient for Guinea-Bissau indicates that the unemployment model has a low speed of adjustment of 2.09 per cent from the short-run disequilibrium to the long-run equilibrium.

Table 8: Panel ARDL-PMG Country-Specific Short-Run Estimates

	Dependent Variable: D(UNEMP) Selected Model: ARDL(2, 1, 1, 1, 1, 1) Chosen Based on Akaike Information Criteria							
Country	**D(UNEMP(-1))**	**D(FDE)**	**D(RGDPR)**	**D(GEX)**	**D(INV)**	**D(INF)**	**CONSTANT**	**ECT**
Ghana	0.555*** [0.000]	0.088*** [0.000]	-0.150*** [0.000]	0.010*** [0.035]	-0.001*** [0.0000]	-0.014*** [0.000]	2.278*** [0.031]	-0.293*** [0.000]
Gambia	0.810*** [0.000]	0.054*** [0.000]	-0.026*** [0.000]	0.074*** (0.000]	-0.001*** [0.000]	-0.007*** [0.000]	1.043*** [0.000]	-0.104*** [0.000]
Nigeria	0.300*** [0.002]	0.001*** [0.000]	-0.023*** [0.000]	[.002*** (0.000]	0.000*** [0.000]	-0.002*** [0.000]	-0.074*** [0.000]	-0.014*** [0.000]
Sierra Leon	0.445*** [0.000]	-0.032*** [0.000]	-0.012*** [0.000]	0.005*** [0.000]	0.001*** [0.000]	-0.005*** [0.000]	0.822*** [0.000]	-0.211*** [0.000]
Burkina Faso	0.287*** [0.003]	-0.057*** [0.000]	-0.013*** [0.000]	0.003** [0.049]	0.001*** [0.000]	0.003*** [0.000]	1.010*** [0.008]	-0.432*** [0.000]
Cote d'Ivoire	0.318*** [0.001]	-0.171*** [0.001]	0.016*** [0.002]	-0.107*** [0.005]	-0.001*** [0.000]	0.006*** [0.001]	1.665** [0.064]	-0.309*** [0.000]
Senegal	0.520*** [0.001]	-0.145*** [0.001]	-0.029*** [0.001]	0.052*** [0.002]	0.001*** [0.000]	-0.002*** [0.002]	0.337* [0.097]	-0.028*** [0.002]
Guinea-Bissau	-0.002 [0.942]	0.003*** [0.000]	-0.007*** [0.000]	0.003*** [0.000]	0.002*** [0.000]	-0.001*** [0.000]	-0.092*** [0.002]	-0.020*** [0.000]
Note: [ ], ***, ** and * indicate probability, and significance at the 1%, 5% and 10% levels								

Source: Author's computation (2023)

Residual Diagnostic and Robustness Check

Similarly, normality, cross-section dependence and serial correlation tests were conducted to ascertain the predictability and reliability of the estimates. The results are presented in Table 9. The outcomes indicate that the variables used are normally distributed, free from cross-sectional dependence and exhibit no serial correlation. For robustness, the fully modified OLS technique was employed, and the results obtained are presented in Table 10. The FMOLS outcomes validate the panel ARDL-PMG findings, revealing that fiscal deficit (FDE) and inflation (INF) significantly determine unemployment, though the FMOLS technique does not control for cross-section dependence as effectively as PMG. Similarly, Table 11 presents the Dumitrescu-Hurlin panel causality test results, showing one-way causality from economic growth to unemployment, confirming the jobless growth, and bidirectional causality between investment and unemployment. Lastly, the dynamic panel threshold estimates presented in Table 12 suggest that a fiscal deficit above the threshold of 1.79 per cent of GDP will increase unemployment, while below it, the effect is negative and insignificant.

Table 9: Normality, Cross-Section Dependence and Serial Correlation Test

Test	Statistic	Probability	Remark
Jarque-Bera Normality Test	0.416	0.812	Normally distributed
Residual Cross-Section Dependence Test	-0.077	0.938	No dependence
Arellano-Bond Serial Correlation Test	0.539	0.589	No serial correlation

Source: Author's computation (2023)

Table 10: FMOLS Results

Unemployment model Dependent Variable: UNEMP				
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Probability**
FDE	-0.176	0.051	-3.451	0.001***
RGDPR	-0.048	0.032	-1.493	0.136
GEX	-0.077	0.052	-1.468	0.143
INV	-0.001	0.001	-1.537	0.125
INF	0.033	0.016	1.991	0.047**
Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels				

Source: Author's computation (2023)

Table 11: Unemployment Model Causality Results

Null Hypothesis:	W-Stat.	Zbar-Stat.	Probability
RGDPR does not homogeneously cause UNEMP	5.825	4.354	0.000***
UNEMP does not homogeneously cause RGDPR	1.129	-1.245	0.213
INV does not homogeneously cause UNEMP	4.581	2.871	0.004***
UNEMP does not homogeneously cause INV	4.228	2.450	0.014***
GEX does not homogeneously cause RGDPR	5.894	4.437	0.001***
RGDPR does not homogeneously cause GEX	2.882	0.845	0.398
FDE does not homogeneously cause RGDPR	5.932	4.438	0.001***
RGDPR does not homogeneously cause FDE	2.673	0.582	0.560
FDE does not homogeneously cause GEX	3.065	1.045	0.295
GEX does not homogeneously cause FDE	4.480	2.720	0.006***
INF does not homogeneously cause GEX	1.266	-1.082	0.279
GEX does not homogeneously cause INF	5.407	3.856	0.000***
INF does not homogeneously cause FDE	3.150	1.146	0.251
FDE does not homogeneously cause INF	5.263	3.646	0.000***
Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels			

Source: Author's computation (2023).

Table 12: Dynamic Panel Threshold Estimates

Dependent Variable: Unemployment (UNEMP)			
Threshold ɤ	**Coefficient**	**95% confidence interval**	**Probability**
Positive [FDE ≥ 1.79]	0.743	[0.016 1.469]	0.044**
Negative [FDE < 1.79]	-0.123	[-0.740 0 .493]	0.694
Constant[d]	2.238	[-1.668 6.146]	0.261
Threshold Value [r]	1.798	[-6.850 10.447]	0.684

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels

Source: Author's computation (2023)

Discussion of Findings

The empirical outcomes produce critical insights into the fiscal deficit-unemployment link in West Africa. First, the long-run effect of government expenditure and investment on unemployment is negative and statistically significant. These findings align with the Keynesian theory of unemployment, affirming that public spending on infrastructure and gross capital formation is crucial for job creation. When the government injects capital into the economy, it instigates aggregate demand, prompting the private sector to expand and create more jobs. Second, an unexpected but crucial finding is the positive and significant effect of economic growth and inflation on unemployment in the long run. The negative coefficient between GDP growth and unemployment reinforces the prevalence of jobless growth across West Africa. This is partly driven by the region's dependence on capital-intensive extractive industries such as crude oil in Nigeria and gold in Ghana, which generate extreme GDP values but create marginal direct employment.
Furthermore, the positive long-run association between inflation and unemployment indicates a stagflationary stance. High inflation in these countries is often spurred by cost-push factors such as supply chain shocks and currency depreciation. Consequently, the rising prices erode the purchasing power of real wages and force firms to cut down on production and retrench workers. Third, the direct impact of fiscal deficit on unemployment in the full sample was not significant in the long run. This outcome demonstrates that merely running a budget deficit does not inevitably translate to additional jobs. If deficit spending is channelled into recurrent expenditure, such as debt servicing and public wages, rather than a productive capital investment, it will fail to produce jobs and reduce unemployment and may, in turn, fuel inflationary pressure.

Lastly, the country-specific outcomes demonstrate a profound heterogeneity. In Nigeria and Ghana, fiscal deficits provisionally increased unemployment, probably due to the crowding-out effect, where huge government borrowing pushes up interest rates and stifles the private sector's ability to create jobs. Conversely, in Francophone countries like Côte d'Ivoire and Senegal, fiscal deficit reduces unemployment significantly, mirroring a more effective transmission of expansionary fiscal policies in that bloc.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the impact of fiscal deficit on unemployment in selected West African countries (Ghana, Gambia, Nigeria, Sierra Leone, Burkina Faso, Cote d'Ivoire, Senegal and Guinea-Bissau) from 1991 to 2022 using the ARDL-PMG technique. The empirical results showed that government expenditure and investment efficiently reduce unemployment in the long run, while economic growth and inflation unexpectedly increase it, emphasizing the realities of stagflation and jobless growth in the subregion. Furthermore, the direct impact of fiscal deficit on

unemployment is insignificant at the panel level, though the FMOLS robustness check indicates that short-run dynamics vary significantly across the individual countries, as shown by the country-specific estimates. Based on these findings, we recommend the following:
First, since the overall panel fiscal deficit reveals an insignificant impact on unemployment, ECOWAS policymakers must shift the composition of their deficit spending by channeling borrowed funds into productive investment, labor-intensive capital projects such as agriculture, infrastructure and manufacturing rather than recurrent expenditure and debt servicing.

Second, to overcome the positive joint impact of economic growth on unemployment in the long run, West African countries must urgently diversify their economies away from labour-saving capital-intensive extractive industries. This can be done by ensuring that policies formulated incentivizes the agro-processing and manufacturing sectors, which have a very high employment elasticity.

Third, the finding that inflation increases unemployment in the long run necessitates strict coordination between fiscal and monetary authorities. Central banks in the sub-region should maintain an independent, aggressive inflation targeting framework in tandem with the ECOWAS inflation rate of not more than 5 per cent in the short run, while government and fiscal authorities must avoid the monetization of deficits, which directly stimulates cost-push inflation. Lastly, given the slope heterogeneity shown in the short-run country-specific outcomes, a unified fiscal policy for West Africa is ineffective. Independently, the Anglophone and Francophone ECOWAS countries should tailor their short-term countercyclical fiscal policies leveraging on their unique institutional and structural realities, as confirmed by the divergent country-specific outcomes of the study.

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