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DOES FISCAL DEFICIT MATTER FOR PRIVATE CONSUMPTION EXPENDITURE? PANEL EVIDENCE FROM SELECTED WEST AFRICAN COUNTRIES

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Abstract

The study examines the impact of fiscal deficit on private consumption expenditure in eight selected West African countries (Ghana, Gambia, Nigeria, Sierra Leone, Burkina Faso, Cote d'Ivoire, Senegal and Guinea-Bissau) from 1991 to 2022. Using the panel Autoregressive Distributed Lag pool mean group (ARDL-PMG) for the joint dynamic and country-specific effects and the Dumitrescu-Hurlin causality test for robustness check, the study addresses a crucial gap concerning cross-sectional dependence and slope homogeneity in the region. The empirical results indicate that, for the full sample, fiscal deficit and government consumption expenditure exert a positive and significant joint impact on private consumption in the long and short runs, aligning with the Keynesian multiplier and permanent-income hypotheses. However, country-specific outcomes reveal profound heterogeneity: countries such as Ghana, Sierra Leone, Côte d'Ivoire, and Senegal show positive consumption responses to fiscal deficits while Nigeria exhibits a significant crowding-out effect, and Burkina Faso demonstrates an insignificant response. In addition, inflation unexpectedly raises consumption in the short run, suggesting a survival instinct where households deplete asset holdings to afford basic necessities. Based on these findings, West African countries should restructure deficit financing towards productive capital investments to reverse crowd-out effects of fiscal deficit, harmonize fiscal policy across the Anglophone and Francophone blocs, and implement targeted, non-inflationary social safety nets to cushion adverse welfare impact of macroeconomic instability.

Keywords: ARDL-PMG, Consumption Expenditure, ECOWAS, Fiscal Deficit, West Africa.

JEL Classification: E21, E62, H31, P46, P52

1. Introduction

Long-term fiscal balance remains one of the crucial elements in macroeconomic stability and sustainable economic development, especially in emerging and developing countries where governments often resort to borrowing to finance budget deficits (Gyasi, 2020; World Bank, 2020). Resulting from the 2007 global financial crisis, concerns about the issues of fiscal deficit have deepened across developed, emerging economies and less developed countries (LDCs). Adverse shocks from the meltdown exposed fiscal vulnerabilities in public finance and prompted a new wave of debt accumulation (Nguyen, 2018; Kararach et al., 2020). This further explains why most African countries have continued to depend on external debts and aid from multilateral institutions to augment the shortfall in their financial resources for developmental projects and plans. However, these external funds have only succeeded in providing short-term fiscal stimulus with a long-term debt crisis (African Development Bank [AFDB], 2019; Beecroft et al., 2015). For instance, the region's combined external debt surged to $253.7 billion by 2019, with the mean debt-to-GDP ratio gliding near the ECOWAS macroeconomic convergence criteria of 35 per cent (International Monetary Fund [IMF], 2019; AFDB, 2019). Concomitantly, fiscal deficits in most member states of ECOWAS have consistently breached the suggested 3 per cent of GDP threshold, raising serious questions about the sustainability of present fiscal trajectories and broader macroeconomic implications within the West African region.

The linkage between fiscal deficit and private consumption expenditure is rooted in contending macroeconomic channels. On one hand, excessive

deficit financing through domestic borrowing by the government can crowd out private-sector investments, push up the interest rate, and signal future tax burdens and lead to inflationary financing or seigniorage. This inflationary pressure lowers the disposable income of households and reduces current expenditure on consumption (Kustepeli & Onel, 2004; Magehema, 2015). On the other hand, if fiscal deficits are professed to be sustainable and diverted into productive investment, they may instigate aggregate demand, improve household income expectations, and enhance private consumption through the Keynesian multiplier effects. This assertion is further concretized by the permanent income hypothesis, which suggests that households' smooth consumption is based on expected lifetime income, demonstrating that fiscal policy and deficit sustainability directly affect consumption behaviour by determining forward-looking expectations (Parker, 2010; Kelikume et al., 2017). Thus, it is not the size of the fiscal deficit that is important but its sustainability, which defines the government's ability to stabilize public debt through the adjustment in primary balance that determines its impact on household economic welfare and consumption dynamics.

In West Africa, the relationship between fiscal deficit and consumption has become increasingly precarious. Despite consistent expansionary fiscal policies designed to stimulate economic growth, mean private consumption expenditure in the region decreased from 13 per cent in 2017 to 11 per cent in 2019, while unemployment and inflation rates remained volatile with an upward trajectory (AFDB, 2019). This discrepancy indicates that fiscal expansions in the West African region have not efficiently translated into improved household welfare, probably due to procyclical spending, structural inadequacies and feeble revenue mobilization (Kufa et al., 2003; Kararach et al., 2020). Furthermore, monetary and fiscal policy frameworks differ remarkably between the Anglophone and Francophone West African countries, with the latter functioning under the CFA franc zone with centralized monetary policy and stern fiscal rules. Conversely, Anglophone countries face persistent exchange rate volatility with an autonomous fiscal framework. These structural policy differences may produce heterogeneous fiscal deficit outcomes and consumption responses, yet empirical evidence remains fragmented.

Empirically, many studies have been carried out on fiscal deficit and its macroeconomic effects using different methods and data frequencies. Extant literature on fiscal deficit and its impact on consumption shows conflicting short-run and long-run dynamics, with some studies suggesting crowding-out effects (Anderson et al., 2018; Wang et al., 2021) and others finding stimulative effects (Oladipo & Ajisafe, 2015; Owuru & Farayibi, 2016). Nevertheless, two critical gaps persist in extant literature on fiscal deficit and its macroeconomic effect. First, previous panel studies rarely account for cross-sectional dependence and slope homogeneity, resulting in possibly spurious regression outcomes in interconnected and interdependent regional blocs like ECOWAS. Second, no empirical study has analytically compared fiscal deficit and consumption responses between Anglophone and Francophone West African countries using advanced dynamic panel techniques. This oversight is crucial, given the region's dualistic institutional and policy frameworks, similar macroeconomic vulnerabilities and the urgency of meeting the ECOWAS macroeconomic convergence targets.

Against this background, this study addresses a vital policy and empirical question: Does fiscal deficit matter for private consumption expenditure in West Africa? To find an answer to the question, the study deployed a two-stage econometric approach. First, we deployed the panel autoregressive distributed lag pool mean group (ARDL-PMG) regression techniques to examine short-run and long-run impacts of fiscal deficit on private consumption expenditure, while controlling for government consumption expenditure, human capital, unemployment and inflation. The study's contribution to literature is in threefold: (1) it shifts analytical focus from the magnitude of fiscal deficit to understanding of fiscal deficit-consumption nexus, (2) it meticulously accounted for cross-sectional independence, slope homogeneity and mixed integration orders, enhancing the reliability of the outcomes, (3) it provides first empirical evidence on Anglophone and Francophone

fiscal deficit-private consumption expenditure dynamics in West African region, producing insights for regional macroeconomic convergence and welfare stabilization.

In addition to the introduction, Section 2 discusses the literature, Section 3 presents the methodology, while Section 4 is the analysis of results, and Section 5 concludes and recommends.

2. Literature Review

2.1 Conceptual Issues

Concept of Fiscal Deficit

Fiscal or budget deficit occurs when the balance of government expenditure exceeds revenue (taxes and proceeds from asset sales), including capital expenditure and income, in a particular year. When the difference between revenue and expenditure is negative, the government has a fiscal deficit; when it is positive, it is a fiscal surplus (Payne et al., 2008). Closely linked to the concept of fiscal deficit is primary balance. The primary balance is fiscal balance, excluding net interest payments on public debt (Ogbeifun & Shobande, 2020). The primary balance is the difference between revenue accruing to the government and what it spends on providing goods and services. A country has primary deficits if its expenditure exceeds its tax revenue. This implies that the government is spending more than it collects in taxes. Thus, the government sometimes borrows funds to meet its expanding expenditure, which may not be sustainable in the long run. Therefore, primary balance is a crucial indicator of the short and long-run sustainability of government finances (Musa, 2015).

Concept of Private Consumption Expenditure

Private consumption expenditure is also known as household final consumption expenditure or personal consumption expenditure. This concept is used to refer to the average total market value of all goods and services bought by households and non-profit organizations serving households within a year (Piekut & Piekut, 2022). The market value of all goods and services bought by households, including durable items like cars, washing machines, and home computers, is known as household final consumption expenditure. Theoretically, consumption expenditure includes both private and public consumption expenditures (Akpan & Udofia, 2016). The interest of this study is the household private consumption expenditure. Private consumer spending is seen as a key financial planning tool and a primary indication of economic well-being and life satisfaction (Gulcin & Aycan, 2014; du Plessis et al., 2024).

2.2 Theoretical Literature

To understand what fiscal deficit is and how it affects private consumption expenditure, the study reviewed two fundamental theories. First, the neo-classical theory of budget deficits is traceable to the seminar paper of Diamond (1965). The approach suggests that forward-looking people can look at their consumption patterns and plan their lifecycles by assuming that the economy operates at full employment (Ubi et al., 2021). This theory is anchored on three main propositions; each plays an essential role in explaining the impact of fiscal deficits. Firstly, individual consumption is assumed to be a remedy to the problem of inter-temporal optimization, wherein individuals can borrow and lend at a higher interest rate in the market (Abubakar, 2021). Secondly, it is assumed that individuals' lifespans are limited and that demand continues to exist (Musa, 2021).

The neo-classical economists in the 1900s argued that by transferring taxes to future generations, deficits could elevate total lifetime consumption. A fiscal deficit is assumed to influence an increase in the interest rate that deters private borrowing, private investment and private debt. This can raise the inflation rate and contribute to a proportionate rise in current account deficits that might dampen the pace of economic growth by reducing capital (Van & Sudhipongpracha, 2015). However, this theory has been criticized based on the crowding-in effect. These critics suggested that government spending would stimulate aggregate demand. When the economy grows, private investors ramp up production, and companies can find it an incentive to increase their capacity to satisfy the increased market demands, hence allowing additional capital to be invested in more output.

Second, the permanent-income hypothesis propounded by Milton Friedman sees consumption as an improvement on the life-cycle proposition in 1957. Instead of paying attention to the life cycle, Friedman's interest was in the problems faced by households occasioned by fluctuations in their income, macroeconomic instability, life cycle effects or other factors (Parker, 2010). The theory reflected infinite-lived households and provides disparities between a normal income level that people expect during their lifetime called permanent income, and deviations that might be positive or negative named transitory income. Similarly, Friedman assumes that permanent consumption is an aspect of consumption that is planned and recurrent, while transitory consumption is unexpected and not recurrent. He argues that permanent consumption and income are proportional and households probably spend a fraction of their lifetime income. This assertion was further emphasized by assuming that both permanent and transitory consumption are mutually independent of transitory income and transitory consumption is independent of permanent income (Kelikume et al., 2017). Therefore, consumption in Friedman's theory contains a planned part contingent on permanent income and an unplanned part that is completely independent of income. Empirically, transitory consumption is obtained from the residual of an estimated consumption function. Studies on the permanent income hypothesis often relied on a weak assumption that future income is predicted as a linear function of current years and past income.

The Keynesian fiscal deficit theory and permanent income hypothesis theory of consumption guided the fiscal deficit and consumption models, respectively. This is in addition to the solvency approach to fiscal deficit. This study relied on the theories mentioned earlier to argue that improvement in fiscal deficit can stimulate private consumption expenditure and spur economic development.

2.3 Empirical Review

Fiscal Deficit and Consumption Expenditure

There are theoretical debates on the relationship between fiscal deficit and private consumption expenditure in macroeconomics. The Keynesians observed that an increase in budget/fiscal deficit stimulates labour demand, disposable income and enhances consumption (Woldu, 2023). Meanwhile, the neoclassical economists predict that an increase in government consumption expenditure crowds out consumption of private individuals (Keho, 2016). The neoclassical position supports the Keynesian proposition only in the short run but assumes full employment of resources in the long run. The neoclassical standpoint suggests that output will not be affected by any change in budget deficit in the long run by reducing private spending due to an interest rate rise. On the contrary, the Ricardian equivalence hypothesis suggests that budget deficits do not have an effect on output and private consumption. The theory holds because it assumes that consumers are not credit or liquidity constrained.

Moreover, several studies have used Keynesian, Neoclassical and Ricardian Equivalence hypotheses to analyze the relationship between fiscal/budget deficit and private consumption. The empirical outcomes on this issue are diverse partly due to the differences in scope, estimation technique deployed and choice of control variables. For instance, Keho (2016) used a pooled mean group estimation technique on the relationship between budget deficit and household consumption to conclude that the former improves economic development through improved household consumption in WAEMU countries. This outcome is similar to Owuru and Farayibi (2016), who used the autoregressive distributed lag (ARDL) and error correction technique (ECM) to find that capital expenditure does not reduce consumption, while recurrent expenditure does. Conversely, the budget deficit was found to increase the consumption rate in Nigeria from 1980 to 2011. Likewise, Mehta (2024) used the ARDL, DOLS and FMOLS techniques to show that fiscal deficit is not important for private consumption expenditure in India between 1988 and 2023. Oladipo and Ajisafe (2015) used the vector autoregressive model and data from 1980 to 2012 to conclude that budget deficit negatively impacts the consumption level proxied by real consumption expenditure per capita in the short run and positively in the long run.

3. Methodology

3.1 Research Design

This study adopts an ex-post facto and descriptive design with econometric techniques to study the effect of fiscal deficit on private consumption expenditure in selected West African countries. The design is considered appropriate for this study because it allows researchers to examine cause and effect linkages by analyzing an already existing effect and looking backwards to identify potential causes without manipulating data (Out & James, 2015). In addition, the descriptive design was deployed based on various statistical tools such as correlation matrix, mean, median, maximum and minimum values (Nassaji, 2015). On the other hand, the econometric technique employed econometric tools to process the variables in the model to obtain results that could be interpreted for meaningful conclusions (Xie et al., 2020). These techniques were deployed because they provide the basis for identifying features, trends, frequencies, categories and give an unbiased estimate of the predicted variable.

3.2 Data and Sources

The study utilized annual data of 8 West African countries from 1991 to 2022 to capture the linkage between fiscal deficit and private consumption expenditure. The dependent variable is private consumption expenditure (CONEX). The core independent variable is fiscal deficit (FDE) expressed as a percentage of GDP. Since the neoclassical economist's hypothesis proposed that fiscal deficit will increase government consumption expenditure and crowd out consumption of private individuals, the coefficient is expected to be negative. There are four variables found to have a direct impact on consumption expenditure: government consumption expenditure (GCEX) expressed as a percentage of GDP (Haryo, 2018; Keho, 2019), human capital development (HCD) measured by primary school enrollment rate (Xie et al., 2025), unemployment rate (Gupta & Kishore, 2022; Fagereng et al., 2024), and inflation rate (EXR) measured by the consumer price index (Manasseh et al., 2018; Olusola et al., 2022). The names of the variables, description, measurements, expected signs, and sources are presented in Table 1.

Table 1: Variables, Description, Measurement, Expected Signs and Sources

Variable	Description	Measurement	Signs	Sources
CONEX	Consumption expenditure household, final	Percentage of GDP	N/A	AFDB Database
FDE	Fiscal balance, central government	Percentage of GDP	-	AFDB Database
GCEX	Government consumption expenditure, final	Percentage of GDP	+/-	AFDB Database
HCD	Human capital development, Primary	Enrollment rate	+	World Bank Database
UNEMP	Unemployment	Annual rate	-	IMF database
INF	Inflation, consumer prices	Annual percentage	-	AFDB Database

Source: Author's compilation (2024)

3.3 Specification of the Model

This equation captures the nexus between fiscal deficit and consumption expenditure, grounded in the neoclassical theory of fiscal deficit and the permanent-income hypothesis of consumption. Functionally, the relationship is expressed as:

$$CONEX_{i,t} = f(\text{FDE}_{i,t}, \text{GCEX}_{i,t}, \text{HCD}_{i,t}, \text{UNEMP}_{i,t}, \text{INF}_{i,t}) \quad [1]$$

The econometric form of equation 1 is expressed as:

$$CONEX_{i,t} = \beta_0 + \beta_1 FDE_{i,t} + \beta_2 GCEX_{i,t} + \beta_3 \text{LnHCD}_{i,t} + \beta_4 UNEMP_{i,t} + \beta_5 \text{INF}_{i,t} + \varepsilon_{i,t} \quad [2]$$

Where: $CONEX_{i,t}$ = consumption, $FDE_{,t}$ = fiscal deficit, $GCEX_{i,t}$ = government consumption expenditure, $HCD_{i,t}$ = human capital development, $UNEMP_{i,t}$ = unemployment rate, $INF_{i,t}$ = inflation rate, Ln = natural log, i = number of countries, $1, 2, \dots, N$, t = time dimension, $1, 2, \dots, T$, β_j = parameters to be interpreted as elasticities, $\mu_{i,t}$ = stochastic error term.

3.4 Method of Data Analysis

The equation developed for this study was analyzed with a mix of estimation techniques employed to investigate various aspects of the relationship and to observe the consistency of the study outcomes. 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. In addition, the cross-sectional augmented Im et al. (2003) 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. In addition, the first and second-generation panel cointegration tests proposed by Pedroni (1999, 2004) were employed to know if there is a long-run relationship among the variables in this study. The null hypothesis of no cointegration was rejected at the 1% and 5% significance levels.

Within the panel ARDL-PMG technique framework, the empirical analysis started by testing for cross-sectional dependence among the countries to know the appropriate technique to apply. According to Ditzen (2016), some of the benefits of panel data studies include but are not limited to better degrees of freedom, greater efficiency of the estimates, and reduced occurrence of multicollinearity among the variables. However, the possibility of having cross-sectional dependent panels may be very high due to the proximity of the units and the possibility of sharing common features. Spurious estimates and inferences can occur if the data has cross-sectional dependence (CSD) (Pesaran, 2004). To avoid this, this study engaged the Pesaran (2004, 2007) test for cross-sectional dependence (CD), which is also applied to small and large panels. The null hypothesis of no CSD is rejected at the 5% and 10% levels of significance. Similarly, the validity of the non-constancy of slope homogeneity in the coefficients among cross-sections instigates the importance of slope heterogeneity (Eberhardt & Teal, 2012; Gunduz, 2017). For this reason, this study used the slope homogeneity test developed by Pesaran and Yamagata (2008). This test extends the Swamy test developed in 1970 called the delta $\tilde{\Delta}$ test that is applied to cross-sections relatively small in the time dimension.

In addition, the autoregressive distributed lag-pool mean group (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: (1) it can be applied regardless of whether the variables are integrated of pure order I(0), I(1) or a mixture of the two (Olayungbo, 2021), (2) it accounts for both heterogeneous and homogeneous coefficients, (3) controls for cross-sectional dependence; (4) support instrumental variable regressions; (5) suitable for balanced and unbalanced panels; (5) corrects for slight sample bias (Chudik & Pesaran, 2015). In addition, this technique is crucial because it helps identify effects for each cross-section separately and accounts for unobserved dependencies between the units. The panel ARDL-PMG equation is specified as:

$$\Delta y_{i,t} = \emptyset_i(y_{i,t-1} - \theta_i x_{i,t}) + \delta_{0,i} + \delta_{1,i}\Delta x_{i,t} + \epsilon_{i,t} \quad [3]$$

Where $\emptyset_i$ represents the error correction speed of adjustment. The panel ARDL-PMG estimation assumes the long-run effects, (θ_i) to be homogeneous, while the short-run effects ($\boldsymbol{\delta}$) are heterogeneous. In addition, the study employed the fully modified ordinary least squares (FMOLS) instigated by Pedroni (1999, 2001) for robustness check. The FMOLS is a non-parametric approach to dealing with serial correlation among variables in an equation. This technique gives consistent estimates of the parameters in small sample data and controls for likely endogeneity of the regressors and serial autocorrelation. Ramirez (2006) simplifies the FMOLS estimator for the *i*th unit as:

$\beta_i^* = (X_i'X_i)^{-1}(X_i'y_i^* - T\boldsymbol{\delta})$ [4]

Where y^* is the transformed endogenous variable, δ is the parameter for autocorrelation adjustment, and T is the number of periods.

Lastly, robustness checks were also conducted to know the causal relationship among variables in the model by employing the Dumitrescu and Hurlin (2012) non-causality test. This technique was used because it accommodates heterogeneity and cross-sectional dependence among the constituent units that make up the panel, which other Granger causality tests do not have. Similarly, the technique can provide reliable estimates for small sample data. The model that guides the D-H technique is expressed as:

$Y_{i,t} = \delta_i + \sum_{i=1}^{P} \gamma_i^{(\rho)} X_{i,t-n} + \sum_{i=1}^{P} \varphi_i^{(\rho)} Y_{i,t-n} + \varepsilon_{i,t}$ [5]

Where n represents lag length, X and Y are variables in the panel for n cross-sections in time t, $\gamma_i^{(\rho)}$ and $\varphi_i^{(\rho)}$ are the autoregressive parameters and regression coefficients across the constituent units. The hypotheses that guide the D-H (2012) technique are expressed as:

$H_0 : \gamma_i = \cdots \gamma_p = 0 \quad \forall_i = 1, 2, \ldots, N$

Against the alternative:

$H_i : \gamma_i \neq \cdots \gamma_p \neq 0 \quad \forall_i \neq 1, 2, \ldots, N$

4. Results and Discussion

4.1 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. From the results obtained, it is evident that human capital development (HCD), consumption (CONEX), and inflation rate (INF) have average values of 81.55, 69.59 and 10.50, respectively. It is safe to conclude that West Africa has high primary enrollment, consumption expenditure and inflation rates. The possible explanation for this could be that these countries have maximum consumption expenditure and inflation values of 113.99 and 102.69, respectively. 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
CONEX	256	69.5921	69.0555	18.1493	23.8542	113.9964
FDE	248	-0.1414	-0.1960	3.1229	-13.2169	8.2982
GCEX	256	19.6005	20.2546	6.1694	4.4532	50.1026
HCD	256	81.5481	82.3976	21.6494	32.5577	156.4500
UNEMP	256	4.9069	4.0820	2.0725	1.9000	10.4600
INF	256	10.5019	5.9359	14.4308	-3.6585	102.6942

Source: E-Views 10 (2024)

4.2 Correlation Matrix

The result of the correlation matrix is presented in Table 3. The relationship between the fiscal deficit (FDE) and consumption (CONEX) is negative, but positive for unemployment (UNEMP). This indicates that fiscal deficit, all things being equal, reduced consumption but contributed to increasing unemployment within the West African sub-region. The plausible reason for the positive relationship between fiscal deficit and unemployment could be that expenditures incurred by the selected West African countries are not directed at economic activities that are capable of generating a chain of employment opportunities. There is no evidence of a perfect linear relationship among the regressors, given that most of the correlation coefficients are below a 0.80 per cent strong correlation threshold. Hence, there is no evidence of multicollinearity among the variables used in this study.

Table 3: Correlation Matrix Result

Variable	CONEX	FDE	GCEX	HCD	UNEMP	INF
CONEX	1.0000					
FDE	-0.0119	1.0000				
GCEX	0.1786	-0.4871	1.0000			
HCD	0.4518	-0.0256	0.0443	1.0000		
UNEMP	-0.0364	0.0617	-0.1203	-0.1514	1.0000	
INF	-0.3527	-0.2099	0.0427	-0.1105	-0.0686	1.0000

Source: E-Views 10 (2024)

4.3 Unit Root Tests

The Im, Pesaran and Shin (IPS, 2003) 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, fiscal deficit (FDE), government consumption expenditure (GCEX) and inflation (INF) are stationary at level and integrated at order I(0) with trend specifications at 5 per cent level of significance. Conversely, consumption (CONEX), human capital development (HCD), and unemployment (UNEMP) became stationary after first difference and integrated of order I(1) with trend specifications at 5 per cent level of significance. Thus, variables included in the equations developed for this study exhibited a mixed order of integration and therefore, 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	IPS				FISHER ADF				Remark
	Level	Prob.	1st Difference	Prob.	Level	Prob.	1st Difference	Prob.	
CONEX	-1.4237	0.0773	-8.7254	0.0000***	0.5354	0.7038	-6.8888	0.0000***	I(1)
FDE	-2.1097	0.0174	NA	NA	-2.2233	0.0131***	NA	NA	I(0)
HCD	0.8290	0.7965	-3.2962	0.0005***	2.9714	0.9985	-2.6368	0.0042***	I(1)
GCEX	-3.0704	0.0011***	NA	NA	-1.6807	0.0464***	NA	NA	I(0)
UNEMP	0.5341	0.7034	-5.8939	0.0000***	-0.1691	0.4329	-4.1413	0.0000***	I(1)
INF	-6.5201	0.0000***	NA	NA	-5.2889	0.0000***	NA	NA	I(0)

Note: *** indicate statistical significance at the 5% level; Prob. = probability; NA = not applicable

Source: E-Views 10 (2024)

4.4 Panel Cointegration Test

After determining the order of integration, the study attempts to look for the long-run relationships among variables. Table 5 reports the within and between-dimension panel cointegration statistics for the fiscal deficit-consumption model. For the fiscal deficit equation, the null hypothesis of no cointegration is rejected for two test statistics out of the seven at the 5 per cent significance level. Four were observed for the consumption model at the 5 and 10 per cent significance levels. Conclusively, this finding indicates at least two cointegrating equations model developed for this study.

Table 5: Cointegration Test

Within Dimension	Statistic	Probability	Between Dimension	Statistic	Probability
Consumption Equation					
Panel v-Statistic	1.6603	0.0484***	Group rho-Statistic	-0.2463	0.4027
Panel rho-Statistic	-1.3060	0.0958**	Group PP-Statistic	-13.2962	0.0000***
Panel PP-Statistic	-8.9944	0.0000***	Group ADF-Statistic	3.4461	0.9997
Panel ADF-Statistic	1.8399	0.9671	Cross-sections	8.0000	8.0000

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

Source: E-Views 10 (2024)

4.5 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.

The cross-sectional dependence is also crucial for harmonisation of monetary, fiscal and financial policies and macroeconomic stability in line with the ECOWAS convergence and stability pact. Thus, the need to use a technique that accounts for cross-sectional dependence among constituent units that make up the panel. In addition, the slope homogeneity test results presented in the lower part of Table 6 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	75.6839	28	0.0000***
Pesaran scaled LM	6.3720	28	0.0000***
Pesaran CD	4.1072	28	0.0000***
Slope Homogeneity			
Equation (Eq.)	**Delta ($\tilde{\Delta}$)**	**Adjusted Delta ($\tilde{\Delta}_{adj}$)**	

Source: E-Views 10 (2024)

Consumption	9.266***	10.280***
	[0.000]	(0.000)
Note: [ ], *** and ** indicates probability, significance at 5% and 10%; d.f: = degree of freedom		

4.6 Panel ARDL-PMG Results

Estimated Long and Short-Run Coefficients for Full Sample Consumption Model

The objectives of this study were achieved using the panel autoregressive distributed lag (ARDL) pool mean group (PMG) technique, which was also employed for the full sample. The estimated dynamic long and short-run coefficients for the full sample consumption model are presented in Table 7. The result indicates that government consumption expenditure (GCEX) and unemployment (UNEMP) exert a positive and significant impact on consumption (CONEX) in the long run at the 5 per cent level. The coefficient of 0.4627 for GCEX indicates that a 1 per cent increase in government consumption expenditure, all things being equal, increased consumption by 46.27 per cent in the long run. In contrast, unemployment increased consumption in the long run within the panel.

Similarly, the fiscal deficit (FDE) and human capital development (HCD) also exert a positive and significant joint impact on consumption (CONEX) at the 10 and 5 per cent levels. The coefficient of 0.3112 and 0.2097 for FDE and HCD, respectively, indicates that a 1 per cent increase in fiscal deficit and human capital development increased consumption by 31.12 and 20.97 per cent in the long run. Expectantly, the inflation rate (INF) negatively impacts the consumption expenditure (CONEX). The coefficient of -0.7528 for INF indicates that a 1 per cent increase in the inflation rate reduces consumption by 75.28 per cent within the panel.

In the short run, for the full sample, the coefficient of government consumption expenditure (GCEX) is still positive but insignificant. Similarly, human capital development (HCD) and unemployment (UNEMP) exert a negative but insignificant impact on consumption (CONEX). However, the coefficients of the fiscal deficit (FDE) and inflation (INF) positively and significantly impact consumption at the 10 and 5 per cent levels, respectively. The coefficient of 0.5623 and 0.1925 for FDE and INF indicates that a 1 per cent increase in fiscal deficit and inflation in the short run increased consumption by 56.23 and 19.25 per cent, respectively, within the West African region.

Similarly, the consumption model short-run country-specific results based on the panel ARDL-PMG regression technique are presented in Table 8. For Ghana, government consumption expenditure (GCEX), fiscal deficit (FDE), human capital development (HCD), and inflation (INF) exert a positive and significant impact on consumption (CONEX) at the 10 per cent level of significance. Conversely, the effect of unemployment (UNEMP) was negative but not significant. Lastly, the short-run error correction [ECT (-1)] coefficient for Ghana indicates that the consumption model has a low speed of adjustment of 21.71 per cent from the short-run disequilibrium to the long-run equilibrium.

For Gambia, government consumption expenditure (GCEX) and human capital development (HCD) exert a negative but insignificant impact on consumption (CONEX) in the short run. Similarly, the fiscal deficit (FDE), unemployment (UNEMP), and inflation (INF) exert a positive and insignificant impact on consumption (CONEX). Lastly, the short-run error correction [ECT (-1)] coefficient for Gambia indicates that the consumption model has a medium speed of adjustment of 46.33 per cent from the short-run disequilibrium to the long-run equilibrium.

For Nigeria, government consumption expenditure (GCEX) and inflation positively and significantly impact consumption (CONEX) at the 10 per cent level. On the other hand, the effect of the fiscal deficit (FDE) and human capital development was negative and statistically significant at the 5 per cent level. Conversely, unemployment (UNEMP) also exerts a negative but insignificant impact on consumption

(CONEX) in the short run. Lastly, the short-run error correction [ECT (-1)] coefficient for Nigeria indicates that the consumption model has a very low speed of adjustment of 6.75 per cent from the short-run disequilibrium to the long-run equilibrium. Thus, Nigeria has the lowest rate of adjustment among the groups in the panel.

For Sierra Leone, government consumption expenditure (GCEX), fiscal deficit (FDE), and inflation (INF) exert positive and significant impacts on consumption (CONEX) at the 10 and 5 per cent levels, respectively. Conversely, the effect of human capital development was negative and significant at the 5 per cent level, while unemployment (UNEMP) was also negative but insignificant. Lastly, the short-run error correction [ECT (-1)] coefficient for Sierra Leone indicates that the consumption model has a medium speed of adjustment of 40.42 per cent from the short-run disequilibrium to the long-run equilibrium.

For Burkina Faso, government consumption expenditure (GCEX) negatively and significantly impacts consumption (CONEX) at the 10 per cent level in the short run. Similarly, the impact of the fiscal deficit (FDE), human capital development (HCD), and unemployment (UNEMP) are negative and insignificant. However, the impact of inflation (INF) is positive and significant at the 5 per cent level. Lastly, the short-run error correction [ECT (-1)] coefficient for Burkina Faso indicates that the consumption model has a very low speed of adjustment of 30.18 per cent from the short-run disequilibrium to the long-run equilibrium.

For Côte d'Ivoire, government consumption expenditure (GCEX), fiscal deficit (FDE), and inflation (INF) impact consumption (CONEX) positively at the 5 per cent level of significance. On the other hand, the impact of human capital development (HCD) is negative and significant at the 10 per cent level, while unemployment (UNEMP) is negative but insignificant. However, the effect of inflation (INF) is positive and significant at the 5 per cent level. Lastly, the short-run error correction [ECT (-1)] coefficient for Cote d'Ivoire indicates that the consumption model has a very low speed of adjustment of 37.83 per cent from the short-run disequilibrium to the long-run equilibrium.

For Senegal, the impact of government consumption expenditure (GCEX) and fiscal deficit (FDE) is positive and significant at the 10 per cent level. The positive effects of human capital development (HCD) and unemployment (UNEMP) are insignificant. However, inflation (INF) negatively and significantly impacts consumption (CONEX) at the 5 per cent level. Lastly, the short-run error correction [ECT (-1)] coefficient for Senegal indicates that the consumption model has a very low speed of adjustment of 30.68 per cent from the short-run disequilibrium to the long-run equilibrium.

For Guinea-Bissau, government consumption expenditure (GCEX), fiscal deficit (FDE), and unemployment (UNEMP) exert a negative and insignificant impact on consumption (CONEX) in the short run. Similarly, the impact of human capital development (HCD) on consumption (CONEX) is positive and insignificant. However, the inflation rate (INF) positively and significantly impacts consumption (CONEX) at the 5 per cent level. Lastly, the short-run error correction [ECT (-1)] coefficient for Guinea-Bissau indicates that the consumption model has a very low speed of adjustment of 22.29 per cent from the short-run disequilibrium to the long-run equilibrium.

Table 7: Panel ARDL-PMG Estimate for Full Sample Consumption Model

Dependent Variable: D(CONEX)				
Selected Model: ARDL (1, 1, 1, 1, 1, 1) chosen based on Akaike information criteria				
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Probability**
Long-Run Coefficients				
FDE	0.3112	0.1854	1.6785	0.0950**
GCEX	0.4627	0.1430	3.2357	0.0014***

HCD	0.2097	0.0747	2.8072	0.0056***
UNEMP	1.5732	0.3003	5.2388	0.0000***
INF	-0.7528	0.0613	-12.2825	0.0000***
Short-Run Coefficients				
D(FDE)	0.5623	0.3155	1.7821	0.0764**
D(HCD)	-0.2286	0.3164	-0.7223	0.4711
D(UNEMP)	-2.1201	1.4174	-1.4958	0.1365
D(INF)	0.1925	0.0380	5.0653	0.0000***
CONSTANT	24.2688	9.0861	2.6709	0.0083***
@TREND	0.0627	0.1644	0.3811	0.7036
ECT(-1)	-0.5077	0.1676	-3.0291	0.0028***

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

Source: E-Views 10 (2024)

Table 8: Panel ARDL-PMG Estimation for Short-Run Country-Specific Consumption Model

Dependent Variable: D(CONEX)

Selected Model: ARDL(1, 1, 1, 1, 1, 1) Chosen Based on Akaike Information Criteria

Country	D(FDE)	D(GCEX)	D(HCD)	D(UNEMP)	D(INF)	CONSTANT	ECT(-1)
Ghana	1.2401***	1.5589***	1.0799***	-1.5818	0.0717***	7.6869	-0.2171***
	[0.0414]	[0.0078]	[0.0142]	[0.4152]	[0.0210]	[0.7347]	[0.0003]
Gambia	0.4476	-0.6647	-2.1250	1.1282	0.2687	9.2973	-0.4633***
	[0.6454]	[0.4644]	[0.1622]	[0.9659]	[0.5880]	[0.8113]	[0.0003]
Nigeria	-0.5873***	0.3419***	-0.5107***	-10.9201	0.0689***	3.7778	-0.0675***
	[0.0044]	[0.0112]	[0.0024]	[0.8301]	[0.0083]	[0.7821]	[0.0049]
Sierra Leon	1.7845***	0.5736***	-0.2177***	-4.8208	0.2287***	80.5357	-0.4042***
	[0.0082]	[0.0165]	[0.0015]	[0.8745]	[0.0002]	[0.4146]	[0.0000]
Burkina Faso	-0.3653	-0.5671***	-0.0834	-0.6897	0.1403***	18.2610	-0.3018***
	[0.3033]	[0.0484]	[0.3446]	[0.9213]	[0.0005]	[0.7376]	[0.0002]
Cote d'Ivoire	0.8355***	0.7069***	-0.1268***	-0.4311	0.3153***	43.0253	-0.3783***
	[0.0018]	[0.0054]	[0.0172]	[0.1025]	[0.0000]	[0.6084]	[0.0000]
Senegal	1.3939**	1.0512***	0.0728	1.0351	0.1133***	13.9956	-0.3068***
	[0.0548]	[0.0163]	[0.7550]	[0.3910]	[0.0008]	[0.6728]	[0.0002]
Guinea-Bissau	-0.2507	-0.1092	0.0823	-0.6809	0.3334***	17.5711	-0.2229***
	[0.1207]	[0.2036]	[0.6138]	[0.9976]	[0.0004]	[0.7714]	[0.0010]

Note: [ ], *** and ** indicate probability and significance at the 5% and 10% levels

Source: E-Views 10 (2024)

Residual Diagnostic Test

Similarly, normality, cross-section dependence and serial correlation tests were conducted to ascertain the predictability and reliability of the fiscal deficit equation estimates. The results are presented in Table 9. The results indicate that the variables used in the fiscal deficit equations are normally distributed, and the null hypothesis of no cross-section dependence and serial correlation is accepted.

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

Test	Statistic	Probability	Remark
Jarque-Bera Normality Test	0.4164	0.8120	Normally distributed
Residual Cross-Section Dependence Test	-0.0777	0.9381	No dependence
Arellano-Bond Serial Correlation Test	0.5396	0.5894	No serial correlation

Source: E-Views 10 (2024)

Robustness Check

For robustness of the results obtained from the full sample panel ARDL-PMG estimation technique, the consumption model was further analyzed using the fully modified OLS technique. The results obtained for each equation are presented in Table 10. In the consumption model, government consumption expenditure (GCEX), fiscal deficit (FDE), and human capital development (HCD) are vital variables that influenced consumption in the panel of the selected West African countries. Specifically, the FMOLS technique validates the outcomes from the panel ARDL-PMG technique, indicating that the fiscal deficit (FDE) increases consumption by 48 per cent. Similarly, human capital development (HCD) increases consumption (CONEX) by 38 per cent, respectively, in the long run, and is significant at the 5 per cent level. In general, the results from FMOLS analysis are in tandem with those of panel ARDL-PMG estimates, except for unemployment (UNEMP) and inflation (INF) in the consumption model. This could be because the panel ARDL-PMG technique controls for dependence among these selected West African countries. Hence, reliance on the result of the FMOLS technique alone may give flawed and ambiguous outcomes, given the likelihood of common shocks permeating across the countries.

Table 10: FMOLS Results for Consumption Model

Dependent Variable: CONEX				
FDE	0.4803	0.2112	2.2737	0.0240***
GCEX	0.5064	0.1465	3.4567	0.0007***
HCD	0.3821	0.0762	5.0147	0.0000***
UNEMP	-0.0893	1.7263	-0.0517	0.9588
INF	-0.0425	0.0694	-0.6122	0.5411

Note: *** indicates probability and significance at the 5% level

Source: E-Views 10 (2024)

In addition, Tables 11 present the statistically significant results of the causality tests from the Dumitrescu and Hurlin (2012) tests. The causal link among variables in the consumption model indicates the consistency of the results from the panel ARDL-PMG and FMOLS techniques. The outcome indicates a bidirectional relationship between the fiscal deficit (FDE) and consumption (CONEX), indicating a feedback relationship between them. Similarly, two-way causality was also found between human capital development (HCD) and consumption (CONEX), indicating that the primary school enrollment rate causes consumption and

vice versa. Surprisingly, consumption (CONEX) Granger causes inflation (INF), indicating that increased household final consumption expenditure increased the inflation rate in the selected West African countries. Conversely, government consumption expenditure (GCEX) homogeneously causes a fiscal deficit (FDE), indicating that an increase in government spending increases the fiscal deficit within the study period. Similarly, government consumption expenditure (GCEX) causes inflation (INF), indicating that high government spending increases the volume of money in circulation and causes inflation. Unidirectional causality was observed between human capital development (HCD) and fiscal deficit, revealing that primary school enrollment promoted fiscal deficit.

In addition, the fiscal deficit (FDE) homogeneously causes inflation (INF), implying that fiscal surplus, when not managed adequately, might lead to hyperinflation. Lastly, unidirectional causality was observed between human capital development (HCD) and inflation rate, indicating that an increased primary school enrollment caused inflation within the study period.

Table 11: Consumption Model Causality Results

Null Hypothesis:	W-Stat.	Zbar-Stat.	Probability
FDE does not homogeneously cause CONEX	4.0309	2.1882	0.0287***
CONEX does not homogeneously cause FDE	3.6607	1.7501	0.0801**
HCD does not homogeneously cause CONEX	5.7278	4.2379	0.0002***
CONEX does not homogeneously cause HCD	4.2875	2.5204	0.0117***
INF does not homogeneously cause CONEX	2.1679	-0.0072	0.9942
CONEX does not homogeneously cause INF	5.5102	3.9784	0.0007***
FDE does not homogeneously cause GCEX	3.0652	1.0453	0.2959
GCEX does not homogeneously cause FDE	4.4808	2.7206	0.0065***
INF does not homogeneously cause GCEX	1.2664	-1.0822	0.2792
GCEX does not homogeneously cause INF	5.4079	3.8563	0.0001***
HCD does not homogeneously cause FDE	4.5426	2.7938	0.0052***
FDE does not homogeneously cause HCD	2.6036	0.4991	0.6177
INF does not homogeneously cause FDE	3.1508	1.1467	0.2515
FDE does not homogeneously cause INF	5.2631	3.6464	0.0003***
INF does not homogeneously cause HCD	1.7825	-0.4668	0.6406
HCD does not homogeneously cause INF	5.4347	3.8884	0.0001***

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

Source: E-Views 10 (2024)

4.7 Discussion of Major Findings

The full sample long-run joint coefficient shows that fiscal deficit (FDE), government consumption expenditure (GCEX), human capital development (HCD), and unemployment (UNEMP) exert a positive and significant impact on private consumption

expenditure, while the impact of inflation rate (INF) is negative and significant. In terms of fiscal deficit and private consumption, these findings uphold this study's theoretical expectations of the permanent-income hypothesis regarding signs of the coefficient, indicating that when households perceive deficit-financed government expenditure as sustainable and directed towards productive investment, it boosts lifetime income expectations and consumption. This contradicts the neoclassical crowding-out hypothesis and empirical studies such as Anderson et al. (2018) and Wang *et al.* (2021).

Contrary to the Keynesian expectations, unemployment positively instigates consumption in West Africa in the long-run. This unexpected finding reflects the region's reliance on the informal sector, remittance inflows and the depletion of households' savings to maintain basic consumption levels in the presence of formal joblessness. In the short-run, both fiscal deficit and inflation exert a positive and significant impact on private consumption expenditure. This finding aligns with the Keynesian short-term stimulus for fiscal deficit, but the positive effect of inflation on private consumption is abnormal. These findings project a survival instinct wherein households are forced to maintain or sometimes increase consumption expenditure to afford basic necessities of life despite soaring prices, effectively serving as a tax on the poor.

Fundamentally, the country-specific ARDL-PMG outcomes presented in Table 8 disclose profound heterogeneity that challenges a "one medicine cures all" regional policy approach. Among the Anglophone countries, Ghana and Sierra Leone show a strong, positive impact of fiscal deficit on private consumption, suggesting effective fiscal policy transmission. Conversely, Nigeria presents an anomaly wherein fiscal deficit exerts a negative and statistically significant impact on private consumption in addition to a weak speed of adjustment of 6.75 per cent. These findings project severe crowding-out effects in Nigeria, where deficit-financing is most likely absorbed by debt servicing or non-productive recurrent spending rather than income-generating investments. In addition, Gambia showed an insignificant relationship between fiscal deficit and private consumption, indicating a largely weak fiscal multiplier.

Among the Francophone nations, Côte d'Ivoire and Senegal reveal positive and significant impacts of fiscal deficit on private consumption expenditure, indicating that the centralized CFA franc framework with a stricter fiscal policy rule may enhance better absorption of fiscal stimulus. Contrarily, Burkina Faso and Guinea-Bissau display a negative impact of fiscal deficit on private consumption, likely due to the security challenges and weak institutional capacity that erode the multiplier effect of public spending. Furthermore, human capital development exerts a negative and significant impact on private consumption in Nigeria, Sierra Leone, Cote d'Ivoire, and Burkina Faso, indicating that education expenditures in the form of primary school enrollment in these countries are not yet translating into immediate employability and income gains for households.

5. Conclusion and Recommendations

This study examined fiscal deficit and private consumption expenditure in eight selected West African countries (Ghana, Gambia, Nigeria, Sierra Leone, Burkina Faso, Cote d'Ivoire, Senegal and Guinea-Bissau) from 1991 to 2022. Using the panel ARDL-PMG estimation technique, the empirical results confirmed cointegration among the variables used in the study. For the full sample, fiscal deficit and government consumption expenditure exert positive and significant impacts on private consumption expenditure in both the short and long runs. Human capital development, measured by primary school enrollment rate and unemployment, positively impacts private consumption expenditure in the long run, while inflation impedes private consumption expenditure in the long run but unexpectedly increases it in the short run due to consumption survival instinct.

In addition, the country-specific outcomes revealed a crucial heterogeneity between the Anglophone and Francophone countries. Specifically, Ghana, Sierra Leone, Côte d'Ivoire, and Senegal experienced a stimulative Keynesian effect of fiscal deficits within the

study period. For Nigeria, the result indicates a significant crowding-out effect, while it is insignificant for Burkina Faso and Guinea-Bissau. This divergence reinforces the weakness of a uniform macroeconomic convergence criterion across the ECOWAS region, mainly given the structural and institutional variances between the Anglophone and Francophone blocs. Based on these findings, the study recommends the following:

I. Governments of the individual countries must accept the ECOWAS convergence criteria with caution. This is because economies with negative fiscal multipliers such as Nigeria and Burkina Faso should urgently restructure their deficit financing. This can be done by ensuring that borrowed funds are channelled into capital and developmental expenditure that can generate employment and productivity, rather than recurrent expenditure to reverse the crowd-out effect on private consumption.

II. The heterogeneous outcomes between the fiscally independent Anglophone countries and the centralized Francophone economies reveal a strong need for policy harmonization. ECOWAS should strengthen the enforcement of the convergence criteria by providing targeted assistance to member countries such as Nigeria, with slow speed of adjustment, to improve fiscal policy transmission.

III. The contradiction of the negative relationship between inflation and consumption in the short run shows that households are depleting their asset holdings to survive. In this instance, monetary and fiscal policy authorities must coordinate to anchor inflation expectations below the 5 per cent ECOWAS benchmark. This should be done by implementing non-inflationary social safety nets such as conditional transfer payments rather than deficit-financed subsidies that trigger inflationary pressure. The negative short-run impact of human capital development on consumption in three of the selected countries (Nigeria, Sierra Leon, and Côte d'Ivoire) indicates a disconnect between education expenditure and labour supply. Governments of West African States should pivot education spending towards technical and vocational education (TVE) that can yield immediate employability. If this is done, it will shorten the lags between human capital investment and household income generation, thereby sustaining consumption growth in the long-run.

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