

ASSESSING THE ROLE OF AGRICULTURE IN DRIVING EMPLOYMENT AND ECONOMIC DEVELOPMENT ACROSS ECOWAS NATIONS

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Abstract

This study assesses the role of agriculture in driving employment and economic development across the fifteen (15) ECOWAS member states. Using the Dynamic Fixed Effects (DFE) estimator within the Panel Autoregressive Distributed Lag (PARDL) framework, the analysis explores both the short- and long-run relationships among agricultural output, regional employment, and economic development. The findings reveal a complex relationship: agricultural output, regional employment, their interaction term, industrial value added, and government consumption expenditure exert negative long-run effects on economic development in the region. In contrast, foreign direct investment demonstrates a positive and significant long-run impact on economic development among ECOWAS countries. The results further showed that government consumption expenditure consistently imposes negative effects in both the short and long run, while industrial value added exhibits a strong positive effect on employment and economic development. Although foreign direct investment contributes positively to economic development, it showed limited influence on employment outcomes. Importantly, the positive and significant short-run effect of the interaction between agricultural output and employment suggests that the two variables should not be considered in isolation. Overall, the study concludes that sustainable economic development in ECOWAS requires strengthening agricultural productivity in ways that complement employment creation. Policy measures should therefore prioritize modernizing agricultural systems, improving access to inputs and technology, enhancing rural employment programmes, and encouraging targeted foreign investment that supports agro-industrial value chains.

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1. INTRODUCTION

Economic development first became a major concern after World War II. As the era of European colonialism ended, many former colonies and other countries with low living standards came to be termed underdeveloped countries, to contrast their economies with those of the developed countries, which were understood to be Canada, the United States, those of western Europe, most eastern European countries, the then Soviet Union, Japan, South Africa, Australia, and New Zealand. As living standards in most poor countries began to rise in subsequent decades, they were renamed the developing countries. There is no universally accepted definition of what a developing country is; neither is there one of what constitutes the process of economic development. Developing countries are usually categorized by a per capita income criterion, and economic development is usually thought to occur as per capita incomes rise. A country's per capita income (which is almost synonymous with per capita output) is the best available measure

of the value of the goods and services available, per person, to the society per year. Although there are a number of problems of measurement of both the level of per capita income and its rate of growth, these two indicators are the best available to provide estimates of the level of economic well-being within a country and of its economic growth.

Moreover, according to Seers (1979) the purpose of development is to reduce poverty, inequality, and unemployment. For Amartya Sen (1999), development involves reducing deprivation or broadening choice. Deprivation represents a multidimensional view of poverty that includes hunger, illiteracy, illness and poor health, powerlessness, voicelessness, insecurity, humiliation, and a lack of access to basic infrastructure (Narayan *et al.*, 2000). There are also claims in the literature that Agricultural driven growth is capable of generating a large welfare effect than the non-Agriculturally driven growth, especially for the developing countries (World Bank, 2007) through growth in productivity which plays a key role in the food demand and employment growth amongst residents in becoming source of income to the farmers and also a major suppliers of raw material to the agro based industries. The 15 members of ECOWAS has a main goal to promote economic cooperation among member states in order to raise the living standards and promote economic development. They also function on a regular platform policy harmonization (facilitates trade) by integrating regional trade and increase external trade of processed goods thereby creating jobs, emphasis is placed on helping member states understand that adhering to the supra-national level will bring benefit to the national level. The contribution of agricultural sector to the economy cannot be overemphasized when considering the building of roles for sustainable development, in terms of employment potentials, export and financial impact on the economy (Olowofeso, 2017). Agriculture has also provided raw materials and food for the evergrowing population of the Nigerian economy. The Agricultural sector holds a lot of potentials for future economic developments, due to its dominate role creating employment, export in domestically produced goods like groundnuts, cocoa, palm kernel oil and thus influenced aggregate growth which contributes to the development of any nation.

According to FAO, 1.3 billion people engage in different forms of Agriculture across the globe and 97% are from the developing countries and 30 to 50 % of income of the households in the rural areas are generated through agriculture as such, Agriculture has been seen as a great potential to provide employment, reduce poverty among the rural farmers. It will be noteworthy to state the fact that Export of Agricultural commodities is the main source of ECOWAS trade externally in which six billion dollars is generated out of palpable and impalpable commodities are exported from the region. Currently, about 80% of the ECOWAS population's food requirement are met by regional produce, but over the next few years, West African Agriculture will have the need to meet the demographic growth demand. Presently, the projection is to surpass 500million by 2030 (Osabohien *et al.*, 2019). The contemporary world issues such as economic growth, equality, human welfare development, and happiness, have taken the limelight in the recent time owing to the perpetual divergence between limited resources and natural propensity of increasing and expansion of human needs and wants. In this specific setting, it forces the contribution of all resources, explicitly the active and decisive

productive factors such as labour, towards the improvement of economic growth and development in an economy. The World Bank (2012) and United Nation (2012a,b) attest that high number of middle-income class which is a norm in the developed countries has been a major factor responsible for the sharpest divides between industrialized and developing offence countries. The international institutions further note that the middle class enjoyed a reasonable living standard by a larger size of the population whereas approximately half of the world's population with an estimate of 3 billion people in the developing countries are poor as they survive on less than US\$2 per person per day (based on the purchasing power parity measure) (Birdsall, 2016). Invariably, this has been the reason for over five-fold gap in the levels of labour productivity between the two divides, as an average income earned per worker in the developed world stood at US\$73,000 in contrast to US\$13,600 on an average in the less-developed world in 2011 (International Labour Organization, 2012; Kapsos et al., 2013). Thus, an increase in labour productivity leads to greater average earnings from labour, thereby suggesting a positive link between labour market outcomes (i.e. quantity and quality of labour force) and the level of development and living standard enjoyed by people living in the developed countries. Relative to the following context, the objective of increasing a broad base of productive workforce on a national scale in a developing economy is tantamount to an ambition of improving the living standard of people and overall economic development.

The inquiry of this research study is germane to the development of less-developed nations considering the fact that agriculture is the main survival of large percentage of people living in the ECOWAS states, yet the occupation it has created has not yielded a sufficient economic development in terms of income per capita and human welfare. In the empirical literature, the findings of studies that have investigated either the nexus of agricultural growth-employment or employment-economic development can best be described as inconclusive due to their conflicting outcomes. For example, regarding studies that investigated the links between agricultural/output growth and employment relations, some studies (like Pianta *et al.*, 1996; Walterskirchen, 1999; Fofana, 2001; Onwioduokit, 2006; Swane et al., 2006; Sawtelle, 2007; Sodipe et al, 2011; Ogbalubi et al, 2013; Bernard et al, 2017) found strong direct relationship while some that found weak employment-growth relations are Yogo (2008) and Ogbanga (2018) among others.

For studies examining the nexus of agricultural output and economic growth, some identified positive relationship (such as Chang et al, 2006; Oji-Okoro, 2011; Aminu & Anono, 2012; Olajide *et al.*, 2012; Ishola *et al.*, 2013; Odetola et al, 2013; Ideba *et al.*, 2014; Ebere et al, 2014; Oyakhilomen et al, 2014; Mathew et al, 2016; Ewetan *et al.*, 2017); others with weak relationship are Patrick (1971) and Bakare (2013) and Syed *et al.* (2015) found negative relationship between agricultural export and economic growth. As regards studies that estimated the links between employment and agriculture/output growth, some found direct relationship like Walterskirchen (1999), Fofana (2001), Sodipe et al (2011) etc. while Eita and Ashipala (2010) revealed a negative relationship. Thus, since there is no consensus in the literature on the nexus of agriculture-employment; agriculture-growth and employment-growth and no study on the tripartite relationships of

the three economic variables, hence, the necessity of this study. The last justification for undertaking this study rests on finding the most appropriate estimation approach to studying the links between agricultural growth, employment rate and economic growth in ECOWAS. Evidence from extant literature indicate that there are growing usage of panel autoregressive distributed lag (ARDL) model to unravel the cointegration plus the short- and long-run estimates of the variables. The importance of this approach is that it allows greater insights on the relationship between agricultural growth, employment and economic growth. As a pre-requisite, the underlying variables need to be integrated at different orders.

The remainder of this article is organised as follows; Section 2 presents the literature review; Section 3 discusses the methodology; Section 4 reports the results and discuss the findings while Section 5 concludes and gives policy recommendations.

2. EMPIRICAL REVIEW

Economic Growth and Development – Economic development is a process that generates economic and social, quantitative and, particularly, qualitative changes, which causes the national economy to cumulatively and durably increase its real national product (Onyimadu, 2015). In contrast and compared to development, economic growth is, in a limited sense, an increase of the national income per capita, and it involves the analysis, especially in quantitative terms, of this process, with a focus on the functional relations between the endogenous variables; in a wider sense, it involves the increase of the GDP, GNP and NI, therefore of the national wealth, including the production capacity, expressed in both absolute and relative size, per capita, encompassing also the structural modifications of economy (Haller, 2012). We could therefore estimate that economic growth is the process of increasing the sizes of national economies, while development shows us how growth impacts on the society by increasing the standard of life (Turyareeba, 2020).

Ebere and Osundina (2014) examined the impact of government expenditure on agriculture on economic growth in Nigeria over the years with time series data of 33 years sourced from the Central bank of Nigeria was used. Ordinary Least Square (OLS) technique of data analysis was used in evaluating the secondary data. GDP was used as a proxy to economic growth, while agricultural output and government expenditure on agriculture were used as indicators of government expenditure on agriculture. From the findings, agricultural output, government expenditure and GDP are positively related. It was found that a significant relationship exist between government expenditure in the agricultural sector and the economic growth in Nigeria.

Ideba *et al.* (2014) investigated the relationship between agricultural public capital expenditure and economic growth in Nigeria over the period 1961 to 2010 using annual data obtained from the Central Bank of Nigeria. The data were analysed using Augmented Dickey Fuller test, Johansen maximum likelihood test and Granger Causality test. The result of the Johansen co-integration test showed that there exists a long run relationship between all the explanatory variables and the explained variable. The result

of parsimonious error correction model showed that agricultural public capital expenditure had a positive impact on economic growth. Also, Granger Causality test showed a unidirectional relationship between agricultural public capital expenditure and agricultural economic growth.

Oyakhilomen and Zibah (2014) examined agricultural production output and its effects on economic growth in Nigeria considering the rural poverty alleviation. Where they used the autoregressive distributed lag (ARDL) bound test approach for their analysis. The result of their analysis showed that agricultural production significantly influenced economic growth positively in Nigeria. They further posited that irrespective of the economic growth, poverty is still on the increase.

In the case of Pakistan, Syed *et al.* (2015) analyzed the impact of agricultural exports on the macroeconomic performance for the period 1972 to 2008. The study found a negative relationship between agricultural export and economic growth, while a non-agricultural export was found to have positive relationship with economic growth. On the basis of the empirical results, the study suggested that Pakistan has to embark on structural changes in agricultural exports by converting its agricultural exports into value added products. Converting agricultural exports into value added products is applicable to the Nigerian economy but their findings showing a negative relationship between agricultural export and economic growth are not applicable to the Nigerian economy.

Matthew and Mordecai (2016) examined the impact of agricultural output on economic development in Nigeria using annual time series data spanning 1986 to 2014. The study employed the Augmented Dickey-Fuller Unit Root test and the Vector Autoregressive model. The result of the multivariate VAR model indicated that most of the lags of the variables are not significant. The finding implying that agriculture plays an important role in Nigeria's economic development. The variance decomposition analysis revealed that the greater contribution to shocks in economic development apart from feedback shocks was received from shocks to agriculture.

Ewetan *et al.* (2017) examines the long run relationship between agricultural output and economic growth in Nigeria for the period 1981 to 2014 using time series data. The result from the findings showed there is a long run relationship between agricultural output and economic growth in Nigeria. Further, findings confirm the existence of causality between agricultural output and economic growth in Nigeria.

Ilugbusi *et al.* (2019) examine the nexus between unemployment and economic growth in Nigeria from 1986 to 2018, his research modelled GDP growth rate as a measure of economic growth and unemployment rate as a measure of unemployment while capital utilization, government expenditure and inflation were used as a control variable. The study found out that their exist cointegration among the variable used for the study and a short and long run relationship exist among the variables under study and unemployment has an inverse relationship among the variables. The study therefore recommends that the government should provide an enabling environment for business enterprises to strive as the government cannot create jobs for all.

Turyareeba et al (2020) examined employment-growth Nexus in Uganda. Their study adopted the causal relationship research design and Times series quarterly data was used from the period 2001-2018 were used to study the underlying relationship. Descriptive statistics were generated to describe data behavior and econometric models were developed to estimate short run and long run national employment intensities of economic growth. A single-equation based Engel-Granger two-step Error Correction Mechanism was also used to estimate the coefficients of the empirical model. Their Estimates revealed that whereas employment growth and economic growth show no causal link in the short run, the two variables showed a positive and statistically significant causal relationship in the long run. Their result suggests that Uganda's long run economic growth is not employment intensive.

The rhetoric and empirics surrounding issues concerning agricultural growth-employment, agricultural output-growth and employment-economic growth nexus is awash in the literature. As at the time of investigating this research study, previous studies have not looked at the tripartite relationship of the highlighted issue of context "agricultural output, employment and economic development nexuses" in developing countries like ECOWAS. Hence, this avails the opportunity to fill the most recent lacuna in the literature. Thus, this gap in the literature on the linkage between employment and economic growth is the nonexistence of an analysis of the role of agricultural output in the working of this link. Such analysis becomes particularly important in the current context where the output level of agriculture needs to be accelerated, and all possible means need to be found to make economic growth more employment driven.

In addition, the findings from literature revealed that neither theory nor existing studies provide definite answers to the links between agricultural growth and employment; agricultural output and economic growth; and employment and economic growth. For agricultural/output growth and employment relations, some have identified strong direct relationship (Pianta *et al.*, 1996; Walterskirchen, 1999; Fofana, 2001; Onwioduokit, 2006; Swane and Vistrand, 2006; Sawtelle, 2007; Sodipe and Ogunrinola, 2011; Ogbalubi and Wokocha, 2013; Bernard and Adenuga, 2017); weak employment-growth relations (Yogo, 2008; Ogbanga, 2018). As regards agricultural output and economic growth, some studies identified positive relationship (Chang, Chen and Hsu, 2006; Oji-Okoro, 2011; Aminu and Anono, 2012; Olajide *et al.*, 2012; Ishola *et al.*, 2013; Odetola and Etumnu, 2013; Ideba *et al.*, 2014; Ebere and Osundina, 2014; Oyakhilomen and Zibah, 2014; Mathew and Mordecai, 2016; Ewetan *et al.*, 2017), weak relationship (Patrick, 1971; Bakare, 2013) and negative relationship between agricultural export and economic growth (Syed *et al.*, 2015). Regarding employment and agriculture/output growth, some found direct relationship (Walterskirchen, 1999; Fofana, 2001; Sodipe and Ogunrinola, 2011), while others revealed an indirect relationship (Eita and Ashipala, 2010). The results can best be described as inconclusive and therefore suggests the need for a re-investigation on the links between agriculture output and employment; agricultural growth and economic growth; and employment and economic development for developing countries like ECOWAS. Also, these studies do not capture the mediating role of agricultural growth in the relationship between employment and economic development.

Despite a seemingly positive relationship between the variables, the empirical literature has not reached a consensus on the direction of this relationship however suggesting that agricultural growth might not have reach the threshold at which employment drive economic growth and then economic development. As well, the existing empirical evidence on the causal relationship between agriculture growth, employment and economic growth and the associated benefits is very inconclusive.

Furthermore, different estimation techniques have been employed to investigate the links between agricultural growth, employment and economic growth depending on the characteristics or features of datasets employed. Perhaps, there are few studies that have employed the panel autoregressive distributed lag (ARDL) model to revel the long run relationship as well as the short- and long-run estimates of the variables. The importance of this approach is that it allows greater insights on the relationship between agricultural growth, employment and economic growth. As a pre-requisite, the underlying variables need to be integrated of order zero and one. Another advantage of undertaking a panel ARDL test is that upon finding long-run relationship, the adjustment mechanism is then included in the short-run model. Summarily, the reason for the inclusion of the adjustment mechanism term allows one to gauge the speed of adjustment to the endogenous variable from shocks to the system as a whole.

3. METHODOLOGY

This study considers the role of agricultural growth in national employment-economic development nexus in ECOWAS. Thus, the study gathers variables on economic development (EDEV) measure by income per capita, national employment (EMPL), agricultural output (AGRIC), foreign direct investment (FCP), and government consumption expenditure (GCE) for all the fifteen (15) Economic Community of West African States (ECOWAS), namely Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo, from 1991 to 2019. All the variables of this study were retrieved from the World Bank World Development Indicators (WDI).

Following the argument of neoclassical growth theory, the study adapts and modifies the model of past studies like Walterskirchen (1999), Biyase and Bonga-Bonga (2007), and Caporale and Skare (2011) to investigate the role of agricultural growth in national employment-economic development nexus in ECOWAS. The role of agricultural growth is considered through interactive term of agriculture growth and national employment on economic development in ECOWAS as follows;

$$Inedev_{it} = \theta_0 + \theta_1 Inempl_{it} + \theta_2 Inagric_{it} + \theta_3 (Inempl_{it} \times Inagric_{it}) + \theta_4 Inind_{it} + \theta_5 Infcp_{it} + \theta_6 Ingce_{it} + v_{it} \quad (1)$$

Where: *edev* is a vector of economic development represented by income per capita; *empl* denotes national employment measured by employment to population ratio of people above 15 years; *agric* is agriculture value added; *empl×agric* is the interaction of national employment and agriculture; *ind* denotes industrial value added; *fcp* represents

foreign capital flows measured by foreign direct investment; gce denotes government consumption expenditure; θ_{0-6} are parameters; t is time; $\ln$ is natural logarithm; and ν is error/stochastic term.

The empirical model of this study is estimated within the framework of Panel Autoregressive Distributed Lag (PARDL) model using the Dynamic Fixed Effect (DFE) estimator by Pesaran and Smith (1995); Pesaran, Shin, and Smith (1997, 1999). The framework is stated as follows;

$$Y_{it} = \sum_{j=1}^p \alpha_{it} Y_{i,t-j} + \sum_{j=0}^q \beta_{it} X_{i,t-j} + \mu_i + \varepsilon_{it} \quad (2)$$

Where Y_{ij} is the dependent variable; X_{ij} is the vector of independent variables for cross-sections i , where $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$ periods; μ_i represents the fixed effects term; p and q respectively denote the lag of dependent and independent variables.

The error correction model framework of the equation (2) can be structured in a re-parameterized process as follows;

$$\Delta Y_{it} = \vartheta_i (Y_{i,t-1} - \theta'_i X_{i,t-1}) + \sum_{j=1}^p \alpha_{it} Y_{i,t-j} + \sum_{j=0}^q \beta_{it} X_{i,t-j} + \mu_i + \varepsilon_{it} \quad (3)$$

Where θ'_i 's represents the coefficients of the long run variables and ϑ_i 's is the error correction coefficient that measures the speed of adjustment of the variables to long run equilibrium.

4. EMPIRICAL RESULT

In this study, the empirical analysis of the role of agricultural growth in national employment-economic development in ECOWAS begins with the descriptive analysis, followed by the unit root tests and the panel Dynamic Fixed Effect (DFE) estimator.

Table 1: Descriptive Statistics

Variables	EMPL	AGRIC	INC	FCP	GCE	IND	EDEV
Mean	62.035	29.951	870.773	2.866	2750.000	9.371	0.423
Median	62.020	27.754	711.113	1.901	1030.000	8.853	0.431
Maximum	79.350	60.284	2550.470	32.301	33400.000	21.492	0.611
Minimum	42.580	12.236	272.991	-2.545	87.706	1.533	0.223
Std. Dev.	9.276	10.842	504.897	3.811	6260.000	4.243	0.084
Skewness	-0.058	0.776	1.543	3.287	3.717	0.574	-0.299
Kurtosis	2.390	3.323	5.031	20.562	15.775	3.253	2.792
Jarque-Bera	3.738	24.386	132.506	3413.890	2120.903	13.418	3.903
Prob	0.154	0.000	0.000	0.000	0.000	0.001	0.142
Obs	435	435	435	435	435	435	435

Source: Author's computation (2025)

Table 1 shows that national employment, per capita income, and government consumption expenditure all have higher mean values than the rest. Meanwhile, the variables' lowest and maximum values imply that they change across the time period under consideration. Furthermore, because of the dispersion of their standard deviation values from their means, national employment, agricultural output, income per capita, government consumption spending, and industrial value added are subject to changes. Except for national employment and economic development indices, the skewness and kurtosis indicate that the majority of the variables are not regularly distributed. This is supported by the outcome of the Jacque-Bera statistic, which demonstrates that only national employment and economic development are affected.

Table 2: Unit Root Tests and Cross-Sectional Dependence Results

Variables	LLC	Breitung	ADF-Fisher	Decision	Pesaran CD test
AGRIC	3.500	-0.911	0.883		-2.093
Δ AGRIC	7.900***	-3.448***	1.964**	I(1)	-1.289
INC	-4.506***	-3.461***	-0.923	I(0)	-1.691
Δ INC	-11.593***	-8.871***	7.032***		-2.077
FCP	2.737	5.374	-2.168		-0.254
Δ FCP	-7.264***	-9.778***	1.582**	I(1)	-1.412
GCE	0.408	-0.827	-0.009		-1.849
Δ GCE	-1.788**	-4.346***	2.297**	I(1)	-1.777
IND	-0.268	-1.150	0.418		-1.525
Δ IND	-3.226***	-4.575***	1.119	I(1)	-1.262
EMPL	75.570	-0.253	-1.048		-1.111
Δ EMPL	501.358	-0.006	0.987	I(1)	-1.098
EDEV	0.213	9.259	-1.070		0.650
Δ EDEV	28.625	-3.768***	-0.687	I(1)	-786.000

Source: Author's Computation (2025)

Panel unit root tests such as the Levin, Lin, and Chu (LLC) test, the Breitung t-stat test, and the ADF Fisher Chi-square test were used to investigate the statistical behavior of the panel data. While income per capita remains stationary at level I(0), other variables such as agricultural output, foreign direct investment, government consumption expenditure, industrial value added, national employment, and economic growth indicators remain stagnant at their initial difference I. (1).

As a result, the findings provide evidence of mixed order of integration among the variables, which is why the PARDL framework uses the Dynamic Fixed Effect (DFE) estimator. In addition to panel unit root tests, this study looked for cross-sectional dependence among the variables to see if the DFE estimator was suitable. Given that the variables are statistically insignificant at the 5% level, the Pesaran cross-sectional dependence (CD) test is used, and the results support evidence of cross-sectional independence of the variable. As a result, the DFE estimator is appropriate for the panel data under consideration.

Table 3: The Dynamic Fixed Effects for Role of Agricultural Growth in National Employment-Economic Development Relations in ECOWAS

Dependent Variable: Economic Development (EDEV)

Panel A: Long-Run Estimates				
Variable	Coefficient	Std. Error	z-Stat	Prob
EMPL	-0.004	0.027	-0.130	0.897
AGRIC	-0.019	0.018	-1.050	0.294
EMPL*AGRIC	-0.001**	0.000	-1.960	0.050
IND	-0.003	0.052	-0.060	0.949
FCP	0.002	0.013	0.180	0.858
GCE	-0.052	0.319	-0.160	0.871
Panel B: Short-Run Estimates				
Variable	Coefficient	Std. Error	z-Stat	Prob
ΔEMPL	-0.004	0.001	-0.400	0.688
ΔAGRIC	0.006***	0.002	3.450	0.001
ΔEMPL*AGRIC	0.000***	0.000	3.150	0.002
ΔIND	0.005	0.010	0.510	0.609
ΔFCP	0.002	0.003	0.610	0.541
ΔGCE	-0.022	0.064	-0.350	0.728
C	0.082	0.135	0.610	0.541
ECT(1)	-0.077***	0.023	-3.330	0.001

Source: Author`s computation (2025)

From the results in Panel a of Table 3, there is evidence that agricultural output, national employment, interaction of national employment and agricultural output, industrial value added, and government consumption expenditure have a negative relationship with economic development among ECOWAS countries. Conversely, there is evidence that foreign direct investment has a positive relationship with economic development among ECOWAS countries. Furthermore, there is evidence that national employment, agricultural output, foreign direct investment, government consumption expenditure, and industrial value added have insignificant relationship with economic development among ECOWAS countries (EMPL = -0.004, z-test= -0.130, $p > 0.05$; AGRIC = -0.019, z-test= -1.050, $p > 0.05$; IND= -0.003, z-test= -0.060, $p > 0.05$; FCP= 0.002, z-test= 0.180, $p > 0.05$; and GCE= -0.052, z-test=-0.160, $p > 0.05$), respectively. This implies that national employment, agricultural output, foreign direct investment, government consumption expenditure, and industrial value added were not significant factors influencing changes in economic development among ECOWAS countries.

However, interaction of national employment and agricultural output have significant relationship with economic development among ECOWAS countries (EMPL*AGRIC = -0.001, z-test= -1.960, $p = 0.05$). This implies that the interaction of national employment and agricultural output is a significant factor influencing changes in economic development among ECOWAS countries.

Concerning the magnitudes of the estimated parameters 1 percent increase in foreign direct investment will lead to 0.002 percent increase in economic development among

ECOWAS countries, respectively, while 1 percent increase in national employment, agricultural output, interaction of national employment and agricultural output, industrial value added, and government consumption expenditure will lead to 0.004, 0.019, 0.001, 0.003, and 0.052 percent decrease in economic development among ECOWAS countries, respectively.

The result shows that in the short-run national employment and government consumption expenditure have negative impact on economic development whereas agricultural output, interaction of national employment and agricultural output, industrial value added, and foreign direct investment have positive relationship with economic development among ECOWAS countries. In addition, the estimated coefficient for the ECM_{t-1} reported in Panel B of 3 is negative and statistically significant ($ECM = -0.077$, $z\text{-test} = -3.330$, $p < 0.05$). This implies that deviations from economic development equilibrium path are corrected by nearly 8 per cent over the following year. In other words, the adjustment process is slow in ECOWAS countries. The statistical significance of the ECM_{t-1} confirms the presence of long-run equilibrium relationship among economic development, agricultural output, interaction of national employment and agricultural output, foreign direct investment, government consumption expenditure, industrial value added and national employment among ECOWAS countries.

Haven established that national employment and interaction national employment and agricultural growth both have negative effect on economic development when they enter the model individually, this sought to establish how economic development will respond to an interaction of national employment and agricultural value added. The negative effect can be the result of diminishing returns, which occurs as a result of more and more labour being employed in the agricultural sector with fixed land. This is the reason the policy of economic development through national employment and the agricultural sector should not be standing on their own. This result has shown that compared to the long run, agricultural value added and employment yield a better economic outcome in the short run. This finding is unique amongst cited papers given that studies such as Sodipe and Ogunrinola (2011) establish a positive and significant link between employment and economic growth. However, it may be close to the study by Yogo (2008) that found a weak employment-growth nexus. Another finding worth discussing is the significant negative short run effect that agricultural value added has on economic development. Given that a similar negative effect in the short run was recorded in the effect of agricultural value added on national employment, it is pertinent to note that agriculture does not hold a quick answer to the national developmental challenges of economies in the ECOWAS region, even if its impact is positive. Conversely, industrial value added has both immediate and long term positive effect on economic development in the ECOWAS region. It is important to note that industry may not face the atmospheric, weather, and seasonal challenges that the agricultural sector may face, thus positioning it to have a more immediate and positive effect on economic development.

5. CONCLUSION AND RECOMMENDATIONS

This study examines the role of agricultural output in national employment-economic development nexus in ECOWAS. The focus of the study covers the entire fifteen (15) ECOWAS nations and the Dynamic Fixed Effect (DFE) estimator of Panel Autoregressive Distributed Lag (PARDL) framework is adopted. The result of the study shows that there is evidence that agricultural output, national employment, interaction of national employment and agricultural output, industrial value added, and government consumption expenditure have a negative relationship with economic development among ECOWAS countries. Conversely, there is evidence that foreign direct investment has a positive relationship with economic development among ECOWAS countries in the long run.

In this study, the importance of agricultural output and employment has been established. Of particular interest is that the effect of these two variables on economic development are positive. The control variables in the study reported different results. For example, it was noticed that government consumption expenditure consistently exerted a negative effect in the long and short run on employment and economic development. Furthermore, the overwhelming positive effect of industrial value added on employment and economic development is captured by the results, even as foreign direct investment showed little impact on employment and economic development. Furthermore, to meet short term economic development goals, employment and agricultural output cannot be seen as mutually exclusive. Given that the interacted variables resulted in short run positive and significant effect, policy can be rolled out to boost agricultural productivity, within the context of it employment complementarity potential.

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