Globalization, Human Capital Development and Economic Growth in ECOWAS Member States

[1]**Esther Chioma Anakwue**, [2]**Isa Jibrin Okpe** & [3]**David Terkura Bakkihs**
[1]Department of Economics, Airforce Institute of Technology, Kaduna, Kaduna State
[2,3]Department of Economics, Benue State University, Makurdi.

Abstract

This research explores the interplay between globalization, human capital development, and economic growth in ECOWAS countries from 2018 to 2023. Utilizing panel data analysis and an Error Correction Model, the study investigates the impact of various aspects of globalization on economic growth and human capital development, as well as the influence of human capital on regional growth. The findings indicate that economic, social, and political globalization all positively contribute to economic growth, with economic globalization exerting the most substantial effect. Furthermore, globalization enhances human capital development, particularly through social globalization channels. Human capital development, in turn, significantly propels economic growth in ECOWAS countries. These outcomes underscore the importance of balanced globalization strategies and investments in human capital to drive economic development in West Africa. The study offers policy recommendations for ECOWAS governments to maximize the benefits of globalization, strengthen human capital, and foster sustainable economic growth in the region, and to establish a comprehensive economic monitoring system to track and analyze the real-time impacts of globalization on different sectors of the economy.

Keywords: Economic Growth, ECOWAS, Globalization, Human Capital Development,

1. Introduction

The impact of globalization on economic performance remains a contentious topic among scholars and policymakers. Some view globalization as a product of modern economic and financial interconnections, while others trace its origins to earlier eras such as the European Age of Discovery. Large-scale globalization, as understood today, began in the early 20th century, significantly advancing economic and cultural connectivity worldwide (King, 1990).

Globalization is a process of acceleration and intensification of interactions as well as integrations among people, organizations, companies, and governments across different countries (Rothenberg, 2003). It has led to expanded international trade, dissemination of ideas and culture, and heightened economic interdependence. Recent advancements in digital communication and artificial intelligence have marked modern globalization, further accelerated by the COVID-19 pandemic (World Economic Forum, 2023). Despite setbacks from geopolitical tensions and the pandemic, global trade has proven resilient, with world merchandise trade volume growing by 3.2% in 2022 (World Trade Organization, 2023).

In Africa, globalization has improved access to information about governance and subjected nations to greater external scrutiny, enhancing transparency and accountability (Ibrahim, 2013). However, it has also exposed weaknesses in global supply chains and highlighted disparities in access to technology and healthcare (United Nations, 2022). Economic globalization, as explained by Joseph Stiglitz (2007), involves closer economic

integration through increased flows of goods, services, capital, and labour. Despite some slowdowns, global foreign direct investment (FDI) flows reached $1.58 trillion in 2022, a 12% rise from 2021 (UNCTAD, 2023). Political globalization has evolved with the changing global order, with institutions like the World Bank, IMF, and WTO remaining influential, while new multinational bodies and agreements like the African Continental Free Trade Area (AfCFTA) have emerged (African Union, 2023). Social globalization continues to grow with extensive use of social media and digital platforms, with 4.9 billion active social media users globally as of 2023 (DataReportal, 2023).

Human capital development is essential for economic growth. In the Economic Community of West African States (ECOWAS), efforts to enhance human capital development are ongoing. For example, Ghana's education expenditure as a percentage of total government expenditure increased from 24.56% in 2017 to 25.3% in 2021, and Burkina Faso's education expenditure rose from 19.95% in 2017 to 22.7% in 2021 (World Bank, 2023). ECOWAS's economic relevance has grown, with total GDP reaching approximately $702 billion in 2022, up from $565 billion in 2017 (World Bank, 2023).

The COVID-19 pandemic underscored the importance of human capital development, particularly in healthcare and digital skills. It also accelerated the adoption of digital technologies in education and work, emphasizing the need for countries to invest in digital infrastructure and skills to stay competitive in the global economy (World Economic Forum, 2023).

Globalization continues to shape the economic, cultural, and political landscapes of developing countries, particularly in Africa, offering opportunities for improved material well-being and accelerated development. However, its effects on weaker member states must not be ignored (Didigwu & Augustus, 2015; International Telecommunication Union, 2022). African countries, including those in ECOWAS, have benefited relatively less from the positive effects of globalization compared to other regions. The COVID-19 pandemic exacerbated existing challenges, with Sub-Saharan Africa experiencing its first recession in 25 years in 2020, with economic growth contracting by 2.4% (World Bank, 2023).

Despite being one of the better economic performers in the region, Ghana faces persistent challenges, with a Human Capital Index score of 0.45 in 2020. Mali also faces significant challenges related to globalization, with 42.1% of the population living below the national poverty line as of 2021 (World Bank, 2023) and a Human Development Index (HDI) value of 0.428 in 2021, ranking it 186 out of 191 countries and territories (UNDP, 2022).

The economic landscape of ECOWAS has evolved since 2016, with West Africa's real GDP growth rebounding to 4.3% in 2021 and estimated at 3.9% in 2022, up from 0.6% in 2020 (African Development Bank, 2023). However, challenges remain, with the region's average per capita income still below pre-pandemic levels. Access to information and communication infrastructure remains a critical issue, as internet penetration in West Africa reached 42% in 2021, lagging behind the global average of 63% (International Telecommunication Union, 2022).

Nigeria, despite being one of Africa's largest economies, faces significant development challenges, with 40% of Nigerians (83 million people) living below the poverty line as of 2022 and a Human Development Index (HDI) value of 0.535 in 2021, ranking it 163 out of 191 countries and territories (UNDP, 2022). Human capital development remains a major challenge in ECOWAS, as reflected in the 2022 UNDP Human Development Index (HDI)

rankings. Most countries in the region fall within the low human development category. Only Cabo Verde (ranked 131st, HDI 0.662) and Ghana (ranked 133rd, HDI 0.632) have attained medium human development status. The rest, including Nigeria (163rd), Senegal (170th), and Côte d'Ivoire (159th), remain in the low development range. Countries such as Sierra Leone (181st), Guinea (182nd), Mali (186th), Burkina Faso (184th), and Niger (189th) are among the lowest ranked globally, highlighting persistent deficits in health, education, and living standards across the region. The COVID-19 pandemic has further exposed and exacerbated weaknesses in health and education systems across ECOWAS, with school closures affecting over 98 million learners in West and Central Africa, potentially reversing years of progress in education (UNESCO, 2022).

Despite various policies implemented by ECOWAS member states, the region continues to face significant development challenges. The pandemic has highlighted the need for robust healthcare systems and digital infrastructure to support remote learning and work. Despite extensive research on globalization's impact on economic growth and industrial performance, there remains a substantial gap in understanding how these factors specifically interact within the ECOWAS region (Adelakun, 2011; Alexander, 2017). Numerous studies have examined the effects of various categories of globalization (economic, political, and social) on different economic indicators (Ibrahim, 2013; Maduka, Madichie, & Eze, 2017; Yaya, 2016). However, these studies often focus on individual countries or utilize foreign panel data, leading to a lack of comprehensive regional analyses.

While the influence of globalization on economic growth has been widely explored, there has been less focus on how human capital development in Africa, particularly in ECOWAS countries, mediates this relationship and affects economic growth in the region (Akor, Yongu & Akorga, 2012; Nwakama & Ibe, 2014). The consistently low rankings of ECOWAS countries in human development indices, along with the challenges posed by the COVID-19 pandemic, highlight the need for a deeper understanding of these dynamics.

The rapid technological changes driven by globalization, especially in the aftermath of the pandemic, have transformed the landscape of human capital development. The digital divide within ECOWAS countries and between ECOWAS and the rest of the world presents new challenges and opportunities that require thorough investigation. This study aims to contribute to the current literature on globalization and human capital development in Africa by examining these issues in the context of selected ECOWAS countries. Specifically, the study seeks to examine the effect of globalization (economic, social, and political) on economic growth in ECOWAS; examine the effect of globalization on human capital development in ECOWAS; and analyze the effect of human capital development on economic growth in ECOWAS.

The study focuses on selected ECOWAS member countries, based on data availability. The countries include Benin, Burkina Faso, Cabo Verde, Cote D'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. The study covers the period from 2008 to 2023, depending on data availability. The variables of interest include globalization (economic, social, and political), GDP as a proxy for economic growth, Human Development Index as a proxy for human capital development, capital, and labour.

The results will benefit the government of ECOWAS and the general public by providing insights on how globalization and human capital development can drive economic growth in ECOWAS. This study will contribute to the literature on globalization, human capital development, and economic growth in ECOWAS.

2. Literature Review

Theoretical Framework

The study adopts the augmented Solow human-capital-growth theory as its framework of analysis. The augmented Solow human-capital-growth theory is an improvement on the Solow growth theory. The original Solow growth theory did not explicitly incorporate human capital in the growth theory. Therefore, Mankiw, Romer, and Weil (1992) incorporated human capital into the original Solow growth theory and developed the augmented Solow growth theory. Eigbiremolen and Anaduaka (2014) stated that the inclusion of human capital, in theory, is justified based on non-homogeneity of labour in the production process either within a nation or across different economies as a result of their possession of different levels of education and skills. The basic assumption of the model is that human capital development through improved education, for example, improves output. Adapted from Eigbiremolen and Anaduaka (2014) and Oluwatobi and Ogunrinola (2011), the augmented Solow model is specified as:

$$Y = AK^{\alpha}(hL)^{\beta} \qquad\qquad [1]$$

Where; Y is output, K is physical stock of capital, h is human capital development, L is labour, A is total factor productivity, α is capital input elasticity with respect to output, β is labour input elasticity with respect to the output. Total factor productivity (A) in equation [1] is determined by previous investments into physical capital. In this study, Total factor productivity is partially conceptualized as being shaped by globalization, which is treated as an exogenous factor that affects both technological adoption and human capital investment.

The relationship is modeled as:
$$A = (DINV) = DINV^{\theta} \qquad\qquad [2]$$

Where DINV is a domestic investment, encompassing foreign direct investment (FDI), public (government) expenditure, and private sector capital formation; and θ is theta, the elasticity of domestic investment with respect to Total factor productivity.

Globalization impacts this framework by facilitating technology transfer, knowledge diffusion, and cross-border investment, all of which contribute to improvements in TFP and human capital accumulation. For example, increased global integration can bring in foreign educational models, digital infrastructure, and skills-based training programs that enhance local capabilities.

Studies such as Barro (2001) and Borensztein, De Gregorio, and Lee (1998) have emphasized the role of globalization in boosting technological progress through knowledge spillovers. Nonneman and Vanhoudt (1996) extended the augmented Solow model by incorporating technological know-how as a distinct input, reflecting the growing importance of innovation in economic growth. Gyimah-Brempong, Paddison, and Mitiku (2006) also highlight how human capital investment influences long-term economic performance in African economies.

In the context of ECOWAS countries, this theoretical framework enables the exploration of how investments in human capital, alongside globalization effects, influence economic growth. It provides a basis for assessing the potential benefits of enhanced education and skills development in boosting productivity and economic performance in the region (Gyimah-Brempong, Paddison, & Mitiku, 2006).

Additionally, the model's focus on total factor productivity (A) allows for consideration of how globalization might impact technological progress and efficiency in ECOWAS countries. This is especially relevant given the potential for technology transfer and spillover effects that come with increased global integration (Borensztein, De Gregorio, & Lee, 1998).

In summary, the augmented Solow human-capital-growth theory offers a robust foundation for examining the complex interrelationships between human capital development, globalization, and economic growth. This framework will guide the empirical strategy of the study by enabling the testing of how human capital and globalization influence output growth across ECOWAS countries, thereby addressing the core research questions.

Empirical Review
Recent years have seen substantial development in empirical studies exploring globalization, human capital development, and economic growth.

Globalization and Economic Growth
A substantial number of studies have examined the relationship between globalization and economic growth. For instance, Okoye et al. (2023) employed the ARDL bounds testing approach to assess the impact of globalization on Nigeria's economic growth from 1986 to 2020, revealing both short- and long-term positive effects. While the methodological robustness and time frame strengthen the study's credibility, its national focus calls for caution when generalizing findings to the wider ECOWAS context.

Extending the scope, Adeleye, Osabuohien, and Asongu (2021) analyzed 54 African countries from 1990 to 2018 and found that economic globalization significantly promotes inclusive growth, whereas political globalization tends to exert adverse effects. Their continent-wide approach allows for more generalizable insights, offering important implications for regional policy design.

Similarly, Kilic (2015), in a study covering 74 developing countries, and Ying (2014), focusing on ASEAN countries, confirmed the positive role of economic globalization while underscoring the potentially adverse implications of social and political globalization. These studies collectively suggest that the effects of globalization are multidimensional and context-dependent demanding carefully tailored national and regional policies.

Notably, Mallick (2015) used shift-share analysis and dynamic panel data for BRICS countries and reported that globalization proxies such as FDI and international trade significantly boost labor productivity. Though focused on emerging economies, the relevance for ECOWAS lies in highlighting how structural transformation and openness can complement development strategies.

Human Capital Development and Economic Growth
The role of human capital in driving economic performance has also received considerable empirical attention. Anyanwu and Kponnou (2022) conducted a panel data study across West African countries (1990–2020), revealing that investments in education and healthcare substantially enhance economic growth. This study is particularly relevant for the ECOWAS region, offering evidence-based justification for prioritizing human capital investment as a development strategy.

In Nigeria-specific studies, Isola and Alani (2015) found that education and health, key components of human capital, significantly contribute to economic growth, although the

health sector remains underfunded. Similarly, Eigbiremolen and Anaduaka (2014) applied the augmented Solow model and found a stable and significant relationship between human capital development and output levels. While informative, these findings should be interpreted within the broader regional framework, where disparities in education and healthcare spending may yield different outcomes.

Complementing these insights, Ugbam and Ozioma (2016) explored the link between human capital development and manufacturing competitiveness in Nigeria, aligning human capital development with industrial policy objectives. This connection underscores the strategic importance of aligning human development with sectoral priorities for long-term structural transformation.

Globalization and Sectoral Performance

Beyond aggregate economic growth, several studies have investigated how globalization affects specific sectors. Ogunniyi et al. (2022) examined agricultural productivity in Sub-Saharan Africa (2000–2019) and found that economic globalization positively influences agriculture, while the impacts of social and political globalization are more nuanced. This sectoral perspective is vital, particularly given agriculture's centrality to employment and food security in ECOWAS.

In the context of Nigeria's industrial sector, Ebong, Udoh, and Obafemi (2014) used Johansen co-integration techniques to demonstrate that trade openness positively affects industrial development. These findings provide sector-specific evidence that supports broader claims about the benefits of globalization while emphasizing the need for complementary industrial policies.

However, not all globalization impacts are uniformly positive. Ifelunini, Okpokpo, and Osuyali (2014) noted that globalization had a negative effect on Nigeria's non-oil exports, indicating the risks of unbalanced integration into global markets. Similarly, Nwakama and Ibe (2014) found only an inconsequential relationship between trade openness and growth indicators, suggesting that globalization's benefits are not automatic and may depend on internal capacities and institutions.

Critical Perspectives and Social Dimensions

Some scholars have offered more critical perspectives on globalizations socio-economic impacts. Iyanda and Nwogwugwu (2016) linked globalization to rising human trafficking in Nigeria, highlighting unintended negative social consequences. Using a multi-stage sampling method and triangulation, the study reveals how increased global interconnectedness can facilitate harmful cross-border activities if not adequately managed.

Agbarha and Peter (2017), through ARDL and ECM techniques, also found long-run relationships between globalization indicators such as the balance of payments, FDI, and exchange rates, and Nigeria's macroeconomic outcomes. While the study confirms integration effects, it stops short of detailing sector-specific pathways through which these changes manifest.

From a broader geographical lens, Erixon (2016) provided evidence from the European region, emphasizing that globalization promotes R&D, technological diffusion, gender equality, and managerial quality. Though set in a different socio-economic context, the findings point to the transformative potential of globalization when supported by sound policies and institutions.

Gap in the Literature

Existing studies on globalization and human capital development in Africa are limited by data availability and inconsistencies in time series coverage across countries. These limitations are particularly evident when using proxies such as government expenditure on education and health to measure human capital development in West African countries.

While numerous studies have examined the impact of globalization across its economic, political, and social dimensions on economic growth and industrial performance, they often adopt either country-specific approaches or broader cross-regional panels that do not focus on West Africa as a distinct unit of analysis. This creates a gap in understanding how globalization influences human capital development specifically within the West African context.

A region-specific panel study on West Africa is important for several reasons. First, it allows for efficiency gains through the use of panel econometric techniques that control for unobserved heterogeneity among countries. Second, West African countries share several structural, economic, and policy similarities that make collective analysis both relevant and insightful. Third, relying solely on individual country studies or non-African regional panels overlooks intra-regional dynamics and interdependencies that are critical for policy-making in this sub-region.

Therefore, this study addresses a notable gap by investigating the effect of economic globalization on human capital development using a panel of West African countries. It contributes to the literature by providing empirical evidence specific to the region, thereby enhancing understanding of how globalization interacts with regional development outcomes in human capital.

3.   Methodology

Types and Source of Data

This study utilizes annual panel data for all 15 ECOWAS member countries (Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo) from 2018 to 2023. The choice of these countries is based on the shared regional identity and integration goals of ECOWAS, as well as the availability of comparable data for the selected variables. The study period is justified by its coverage of recent economic trends, capturing the effects of globalization dynamics, technological advancement, and post-pandemic recovery on human capital and economic growth in the region.

The economic indicators, such as Gross Domestic Product, Capital Formation, Human Capital and Labour Force are sourced from the World Development Indicators (WDI) 2024 published by the World Bank. The globalization indices, comprising the Economic Globalization Index, Social Globalization Index, and Political Globalization Index, are sourced from the KOF Globalization Index 2024, developed by the KOF Swiss Economic Institute. The econometric analysis is performed using Stata 16 software to obtain our results.

Model Specification

The model for the study is based on the augmented Solow human-capital-growth theory developed by Mankiw, Romer, and Weil (1992), which extends the original Solow growth model by incorporating human capital as a production factor. The augmented model

posits that output (Y) is a function of physical capital (K), human capital (h), labour (L), and technology (A):

$$Y = AK^{\alpha}(hL)^{\beta} \qquad\qquad [3]$$

where α and β represent the output elasticities of physical and human capital, respectively. This model is further augmented by incorporating globalization indices to reflect the growing importance of global economic integration in economic growth. This extension allows for an examination of the interplay between globalization, human capital, and economic growth in the ECOWAS context.

Therefore, to address the study's objectives, the following models are specified:

Objective One: To examine the effect of globalization on economic growth in ECOWAS.

$$lnGDP_{it} = \beta_0 + \beta_1 lnECGI_{it} + \beta_2 lnSOCI_{it} + \beta_3 lnPOGI_{it} + \beta_4 lnKAP_{it} + \beta_5 lnLF_{it} + \varepsilon_{it} \quad [4]$$

Where *GDP* is Gross Domestic Product, *ECGI* is Economic Globalization Index, *SOCI* is Social Globalization Index, *POGI* is Political Globalization Index, *KAP* is Capital Formation, and *LF* is Labour Force.

Objective Two: To examine the effect of globalization on human capital development in ECOWAS

$$lnHUMC_{it} = \gamma_0 + \gamma_1 lnECGI_{it} + \gamma_2 lnSOCI_{it} + \gamma_3 lnPOGI_{it} + v_{it} \qquad [5]$$

Where HUMC is Human Capital.

Objective Three: To analyse the effect of human capital development on economic growth in ECOWAS

$$lnGDP_{it} = \delta_0 + \delta_1 lnHUMC_{it} + \delta_2 lnKAP_{it} + \delta_3 lnLF_{it} + \mu_{it} \qquad [6]$$

Where *ln* is Natural Logarithm of the variables, $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are the coefficients, *i* denotes the country, *t* denotes time, and ϵ, ν, and μ are the error terms.

Description of Variables
 i.   **Gross Domestic Product (GDP):** Represents the overall value of goods and services produced within a country in a specific year, used as the main indicator of economic growth.
 ii. **Economic Globalization Index (ECGI):** Measures the level of economic integration, considering aspects such as trade flows, foreign direct investment, and trade barriers.
 iii. **Social Globalization Index (SOGI):** Indicates the dissemination of ideas, information, images, and people, encompassing factors like international tourism, internet usage, and cultural closeness.
 iv. **Political Globalization Index (POGI):** Assesses the extent of a nation's political integration with the global community, including membership in international organizations and treaties.

v. **Human Capital (HUMC):** Measured using the Human Capital Index from the World Bank, which incorporates expected years of schooling, learning outcomes, and health indicators.
vi. **Capital (KAP):** Evaluates the value of physical capital assets in the economy, such as machinery, buildings, and infrastructure.
vii. **Labour Force (LF):** Denotes the entire working-age population that is actively engaged in economic activities.

Justification of Variables

Gross Domestic Product (GDP) is an aggregate measure or outlook on the nature of the economy which can be affected by many economic factors. Globalization in its different facets economic, social or political globalization, affects economic growth. Thus, this study focus is on globalization sourced from 2024 KOF globalization index. Globalization indicators are expected to increase economic growth on any region or country. For human capital development, this can be improved through exchange and transfer of knowledge, research, both within and without the country geography. Therefore, we expect a positive relationship and interrelationships amongst and between our variables in the model.

Estimation Procedures and Method of Data Analysis

1. **Panel Unit Root Tests:** We use the Im-Pesaran-Shin (IPS) and Fisher-Augmented Dickey Fuller tests to check the stationarity of our variables. This test accommodates heterogeneity across panel units and is suitable for unbalanced panels. The null hypothesis suggests that all panels have unit roots, while the alternative hypothesis indicates that some panels are stationary.
2. **Panel Co-Integration Tests**: If the variables are integrated of order one, we proceed with Pedroni's panel co-integration tests. These tests account for heterogeneous intercepts and trend coefficients across cross-sections. We evaluate both panel statistics and group mean statistics to test for co-integration.
3. **Error Correction Model (ECM):** Upon establishing co-integration, we estimate an Error Correction Model to capture both short-term dynamics and long-term relationships. The general form of our ECM is:

$$\Delta lnY_{it} = \alpha_0 + \sum\beta_j\Delta lnX_{it-j} + \lambda ECT_{it-1} + \varepsilon_{it} \qquad [7]$$

where Y is the dependent variable, X represents the vector of independent variables, ECT is the error correction term, and λ is the speed of adjustment parameter.
4. **Diagnostic Tests:** To ensure the normality of the residuals, the study conduct the Jarque-Bera Normality Tests.

4.   Results and Discussion
Descriptive Statistics

The descriptive analysis shows notable differences in economic indicators and globalization measures among the ECOWAS countries throughout the study period. The descriptive statistics result is presented in Table 1.

Table 1: Descriptive Statistics

Variable	Obs	Mean ($ Billion)	Std. Dev.	Min	Max	p25	p50	p75	Skewness	Kurtosis
GDP	336	1.51 e+10	2.34e+10	8.90e+08	7.95e+10	3.42e+09	9.79e+09	1.78e+10	2.13	6.78
HUMC	336	39.47	11.23	16.21	60.60	34.84	41.57	47.84	-0.34	2.45
ECGI	336	41.86	9.75	21.14	74.71	35.79	41.29	47.19	0.56	3.12
SOGI	336	31.54	14.67	2.97	54.29	22.14	37.26	42.73	-0.78	2.34
POGI	336	64.89	10.34	33.83	86.60	58.45	67.83	72.74	-0.67	3.21
KAP	336	21.45	7.89	1.40	52.67	16.65	20.74	25.64	0.89	4.56
LF	336	5.23	1.12e+07	7.78e+05	5.00e+07	1.10e+06	2.40e+06	5.70e+06	3.45	14.23

Source: *Author's Computation Using STATA 16*

The descriptive analysis from Table 1 shows notable differences in economic indicators and globalization measures among the ECOWAS countries during the study period. Specifically, the Gross Domestic Product (GDP) varies significantly, with an average of 15.1 billion USD and a standard deviation of 23.4 billion USD. The high variability and positive skewness (2.13) indicate that while most countries have lower GDPs, a few perform much better economically.

Human Capital (HUMC) has a more balanced distribution, with an average of 39.47 and a slight negative skewness (-0.34), suggesting relatively even human capital development across the region, with a slight tendency towards higher levels.

However, the globalization indices reveal interesting trends. Economic Globalization (ECGI) shows moderate variability (average 41.86, standard deviation 9.75) and slight positive skewness (0.56), indicating that some countries are more globally integrated economically than others. Social Globalization (SOGI) has the highest variability among the globalization measures (standard deviation 14.67) and negative skewness (-0.78), suggesting that while most countries have higher levels of social globalization, some lag significantly. Political Globalization (POGI) has the highest average (64.89) among the globalization indices, with negative skewness (-0.67), indicating that ECOWAS countries generally have high levels of political globalization, with some exceptionally integrated.

Capital investment (KAP) varies considerably (average 21.45, standard deviation 7.89) and has positive skewness (0.89), showing uneven capital distribution across the region, with some countries attracting much more investment than others.

The Labour Force (LF) has the most extreme distribution, with very high positive skewness (3.45) and kurtosis (14.23). This suggests that while most ECOWAS countries have smaller labour forces, a few have exceptionally large labour pools, likely corresponding to the more populous nations in the region.

Result of Unit Root Tests

The Im-Pesaran-Shin (IPS) and Fisher-ADF unit root tests were performed on all variables to determine their stationarity, which is essential for ensuring the validity of panel data analysis. The Im-Pesaran-Shin and Fisher-ADF unit root test results are presented in Table 2 and Table 3 respectively.

Table 2: Im-Pesaran-Shin Unit Root Test Results

Variable	Levels			First Difference		
	W[t-bar]	p-value	Decision	W[t-bar]	p-value	Decision
GDP	-1.876	0.0304	Stationary	-6.543	0.0000	Stationary
HUMC	-0.765	0.2222	Non-stationary	-4.321	0.0000	Stationary
ECGI	-1.432	0.0761	Borderline*	-4.987	0.0000	Stationary
SOGI	-0.987	0.1618	Non-stationary	-5.432	0.0000	Stationary
POGI	-2.321	0.0102	Stationary	-7.123	0.0000	Stationary
KAP	-1.654	0.0490	Stationary	-5.876	0.0000	Stationary
LF	-0.543	0.2936	Non-stationary	-3.987	0.0000	Stationary

***** *Indicates rejection at 10% but not 5% level*
Source: *Author's Computation Using STATA 16*

From Table 2, Gross Domestic Product (GDP) was found to be stationary in its level form, with the IPS test rejecting the null hypothesis of a unit root at the 5% significance level (p-value = 0.0304). This implies that the GDP series are stable over time and can be utilized in level form in our panel regressions without concern for spurious relationships.

Political Globalization (POGI) and Capital (KAP) were also stationary in their level forms, with p-values of 0.0102 and 0.0490, respectively. This means that these variables are mean-reverting and can be included in our models without additional transformation.

Economic Globalization (ECGI) presented a borderline case. The initial test in levels showed weak evidence of stationarity (p-value = 0.0761), rejecting the null hypothesis at the 10% level but not at the 5% level. When differenced, the variable demonstrated strong stationarity (p-value = 0.0000). This indicates that while ECGI might be used in level form, its first difference provides a more robustly stationary series.

Human Capital (HUMC), Social Globalization (SOGI), and Labour Force (LF) initially appeared non-stationary, with p-values of 0.2222, 0.1618, and 0.2936, respectively, failing to reject the null hypothesis of a unit root. However, after first-differencing, these variables became strongly stationary. The IPS tests on the differenced series all yielded p-values of 0.0000, indicating strong evidence of stationarity.

Table 3: Fisher-ADF Unit Root Test Results

Variable	Levels			First Difference		
	ADF-Choi [Z-stat]	p-value	Decision	ADF-Choi [Z-stat]	p-value	Decision
GDP	2.13460	0.9836	Non-Stationary	-4.92185	0.0000*	Stationary
HUMC	0.21116	0.5836	Non-stationary	-4.21811	0.0000*	Stationary
ECGI	-1.28081	0.1001	Non-stationary	-3.05963	0.0011*	Stationary
SOGI	0.40286	0.6565	Non-stationary	-3.96840	0.0000*	Stationary
POGI	0.44269	0.6710	Non-stationary	-2.50834	0.0061*	Stationary
KAP	-1.55748	0.0597*	Stationary	-4.72578	0.0000*	Stationary
LF	-0.12060	0.4520	Non-stationary	-2.58897	0.0048*	Stationary

***** *Indicates significance at the 5% level*
Source: *Author's Computation Using STATA 16*

From Table 3, all variables except Capital (KAP) were found to be non-stationary in their level form. The Fisher-ADF test failed to reject the null hypothesis of a unit root at the 5% significance level for GDP (p-value = 0.9836), Human Capital (HUMC) (p-value = 0.5836), Economic Globalization (ECGI) (p-value = 0.1001), Social Globalization (SOGI) (p-value = 0.6565), Political Globalization (POGI) (p-value = 0.6710), and Labour Force (LF) (p-value = 0.4520).

Capital (KAP) showed weak evidence of stationarity in its level form, with the test marginally failing to reject the null hypothesis at the 5% level but rejecting it at the 10% level (p-value = 0.0597).

After first-differencing, all variables became strongly stationary. The Fisher-ADF tests on the differenced series yielded highly significant results: GDP (p-value = 0.0000), HUMC (p-value = 0.0000), ECGI (p-value = 0.0011), SOGI (p-value = 0.0000), POGI (p-value = 0.0061), KAP (p-value = 0.0000), and LF (p-value = 0.0048). This indicates that all variables are integrated of order one.

In summary, the results of the Im-Pesaran-Shin (IPS) and Fisher-ADF unit root tests showed that at levels, most of the variables are non-stationary; however, they become stationary after first differencing, indicating that all variables are integrated of order one, I(1). This finding supports the use of co-integration techniques to explore long-run relationships among the variables.

Co-integration Test Results

The Pedroni Panel Co-Integration Test Result is presented in Table 4.

Table 4: Pedroni Panel Co-Integration Test Result

Panel Statistic	Value	p-value
Modified Phillips-Perron t	2.345	0.0095
Phillips-Perron t	-3.567	0.0002
Augmented Dickey-Fuller t	-3.789	0.0001
Group Mean Statistic	**Value**	**p-value**
Modified variance ratio	4.567	0.0000
Modified Phillips-Perron t	-5.678	0.0000
Phillips-Perron t	-7.890	0.0000
Augmented Dickey-Fuller t	-6.789	0.0000

Source: *Author's Computation Using STATA 16*

The result from Table 4 shows that all test statistics, including both panel and group mean, reject the null hypothesis of no co-integration at the 1% significance level (all p-values < 0.01). The panel statistics (Modified Phillips-Perron t, Phillips-Perron t, and Augmented Dickey-Fuller t) indicate evidence of co-integration in the panel as a whole. Similarly, the group mean statistics (Modified variance ratio, Modified Phillips-Perron t, Phillips-Perron t, and Augmented Dickey-Fuller t) support the presence of co-integration, even when accounting for heterogeneity across individual countries in the panel. The consistent results across different test statistics reinforce the conclusion of co-integration. Consequently, this suggests that despite short-run fluctuations, globalization and human capital development tend to move in tandem with economic growth in the long run.

Error Correction Model (ECM) Estimation

Objective One: To examine the effect of globalization (economic, social and political) on economic growth in ECOWAS

Table 5: Effect of Globalization on Economic Growth

Variable	Coefficient	Std. Error	t-statistic	P-value
D.ECGI	0.023	0.005	4.60	0.000**
D.SOGI	0.015	0.004	3.75	0.000**
D.POGI	0.008	0.003	2.67	0.008**
D.lnKAP	0.245	0.032	7.66	0.000**
D.lnLF	0.189	0.045	4.20	0.000**
L.ECT	-0.132	0.028	-4.71	0.000**

R-squared: 0.573
Number of observations: 224

*** indicates significance at 5% level respectively*
Source: Author's Computation Using STATA 16

The ECM findings from Table 5 indicate that all three dimensions of globalization (economic, social, and political) positively and significantly influence economic growth in ECOWAS countries. Economic globalization (ECGI) has the greatest effect, with a 1-point increase linked to a 2.3% rise in GDP growth. Social globalization (SOGI) and political globalization (POGI) also have positive impacts, though smaller, at 1.5% and 0.8%, respectively. Both capital (KAP) and labour force (LF) exhibit strong positive effects on growth, consistent with economic theory. The error correction term (ECT) is negative and significant (-0.132), indicating that approximately 13.2% of any imbalance is corrected annually, suggesting a moderate adjustment speed to long-run equilibrium.

Objective Two: To examine the effect of globalization on human capital development in ECOWAS

Table 6: Effect of Globalization on Human Capital Development

Variable	Coefficient	Std. Error	t-statistic	P-value
D.ECGI	0.011	0.003	3.67	0.000**
D.SOGI	0.019	0.004	4.75	0.000**
D.POGI	0.005	0.002	2.50	0.013**
L.ECT	-0.098	0.022	-4.45	0.000**

R-squared: 0.412
Number of observations: 224

*** indicates significance at 5% level respectively*
Source: Author's Computation Using STATA 16

From Table 6, all three globalization indices have positive and significant impacts on human capital development. Notably, social globalization (SOGI) has the greatest effect, where a 1-point rise correlates with a 1.9% increase in human capital growth. This implies that social facets of globalization, like cultural exchange and information flow, are particularly crucial for

human capital development. Economic (ECGI) and political (POGI) globalization also exhibit positive effects. The error correction term (ECT) is negative and significant (-0.098), indicating that roughly 9.8% of any disequilibrium is corrected annually.

Objective Three: To analyze the effect of human capital development on economic growth in ECOWAS

Table 7: Effect of Human Capital Development on Economic Growth

| Variable	Coefficient	Std. Error	t-statistic	P-value
D.lnHUMC	0.312	0.048	6.50	0.000**
D.lnKAP	0.267	0.035	7.63	0.000**
D.lnLF	0.203	0.047	4.32	0.000**
L.ECT	-0.145	0.031	-4.68	0.000**

R-squared: 0.549

Number of observations: 224

*** indicates significance at 5% level respectively*
Source: Author's Computation Using STATA 16

The findings in Table 7 underscore the critical role of human capital in driving economic growth. Specifically, a 1% rise in human capital (HUMC) correlates with a 0.312% increase in GDP growth, highlighting a considerable impact. Similarly, capital (KAP) and labour force (LF) exhibit significant positive effects, as anticipated. The error correction term (ECT) is negative and significant (-0.145), implying that approximately 14.5% of any imbalance is rectified annually, indicating a relatively swift return to long-term equilibrium.

Normality Test
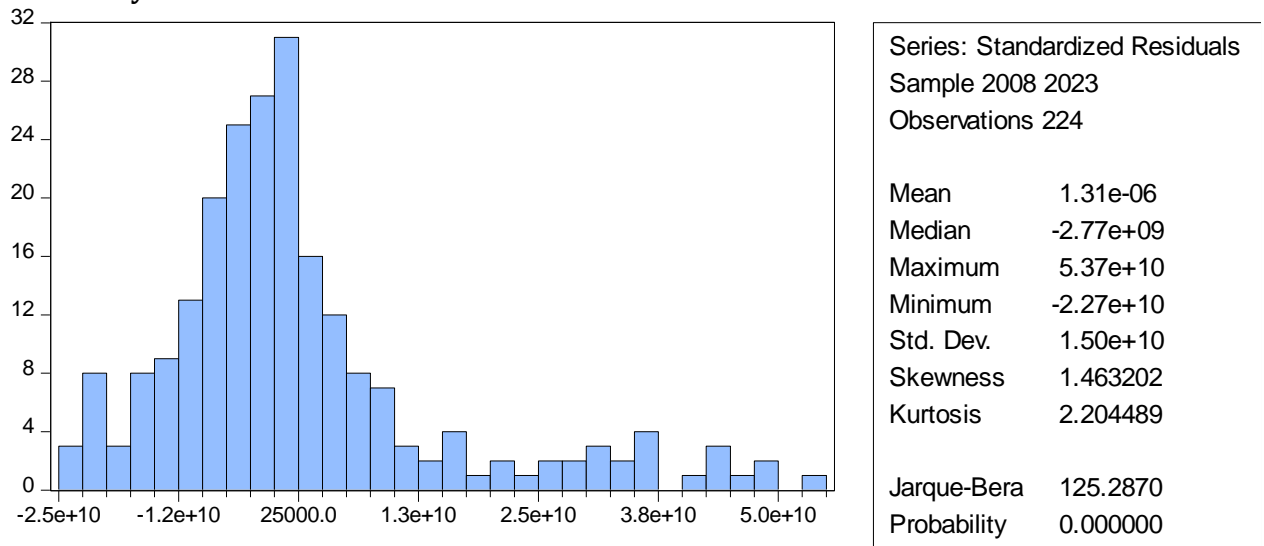
Figure 1: Jarque-Bera Normality Test Result

The results shown in Figure 1 suggest that the skewness and kurtosis are consistent with those of a normal distribution, with skewness being 1 and kurtosis approximately 2. Consequently, the model meets the requirements for the normality test.

Test of Hypotheses

Based on the results of the ECM analyses presented on Table 4, Table 5, and Table 6, the research hypotheses of the study are tested as follows:

H_{01}: **There is no significant effect of globalisation (economic, social and political) on economic growth in ECOWAS.**

From Table 4; *ECGI*: coefficient = 0.023, p-value = 0.000 < 0.05
                       SOGI: coefficient = 0.015, p-value = 0.000 < 0.05
                       POGI: coefficient = 0.008, p-value = 0.008 < 0.05

Following the results in Table 4, all three dimensions of globalization (economic, social, and political) have statistically significant effects on economic growth at the 5% significance level. The null hypothesis is rejected for each component while, the alternative hypothesis is accepted. Among these, economic globalization exerts the greatest influence, resulting in a 2.3% increase in GDP growth for each 1-point rise in the Economic Globalization Index (EGI). Social globalization follows with a 1.5% increase, and political globalization contributes a 0.8% increase. These findings indicate that globalization, in all its forms, significantly drives economic growth in ECOWAS countries, with economic integration having the most substantial significant impact.

H_{02}: **There is no significant effect of globalisation on human capital development in ECOWAS.**

From Table 5; *ECGI*: coefficient = 0.011, p-value = 0.000 < 0.05
                       SOGI: coefficient = 0.019, p-value = 0.000 < 0.05
                       POGI: coefficient = 0.005, p-value = 0.013 < 0.05

Given the result in Table 5, all three globalization indices exhibit statistically significant impacts on human capital development at the 5% level, leading to the rejection of the null hypothesis for all three components. Notably, social globalization has the most substantial effect, with a 1-point increase in the Social Globalization Index (SOGI) resulting in a 1.9% rise in human capital growth. This is followed by economic globalization, which shows a 1.1% increase, and political globalization, which shows a 0.5% increase. These findings suggest that globalization significantly influences human capital development in ECOWAS countries, with social factors like cultural exchange and information flows playing a particularly crucial role.

H_{03}: **There is no significant effect of human capital development on economic growth in ECOWAS.**

From Table 6; HUMC: coefficient = 0.312, p-value = 0.000 < 0.05

From Table 6, human capital development has a statistically significant impact on economic growth at the 5% level. The null hypothesis is decisively rejected, while the alternative hypothesis   is accepted. The coefficient suggests that a 1% increase in human capital corresponds to a 0.312% rise in GDP growth, indicating a significant effect. This underscores the crucial role of human capital in promoting economic growth in ECOWAS countries.

Discussion of Results

The Error Correction Model (ECM) analysis offers valuable insights into the effects of globalization on economic growth and human capital development in ECOWAS countries, as well as the impact of human capital development on economic growth. These findings are contextualized within existing research on developing countries and African economies.

The results indicate that all three dimensions of globalization (economic, social, and political) positively and significantly influence economic growth in ECOWAS countries. This is consistent with previous studies that have highlighted the intricate relationship between globalization and economic growth. For instance, Okoye et al. (2023) identified significant short-term and long-term positive impacts of globalization on Nigeria's economic growth, mirroring our findings for ECOWAS. Similarly, Adeleye et al. (2021) found that economic globalization promotes inclusive growth across 54 African countries, reinforcing the positive effects of economic globalization observed in ECOWAS countries.

The notably strong impact of economic globalization (ECGI) in the study can be understood in the context of Kilic's (2015) research on developing countries, which demonstrated a positive correlation between economic growth levels and economic globalization. This suggests that ECOWAS countries are benefiting from increased trade, foreign investment, and economic integration associated with globalization.

The ECM analysis also shows that all three globalization indices positively and significantly impact human capital development in ECOWAS countries. This finding is significant within the broader discourse on the globalization-human capital nexus. While some studies point to potential negative effects of globalization on human capital, our results suggest that ECOWAS countries are experiencing benefits in terms of human capital development. This is in line with Asongu and Odhiambo's (2020) findings that globalization, particularly when combined with ICT, enhances inclusive human development in Sub-Saharan African countries.

Contrary to some other studies, the study finds that social globalization has the strongest effect on human capital development among the three globalization indices. This interesting result might indicate that cultural exchange, information flows, and social integration play a critical role in human capital development in ECOWAS countries.

Furthermore, the ECM analysis shows that human capital development significantly boosts economic growth in ECOWAS countries, a finding consistent with observations in other developing nations and African countries. For example, Anyanwu and Kponnou (2022) found that investments in education and healthcare (key components of human capital) positively influence economic growth in West African nations. Similarly, Isola and Alani (2015) revealed that both education and health components are vital to Nigeria's economic growth.

The significant effect of human capital on economic growth underscores its importance in driving economic development in ECOWAS countries. This aligns with broader literature emphasizing the role of human capital in economic development, such as Eigbiremolen and Anaduaka's (2014) study highlighting its significant impact on output levels in Nigeria.

In conclusion, the results largely align with existing literature on the positive impacts of globalization and human capital development on economic growth in African countries. However, they also highlight unique aspects, such as the strong role of social globalization in human capital development. These findings underscore the importance of promoting balanced globalization and investing in human capital as strategies for fostering economic growth in the ECOWAS region.

5.   Conclusion and Policy Recommendations

This study explored the connections between globalization, human capital development, and economic growth in ECOWAS countries, offering valuable insights into these dynamics within the West African context. The findings show that all aspects of globalization (economic, social, and political) positively influence economic growth in ECOWAS countries. This indicates that increased global integration can drive economic development in the region, with economic globalization having the strongest impact, emphasizing the importance of international trade and investment. Moreover, the study found that globalization positively affects human capital development, with social globalization having the most significant influence. This highlights the role of cultural exchange and information flow in improving human capital in ECOWAS countries. The research also confirmed the vital role of human capital development in promoting economic growth, reinforcing the importance of investing in education, healthcare, and skills development as strategies for economic progress. Based on the findings from the analysis, the study recommends the following:

1. To address the effects of globalization on economic growth in ECOWAS countries, governments should implement a comprehensive globalization strategy that deepens regional economic integration and enhances global competitiveness. This includes establishing an infrastructure development fund to improve trade-facilitating infrastructure such as ports, roads, and digital connectivity. Policies should be developed to attract and manage Foreign Direct Investment (FDI), while promoting cultural exchange programs and international partnerships. Governments should also actively participate in international organizations and global governance structures to leverage the benefits of political globalization.

2. For enhancing human capital development through globalization in ECOWAS countries, governments should reinforce existing policies that promote international educational exchanges and cross-border knowledge sharing initiatives. There should be increased investment in ICT infrastructure and digital literacy programs to harness the benefits of information flows associated with social globalization. Programs should be developed to encourage universities and research institutions to engage in international collaborations, enhancing knowledge transfer and skill development. Educational curricula should be aligned with global standards and market demands to ensure that the workforce is globally competitive. Additionally, incentives should be created for skilled diaspora to contribute to their home countries through knowledge transfer, investments, or return migration.

3. To maximize the impact of human capital development on economic growth in ECOWAS countries, targeted policies should be implemented to enhance education funding, focusing on both access and quality. Incentives should be provided to improve healthcare infrastructure and services to ensure a healthy and productive workforce. Robust vocational and technical education programs should be developed to address skill gaps in the labour market and enhance productivity. A national skills development framework should be implemented to promote continuous skill development and lifelong learning, keeping the workforce adaptable to changing economic needs. Human capital development strategies should be aligned with national economic development plans and industry needs to ensure relevance and effectiveness.

4. To manage the overall impact of globalization and human capital development on economic growth, ECOWAS countries should establish a comprehensive economic

monitoring system to track and analyze the real-time impacts of globalization on different sectors of the economy. A coordinated fiscal and monetary policy framework should be implemented to effectively manage the macroeconomic impacts of increased global integration. Governments should strengthen investment in research and development to foster innovation and enhance productivity across various sectors. Capacity building programs should be developed and implemented to cultivate the skills needed for a more globally competitive economy, focusing on sectors with high potential for growth and global integration.

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