Export Diversification and Economic Growth of ECOWAS Member States

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ABSTRACT

Research Originality: This research uses the export diversification index data, which has been excluded in previous studies, and most of the previous studies only look at the relationship between ED and GDP, excluding per capita income as the basis for development.

Research Objectives: This paper examines how export diversification (ED) impacts economic growth and per capita income.

Research Methods: The paper achieves its objectives using, panel least technique and co-integration test are used on time series data of 1984-2022 for ECOWAS states.

Empirical Results: The paper shows that the export diversification index has a significant and inverse influence on GDP growth; however, manufacturing value-added shows a weak but positive influence on per capita income growth. Again, the paper reveals the high skewness of the ECOWAS region to primary product export, which could be responsible for the low growth per capita income.

Implications: The finding of this is not the volume of exported products that matters but how dynamic is exported products. The paper, therefore, recommends that ECOWAS countries develop processing capabilities for export that come from endogenous sufficiency.

Keywords:

gravity model; economic integration; trade flows; export diversification

INTRODUCTION

Developing countries need to diversify their exports to help them overcome export instability or the negative impact of terms of trade in primary products. The process of economic development highlights structural transformation where countries move from producing 'poor-country goods' to 'rich-country goods.' Export diversification does not only play an essential role in this process. However, it shows the differences between countries exporting primary and manufacturing products. Primary product exports are subject to low price and demand fluctuations, as well as suffering from medium to long-term terms of trade declines (Amaghionyeodiwe et al., 2014).

Again, primary products are generally characterized by intense price competitiveness that leads to productivity gains being passed on to consumers rather than producers. The periodic primary products boom has led African countries into a false sense of prosperity, knowing that primary product booms are cyclical and that it is doubtful they will lead African countries to economic development. Africa's over-reliance on exports of primary products with minimal value added aggravated its poverty rate, putting the household and government budget under immense stress. The persistent dependence on primary product export in Africa challenges trade push growth and development.

Theoretically, Economic growth is influenced by structural transformation, where countries shift from producing 'poor-country goods' to 'rich-country goods.' What is needed for structural transformation is the existence of an elastic demand for a country's exports in global export markets without negative terms of trade. In Africa, the domestic demand is deficient, so exports remain one of the tools that significantly help to increase any country's per capita GDP growth rates. Another issue relates to the competitiveness in export products; globalization increases cross-border trade, and countries are exposed to stived competition from global competitiveness, making countries need export diversification. The structural models of economic growth state the need to diversify from primary product exports to dynamic exports to achieve sustainable growth (Olayiwola & Ola-David, 2015).

Endogenous growth models also emphasize the imperativeness of learning by doing in the manufacturing sector for sustained growth; export diversification helps knowledge spillovers for new method production, new management, and marketing practices, potentially benefiting from other industries. Knowledge spillovers help export diversification to produce a set of export products that increases per capita GDP growth (Olayiwola & Ola-David, 2015). Again, Agosin (2017) states that export diversification helps countries outside the margin of the technological frontier increase their comparative advantage by imitating and adapting existing products and technology.

ECOWAS region policies have favored increasing measures to foster primary product exports, neglecting production and manufacturing exports whose prices are higher and more profitable, with high responsiveness to the change in demand income and prices. ECOWAS member state's export performance over the last 17 years with the introduction of trade facilitation has slightly improved, but this falls far below expectations compared

to the experience of other developing countries even with economic integration (Osakwe & Kilolo, 2018). Worse still, intra-trade among ECOWAS member countries has remained relatively stagnant due to similar product exports (ECOWAS Trade Data, 2022).

There is little empirical literature on the nexus of export diversification and per capita GDP. They use the classical cross-sectional regression, including several measures of export concentration in the growth equation; their study finds that export diversification increases economic growth (Martincus & Go'mez, 2019; Sim & Karim, 2019; Osakwe & Kilolo, 2018). The finding is significant regarding different model specifications and cross-sectional regression, revealing that exports are impacted negatively by an increase in relative prices. They are impacted positively by an increase in global per capita growth, and export tariffs have a negative impact on export performance, although minimal. Among regional blocs, the result indicated that Latin America possessed high-income elasticity and the highest long-run price elasticity. The study concluded that trade liberalization is a primary determinant of export growth for the countries sampled.

Cameron et al. (2021) examined the long-run elasticity of response of its predominantly agricultural primary exports during Uganda's floating exchange rate regime. The study reveals Uganda's exports have a positive significant correlation with relative prices and exchange rate level but correlate negatively with the terms of trade, capacity utilization, and exchange rate variability. A closer examination of individual sub-sectors indicates that the negative response to diversification efforts is only universal for some products. This condition has policy implications; Uganda's export-led growth strategy must recognize the importance of export diversification to take advantage of the differences in supply conditions and responses of each sub-sector. Nevertheless, the evidence reveals that successful export diversification has been associated with increased growth (Ferreira, 2019).

Studies established that trade liberalization policies many Latin American countries adopted improved export performance (Ferreira, 2019; Balza, 2018). Other studies concluded that increasing export performance is mainly from a more realistic and stable real exchange rate, while trade reforms and export diversification had little or no influence. However, low export performance is subject to primary products. The paper examines the ECOWAS region's manufacturing export diversification influence on GDP and GDP per capita from this background. The paper is motivated to examine the export issues from two preparative: the neoclassical trade specialization and international completion theory, where exports originate from global demand and not specialization as against previous studies. The research objective is to examine if increasing the manufacturing value added to primary products positively influences economic growth and, thus, development. Sarin et al. (2020) shows that most research provided robust evidence about positive impact of export diversification on economic growth and mixed results regarding the impact of export instability on economic growth.

The significant fallout from the extant studies reviewed is the contradictory results on manufacturing export diversification's influence on GDP, and the study was deemed significant as it includes export diversification index data, which is excluded in previous

studies. The study is also relevant to scholars and policymakers in the region as it would provide realistic policy recommendations for the trade losses and dwindling foreign earnings of ECOWAS member states resulting from the low-yielding export composition, offering a novel explanation, using the variable of export diversification index data on how trade policies had an impact on export diversification performance. The region is one of the richest endowed and is in a good position for export diversification, but weak capabilities of the region have dwindled this possibility of trade-led growth; also, institutional inadequacies have not helped in this case. Besides that, previous studies have only looked at the relationship between ED and GDP, excluding per capita income as the basis for development. The paper also provides robust empirical evidence of the positive effect of export diversification on per capita income growth. This paper investigates the influence of export diversification on economic growth and per capita income. The paper uses fifteen ECOWAS member states that need structural transformation to move from producing 'poor-country goods' to 'rich-country goods.'

METHODS

Empirical justification of the study objectives, validation of growth induced by increasing manufacturing value added export and its returns to societal development; two models are developed to test each of the hypotheses. For the long-run relationship between growth and increased manufacturing value added (diversification) in the ECOWAS member states, Ferreira (2009) equation adopted is stated as;

$$Y_t = EC_{it}{}^{\varphi}, ED_{it}{}^{\beta} \tag{1}$$

Where Y_t is real GDP in period t, ED_{it} is the export diversification index of the ECOWAS region, and EC_{it} Export concentration index.

Transform equation (1) into a log-linear form, is stated as;

$$LogY_t = \alpha + \varphi logEC_{it} + \beta logEDI_t + \upsilon_t \tag{2}$$

Where log is the natural logarithm of the variable and estimated φ, β represents elasticities. The error term υ_t is assumed to be white-noise (random walk) normally and identically distributed.

Subjecting Equation (2) to empirical test, as the model test the diversification-led growth hypothesis for the manufacturing sector in ECOWAS member states

$$H_0: \varphi, \beta = 0$$
$$H_1: \varphi, \beta > 0$$

It expected that φ, β are positive and statistically significant, that is, the diversification-led growth is confirmed.

Testing the country specific diversification leaded growth in the ECOWAS member states, Ferreira (2009) model form of the GMM estimation is deem fit and the empirical validation shall be based on ordinary panel regression.

$$\Delta y_{i,t} = \alpha y_{i,t-1} + X'_{i,t}\beta + \nu_{i,t} \tag{3}$$

$\Delta y_{i,t}$ is log difference of income per capita in period t, $y_{i,t-1}$ is the log initial income, $X_{i,t}$ is a vector of potential determinants of growth and $V_{i,t}$ is the residual error term.

$$X'_{i,t} = \alpha_1 IVt, \alpha_2 AGRt, \alpha_3 MFRt, \alpha_4 SEVt, S \alpha_5 Pet \qquad (4)$$

IV_t is investment, AGR_t is the share of agricultural value added to GDP, MFR_t is the share of Manufacturing value added to GDP, SEV_t is the share of the services value added to GDP, and SPE_t is the percentage share of primary export.

$$logy_{i,t} = \alpha_0 + \alpha_1 logy_{i,t-1} + \alpha_2 logIV_t + \alpha_3 logAGR_t + \alpha_4 logMFR_t +$$
$$\alpha_5 logSEV_t + \alpha_6 logSPE_t + V_t \qquad (5)$$

For a good estimation there is need to examine the time series properties of all the variables, the unit root and co-integration test. Testing the null hypothesis of a difference stationarity against the alternative hypothesis of a level stationarity using The Augmented Dickey-fuller (ADF).

If critical values which are all negative and larger (in absolute terms) than ADF statistics; if the null hypothesis cannot be rejected, then Y_t cannot be stationary. It maybe I (1) or I (2) order of integration. The unit root test is important as observed, often time, time series data are non-stationary. With that, residuals of time series data are correlated with their own lagged values, thereby violating OLS assumptions, thus make estimates biased and inconsistent with standard errors.

To obtain the long-run relationship of the variables, the study uses Johansen approach of co-integration test and vector error correction model to test the short-run relationship to guarantee successful correction of errors, the Johansen procedure unlike the Engel and Granger two steps static procedure, allows the simultaneous evaluation of multiple relationships and imposes no prior restrictions on the co-integration space. So, need for indentation of integration order of each time series data provided, the dynamic growth model in equation (1) is rewritten as;

$$LOG(Y) = \alpha_0 + \varphi LOG(ECI) + \beta LOG(EDI)$$

The differenced model is written as;

$$LOG(DY) = \alpha_0 + \varphi LOG(DEDI) + \beta LOG(DECI)$$

The assumption that time series economic variables are stationary, has been argued not be appropriate for most economic variables as most economic variables are integrated in the order one I (1), that is, if a variable is non-stationary at first difference, there is needs to differenced again to become stationary at I (1). When all variables are in the order of I(1) it best to use the Johansen procedure. The theoretical stages involved are as follows.

If critical values which are all negative and larger (in absolute terms) than ADF statistics; if the null hypothesis cannot be rejected, then Yt cannot be stationary. It maybe I (1) or I (2) or higher order of integration. After order of integration is determine, the study estimate the co-integrating vector of the regression equation. The study uses the Johansen procedure since indication of order one I(1) co-integrating vector with appropriate lag to ensure non serial correlation in the convergence of estimated variables.

Since long run series convergence exist, that is, the variables are co-integrated, the study proceeds to examine the error correction, co-integration is a needed condition for error correction model to hold. The ECM model meets the need of integrate short run dynamics with long run equilibrium. For unbiased estimate, all statistical tests of significance needed done including the model diagnostic test. Again, ECM helps to switch to a short run model and allow adjustment for any short run divergence to the long run series convergence. ECM is expected be negative sign and very significant, that is, the short run divergence is been corrected to the long run convergence. Panel least square analytical procedure is for the two model to deal with the effects of the trade composition indicators on per capita income. And the model estimated the country specific period fixed effects. The study uses secondary data for the period of 1984 – 2020 from the fifteen member states of ECOWAS including Benin, Burkina Faso, Cape Verde, Cote D'voire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra-Leone and Togo.

RESULT AND DISCUSSION

The study examined the impact of export diversification and other variables like export concentration index, population, and investment share of GDP on GDP per capita. Econometric analysis achieves the study's objectives with the econometric analysis, and descriptive analysis is used to achieve the second objective. Table 1 reveals the summary statistics of variables used for analysis. All variables are normally distributed at 5% and 1% significance levels, as revealed by the Jarque-Bera test, except GDP, GDPK, IV, and POP. That is a goodness-of-fit measure of departure from normality based on kurtosis and skewness. So, the higher the statistics, the higher the log-likelihood that variables are normally distributed. The dependent variables GDP and GDPK reveal an average growth rate of 11.20 percent in ECOWAS member states and a standard deviation of 0.66 percent. The average income in ECOWAS is member states 5.0 percent of the total income in the ECOWAS region with a standard deviation of 0.548. This result implies that an individual in ECOWAS member states earns about 0.55 percent of total income.

Table 1. Summary Statistics

	LNGDP	LNECI	LNEDI	LNGDPK	LNAGR	LNIV	LNMFR	LNPOP	LNSEV
Mean	11.1951	-0.528142	-0.201177	4.774746	21.22779	2.145194	16.81418	15.40863	18.48557
Median	11.3400	-0.54666	-0.244242	5.697093	20.26007	2.195609	18.57320	15.91946	20.54283
Maximum	11.5999	-0.03150	-0.209557	7.144407	21.72245	3.850617	21.53784	16.77397	22.52166
Minimum	9.77770	-0.77219	-0.307885	4.867534	17.46018	0.146199	16.71203	12.78074	17.72808
Std. Dev.	0.66129	0.18123	0.0250231	0.547988	1.154787	0.535292	1.034166	1.128407	1.136911
Skewness	- 2.96009	- 1.99303	-0.47173	0.42173	-0.496038	0.597984	-0.568209	-1.000460	-0.437288
Kurtosis	10.7888	4.609077	2.865135	2.757227	2.268752	3.840840	3.840840	2.419276	2.658879
Jarque-Bera	57.4020	4.71391	0.584736	10.73521	13.16366	8.952760	6.884268	29.73514	6.352331
Probability	0.00000	0.09470	0.746494	0.004665	0.001385	0.011375	0.031996	0.000000	0.041745

Source: Data processed (2023)

The average export concentration is -0.52%, with a standard deviation 0.18. The degree of export diversification is -0.20% on average and 0.025 as the standard deviation. ECOWAS GDP value-added on agriculture, manufacturers, and services has an average value of 21.22%, 18.5%, and 18.4%, respectively, with a standard deviation of 1.2%, 1.0%, and 1.1%. The fluctuations experienced in GDP, GDPK, and AGR may be connected to seasonal variations and global demand for primary products. The implication is that over-dependent on primary products by ECOWAS member states makes them more vulnerable to low foreign incomes and instabilities. This result agrees with a previous study where it is acknowledged that a significant challenge facing African countries in the global market is undue concentration on the exportation of primary commodities (Amurgo-Pacheco et al., 2017; Bebczuk & Berrettoni, 2016).

The result of the stationarity test is given below using the ADF and Philip-Perron test. The figures show that each series is stationary at first difference at one percent using ADF and Philip-Perron test. Since the variables are integrated in the same order I(1), there is the need to test for co-integration relationships using the Johansen approach. Johansen's approach is selected because the Engel and Granger two-step procedure conceals information on the coefficients of the explanatory variables in the co-integrating vector, hence making the approach inappropriate in many cases, including this study. The results using this approach are sensitive to the lag length used. The Akaike information criterion selects the lag length to be included in the estimation. Co-integration tests of the models assume quadratic deterministic trends in data. Both trace and maximum eigenvalue test results indicate the existence of a unique co-integrating vector between test variables for the growth model. To show the existence of a co-integrating equation in the model, the result is chosen at the value where the trace statistic is less than the corresponding critical value.

The result differs and is inconsistent with those of Sim and Karim (2019), Martincus and Go'mez (2019), and Balza (2018). The variation is likely due to the heavy over-dependence on primary exports; the positive relation of the concentration index (as an indication of specialization), suggests that ECOWAS has maintained specialization only on a weak spillover generating export, which contrasts the modern international competition theory, that a country cannot solely depend on particular industrial activities but should be more proactive to offset national factor disadvantages in sustaining national competition advantage. The proven impact of such diversity on economic performance was confirmed by previous studies (Agosin, 2017; Amurgo-Pacheco et al., 2017; Bebczuk & Berrettoni, 2016; Mania & Rieber, 2019). In other studies, find that there exists a significant long run cointegrating relationship between overall export diversification and economic growth in Bangladesh (Azam & Azam, 2023). Zhou and Nyandoro (2023) also suggest Zimbabwe should continue to diversify its export to achieve a sustain long-term economic growth.

The analysis indicates that while most variables in the study are normally distributed, the over-reliance of ECOWAS member states on primary product exports renders them vulnerable to economic fluctuations, highlighting the need for diversification to enhance

stability and growth. Furthermore, a co-integrating relationship among the variables suggests that adjustments towards long-term equilibrium occur moderately, emphasizing the importance of addressing short-run disequilibria for sustained economic performance. The estimation attempts to sieve the impact of export concentration on ECOWAS per capita growth considering individual country fixed and period-specific effects. The estimation is carried out to achieve the objective as specified in the study's introduction; a panel least square of 15 ECOWAS states is considered in the analysis.

Table 2. The Empirical Result

Variable	Coefficient	t-stat	sig
C	9.1989	4.3246	0.0000
LNAGR	0.1735*	5.9755	0.0000
LNIV	-0.02411*	-2.3555	0.0198
LNMFR	0.0277	1.3035	0.1925
LNPOP	-1.5676*	-11.115	0.0000
LNSEV	0.8241*	28.4145	0.0000

Source: Data processed (2023)
R^2 = 0.5026, DW = 0.4941, *Significant at 1%, 5% an 10%

It needs to be consistent with the hypothesis, as the study could not confirm a significant impact of manufacturers' value-added on per capita income, which could have arisen from the region's less concentration on manufacturing production and export. The coefficient of the investment share of GDP was negative, signalling that the low capital injection in improving value added in ECOWAS will negatively impact GDP per capita.

Table 3. Cross-Section Fixed Effects

Country	Fixed Effects
Benin	0.071783
Burkina Faso	-0.475606
Cape Verde	0.516745
Cote D'iviore	0.479028
Gambia	-0.723806
Ghana	
Guinea	0.344472
Guinea-Bissau	-0.488858
Liberia	
Mali	0.526614
Niger	0.421581
Nigeria	
Senegal	0.336621
Sierra-Leone	
Togo	0.013668

Source: Data processed (2023)

From the estimation, the population variable is one of the most potent; the population was more consistent and significant (with a higher negative magnitude). That is, a high population reduces GDP per capita as a result of the low income of some ECOWAS members. The estimated result from the panel least square procedure suggests that the coefficients of agriculture value-added, manufacture value-added, and service value-added are positively related to real per capita income, while investment share of growth and population are negatively related to real per capita income. These results show that the observed variables are statistically significant in explaining the natural per capita income variation, except manufacturing value-added. This result contrasted earlier works of developing economics and is likely due to the weak production capability in the ECOWAS region.

Table 4 reveals the unobserved effects of the independent variables as they relate to individual countries' real per capita income that is not captured by the regression (real per capita income) in the model. It shows the magnitude and degree of real per capita income when the independent variables are assumed constant. This condition indicates that on account of relatively low trade indicators (specified explanatory variables), GDP per capita in the region is affected by some other variables. ECOWAS member states like Burkina Faso, Gambia, and Guinea-Bissau have negative fixed effects (falling real per capita income), which could have resulted from political, governance, or economic instability. The country-fixed effects of Liberia and Sierra Leone could not be obtained because of the unavailability of enough data to estimate the effects. Table 4 reveals the periodic magnitude of the regressand (real per capita income) when all the explanatory variables are held constant; the result of the model shows a declining real per capita income until 2012, when the ECOWAS region real per capita regains and has remained at a relatively constant level.

Table 4. Period Fixed Effects

Country	Fixed Effects
2004	-0.191335
2005	-0.144391
2006	-0.130320
2007	-0.111446
2008	-0.086879
2009	-0.061563
2010	-0.053451
2011	-0.034022
2012	-0.007391
2013	0.019718
2014	0.046801
2015	0.064747
2016	0.080834
2017	0.109908
2018	0.126067
2019	0.012843
2020	0.049813

Source: Data processed (2023)

This result is different with previous research such as Sunaryati (2015) that found uni-directional from GDP to export diversification. Trinh & Thuy (2021) demonstrate that there is a nonlinear relationship between diversification and economic growth. If the diversification is above the threshold, it will boost economic growth. The other side if the diversification is below the threshold, the relationship between market and growth is insignificant.

Aditya and Acharyya (2013) conclude that there is a critical level of export concentration beyond which increasing export specialization leads to higher growth. Below this critical level, diversification of exports matters for gross domestic product (GDP) growth. Growth of high technology exports also contributes to the output growth; the relationship becomes stronger for countries that have share of manufacturing exports in their total exports greater than the world average.

Odularu (2008) state that the traditional strategy of export promotion that focuses on the international marketing of final goods is no longer suitable with the existing condition. The countries must adopt the different routes to diversification that could include resource-based manufacturing and processing of primary products. Government should promote export diversification and investment that can attract direct investment (Matezo et al., 2021). But there is a note for the export diversification. Mora and Olabisi (2023) find that transportation cost impact export diversification in developing countries.

CONCLUSION

This paper examines the influence of export diversification on GDP per capita in ECOWAS member states. This research uses annual data from 1984 to 2020 from 15 ECOWAS member countries. The study revealed that ECOWAS exports heavily focus on primary commodities, particularly agriculture and fuel, accounting for over 90% of the region's exports. The emphasis on primary commodities has hindered intra-regional trade and industrial productivity. Most trade occurs with European and North American countries, leading to value transfer across borders. The study also found that the lack of export diversification and overreliance on agriculture have negatively impacted GDP per capita and economic growth in the region. Despite the potential benefits of export diversification, ECOWAS has not effectively diversified its export basket. The study emphasized the importance of agriculture value-added and service value-added in explaining GDP per capita trends, highlighting the neglect of manufacturing activities in the region. Additionally, the study showed that the population variable significantly negatively impacts GDP per capita, suggesting a potential increase in poverty due to population growth and economic challenges in the region.

The study highlights the critical need for ECOWAS member states to diversify their exports beyond primary products to enhance GDP per capita and foster economic growth. By focusing on manufacturing and value-added exports, the region can improve trade performance, reduce dependency on natural resources, and ultimately address poverty and economic stagnation. The study's findings have policy implications, and the following

recommendations are suggested. The study emphasizes the importance of shifting focus from raw product exports to manufactured goods to enhance trade performance and economic stability in the region. It advocates for increased intra-trade links and horizontal diversification of primary products to foster industrialization and maximize economic gains for ECOWAS member states.

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