# MACROECONOMIC CONVERGENCE AND THE SINGLE CURRENCY PUZZLE IN ECOWAS

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*ABSTRACT*

*This study evaluated macroeconomic convergence within the Economic Community of West African States (ECOWAS) to assess its readiness for a single currency, addressing gaps in existing literature through advanced econometric methodologies. Drawing on the Optimum Currency Area (OCA) framework and New Keynesian credibility theory, the analysis employed the Phillips and Sul (2007, 2009) log-t convergence test and robust club clustering algorithms to examine inflation, debt-to-GDP ratios, and foreign exchange reserves across 14 ECOWAS countries (1996–2023). Results reveal full-sample divergence in inflation, necessitating classification into three clubs: Club 1 (The Gambia, Ghana, Guinea, Nigeria, Sierra Leone), Club 2 (Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo), and a divergent subgroup (Benin, Cabo Verde, Guinea-Bissau, Mali). Debt-to-GDP ratios and reserves exhibit full-sample convergence. Club merging tests confirm entrenched heterogeneity, with inflationary asymmetries undermining regional cohesion. The findings challenge ECOWAS's adherence to OCA criteria, highlighting structural disparities and policy misalignment. The study advocates institutional reforms to harmonize fiscal-monetary frameworks, flexible policy regimes accommodating counter-cyclical measures in vulnerable economies, and sub-regional integration prioritizing clustered convergence cohorts (e.g., within WAEMU and WAMZ). These innovations are aimed at mitigating fragmentation risks and advancing the stalled "ECO" currency agenda, offering actionable*

*insights for policymakers to reconcile macroeconomic divergence with regional monetary aspirations.*

**Keywords**: Macroeconomic policy, Convergence, Inflation, Debt

**JEL classification**: E6, E61, E31, E62

## 1. Introduction

The Economic Community of West African States (ECOWAS) was set up in 1975 and, amongst others, the goal of the regional economic community (REC) is to achieve monetary integration. It is believed that any successful REC will float a single currency that will facilitate intra-regional trade and promote economic resilience for member countries (Ekpo & Efayena, 2021). As posited by Ejumedia et al. (2022), monetary integration will increase access to markets and as such bolster trade, foster economic competitiveness and inflow of foreign and domestic capital, and also lessen cost of movement of goods and people within the economic bloc as exchange rate challenges will no longer exist due to the adoption of a single currency (Towobola & Bamisaye, 2024; Oyadeyi, 2024). However, countries characterized by primary production are usually not positioned to maximize growth opportunities inherent in trade agreements (Oyinlola, Adedeji & Lipede, 2022; Osakede & Adenikinju, 2022).

The criteria for the successful creation of single currencies for RECs is unresolved in the literature. Whereas proponents of the Optimum Currency Area (OCA) credited to Mundell (1961) argue that the condition depends on whether member countries can attain convergence in designated macroeconomic indicators, such as: inflation rate, debt burden and reserves, without these indicators surpassing the minimum thresholds specified in the primary and secondary criteria (Pambu, 2023a; 2023b). Convergence in these macroeconomic indicators will facilitate macroeconomic policy coordination which aligns with the Maastricht and Stability Growth Pact (SGP) blueprint for the conduct of macroeconomic policy in ECOWAS (Onye & Umoh, 2023). On the contrary, studies like De Haan et al. (2008), Frankel (2012), and European Central Bank (ECB) (2003) provide evidence supporting post-union convergence and the possibility of establishing a single currency without meeting the convergence criteria.

In their study, Saka et al. (2015) provided the macroeconomic convergence criteria for ECOWAS countries. They are categorized under primary and secondary criteria. The primary convergence criteria require ratio of grants to GDP and overall fiscal deficit to be equal or less than 3%, annual inflation rate to be equal or less than 5% on the average, and budget deficit financing by the Central Bank to be equal or less than 10% of the tax revenue of the previous year. Also, it is required that countries should possess reserve buffers capable of financing imports at least for 6 months. On the contrary, the secondary convergence criteria require settlement of all outstanding domestic and external arrears, ratio of tax revenue to GDP to be equal or greater than 20%, ratio of wage bill to tax revenue to be equal or less than 35%, and ratio of internally-funded public investment to tax revenue to be equal or greater than 20%. Also, there should be positive real interest rates and real GDP growth rate of more than 7%. The fulfilment of the primary criteria is fundamental as it marks the possibility of macroeconomic policy coordination and creation of a monetary union. However, most of the ECOWAS countries have fallen short of the macroeconomic thresholds required for convergence. West African Development Outlook (WADO), (2022) reports 77.5% and 70% debt-to-GDP ratios for Ghana and Sierra Leone respectively. Besides, countries like Guinea-Bissau, Senegal and Liberia have also recorded high debt rates while Nigeria, The Gambia, Liberia, Ghana and Sierra Leone have recorded double-digit inflation rates, contrary to the convergence criteria.

The failure of ECOWAS to establish a single currency that will drive intra-regional trade 50 years after its creation, amidst several policies/programmes like the West African Monetary Agency (WAMA) and the Monetary Cooperation Programme (EMCP) is a pointer that member countries are characterized by peculiar structural rigidities which necessitates different policy approaches. In addition, macroeconomic convergence and policy coordination within the region have suffered significant setbacks. The EMCP and WAMA were created to facilitate exchanges and payments and drive the implementation process for the single currency, however, the delays in the establishment of the “ECO” currency call for fundamental policy shifts

within the region. Institutional weaknesses, misaligned policies, and fragmented trade dynamics persist, inhibiting monetary integration in the region. It is pertinent to test whether renewed institutional arrangements like WAMA and ECMP have any meaningful impact on monetary integration in ECOWAS.

In view of the foregoing, this paper is an attempt to provide practical policy innovations that will facilitate the creation of a single currency in ECOWAS by evaluating macroeconomic convergence among ECOWAS countries. This is particularly germane given the need to resolve the single currency puzzle in West Africa and drive trade among member countries. The remaining part of the paper discusses theoretical issues, empirical literature, methodology, discussion of results, conclusion and recommendations.

## 2. Theoretical Issues

The optimum currency area theory credited to Mundell (1961) is the foremost theory guiding formation of monetary unions. The theory highlights conditions for creating monetary unions and the economic viability of such unions. It posits that capital mobility and wage flexibility facilitate investment and competition, and mobility of labour mitigates asymmetric shocks by creating opportunities for employment within the region. The theory also makes a case for synchronized business cycles as a route to circumventing asymmetric shocks and facilitating fiscal integration, trade openness and economic diversification. The theory further highlights the cost associated with foreign trade such as transport and monetary costs. Accordingly, monetary trade costs arise from multiple currencies and hence the need for conversion. The theory emphasizes macroeconomic convergence as criteria for successful monetary unions and submits that gains from RECs are viewed with respect to economic benefits to individual member countries.

The submission by Mundell (1961) vide OCA is at variance with experiences from the Eurozone. Empirical findings demonstrate that countries can achieve post-union convergence through several channels and thus negates macroeconomic convergence as a pre-condition for creation of a monetary union (De Haan, 2008; Frankel, 2012). This submission is supported by the Endogeneity of OCA hypothesis proposed by Frankel and

Rose (1998), and posits that intra-regional trade facilitates endogenous convergence and business cycles synchronization. This proposition is further buttressed by the New Keynesian credibility theory credited to several proponents, which contributions cut across different periods but provide monetary policy insights to emphasize the New Keynesian Theory. They include: Kydland and Prescott (1977), Barro and Gordon (1983), Calvo (1983), Clarida et al. (1999), Lars (1997), Woodford (2003), Bernanke et al. (1999). This theory is based on the foundations of rational expectations, and nominal rigidities and underscores how RECs can establish and maintain trust in the efficacy of monetary policy to achieve macroeconomic stability amidst time inconsistency and public expectations. The theory submits that institutional changes can alter macroeconomic performance and fast-track post-union convergence. The establishment of a reputable central bank can inspire low inflation expectations by encouraging fiscal discipline and credibility among member countries.

## 3. Empirical Review

The success of the eurozone in achieving economic and monetary integration has inspired several RECs, including those in West Africa. Studies like De Grauwe (1996) focused on whether the EU fulfilled the Maastricht criteria for macroeconomic convergence in inflation rates, fiscal deficits, exchange rate stability before successfully launching the euro. The study concludes that political compromises were made in enforcing the criteria. For instance, leniency was observed for heavily-indebted countries like Belgium and Italy. The study further warns that nominal convergence does not translate to real economic convergence. Similar findings were proffered by Buti and Pichelmann (2020) in their study of pre-2008 labour market and productivity convergence in the eurozone. Their findings demonstrate that limited real convergence is a result of labour market rigidities and divergent productivity growth. Conversely, Campos et al. (2019) found that the adoption of the euro by member countries boosted trade and foreign direct investment but did not close income gaps. Thus, bigger economies such as Germany and France benefited more than the periphery.

Sadeh and Verdun (2009) analysed the challenges of Eastern European countries like Hungary and Poland in achieving the convergence criteria. The study found that structural gaps, such as weak institutional setting and low foreign capital flows, blotted the chance of convergence for those economies. In view of the foregoing, Gros (2022) concluded that the Maastricht guidelines failed to prevent fiscal divergence and thus recommended reforms on debt restructuring mechanisms.

Studies focusing on macroeconomic convergence in West Africa are also reviewed. Saka et al. (2015) examined convergence criteria within the Economic Community of West African States (ECOWAS), identifying income convergence among member nations at an annual adjustment rate of 0.2%. This finding aligns with the 1.10% convergence rate reported by Musa (2016), corroborating the sluggish pace of economic alignment across the region. Such evidence implies that divergent economies experience protracted catch-up periods relative to their converging counterparts. In contrast, Onakoya et al. (2013) observed fiscal divergence among ECOWAS members, juxtaposed with monetary policy convergence. Similarly, Fe et al. (2024) documented persistent economic divergence within the West African Economic and Monetary Union (WAEMU), attributing this trend to structural disparities that demand heterogeneous policy interventions. These dynamics underpin assertions by Mati et al. (2019) and Oyadeyi (2024) that ECOWAS remains unprepared for monetary unification, citing pervasive asymmetric shocks and non-compliance with optimum currency area (OCA) criteria. However, Oyadeyi (2024) noted symmetric shocks within WAEMU, positing its unique readiness for regional monetary integration.

Regarding fiscal sustainability, Amadou and Kebalo (2019) established a pro-growth public debt threshold of 4.47% of GDP, yet only four ECOWAS members adhered to this benchmark. Conversely, Dufrenot and Sanon (2005) and Musa (2016) provided empirical support for macroeconomic convergence through coordinated policies, with the latter identifying per capita GDP alignment among seven economies from 1970 to 2014.

While these studies offer critical insights, methodological limitations persist. Prior analyses neglect the log-t convergence test, a superior approach for capturing transitional heterogeneity across economies. Additionally, existing research inadequately addresses robust club clustering algorithms

that classify economies into convergence cohorts or explore mergers between smaller clubs to facilitate regional bloc formation. The present study advances this discourse by employing the log-t procedure and clustering methodologies to evaluate macroeconomic convergence in West Africa, thereby addressing gaps in transitional dynamics and club integration strategies. This approach enhances the empirical rigour of earlier studies, offering a nuanced framework for assessing regional economic cohesion.

## 4. Methodology

This study utilizes data obtained from the World Development Indicators (WDI), covering the period from 1996 to 2023. The dataset comprises macroeconomic variables pertinent to assessing convergence thresholds within the region, including inflation rates, public debt levels, gross domestic product (GDP), foreign exchange reserves equivalent to six months of imports, and trade volumes. The analysis encompasses 14 member states of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cabo Verde, Ghana, Guinea, Guinea-Bissau, The Gambia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, and Côte d'Ivoire. Liberia was excluded from the sample due to insufficient data availability.

The econometric framework commences with the decomposition of the dependent variable ($Y_{it}$) which captures three key macroeconomic indicators: inflation (INF), public debt-to-GDP ratio (Debt/GDP), and foreign exchange reserves equivalent to six months of import coverage (Res). This specification is formalized in Equation (1):

$$Y_{it} = \delta_{it} + \gamma_{it} \quad (1)$$

In this framework, *Yit* denotes the permanent common component of the panel estimate, whereas *γit* accounts for its transitory counterpart.

Equation (1) is subsequently augmented to form Equation (2), thereby incorporating temporal variations in transitional heterogeneity across the panel.

$$Y_{it} = \left[\frac{\delta_{it}+\gamma_{it}}{\mu_t}\mu_t\right] = \beta_{it}\mu_t \quad (2)$$

In this specification, $\beta it$ denotes the time-varying idiosyncratic component, which incorporates a stochastic element subsuming $\gamma t$; the term $\mu t$ signifies the common factor, while $\beta it$ characterizes the transitional trajectory toward a shared steady-state equilibrium.

To analyse divergent economies' paths to convergence, $\beta it$ is subjected to estimation, enabling the identification of relative transitional dynamics. This relationship is formalized in Equation (3):

$$h_{it} = \frac{Y_{it}}{\frac{1}{N}\sum_{i=1}^{N} Y_{it}} = \frac{\beta_{it}}{\frac{1}{N}\sum_{i=1}^{N} \beta_{it}} \quad (3)$$

The semi-parametric framework for evaluating the convergence of $\beta it$ is formulated as:

$$\beta_{it} = \beta_i + \delta_{it}\gamma_{it} \quad (4)$$

The null and alternative hypotheses for convergence are defined as follows:

$H_0: \beta_i = \beta \; and \; \alpha \geq 0$ (denoting convergence of all cross-sectional units)

$H_1: \beta_i \neq \beta \; and \; \alpha < 0$ (non-convergence of all cross-sectional units)

The analysis employs the Phillips and Sul (2007, 2009) convergence test, which operationalizes the estimation of the log-t regression via ordinary least squares (OLS) estimation as shown in Equation (5):

$$Log\frac{H_1}{H_t} = -2log(logt) = \alpha + \beta logt + \varepsilon_t \quad (5)$$

where:

$t$ = $[rT], [rT]+1, \ldots . T$

$H_t$ = Variation in cross-sections

$\frac{H_1}{H_t}$ = Ratio of cross-sectional variation

$-2log(logt)$ = Penalization function evaluating test performance

$\beta$ = Speed of convergence of parameter $\beta_{it}$

$r$ = Positive integer between the binary digits (0,1)

$[rT]$ = The integer component of $rTT$

Phillips and Sul (2007, 2009) recommended a threshold interval of $r \in [0.2,0.3]$ for small sample sizes ($<50T<50$) based on the Monte Carlo simulation analysis. The convergence null hypothesis is evaluated using a heteroscedasticity- and autocorrelation-robust (HAC) one-sided t-test, which assesses the inequality $\alpha \geq 0$. Here, $\beta$ is parameterized as $\beta=2\alpha$, where $\beta$ represents the convergence speed coefficient. The null hypothesis ($H0{:}\alpha \geq 0$) is rejected at the 5% significance level if the calculated t-statistic for $\beta$, denoted $t\beta$, falls below the critical value of $-1.65$ ($t\beta < -1.65$).

### 4.1 Robustness test (Club merging algorithm)

As emphasized by Phillips and Sul (2009), the log-*t* convergence test is prone to overestimating club convergence, thereby necessitating supplementary club merging procedures. This robustness assessment validates clustering outcomes by distinguishing between convergence clusters, divergent units, and subgroups exhibiting partial alignment. Consequently, pairwise convergence testing is conducted between identified clubs; if the null hypothesis of shared convergence dynamics is not rejected, adjacent clubs are amalgamated into larger groupings. To operationalize this process, the alternative hypothesis is reformulated as follows:

$$H_A{:}\,\beta_i \neq \beta, or \alpha < 0, so\ that;$$

$$H_A{:}\,m_{it} \rightarrow \begin{cases} \frac{m_1}{m_2}\ and\ \alpha \geq 0 \Longrightarrow i \in W_1\ and\ \alpha \geq 0 \Longrightarrow \in W_2 \end{cases} \quad (6)$$

so that $W_1$ and $W_2$ define the total population of study (N), including convergent and divergent clubs. The relative transition coefficient follows the following modelling:

$$h_{it} = \frac{m_{it}}{N^{-1}\sum_{I+1}^{N} m_{it}} \rightarrow \begin{cases} \frac{\frac{m_1}{\gamma m + (1-\gamma) m_2}}{\gamma m_1 + (1-\gamma) m_2}\ i \in W_1, W_2 \end{cases} \quad (7)$$

while

$$H_t = N^{-1}\sum_{l=1}^{N}(h_{it}-1)^2 \rightarrow \frac{\gamma(1-\gamma)\{\gamma m_1^2+(1-\gamma)m_2^2\}}{\{\gamma m_1+(1-\gamma)m_2\}^2} \quad (8)$$

## 5. Results and Discussion

The descriptive statistics are presented in Table 1. As illustrated in the table, the Economic Community of West African States (ECOWAS) exhibits a mean inflation rate of 12%, with a peak value of 46.56%. These figures underscore the region's persistent macroeconomic volatility and its substantial divergence from the stipulated convergence criterion of maintaining inflation rates below 5%. Similarly, the debt-to-GDP ratio reveals pronounced macroeconomic instability, averaging 70.36% across the region and reaching a maximum of 180.7%. Such elevated debt levels signal heightened default risks, posing detrimental implications for both intra- and inter-regional trade dynamics within ECOWAS. Reserve coverage, averaging 3.30 months of imports, falls short of the six-month import financing threshold mandated by convergence criteria, despite outlier nations achieving reserve adequacy (maximum: 10.01 months). Conversely, the regional trade intensity index, averaging 62.47%, indicates a robust degree of trade integration, reflecting the economic interdependence among member states.

**Table 1.** Descriptive Statistics

| | INF | DGR | RES | TRD |
|---|---|---|---|---|
| Mean | 12.01044 | 70.36186 | 3.301299 | 62.46875 |
| Maximum | 46.56102 | 180.7000 | 10.01766 | 116.0484 |
| Minimum | -0.900000 | 18.50880 | 0.343177 | 28.27802 |
| Std. Dev. | 9.314363 | 39.05592 | 1.572527 | 21.49529 |
| Skewness | 1.659977 | 1.556988 | 1.136639 | 0.506950 |
| Kurtosis | 5.770689 | 5.055733 | 5.947514 | 2.538473 |

$N = 98$

*Source:* Author's computation 2024, using WDI data

The macroeconomic convergence analysis for ECOWAS member states, is summarized in Table 2, and reveals heterogeneous patterns across key indicators. For inflation, the full-sample log-*t* test yields a t-statistic of −268.69, decisively rejecting the null hypothesis of convergence at the 5%

significance level ($t\beta$<−1.65). This divergence necessitated further investigation through the Phillips and Sul (2009) club clustering algorithm, identifying two distinct convergence clubs. Club 1 comprises The Gambia, Ghana, Guinea, Nigeria, and Sierra Leone, while Club 2 includes Burkina Faso, Côte d'Ivoire, Niger, Senegal, and Togo. A third subgroup—Benin, Cabo Verde, Guinea-Bissau, and Mali—exhibits persistent divergence, underscoring inflationary asymmetries within the region.

**Table 2.** Result of Macroeconomic Convergence

| Variable & Sample | Countries | $\beta\ Coef.$ | SE | $t-Stat$ |
|---|---|---|---|---|
| **Inflation** | | | | |
| Full Sample | Gambia, Burkina Faso, Benin, Sierra Leone, Ghana, Côte d'Ivoire, Cape Verde, Senegal, Guinea, Niger, Guinea Bissau, Nigeria, Togo, Mali | -1.1478* | 0.0043 | -268.69 |
| First Club | Gambia, Ghana, Guinea, Nigeria, Sierra Leone | 0.583 | | 4.203 |
| Second Club | Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo | 0.030 | | 0.246 |
| Third Club | Benin, Cape Verde, Guinea Bissau, Mali | -0.813 | | -1.187 |
| **Debt/GDP** | | | | |
| Full Sample | Gambia, Burkina Faso, Benin, Sierra Leone, Ghana, Côte d'Ivoire, Cape Verde, Senegal, Guinea, Niger, Guinea Bissau, Nigeria, Togo, Mali | 0.2013 | 0.1246 | 1.6149 |
| **Reserves** | | | | |
| Full Sample | Sierra Leone, Ghana, Guinea, Nigeria | 1.7305 | 0.1094 | 15.8191 |

*Note:* *implies rejection of the null hypothesis of convergence at 5% significance level
*Source:* Author's computation, 2024

In contrast, the debt-to-GDP ratio analysis demonstrates full-sample convergence, supported by a positive t-statistic of 1.6149, which fails to reject the null hypothesis ($\alpha \geq 0$) at the 5% threshold. Consequently, no club clustering was required, as the region exhibits unified dynamics in fiscal sustainability.

The reserves indicator analysis, constrained by insufficient data availability, was limited to four nations: Ghana, Guinea, Nigeria, and Sierra Leone. Despite this restricted sample, the log-*t* test confirms full-sample convergence, suggesting alignment in reserve adequacy among the analysed economies.

### 5.1 Club merging analysis

Following the identification of inflation-based convergence clubs, a robustness check using the club merging algorithm was performed. As shown in Table 3, the results demonstrate that Club 1 (The Gambia, Ghana, Guinea, Nigeria, Sierra Leone) and Club 2 (Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo) cannot be consolidated into a single cohort, evidenced by a statistically significant log-*t* regression t-statistic of $-103.36-103.36$ ($p<0.05$). Similarly, merging Club 2 with the divergent subgroup (Benin, Cabo Verde, Guinea-Bissau, Mali) is unsupported, as the corresponding t-statistic lacks significance at the 5% threshold, reflecting insufficient empirical grounds for merging them.

**Table 3.** Final Club Convergence (Club Merging) of Macroeconomic Indicators

| Variable & Sample | Countries | $\beta\ Coef.$ | SE | $t-Stat$ |
|---|---|---|---|---|
| **Inflation** | | | | |
| Club 1+2 | Gambia, Ghana, Guinea, Nigeria, Sierra Leone, Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo | -0.7603* | 0.0074 | -103.36 |
| Club 2+3 | Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo, Benin, Cape Verde, Guinea Bissau, Mali | -2.6247* | 0.3521 | -7.4540 |
| **Debt/GDP** | | | | |
| First Club | Gambia, Burkina Faso, Benin, Sierra Leone, Ghana, Côte d'Ivoire, Cape Verde, Senegal, Guinea, Niger, Guinea Bissau, Nigeria, Togo, Mali | 0.2013 | 0.1246 | 1.6149 |
| **Reserves** | | | | |
| First Club | Sierra Leone, Ghana, Guinea, Nigeria | 1.7305 | 0.1094 | 15.8191 |

*Note:* *implies rejection of the null hypothesis of convergence at 5% significance level

*Source:* Author's computation, 2024

In contrast, the debt-to-GDP ratio and foreign exchange reserves indicators exhibit full-sample convergence, precluding the need for club clustering. However, the reserves analysis—limited to four countries (Ghana, Guinea, Nigeria, Sierra Leone) due to data constraints—warrants caution, as expanded sampling across all ECOWAS members might yield divergent macroeconomic convergence outcomes.

## 5.2 Implications of convergence results for regional integration and single currency

The convergence test outcomes carry significant implications for regional integration within the Economic Community of West African States (ECOWAS). First, the classification of The Gambia, Ghana, Guinea, Nigeria, and Sierra Leone as **Club 1** for inflation convergence suggests potential viability for the West African Monetary Zone (WAMZ) to advance the proposed "ECO currency," which could enhance intra-regional trade and economic growth. Similarly, **Club 2**, comprising Burkina Faso, Côte d'Ivoire, Niger, Senegal, and Togo—all members of the West African Economic and Monetary Union (WAEMU)—highlights the sub-region's capacity for monetary coordination. However, the divergence of **Club 3** (Benin, Cabo Verde, Guinea-Bissau, Mali) underscores persistent asymmetries within WAEMU, with nearly half its members exhibiting destabilizing inflationary trends. This divergence risks fragmenting trade flows and undermining monetary cohesion, aligning with Fe et al. (2024), who identified macroeconomic disparities in WAEMU.

The estimated convergence speeds for Club 1 (0.583) and Club 2 (0.030) reveal sluggish adjustment rates, indicating protracted alignment processes for inflation targets. Such inertia underscores the challenges of synchronizing monetary policies across member states. Critically, full-sample divergence in inflation signals systemic barriers to regional integration, as ECOWAS currently fails to meet optimum currency area (OCA) criteria. This corroborates Mati et al. (2019), who attributed ECOWAS's unsuitability for a monetary union to asymmetric shocks and non-compliance with OCA prerequisites. Statistical evidence further reinforces this conclusion: the

inability to merge Clubs 1–2 or 2–3 reflects entrenched heterogeneity in macroeconomic structures, complicating policy harmonization. For instance, integrating WAMZ and WAEMU into a unified bloc remains unfeasible, while intra-WAEMU divergence threatens trade stability. These disparities stem from uneven development levels and conflicting policy needs—procyclical measures in some states versus countercyclical strategies in others.

Conversely, full-sample convergence in debt-to-GDP ratios and reserves (albeit limited to Ghana, Guinea, Nigeria, and Sierra Leone for reserves) signals nascent fiscal coordination. However, the reserves finding lacks generalizability due to incomplete data, and it diverges from Amadou and Kebalo (2019), who found only four ECOWAS members met debt sustainability thresholds. While these results suggest incremental progress toward integration, inflationary asymmetries and structural fragmentation remain critical impediments to a single currency framework.

### 5.3 Relative transition paths

To reinforce the analysis of convergence trajectories, a steady-state trend was computed and visualized across Figures 1a, 1b, 1c, 2, and 3. Figure 1a depicts the transitional paths of ECOWAS member states with respect to inflation, revealing heterogeneous policy trajectories despite overarching convergence prospects. Scatterplot distributions illustrate divergent starting points and intermediate movements for individual nations, with trend lines ultimately narrowing toward a common path. Notably, anglophone states within the West African Monetary Zone (WAMZ)—including Ghana, Guinea, Nigeria, Sierra Leone, and The Gambia—exhibit greater variability in policy routes compared to francophone nations, which cluster proximally at the graph's baseline.

This heterogeneity is further corroborated in Figure 1b, which delineates the transition paths of Club 1 (WAMZ members). The visualization underscores fragmented macroeconomic policy coordination within the WAMZ, as member states pursue distinct pathways toward convergence. Paradoxically, these findings also demonstrate that divergent policy frameworks can yield eventual alignment, challenging the assumption of

uniform policy adherence. Such results align with Onye and Umoh (2023), who observed that ECOWAS members frequently adopt counter-cyclical macroeconomic measures tailored to domestic exigencies, rather than adhering to the pro-cyclical strategies mandated by the Maastricht Stability and Growth Pact (SGP). This divergence from regional guidelines underscores the tension between standardized integration protocols and localized economic realities.

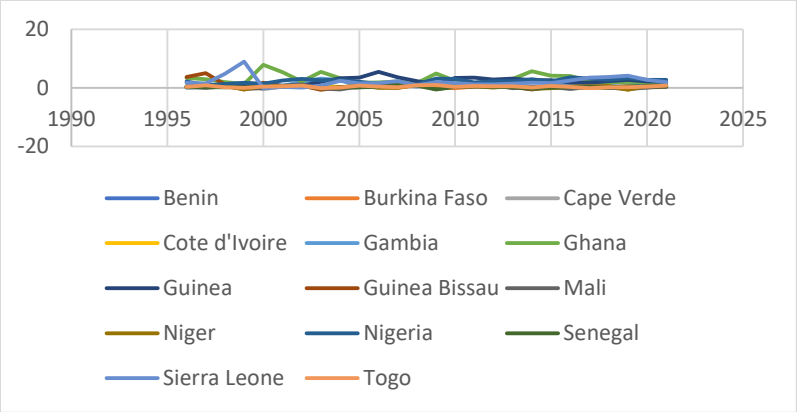


**Figure 1a.** Inflation Transition Path for ECOWAS Countries (Full Sample)

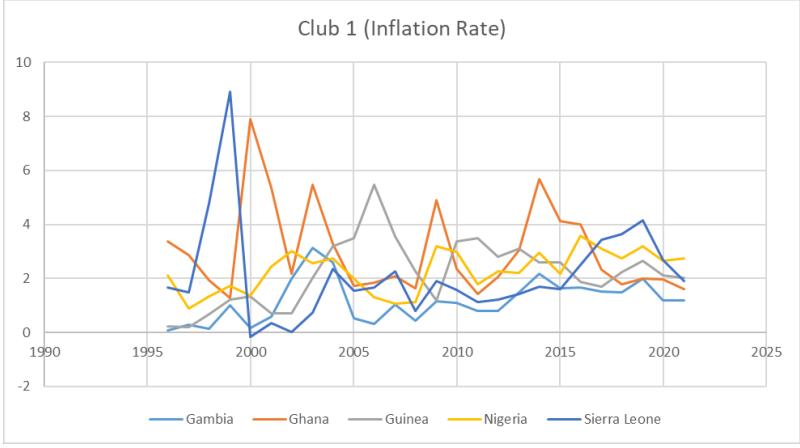


**Figure 1b.** Inflation Transition Path for ECOWAS Countries (Club 1)

Figure 1c illustrates the convergence trajectories of five francophone WAEMU member states—Burkina Faso, Côte d'Ivoire, Niger, Senegal, and Togo—revealing near-identical transitional pathways. This is evidenced by overlapping origin points and parallel trendline movements across the observed period, culminating in terminal convergence. Such homogeneity suggests greater policy alignment within this subgroup compared to the heterogeneous trajectories observed in the anglophone WAMZ bloc. A comparable pattern is observed in Figure 1d (Club 3), where the residual WAEMU countries exhibit synchronized policy paths, with the exception of Guinea-Bissau, which initially diverges before aligning with the cluster post-2015.

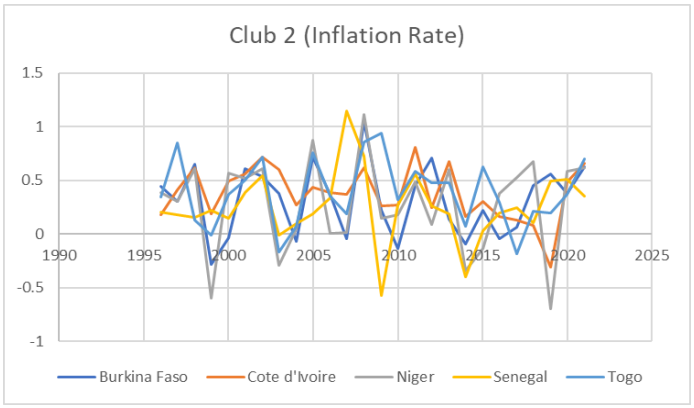


**Figure 1c.** Inflation Transition Path for ECOWAS Countries (Club 2)

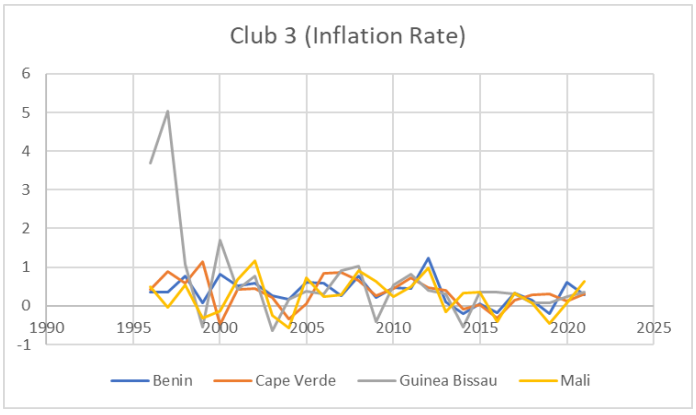


**Figure 1d.** Inflation Transition Path for ECOWAS Countries (Club 3)

Figure 2 depicts a broad convergence trend across ECOWAS from 2011 to 2023, with Guinea representing the sole outlier initially deviating before synchronizing with regional dynamics. Conversely, Figure 3 highlights divergent transitional paths for reserves (measured as six months of import coverage) among the four sampled countries (Ghana, Guinea, Nigeria, Sierra Leone). These disparities underscore the challenges of harmonizing reserve adequacy policies, even within a nominally convergent subgroup.

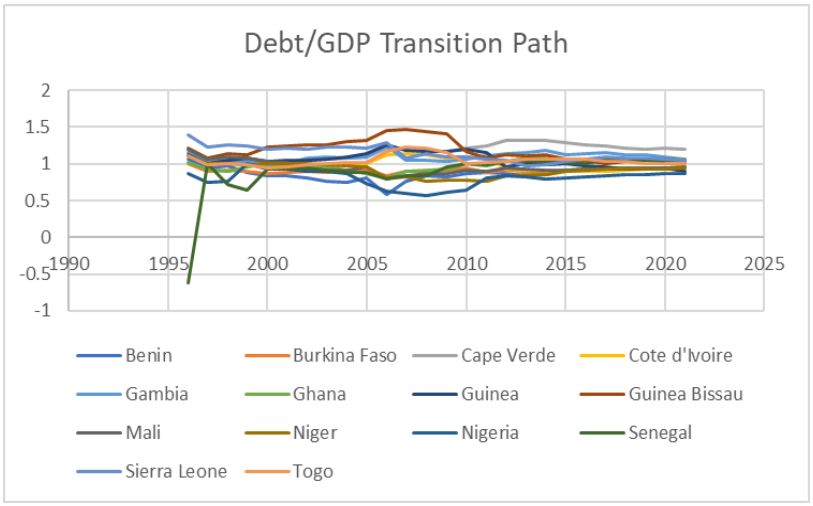


**Figure 2.** Debt/GDP Transition Path for ECOWAS Countries

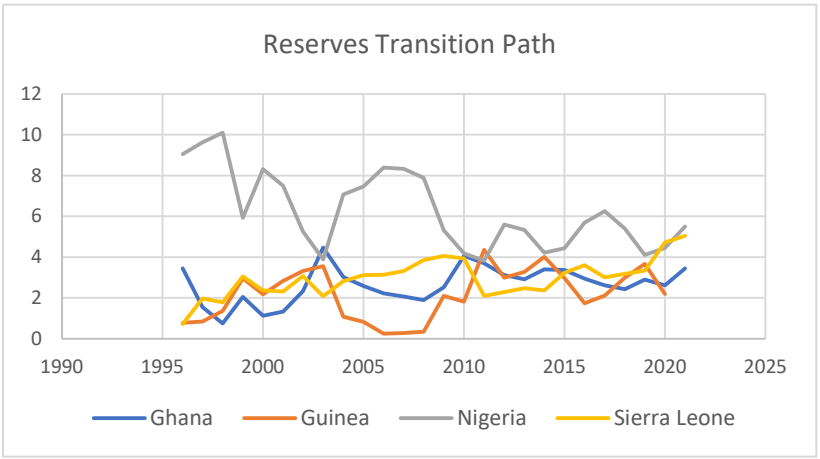


**Figure 3.** *Reserves Transition Path for ECOWAS Countries*

## 6. Conclusion and Policy Recommendations

This study empirically investigates macroeconomic convergence within the Economic Community of West African States (ECOWAS), revealing divergent inflationary trends across the full sample, juxtaposed with partial convergence among three distinct clubs: one comprising West African Monetary Zone (WAMZ) economies and two subgroups within the West African Economic and Monetary Union (WAEMU). Statistical evidence underscores the failure of ECOWAS to achieve inflation convergence, as merging clubs—including intra-WAEMU clusters—proved statistically untenable. Conversely, full-sample convergence was observed for debt-to-GDP ratios and foreign exchange reserves (albeit with limited reserves data), suggesting nascent fiscal coordination. Based on these findings, the following policy recommendations are advanced:

i. ECOWAS leadership must prioritize strengthening institutional frameworks for policy implementation, monitoring, and oversight to integrate WAMZ and WAEMU into a cohesive economic bloc. Such measures are critical to realizing the region's monetary union aspirations.

ii. WAMZ authorities should intensify coordination in adopting regionally-aligned macroeconomic policies. Empirical evidence supports the feasibility of a functional monetary union within this subgroup, contingent on robust policy coherence.

iii. WAEMU policymakers must urgently harmonize fiscal and monetary policies to mitigate fragmentation risks. The inability to merge its divergent clubs signals systemic vulnerabilities that threaten the sub-region's economic cohesion, necessitating remedial interventions.

iv. Given heterogeneous developmental stages among member states, ECOWAS should institutionalize flexible policy frameworks that permit counter-cyclical measures in structurally vulnerable economies, while allowing pro-cyclical strategies in more resilient ones.

v. Sub-regional integration should prioritize clusters of economies with aligned macroeconomic characteristics. For instance, WAEMU's Club 2 (Burkina Faso, Côte d'Ivoire, Niger, Senegal, Togo) and Club

3 (Benin, Cabo Verde, Guinea-Bissau, Mali) could function as distinct economic blocs, fostering smoother convergence and trade integration.

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