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A World Bank Data-Driven Analysis of Income, Investment, and Sectoral Change in ECOWAS Economies (2000–2024)

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Abstract

This study examines long-term economic development and structural transformation across twelve West African economies, Benin, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Senegal, Sierra Leone, and Togo over the period 2000–2024 using harmonized World Bank indicators. The analysis combines income dynamics, growth performance, macroeconomic stability, investment, trade openness, foreign direct investment (FDI), and sectoral value-added shares to provide a comprehensive, comparative assessment of development trajectories in the region. Results reveal persistent income divergence and slow convergence. Real GDP per capita (constant 2015 US$) remains highest in Cabo Verde (long-run mean ≈ US$3,200), followed by Nigeria (≈ US$2,190) and Ghana (≈ US$1,560), while Guinea-Bissau, Liberia, and Togo consistently remain below US$750. Growth outcomes are heterogeneous: Ghana records the highest mean growth rate (≈5.6%), whereas Benin and Senegal combine moderate growth with the lowest volatility, indicating stronger macroeconomic resilience. In contrast, Liberia and Cabo Verde experience extreme fluctuations, with growth ranging from contractions below −20% to expansions exceeding 25%. Macroeconomic conditions further differentiate countries. Inflation remains low and stable in Senegal, Cabo Verde, Benin, and Togo (generally <3% in 2024), while Nigeria, Ghana, and Sierra Leone exhibit sustained price instability, exceeding 20–30% in the latest year. Investment intensity varies widely; countries such as Senegal, Benin, Guinea, and The Gambia sustain gross capital formation above 30% of GDP in 2024, yet relatively strong growth in Ghana despite low investment underscores the role of productivity and structural factors beyond capital accumulation. Sectoral results show pronounced structural transformation. Agriculture's share declines sharply in Liberia (−42 percentage points) and Sierra Leone (−30 points), accompanied by large expansions in services (+22 to +32 points), while industrialization remains uneven and concentrated in a few economies. The findings demonstrate that West African development paths are shaped by the interaction of growth stability, macroeconomic management, and sectoral reallocation rather than income growth alone.

Keywords: *ECOWAS; World Bank; GDP; Macroeconomic; Development.*

1. Introduction

Economic development in West Africa has undergone profound yet uneven transformation over the past two decades, marked by divergent growth trajectories and persistent structural constraints. While several countries have recorded sustained economic expansion and improvements in income indicators, others continue to face low productivity, macroeconomic instability, and limited economic diversification, reflecting deep-rooted structural weaknesses (World Bank, 2023; UNCTAD, 2021). Recent global shocks—including commodity price volatility, the COVID-19 pandemic, and tightening global financial conditions—have further amplified these vulnerabilities, particularly in economies with high external dependence and weak fiscal buffers (World Bank, 2022; IMF, 2024). As a result, development outcomes across West Africa have become increasingly heterogeneous, underscoring the need for a comparative and long-term regional assessment.

Against this backdrop, this study examines economic development dynamics across twelve West African countries—Benin, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Senegal, Sierra Leone, and Togo—over the period 2000–2024 using harmonized indicators from the World Bank. The analysis integrates core macroeconomic outcomes, including income levels, growth performance, inflation, investment, trade openness, foreign direct investment, and sectoral value-added shares in agriculture, industry, and services. Such an integrated framework is increasingly recognized as essential for capturing both the pace and the composition of economic development in low- and middle-income regions (UNIDO, 2022; World Bank, 2024).

Understanding these dynamics is particularly important because economic growth alone does not necessarily translate into sustained or inclusive development. Across West Africa, growth episodes have often been volatile, externally driven, and weakly linked to productivity-enhancing structural transformation, limiting their long-term developmental impact (IMF, 2023; AfDB, 2023). Persistent inflationary pressures, uneven investment responses, slow industrialization, and continued reliance on primary sectors remain major constraints to resilience and inclusiveness (UNCTAD, 2024; World Bank, 2023). Without clear empirical evidence on how macroeconomic conditions interact with sectoral reallocation, policy responses risk being fragmented and insufficient to support durable development outcomes.

To date, relatively few studies provide a systematic, multi-country analysis that jointly examines long-run macroeconomic performance and sectoral structural change across West Africa using consistent data over an extended period. Much of the existing literature focuses on single-country cases, short time horizons, or isolated indicators, limiting cross-country comparability and regional inference (UNCTAD, 2021; UNIDO, 2022). This study addresses this gap by examining how income levels and growth trajectories have evolved since 2000, the extent to which these changes have been accompanied by shifts in sectoral composition, and how investment, trade openness, and foreign direct investment interact with observed development outcomes across the region.

The study contributes to the development economics literature both empirically and from a policy perspective. Empirically, it advances understanding of structural transformation by explicitly linking sectoral reallocation patterns to macroeconomic performance and growth stability in a regional low- and middle-income context. From a policy standpoint, the findings provide evidence-based insights into development pathways that have proven more resilient and inclusive, highlighting the critical roles of diversification, investment intensity, and macroeconomic stability (AfDB, 2022; IMF, 2024). By identifying persistent disparities and structural bottlenecks, the study offers a robust analytical foundation for designing targeted development and industrial policies in West Africa.

2. Material and methods

2.1 Study Area

This study employs annual macroeconomic data from the World Bank World Development Indicators (WDI) database for twelve West African countries viz. Benin, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Senegal, Sierra Leone, and Togo covering the period 2000–2024. The WDI database is widely recognized for its standardized definitions, cross-country comparability, and transparency, making it particularly suitable for long-run macroeconomic and structural analyses in developing regions (World Bank Data Group, 2021). Focusing on ECOWAS member states enables a consistent regional assessment of development pathways within a shared institutional and economic context (Devarajan & Fengler, 2021).

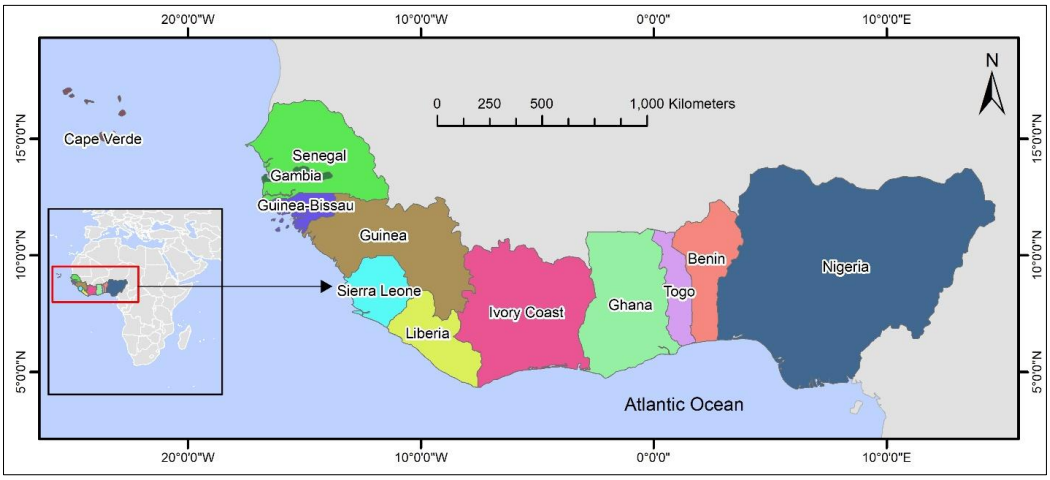

Figure 1. Geographic location of ECOWAS member states in West Africa, showing national boundaries and regional context within the African continent.

2.2 Economic Development Indicators

Economic development trajectories were evaluated using a core set of macroeconomic indicators capturing income levels, growth performance, macroeconomic stability, investment intensity, and external integration. These indicators are commonly applied in empirical growth and development studies to assess both performance and vulnerability in low- and middle-income economies (Ndulu et al., 2021; Fosu, 2021). GDP per capita (in current and constant prices) and GNI per capita were used to capture income dynamics, while GDP growth rates and inflation were employed to reflect macroeconomic stability and volatility (Coulibaly et al., 2021). Investment intensity, foreign direct investment inflows, and trade openness were included to capture capital accumulation and integration into the global economy, which are central drivers of growth and development in Sub-Saharan Africa (Asongu et al., 2022) (Eqs. 1–7):

GDP per capita (current US$):

$$GDPpc_{it}^{cur} = \frac{GDP_{it}^{cur}}{POP_{it}} \qquad (1)$$

GDP per capita (constant 2015 US$):

$$GDPpc_{it}^{const} = \frac{GDP_{it}^{2015}}{POP_{it}} \qquad (2)$$

Annual GDP growth rate (%):

$$GDPg_{it} = \left(\frac{GDP_{it}^{const} - GDP_{i,t-1}^{const}}{GDP_{i,t-1}^{const}}\right) \times 100 \qquad (3)$$

GNI per capita (Atlas method, current US$):

$$GNIpc_{it} = \frac{GNI_{it}}{POP_{it}} \qquad (4)$$

Inflation rate (consumer prices, annual %):

$$INF_{it} = \left(\frac{CPI_{it} - CPI_{i,t-1}}{CPI_{i,t-1}}\right) \times 100 \qquad (5)$$

Gross capital formation (% of GDP):

$$GCF_{it} = \left(\frac{I_{it}}{GDP_{it}}\right) \times 100 \qquad (6)$$

Foreign direct investment, net inflows (% of GDP):

$$FDI_{it} = \left(\frac{FDI_{it}^{net}}{GDP_{it}}\right) \times 100 \qquad (7)$$

Trade openness (% of GDP):

$$TRADE_{it} = \left(\frac{X_{it} + M_{it}}{GDP_{it}}\right) \times 100 \qquad (8)$$

where GDP denotes gross domestic product, POP population, CPI the consumer price index, I gross investment, and X and M exports and imports, respectively.

2.3 Structural Transformation Indicators

Structural transformation was examined through sectoral value-added shares expressed as a percentage of GDP, reflecting the allocation of economic activity across agriculture, industry, and services. Sectoral reallocation remains a central mechanism through which productivity gains and long-term development are achieved in developing economies (Mensah & Sarpong, 2022). Agriculture, industry, and services value-added shares were used to capture shifts away from primary activities toward higher-productivity sectors, a pattern increasingly emphasized in recent African development literature (Bhorat et al., 2022). For each country i and year t, the following indicators were calculated (Eqs. 9–11):

Agriculture value-added share:

$$AGR_{it} = \left(\frac{VA_{it}^{agr}}{GDP_{it}}\right) \times 100 \qquad (9)$$

Industry value-added share:

$$IND_{it} = \left(\frac{VA_{it}^{ind}}{GDP_{it}}\right) \times 100 \qquad (10)$$

Services value-added share:

$$SERV_{it} = \left(\frac{VA_{it}^{serv}}{GDP_{it}}\right) \times 100 \qquad (11)$$

where VA^{agr}, VA^{ind}, and VA^{serv} denote sector-specific value added.

2.4 Measurement of Structural Change

Long-term structural change was quantified by computing sectoral shifts between the initial year and the most recent year of the study period using eq. 12. Measuring changes in sectoral shares over extended horizons provides a clear and intuitive indicator of structural transformation and economic diversification (Herrendorf et al., 2021). Positive changes in the services and industry shares combined with declining agricultural shares are commonly interpreted as evidence of

progress toward more diversified and productive economic structures in Sub-Saharan Africa (Mensah & Sarpong, 2022):

$$\Delta S_i = S_{i,t_L} - S_{i,t_0} \qquad (12)$$

where $S \in \{AGR, IND, SERV\}$. Positive changes in $\Delta SERV$ and ΔIND, coupled with declining ΔAGR, indicate a transition toward higher-productivity and more diversified economic structures.

2.5 Statistical Analysis

Descriptive statistics including mean, standard deviation, minimum, maximum, and interquartile range were computed for all indicators to summarize central tendencies and dispersion via equation 13. Cross-country comparisons were conducted using rankings for the most recent available year, while temporal dynamics were evaluated through trend analysis. Macroeconomic growth stability was assessed using the dispersion of annual GDP growth rates, a standard approach for capturing growth volatility and macroeconomic risk in developing economies (Coulibaly et al., 2021). Growth volatility is particularly relevant in the African context, where external shocks and policy constraints often amplify economic fluctuations (UN DESA, 2023):

$$\sigma_i = \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}(GDPg_{it} - \bar{GDPg_i})^2} \qquad (13)$$

where $\sigma_i$represents growth volatility and $\bar{GDPg_i}$is the mean GDP growth rate for country $i$over the study period.

2.6 Data Sources and Analytical Tools

All macroeconomic and structural indicators were retrieved from the World Bank Application Programming Interface (API). Data processing, indicator computation, and statistical analyses were conducted using the R statistical environment, ensuring full transparency, reproducibility, and methodological consistency.

3. Results

3.1 Overall Trends in Economic Development

3.1.1 Evolution of Income and Macroeconomic Indicators

Figure 2 presents a consolidated view of the time-series evolution of key macroeconomic indicators, income levels (GDP per capita in current and constant 2015 US$), economic growth, GNI per capita, inflation, investment (gross capital formation), FDI inflows, and trade openness across the twelve West African economies over 2000–2024. Overall, most countries show gradual long-run improvements in income indicators, but the pace of progress and macroeconomic stability differs markedly across countries and indicators.

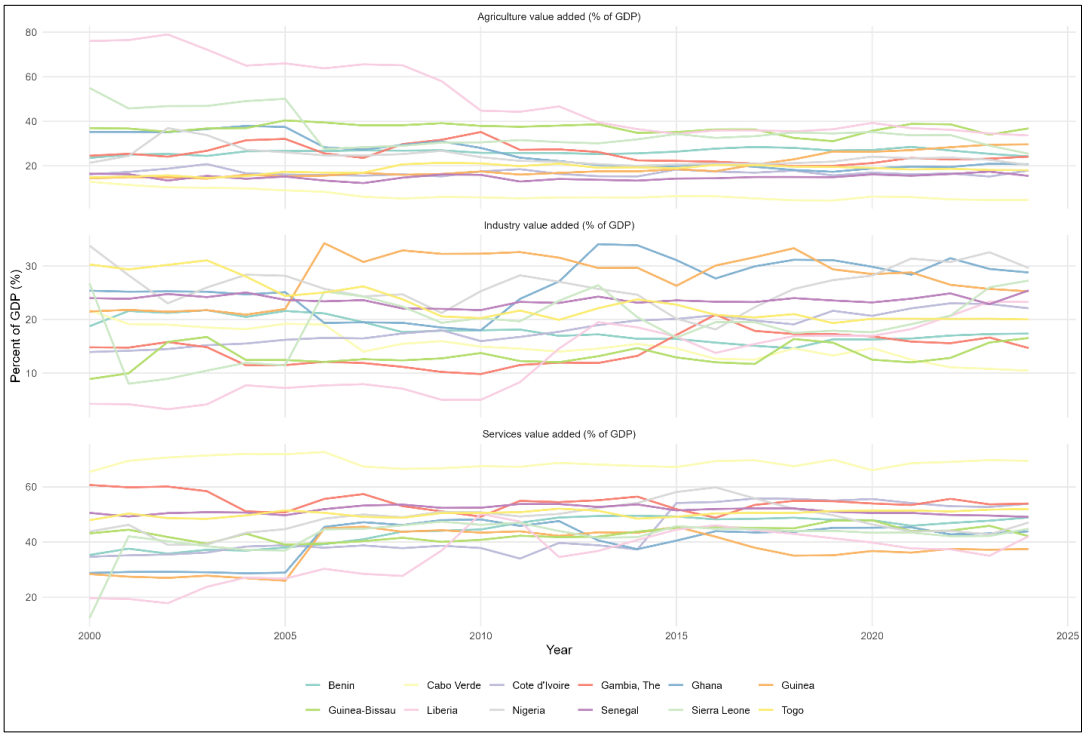

Figure 2. Trends in sectoral value added (% of GDP) for agriculture, industry, and services across ECOWAS countries, based on World Bank data, illustrating patterns of structural transformation over the study period.

Across the period, Cabo Verde consistently stands out as the highest-income economy, with GDP per capita rising from about US$1,189 (2000) to US$5,273 (2024), and real GDP per capita (constant 2015 US$) increasing from roughly US$2,037 to US$4,475. Several countries—including Côte d'Ivoire, Ghana, Senegal, and Benin—also show sustained upward movements in both nominal and real income per capita, reflecting gradual improvements in average living standards over the study horizon. In contrast, Nigeria exhibits a sharp nominal decline by 2024 (GDP per capita ≈ US$807), despite a comparatively high real GDP per capita level (constant 2015 US$ ≈ US$2,448), indicating a major divergence between nominal and inflation-adjusted income dynamics in the late period.

Growth trajectories display clear cross-country contrasts in stability. Benin and Senegal show relatively steady positive growth with limited downturns, while Cabo Verde and Liberia experience pronounced volatility, including major contractions in some years. By the end of the period (2024), several countries record strong growth (e.g., Benin ~7.45%, Cabo Verde ~7.27%, Senegal ~6.89%), whereas Nigeria's growth is comparatively weaker (~3.43%), reinforcing divergence in recent macroeconomic performance.

Macroeconomic stability indicators further separate countries. Inflation remains comparatively moderate in several economies in the latest year (e.g., Senegal ~0.80%, Cabo Verde ~1.05%, Benin ~1.16%), while Nigeria shows exceptionally high inflation (~33.24% in 2024). Differences are also visible in structural/flow indicators: some countries sustain high trade openness (notably Cabo Verde and Guinea, with trade shares around or above ~95–100% of GDP in 2024), whereas others remain less externally integrated. Similarly, FDI inflows are uneven: Liberia records very large inflows in some years (suggesting episodic, project-driven investment), while Nigeria's net inflows remain low in the most recent period.

3.1.2 Real Income Dynamics: GDP per Capita

Long-term trends in GDP per capita (constant 2015 US$) in Figure 3 reveal persistent real-income gaps across the countries. Cabo Verde maintains the highest real income throughout the period (long-run mean ≈ US$3,203), followed by Nigeria (≈ US$2,190) and Ghana (≈ US$1,559). At the

lower end, Guinea-Bissau, Liberia, and Togo remain below about US$750 on average, indicating comparatively limited improvement in real living standards over 2000–2024.

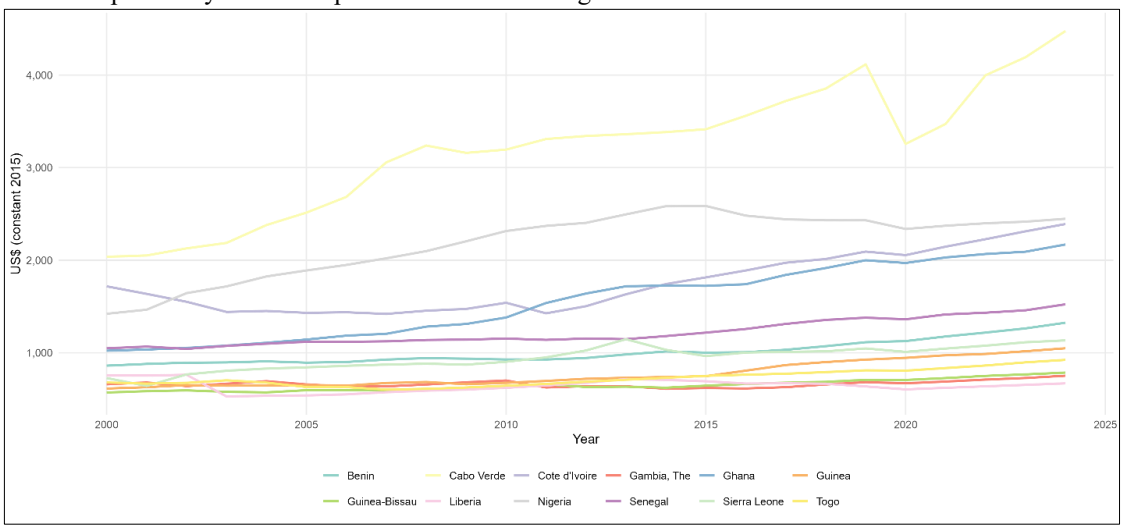

Figure 3. Trends in GDP per capita (constant 2015 US$) across ECOWAS countries based on World Bank data, highlighting cross-country income dynamics and long-term growth patterns over the study period.

The latest-year snapshot in Figure 4 reinforces this structure. In 2024, Cabo Verde ranks first in real GDP per capita (constant 2015 US$), while Liberia, The Gambia, and Guinea-Bissau are among the lowest. The stability of these relative positions over time suggests slow regional convergence, even where growth has been sustained in several economies.

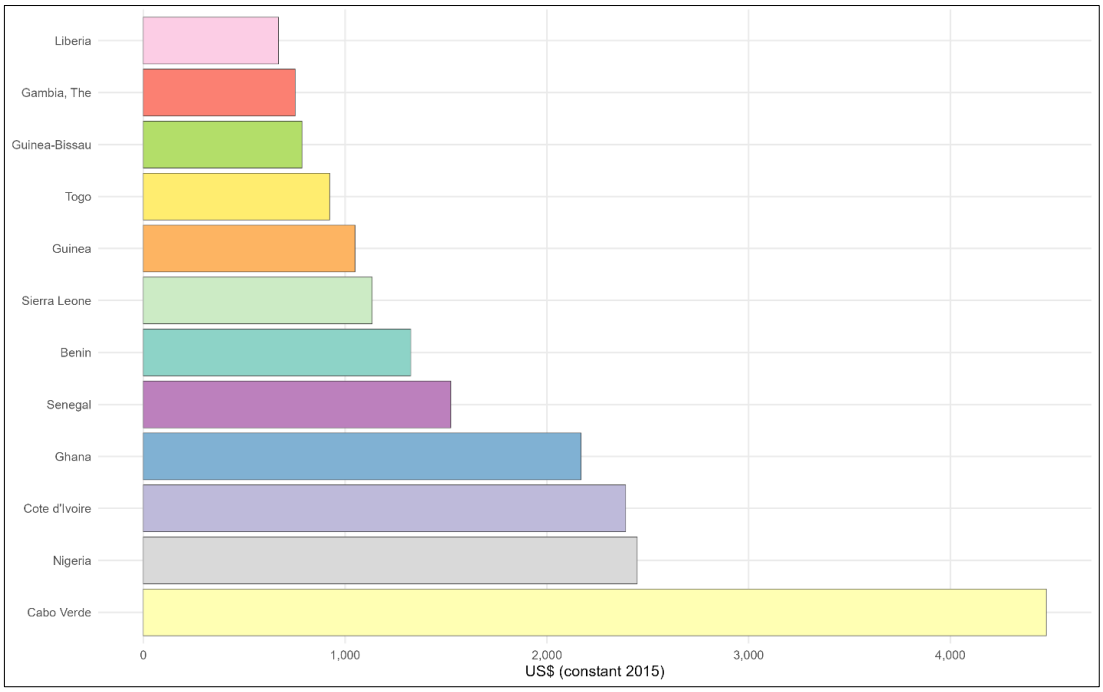

Figure 4. Cross-country comparison of GDP per capita (constant 2015 US$) across ECOWAS member states for the most recent available year, based on World Bank data.

3.1.3 Economic Growth Performance and Volatility

Figure 5 illustrates annual GDP growth trajectories. Average growth rates range from 3.4% in The Gambia to 5.6% in Ghana. Ghana, Sierra Leone, Nigeria, and Benin record the highest mean growth rates over 2000–2024; however, growth stability differs markedly across countries.

Liberia and Cabo Verde exhibit the highest volatility, with standard deviations exceeding 6%, reflecting exposure to severe economic shocks. Liberia experienced both the largest contraction (−30.1%) and the strongest expansion (28.6%) in the sample. In contrast, Benin and Senegal display relatively stable growth paths, combining moderate-to-high mean growth with low volatility, indicating stronger macroeconomic resilience.

Figure 5. Annual GDP growth rates (%) across ECOWAS countries based on World Bank data, illustrating interannual growth volatility and macroeconomic fluctuations over the study period.

3.1.4 Income Structure and Inflationary Conditions

Income rankings based on GNI per capita using the Atlas method show a clear and persistent hierarchy across the study countries (Table 1). Cabo Verde consistently occupies the highest position, reflecting its relatively advanced income status within the region. Côte d'Ivoire, Ghana, and Senegal form a second tier with moderate-to-high income levels, while Nigeria exhibits a mid-range position characterized by substantial volatility. At the lower end of the distribution, Guinea-Bissau, Sierra Leone, and Liberia remain persistently low-income economies over the study period.

Table 1. Ranking of ECOWAS countries by GNI per capita (Atlas method, current US$)

Rank	Country	GNI per capita (Atlas, US$) – General position
1	Cabo Verde	Highest income level
2	Côte d'Ivoire	Upper-middle within sample
3	Ghana	Upper-middle within sample
4	Senegal	Moderate income
5	Nigeria	Moderate but volatile
6	Benin	Lower-middle
7	Guinea	Lower-middle
8	Togo	Lower income
9	The Gambia	Lower income
10	Guinea-Bissau	Low income
11	Sierra Leone	Very low income
12	Liberia	Lowest income

Inflation performance reveals pronounced cross-country contrasts (Table 2). Nigeria, Sierra Leone, and Ghana experience chronically elevated inflation, culminating in rates exceeding 20–30% in 2024, indicative of sustained price instability. The Gambia and Guinea display moderate but rising inflation in recent years. In contrast, Senegal, Cabo Verde, Benin, and Togo maintain low and comparatively stable inflation typically below 3%—highlighting markedly different macroeconomic environments and policy outcomes across the region.

Table 2. Inflation profiles and 2024 inflation levels across ECOWAS countries (2000–2024),

Country	Inflation profile (2000–2024)	Inflation level in 2024
Nigeria	Persistently high	>30%
Sierra Leone	Highly volatile	>25%
Ghana	Elevated and unstable	>20%
The Gambia	Rising in recent years	>10%
Guinea	Moderate with recent increase	~8%
Côte d'Ivoire	Moderate	~3–4%
Benin	Low and stable	~1–2%
Senegal	Low and stable	<3%
Cabo Verde	Low and stable	~1%
Togo	Low and stable	~2–3%
Guinea-Bissau	Moderate	~4%
Liberia	Moderate to high	~8%

3.1.5 Investment Intensity and Growth Outcomes

Investment intensity, measured by gross capital formation as a share of GDP, shows notable cross-country variation across the study period (Figure 6). On average, Senegal, Benin, Guinea, and The Gambia record relatively high investment shares, frequently exceeding 20% of GDP, indicating sustained capital accumulation efforts. In contrast, Ghana and Nigeria display comparatively lower average investment ratios, despite their larger economic size.

The latest-year comparison highlights a further divergence in investment behavior (Table 3). In 2024, The Gambia and Benin emerge as the most investment-intensive economies, with gross capital formation approaching or exceeding 30% of GDP, while Ghana records one of the lowest investment shares among the sample countries.

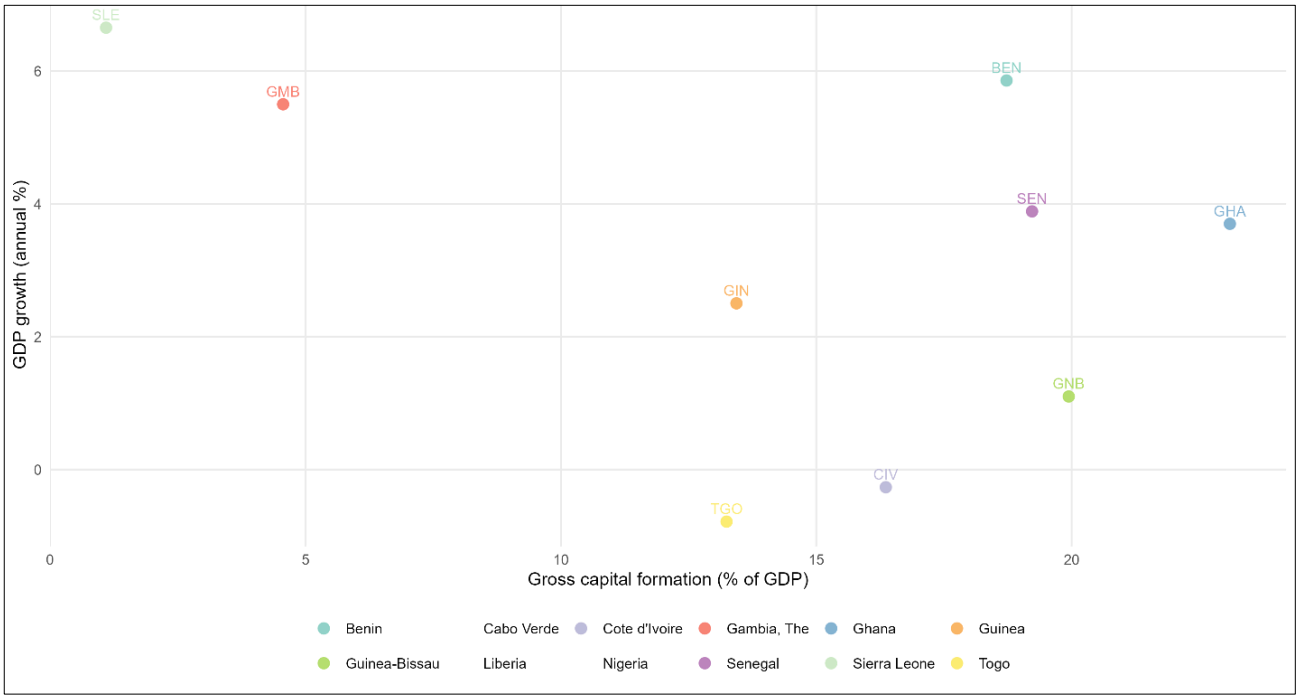

Figure 6. Relationship between average GDP growth volatility and structural change in the services sector across ECOWAS countries, based on World Bank data, highlighting heterogeneity in growth stability and structural transformation outcomes.

Table 3. Mean GDP growth rates (2000–2024), GDP growth in 2024, and gross capital formation (% of GDP) for ECOWAS countries, based on World Bank data, highlighting differences in growth performance and investment intensity across the region.

Country	Mean GDP Growth (%), 2000–2024	GDP Growth (%), 2024	Gross Capital Formation (% of GDP), 2024
Benin	4.86	7.45	34.67
Cabo Verde	4.60	7.27	NA
Côte d'Ivoire	3.83	5.95	24.48
The Gambia	3.43	5.75	38.99
Ghana	5.58	5.68	9.80
Guinea	4.61	5.67	32.13
Guinea-Bissau	3.73	4.81	22.83
Liberia	3.62	4.79	NA
Nigeria	4.99	3.43	NA
Senegal	4.23	6.89	32.07
Sierra Leone	5.03	4.00	29.50
Togo	3.77	5.30	22.29

The association between investment intensity and economic growth is positive but heterogeneous. Countries with consistently high investment levels—such as Senegal and Benin—generally exhibit stable growth performance. However, the experience of Ghana, which achieves relatively strong growth despite lower recent investment ratios, suggests that growth outcomes are not driven by capital accumulation alone. Instead, differences in productivity dynamics, sectoral composition, and institutional factors appear to play a complementary role in shaping economic performance.

3.1.6 Trade Openness and Foreign Direct Investment

Trade openness exhibits pronounced cross-country differences, as summarized in the trade and investment indicators table. Cabo Verde consistently emerges as the most open economy, with trade volumes approaching or exceeding 90% of GDP, reflecting its strong reliance on external markets. Guinea also displays high trade integration in the most recent year, while Guinea-Bissau and Sierra

Leone remain comparatively closed, with trade shares typically below 50% of GDP, indicating limited participation in international trade networks.

Foreign direct investment (FDI) patterns reveal even sharper contrasts. Liberia stands out with exceptionally high FDI inflows relative to GDP, but these are marked by extreme year-to-year volatility, suggesting episodic, large-scale, project-based investments rather than sustained capital inflows. Other side, Cabo Verde**,** Senegal, and The Gambia attract relatively strong and more stable FDI, consistent with their higher trade openness and more predictable macroeconomic environments. Despite its large market size, Nigeria records persistently low FDI inflows as a share of GDP, underscoring structural and institutional constraints that limit foreign investment responsiveness (Figure 7).

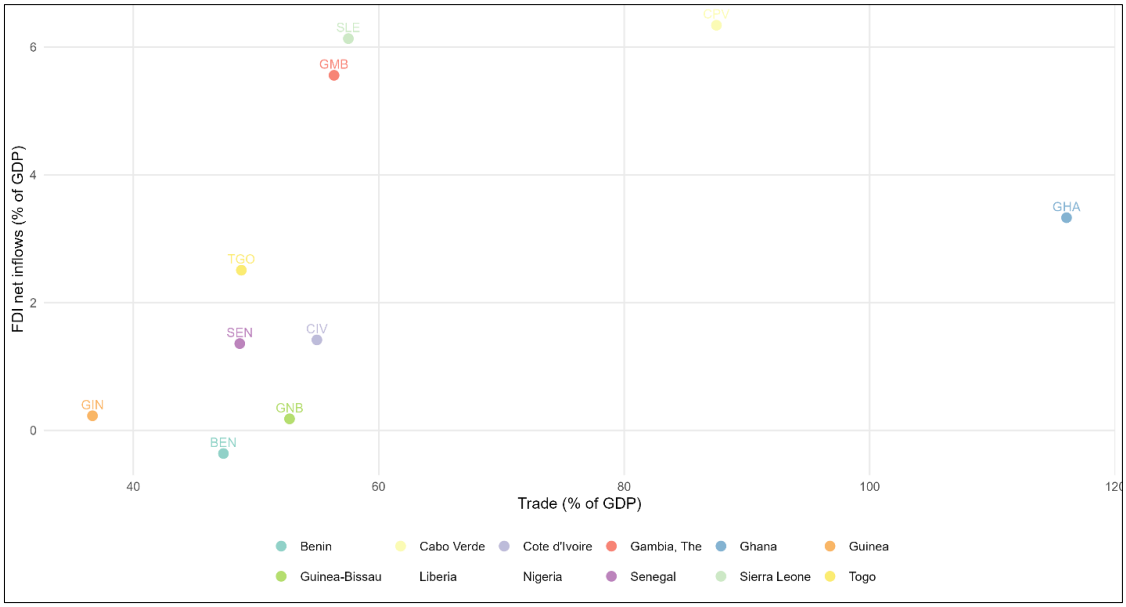

Figure 7. Association between average GDP per capita (constant 2015 US$) and long-term structural change in the services sector across ECOWAS countries, based on World Bank data.

3.2 Sectoral Structure and Structural Transformation

3.2.1 Long-Term Sectoral Share Dynamics (2000–2024)

Figure 8 illustrates the evolution of agriculture, industry, and services value added shares across the study countries between 2000 and 2024. Substantial heterogeneity in sectoral structures is evident. Cabo Verde maintains a persistently service-oriented economy, with services accounting for nearly 70% of GDP throughout the period and agriculture contributing marginally. In contrast, Liberia, Guinea-Bissau, and Sierra Leone exhibit initially agrarian structures, with agriculture exceeding 35–55% of GDP in 2000.

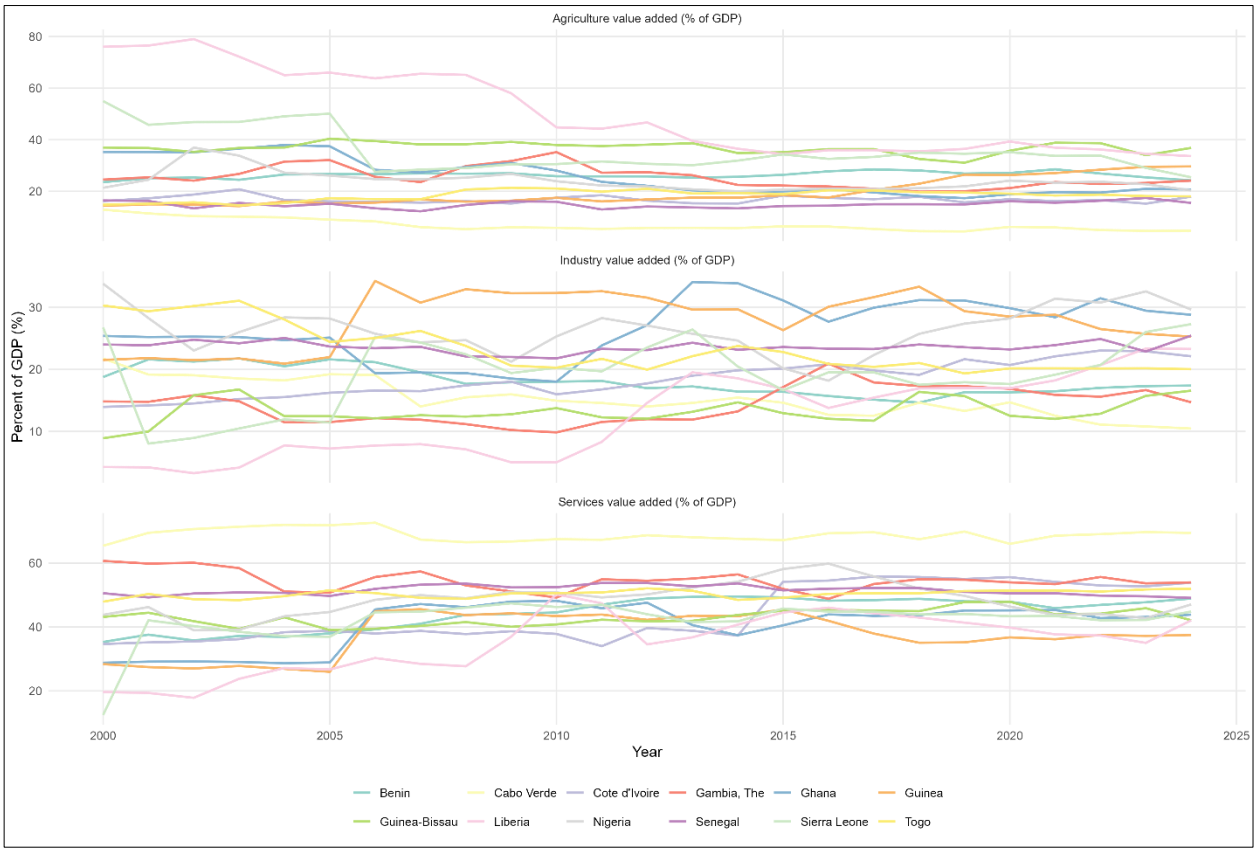

Figure 8. Long-term trends in sectoral value added (% of GDP) for agriculture, industry, and services across ECOWAS countries, derived from World Bank data, illustrating patterns and heterogeneity of structural transformation over time.

Over time, most economies show a progressive decline in agricultural value added accompanied by a corresponding expansion of services. This pattern is particularly pronounced in Liberia and Sierra Leone, where agriculture contracts sharply while services expand steadily. However, Guinea deviates from the dominant trend, recording sustained growth in both agriculture and industry, indicating a resource-driven development path rather than classical sectoral reallocation.

3.2.2 Sectoral Composition in the Latest Year (2024)

Figure 9 presents the sectoral composition of GDP in 2024. Services dominate economic activity in the majority of countries, ranking highest in Cabo Verde, The Gambia, Côte d'Ivoire, Togo, and Senegal, each with service shares at or above 50%. Nigeria and Ghana display more diversified structures, combining relatively large industrial and service sectors.

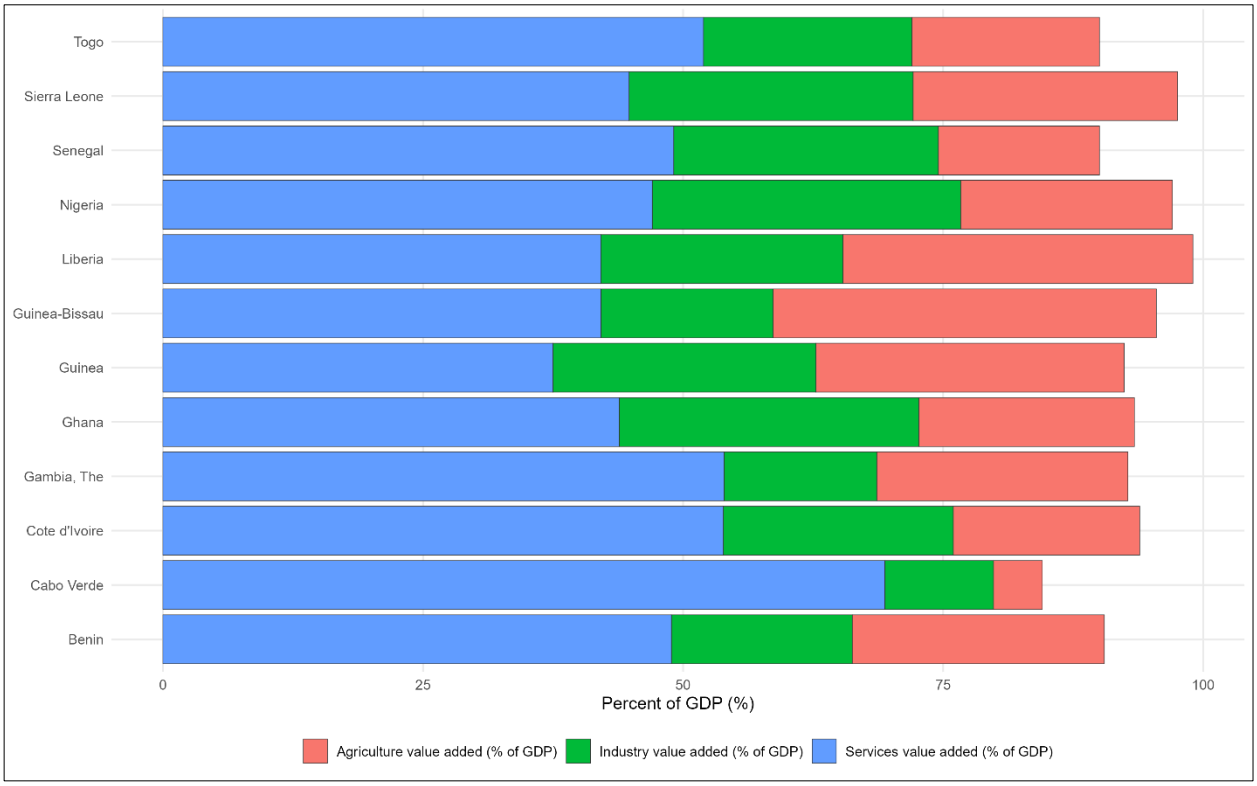

Figure 9. Sectoral composition of GDP (%) across ECOWAS countries for the most recent available year, showing the relative contributions of agriculture, industry, and services based on World Bank data.

In contrast, Guinea-Bissau and Liberia retain comparatively high agricultural shares, indicating slower progress in structural transformation. These cross-country differences highlight uneven stages of development within the region, despite broadly similar macroeconomic growth experiences.

3.2.3 Agriculture–Services Reallocation Patterns

The relationship between changes in agricultural and service sector shares is examined in Figure 10. A clear inverse association is observed: countries experiencing large declines in agriculture generally record substantial gains in services. Sierra Leone, Liberia, Ghana, and Côte d'Ivoire cluster strongly along this reallocation path, reflecting advanced movement toward service-based economic structures.

Conversely, Guinea and Guinea-Bissau depart from this pattern, with limited service expansion despite agricultural persistence. This divergence suggests that structural change in these economies is constrained by sector-specific factors, including dependence on primary production and limited service-sector productivity gains.

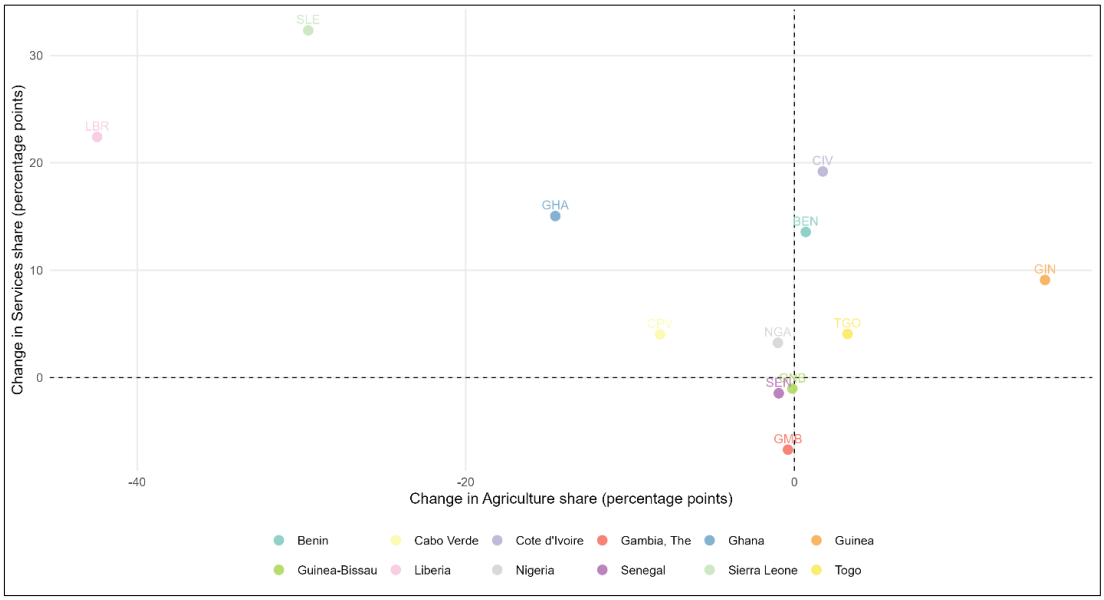

Figure 10. Joint distribution of long-term changes in agricultural and services value added (% of GDP) across ECOWAS countries, based on World Bank data, illustrating the direction and magnitude of structural reallocation between primary and service sectors.

3.2.4 Industrial Sector Adjustment

Figure 11 focuses on changes in industrial value added over the study period. The results reveal mixed industrialization outcomes. Guinea, Côte d'Ivoire, and Liberia record notable increases in industry shares, driven largely by extractive activities, construction, and capital-intensive projects. By contrast, Nigeria, Cabo Verde, and Togo experience declining industrial shares, indicating limited industrial deepening and a tendency toward premature de-industrialization. These findings underscore the uneven role of industry in the region's structural transformation and help explain differences in growth volatility and employment absorption capacity.

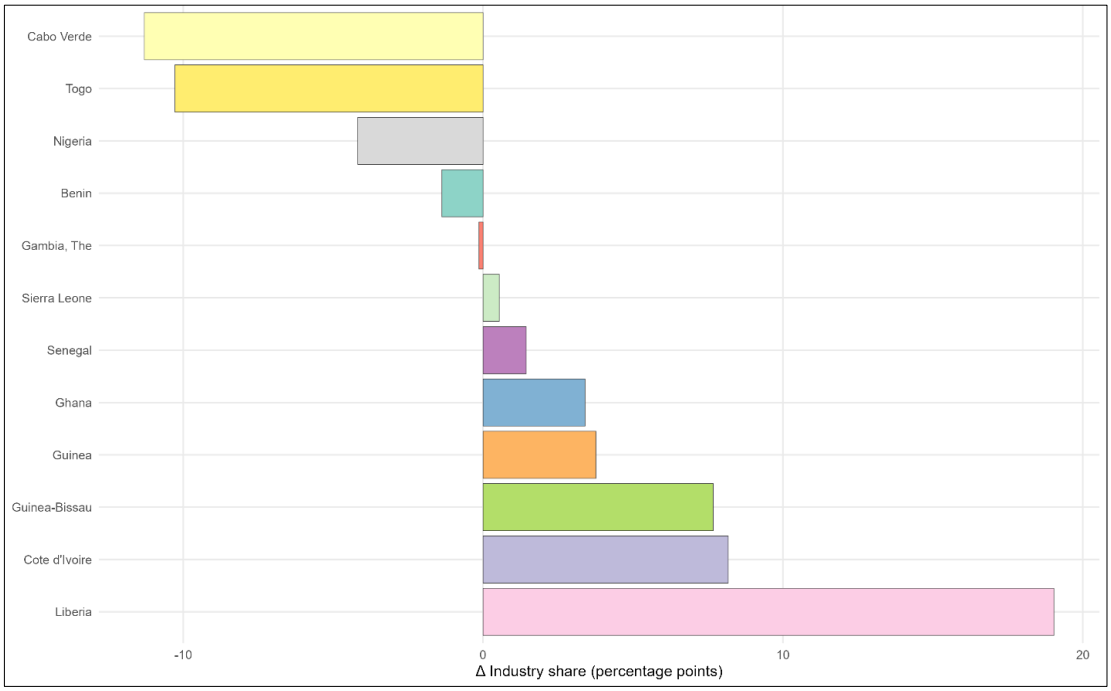

Figure 11. Long-term change in services value added (% of GDP) across ECOWAS countries between the initial and latest years of the study period, based on World Bank data, highlighting cross-country heterogeneity in structural transformation outcomes.

4 Discussion

4.1 Income divergence and slow regional convergence

The persistence of income differentials identified in this study aligns closely with earlier evidence of weak income convergence in Sub-Saharan Africa. Previous cross-country analyses (e.g., Barro & Sala-i-Martin; Ndulu et al.) have shown that while growth episodes are frequent, they rarely translate into sustained convergence toward higher-income economies. Our results reinforce this conclusion for West Africa, where Cabo Verde maintains a clear and persistent lead in real GDP per capita, while Guinea-Bissau, Liberia, and Togo remain trapped at low income levels despite two decades of growth.

Compared with regional studies focusing on shorter horizons or single indicators, this analysis demonstrates that long-run income rankings remain remarkably stable, suggesting that episodic growth alone is insufficient to alter structural income hierarchies. This finding is consistent with Rodrik's argument that growth without deep structural change yields limited convergence, particularly in economies reliant on low-productivity sectors.

4.2 Growth performance, volatility, and macroeconomic resilience

The observed heterogeneity in growth volatility echoes findings by Easterly et al. and Collier & Gunning, who emphasize Africa's exposure to external shocks and policy instability. Liberia and Cabo Verde exhibit extreme growth volatility in our results, reflecting post-conflict recovery cycles and tourism-dependent growth, respectively—patterns also documented in IMF country diagnostics.

In contrast, Benin and Senegal emerge as low-volatility, moderate-growth economies, supporting recent evidence that macroeconomic discipline and institutional continuity contribute more to development stability than high growth spurts alone. This contrasts with Ghana's experience, where high average growth is accompanied by greater volatility, corroborating studies that highlight Ghana's susceptibility to fiscal and commodity-price cycles despite its strong growth record.

4.3 Inflation, nominal income erosion, and policy credibility

One of the most striking findings, Nigeria's sharp divergence between nominal and real income trajectories directly supports recent literature on inflation-led welfare erosion in large African economies. Studies by the World Bank and African Development Bank have shown that high inflation undermines real income gains even during periods of positive growth. Our results empirically reinforce this argument by showing that Nigeria's comparatively high real GDP per capita is offset by collapsing nominal income rankings in the latest period.

Conversely, the consistently low inflation observed in Senegal, Cabo Verde, Benin, and Togo aligns with empirical work linking monetary credibility and fiscal coordination often associated with WAEMU membership to improved macroeconomic stability. This highlights an institutional dimension of development that is often underemphasized in growth-focused studies.

4.4 Investment intensity and the limits of capital accumulation

The relationship between investment intensity and growth in this study is positive but clearly nonlinear, echoing findings by De Long & Summers and more recent African-focused analyses. While Senegal and Benin illustrate how sustained investment supports stable growth, Ghana's relatively strong growth despite low recent investment confirms that capital accumulation alone is not sufficient.

This result supports endogenous growth and structuralist perspectives, which emphasize productivity gains, sectoral reallocation, and human capital over investment volumes per se. It also helps explain why Nigeria's growth performance remains muted despite its size and resource base—an outcome consistent with studies highlighting inefficiencies in capital allocation.

4.5 Structural transformation: services-led growth without deep industrialization

The sectoral analysis provides one of the study's most policy-relevant insights. Consistent with McMillan, Rodrik, and Verduzco-Gallo, the results show that structural transformation in West Africa has been predominantly services-led, with sharp declines in agricultural value added and limited, uneven industrial expansion.

Liberia and Sierra Leone exhibit dramatic agricultural contraction accompanied by large service-sector expansion, a pattern also observed in post-conflict economies. However, unlike East Asian experiences documented by UNIDO and World Bank studies, this transition has not been driven by manufacturing. Instead, it reflects a shift toward low-productivity services, raising concerns about the sustainability of growth and employment creation.

Nigeria's modest industrial decline combined with service expansion mirrors findings from recent national accounts–based studies, suggesting premature deindustrialization. Cabo Verde's service dominance, by contrast, reflects a more mature, tourism-driven structural profile, consistent with its higher income status.

4.6 Trade openness, FDI, and the quality of external integration

The divergence between trade openness and FDI inflows observed here reinforces recent critiques of quantity-based openness measures. While Cabo Verde and Guinea show high trade-to-GDP ratios, only Cabo Verde combines openness with relatively stable FDI inflows. Liberia's exceptionally high but volatile FDI supports arguments that resource- and project-based investments generate limited spillovers, as emphasized in the extractive-industry literature.

Nigeria's persistently low FDI inflows despite market size echo long-standing findings on institutional risk, regulatory uncertainty, and policy inconsistency. This contrast underscores that external integration quality matters more than scale, a conclusion consistent with recent global value chain studies.

4.7 Contribution relative to existing literature

Relative to earlier work, this study contributes by:

- Integrating macroeconomic, investment, trade, and sectoral dimensions within a single long-run comparative framework;
- Demonstrating empirically that growth stability and macroeconomic management are as important as growth rates themselves;
- Providing clear evidence that services-led structural transformation without industrial deepening dominates West Africa's development path.

Supplementary Materials: Available at **https://github.com/zubairgis/nigeria-hensard/blob/main/ECOWAS.csv**

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Abbreviations

The following abbreviations are used in this manuscript:

Abbreviation	Full Form
ECOWAS	Economic Community of West African States
WDI	World Development Indicators
GDP	Gross Domestic Product
GDPpc	Gross Domestic Product per capita
GDPg	Gross Domestic Product growth rate
CPI	Consumer Price Index
GCF	Gross Capital Formation
FDI	Foreign Direct Investment
AGR	Agriculture value-added share (% of GDP)
SERV	Services value-added share (% of GDP)

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