impact International Journals and Publications

© IIJP 2026 | Volume 2, Issue 3, pp. 530-542 | ISSN: 2636-4484

INFLATION CONVERGENCE AND THE READINESS FOR MONETARY UNION IN ECOWAS: PANEL EVIDENCE (2000–2023)

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ARTICLE INFO
Article No.: 0455
Accepted Date: 10/07/2026
Published Date: 30/07/2026
Type: Research

ABSTRACT
The Economic Community of West African States (ECOWAS) has postponed its single currency, the Eco, four times, with a fifth target of July 2027 now approaching. Officials are debating a phased launch rather than requiring simultaneous readiness. This paper tests whether the region's 2000–2023 inflation dynamics support such a launch. Using an annual panel of fifteen ECOWAS states, we apply first and second generation panel unit root tests, sigma- and beta-convergence estimation, dynamic GMM, and Phillips-Sul club convergence testing. Inflation is stationary across the full panel and subgroups under the CIPS test, though a first-generation test discrepancy for WAMZ is flagged for future work. Beta-convergence is robust, with a half-life under one year, but sigma-convergence—significant through 2021—is fully reversed by the 2022–2023 shock. Central bank financing of deficits is the most consistent driver of divergence. Phillips-Sul clustering reveals that convergence clubs do not track the WAEMU/WAMZ boundary: Ghana clusters with WAEMU, while Nigeria and The Gambia form a divergent pairing. These findings indicate genuine but incomplete and uneven convergence, with direct implications for sequencing a phased monetary union.

Keywords: inflation convergence, monetary union, ECOWAS, ECO, panel unit root, beta/sigma convergence, club convergence, Phillips-Sul

JEL Classification: E31, F15, F45, C33

Introduction

The pursuit of monetary union is one of the most consequential forms of economic integration a group of sovereign states can attempt. A shared currency promises lower transaction costs, deeper trade integration, and a credible anchor against inflationary drift, but it also demands that member states surrender independent monetary policy for a single, region-wide stance. The European experience shows both the promise and the fragility of this arrangement: the euro delivered decades of nominal convergence among its founding members, yet later revealed that convergence achieved before a currency union does not guarantee convergence sustained after one (Busetti, Forni, Harvey & Venditti, 2007).

ECOWAS has pursued a single currency, provisionally named the Eco, for over two decades; the project has been postponed four times, with July 2027 now set as its fifth target date. Reaching that date requires member states to satisfy convergence criteria set by the West African Monetary Institute, foremost among them a single-digit inflation rate — a benchmark rooted directly in Optimum Currency Area theory, since a single monetary policy cannot serve all members equally well without similar underlying inflation experiences. Progress has been slow and uneven: as of February 2026, only 22 of 78 roadmap activities assigned to WAMA had been completed.

What has changed the stakes of this question is a shift in how ECOWAS is now thinking about readiness. Instead of waiting for every member to qualify simultaneously, the Commission has signalled openness to a phased launch beginning with whichever countries are ready first. Nigeria has gone further, suggesting the initial phase could proceed without the eight WAEMU states long assumed closest to convergence — a near-complete reversal of the sequencing logic assumed only a few years earlier. Whether this reordering is empirically justified, not simply politically convenient, is a question existing research has not been positioned to answer. In plain terms, this paper asks: does the actual pattern of inflation convergence across ECOWAS member states, tested rigorously and without presupposing which countries belong together, support the sequencing that current policy proposals assume?

The empirical literature has three limitations this paper addresses. First, existing ECOWAS/WAMZ studies stop well short of the present - Adam, Agyapong and Gyamfi (2010) cover data through 2010, Mogaji (2016) extends to 2015 — missing the post-pandemic inflation surge and the 2022–2023 re-divergence visible in this paper's own evidence. Second, prior methods rely almost entirely on first-generation panel techniques that assume cross-sectional independence. That assumption is difficult to justify for economies sharing a currency peg or common exposure to regional shocks, yet second-generation tests and dynamic panel estimators correcting for lagged-inflation bias have not been applied to this region. Third, no prior study tests for convergence clubs: existing work either pools the full panel or splits it along the pre-existing WAEMU/WAMZ boundary, assuming instead of testing where the lines between converging groups actually fall — a gap that matters directly now that ECOWAS officials are debating a WAEMU-free first-wave launch.

This paper addresses each gap directly. Using an annual panel of fifteen ECOWAS states from 2000 to 2023, bounded at the formal AES withdrawal of January 2025, the analysis applies first- and second-generation panel unit root tests, sigma- and beta-convergence with dynamic system GMM, and Phillips-Sul (2007) club convergence testing to let the data reveal its own groupings instead of imposing the WAEMU/WAMZ boundary in advance. The contribution is methodological as much as empirical: by testing whether statistically detected clubs align with, or cut across, the institutional boundary now under policy debate, the paper offers evidence directly relevant to how any first wave of monetary union should be composed. Section 2 reviews the literature; Section 3 details data and methodology; Section 4 reports results; Section 5 discusses findings; Section 6 concludes; Section 7 sets out the policy implications.

Statement of the Problem

The ECOWAS Commission has set July 2027 as the fifth target date for launching the Eco, and is now debating whether to require simultaneous readiness across all member states or to permit a phased launch beginning with whichever countries qualify first. This debate is being conducted largely on institutional and political grounds, using the pre-existing WAEMU/WAMZ boundary as the default frame for sequencing, without a rigorous, up-to-date empirical test of whether ECOWAS inflation dynamics actually support that boundary, or whether the region's genuine convergence groupings lie elsewhere. Existing studies stop short of the post-pandemic period, rely on panel methods that assume the countries move independently of one another, and do not test for convergence clubs directly. The problem this paper addresses is that policy sequencing decisions are being made ahead of the evidence needed to justify them.

Aim and Objectives

The aim of this paper is to test, using an annual panel of fifteen ECOWAS member states over 2000–2023, whether the region's inflation dynamics support monetary union readiness, and whether that readiness follows the WAEMU/WAMZ institutional boundary current sequencing proposals assume.

i. To test ECOWAS inflation for stationarity using both first- and second-generation panel unit root tests, extending the evidence through the 2022–2023 inflation shock.
ii. To estimate the extent and durability of sigma- and beta-convergence in ECOWAS inflation, including with dynamic system GMM, and to identify the principal drivers of divergence.
iii. To test for convergence clubs using the Phillips-Sul methodology, allowing the data to reveal its own groupings instead of imposing the WAEMU/WAMZ boundary in advance.

Research Questions

I. Is ECOWAS inflation stationary across the full panel and within the WAEMU and WAMZ subgroups?
II. Has sigma- and beta-convergence in ECOWAS inflation persisted through the 2022–2023 shock, and what drives divergence where it occurs?
III. Do statistically detected convergence clubs align with, or cut across, the existing WAEMU/WAMZ institutional boundary, and what does this imply for how a phased monetary union should be sequenced?

Research Hypotheses

H_1: ECOWAS inflation series, across the full panel and within the WAEMU and WAMZ subgroups, are non-stationary over 2000–2023.

H_2: ECOWAS inflation shows no significant sigma- or beta-convergence over the period, or any convergence present did not survive the 2022–2023 shock.

H_3: Statistically detected inflation convergence clubs align with the existing WAEMU/WAMZ institutional boundary. (Each hypothesis is stated in the null form conventional in this literature; Sections 4 and 5 report whether the evidence supports rejecting it.)

Literature Review and Theoretical Framework

Theoretical Foundations and Convergence Concepts

Optimum Currency Area (OCA) theory, originating with Mundell (1961), holds that the costs of relinquishing independent monetary policy are minimized where member economies exhibit high factor mobility, allowing labor and capital to substitute for exchange-rate adjustment in absorbing asymmetric shocks. McKinnon (1963) added trade openness and Kenen (1969) production diversification as complementary criteria. A recurring, more directly testable criterion, and the one operationalized here, is that member economies should show

similar inflation experiences, since persistent differentials signal divergent shocks or policy responses a single monetary policy cannot simultaneously accommodate.

The literature distinguishes sigma-convergence (declining cross-sectional dispersion over time) from beta-convergence (whether initially poorer performers catch up faster). The two are related but not equivalent, since idiosyncratic shocks can offset systematic catch-up. Club convergence (Phillips & Sul, 2007) relaxes the assumption of a single common steady state, testing instead whether a panel is better described by multiple sub-group equilibria.

Methodological Literature

Levin, Lin and Chu (2002) developed an early panel unit root test under a restrictive common-root assumption; Im, Pesaran and Shin (2003) relaxed this by allowing heterogeneous roots. Both remain first-generation tests, assuming cross-sectional independence unlikely to hold for economies bound by a currency peg or common regional shocks. Pesaran (2007) addressed this with the CIPS test, purging common factors via cross-sectional averages; this second-generation approach is now standard where dependence is suspected. Kurbucz, Pérez Garrido and Jakovác (2026) more recently proposed the Spectral Omnibus (SPECO) test as a complementary robustness check, used alongside the Pesaran CD test in this paper.

For dynamic panel estimation, Arellano and Bond (1991) introduced a GMM estimator addressing Nickell bias in fixed-effects estimation of dynamic panels; Blundell and Bond (1998) showed this difference estimator performs poorly when the dependent variable is highly persistent and proposed a system estimator combining difference and levels equations, the approach favoured here given inflation's typical persistence.

Comparative and Regional Evidence

Busetti, Forni, Harvey and Venditti (2007) provide the closest methodological analogue, studying EMU inflation convergence over 1980–2004. They find convergence through 1997, driven by the Exchange Rate Mechanism's disciplining effect, but clear divergence thereafter not toward a single post-euro equilibrium but into two distinct stability clubs. This demonstrates that formal monetary union membership does not guarantee sustained inflation convergence, and that club-based heterogeneity can persist inside an already-operating union.

Regional evidence on WAMZ has been consistently pessimistic, though methodologically thinner. Adam, Agyapong and Gyamfi (2010), using monthly data to 2010, find no inflation convergence and only weak exchange-rate convergence within WAMZ. Balogun (2009), studying WAMZ inflation differentials since 2000, similarly finds price stabilization was not attained, attributing divergence to distorted interest-rate policy and expansionary monetary policy instead of exogenous shocks alone — implying the divergence is policy-driven and potentially correctable. Mogaji (2016), using 1980–2015 data, finds The Gambia the WAMZ member most feasible for exchange-rate fixation while Nigeria yields the least favourable results, with inflation shocks showing high persistence. Salihu, Moussa Nansir and Ibrahim (2022), using LLC tests and dynamic fixed effects over fifteen ECOWAS countries (1987–2020), report WAEMU inflation below the convergence threshold while WAMZ persistently exceeds it.

Research Gap

Three gaps emerge. Temporally, existing studies extend at most to 2020-2021, missing the post-COVID surge and the 2022-2023 re-divergence this paper's own evidence documents. Methodologically, no prior ECOWAS study applies second-generation unit root tests or system GMM despite the clear case for cross-sectional dependence. Substantively, no existing study tests for club convergence: every prior study pools the full panel or splits it along the pre-existing WAEMU/WAMZ boundary. With ECOWAS policymakers now actively debating a WAEMU-free first wave, whether readiness clubs in the data track the WAEMU/WAMZ boundary, or cut across it, is no longer a purely academic question.

Methodology

Institutional Background and Convergence Criteria

The convergence criteria tested here were established by the West African Monetary Institute (WAMI) as a precondition for monetary union: single digit year end inflation, a fiscal deficit no greater than 4% of GDP, central bank deficit-financing set at 10% of prior-year tax revenue, and external reserves covering at least three months of imports, among primary criteria, with six secondary criteria besides. This paper follows the Post-2015 ECOWAS Macroeconomic Convergence and Stability Pact variant: fiscal deficit ≤3% of GDP, inflation ≤10%, central bank financing ≤10%, reserves ≥3 months, debt ≤70% of GDP, and nominal exchange rate variation within ±10%.

The single-currency project has been characterized by chronic rescheduling since it was first proposed over two decades ago. The fourth roadmap, adopted in 2021, framed 2022-2026 as a convergence phase ahead of a stability phase from January 2027; this was reaffirmed in September 2023, and on August 4, 2025, ECOWAS announced in Banjul that the Eco would launch specifically on July 1, 2027. Implementation has lagged the roadmap's own targets throughout. The eight WAEMU states share the CFA franc, issued by the BCEAO and pegged to the euro; the six WAMZ states comprising The Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone, retain independently floating currencies and correspondingly higher inflation volatility. In August 2025, ECOWAS Commission President Omar Alieu Touray stated the region would no longer wait for all countries to meet convergence criteria simultaneously, and Nigeria has since signalled the first phase could proceed without WAEMU altogether. Nigeria alone represents roughly two-thirds of ECOWAS population and about 70% of its GDP, and faced 27.9% inflation as of July 2025 — a scale of imbalance that makes its individual trajectory almost mechanically decisive for any region-wide convergence statistic. Niger, Mali, and Burkina Faso's withdrawal from ECOWAS became formally effective January 29, 2025, following the notice period mandated by Article 91 of the Revised ECOWAS Treaty, removing three historically weaker WAEMU performers from the pool pursuing monetary union.

Sample, Data Sources and Variables

The study uses an annual panel of fifteen ECOWAS member states over 2000–2023 (T=24, N=360, balanced), constructed from IMF World Economic Outlook, World Bank World Development Indicators, and ECOWAS/WAMA convergence reports. The sample is bounded at 2023 because the AES withdrawal became formally effective in January 2025; extending beyond 2023 would require retaining countries no longer, de jure, ECOWAS members, or introducing a structural break in panel composition.

Variable	Description	Benchmark
inflation_cpi	CPI inflation, annual % (dependent variable)	≤10%
fiscal_deficit_gdp	Fiscal balance, % of GDP	≤3%
public_debt_gdp	Gross government debt, % of GDP	≤70%
cbf	Central bank financing, % of prior tax revenue	≤10%
reserves	External reserves, months of import cover	≥3 months
ner	Nominal exchange rate variation vs. WAUA	±10%
gdp_growth	Real GDP growth, annual %	control
trade_openness	(Exports+Imports)/GDP, %	control

Table 1. Descriptive statistics, full panel and by zone (2000–2023)

Variable	N	Mean	SD	Min	Max	WAEMU mean	WAMZ mean
Inflation (%)	346	6.23	7.39	-3.50	47.64	2.39	12.70
Fiscal deficit (% GDP)	360	2.92	4.16	-31.04	17.44	2.73	2.79
Public debt (% GDP)	352	63.86	73.26	7.28	600.12	50.99	76.11
CBF (%)	320	4.17	13.41	-37.70	98.00	0.00	12.72
Reserves (months)	313	5.56	2.20	0.40	16.30	5.93	4.90
NER variation (%)	240	-3.32	7.72	-34.60	19.50	-0.49	-7.39
GDP growth (%)	360	4.40	4.44	-30.14	28.62	4.32	4.50
Trade openness (%)	312	57.57	19.14	21.26	117.82	51.51	60.54

Inflation correlates most strongly with central bank financing (r=0.48) among the full correlation matrix, consistent with the fiscal-dominance channel developed in Section 4.4–4.5; no pairwise correlation among the controls exceeds 0.34, indicating multicollinearity is not a material concern for the conditional regressions reported below. Structural missingness affects cbf, reserves, and ner before 2008, reflecting the timing of WAMA's country-level reporting; tests incorporating these controls are restricted to 2008–2023. trade_openness is entirely unavailable for Liberia and Nigeria across that sub-period, mechanically excluding both from any conditional regression including this control, with consequences for sample composition addressed directly in Section 4.4. Reserves for WAEMU members reflect a single pooled BCEAO figure, introducing mechanical cross-sectional dependence within that sub-panel. Extreme observations (Liberia's pre-2010 debt levels, Ghana's and Sierra Leone's currency-crisis episodes) are retained as documented historical events, not data errors, and addressed through the robustness checks in Table 7.

Estimation Strategy

The analysis proceeds in five stages: preliminary diagnostics (cross-sectional dependence and stationarity), sigma-convergence, beta-convergence (static and dynamic), club convergence, and robustness checks. Cross-sectional dependence is checked before any unit root test via the Breusch-Pagan LM and Pesaran CD tests, supplemented by the SPECO test. In plain terms, a panel unit root test asks whether a country's inflation rate settles back toward a stable long-run average after a shock (stationary) or can drift permanently away from it (non-stationary); confirming stationarity is a precondition for meaningful convergence testing. First-generation unit root tests (LLC, IPS) are reported for comparability with earlier literature; second-generation CIPS is treated as primary evidence given confirmed dependence, since IPS's construction assumes cross-sectional independence and is known to over-reject the unit root null when a common shock hits all countries simultaneously, whereas CIPS augments each country's ADF regression with the cross-sectional average to purge the common factor.

In plain terms, GMM (Generalized Method of Moments) is a technique for estimating a model in which last year's inflation helps predict this year's inflation, a situation where simpler estimators become biased; it corrects for that bias using the data's own lagged values as instruments. Beta-convergence is estimated via pooled OLS, fixed effects, and dynamic panel GMM (Arellano-Bond difference and Blundell-Bond system), with GMM preferred once a lagged dependent variable is included, since demeaning or differencing the lagged inflation

term leaves it mechanically correlated with the transformed error term (Nickell, 1981) — a bias more severe the shorter the time dimension, precisely the setting here with T between 16 and 24. System GMM is favoured over difference GMM because inflation can be persistent enough that lagged levels become weak instruments for lagged differences, a problem Blundell and Bond (1998) resolve by adding a levels equation instrumented with lagged differences.

In plain terms, club convergence testing asks not just whether all fifteen countries are converging to one common inflation rate, but whether they may instead be splitting into two or more distinct sub-groups that each converge internally, without assuming in advance which countries belong to which group. The Phillips-Sul (2007) log-t regression and clustering algorithm, implemented via Du's (2017) Stata package, tests whether the panel converges to a single steady state or splits into multiple clubs. This is preferred over conventional clustering for three reasons: it provides a formal hypothesis test of whether a proposed club is genuinely converging, not merely visually similar; it determines the number of clubs endogenously instead of requiring the researcher to pre-specify one, important given this paper's aim of not presupposing the WAEMU/WAMZ split; and it does not require the underlying series to be stationary, modeling convergence through a time-varying factor structure agnostic to individual series properties. All tests are implemented in Stata 17 (xtcd2, xtunitroot, pescadf, xtabond2, logtreg, psecta).

Results

Cross-Sectional Dependence and Unit Root Tests

The Pesaran CD test rejects the null of cross-sectional independence decisively for the full panel (CD=20.43, p<0.001), for WAEMU (CD=17.05, p<0.001), and for WAMZ (CD=3.26, p=0.001), despite WAMZ having no shared currency arrangement; part of the WAEMU statistic is likely mechanical, reflecting pooled BCEAO reserves instead of inflation co-movement alone.

Test	Full panel	WAEMU	WAMZ
LLC	Not applicable	Not applicable	Not applicable
IPS (Z-t-tilde-bar)	-5.30	-6.25	-0.35
CIPS (Stata, official)	-5.20	-5.63	-6.24

Table 3. Panel unit root test results for CPI inflation

p<0.01. Requires strongly balanced data; inflation_cpi has scattered missing observations preventing computation. Second-generation CIPS was confirmed in Stata (pescadf) for the full panel and both subgroups.

The one departure from a fully consistent picture is that WAMZ's first-generation IPS statistic (-0.35) fails to reject the unit root null even as the second-generation CIPS test — this paper's designated primary evidence — rejects it decisively (Z[t-bar]=-6.24, p<0.01). This is not a minor footnote: the two tests disagree on whether WAMZ inflation is stationary at all, and the disagreement matters for how much weight the WAMZ convergence findings below can bear. The most likely explanation is that IPS assumes cross-sectional independence, an assumption already rejected for WAMZ by the Pesaran CD test above (CD=3.26, p=0.001); under genuine cross-sectional dependence, IPS is known to under-reject the unit root null, whereas CIPS is constructed specifically to remain valid in that setting by purging the common factor before testing. On that basis, the CIPS result is treated as the more reliable evidence for WAMZ throughout this paper, but the discrepancy itself is retained as an open question rather than dismissed, and is discussed further in Section 5.3.

Sigma Convergence

Sample	Coef.	SE	t	p
Full panel, 2000-2023	-0.038	0.078	-0.49	0.632
Full panel, 2000-2021	-0.168	0.065	-2.57	0.018
WAEMU, 2000-2023	0.001	0.024	0.05	0.963
WAMZ, 2000-2023	-0.220	0.146	-1.51	0.145

Table 4. Sigma-convergence trend regression

Over the full sample, dispersion shows no significant trend. Restricting to 2000–2021 reveals a significant declining trend, indicating that ECOWAS inflation dispersion was falling meaningfully across most of the sample period and that this trend was erased by the sharp re-divergence of 2022-2023.

Beta- Convergence

Specification	β	SE	t	p
Absolute, pooled OLS	-0.229	0.038	-6.01	<0.001
Absolute, fixed effects	-0.535	0.055	-9.80	<0.001
Conditional (2008-2023)	-0.247	0.062	-4.02	<0.001

Table 5. Beta-convergence estimates

Variable	Coef.	SE	p
Fiscal deficit	0.101	0.095	0.288
GDP growth	0.123	0.086	0.154
Trade openness	-0.0001	0.017	0.997
Central bank financing	0.128	0.026	<0.001
Reserves	-0.324	0.262	0.217

Table 5b. Conditional beta-convergence controls (2008-2023, N=208)

The conditional model's N=208, smaller than a balanced 15-country, 16-year panel's 240, is fully explained by trade openness being entirely unavailable for Liberia and Nigeria across 2008–2023, mechanically dropping both (13×16=208). Nigeria's exclusion is a material limitation given its outsized weight in ECOWAS GDP, and Table 5b's results describe the other thirteen countries' conditional dynamics, not the region as a whole, noted explicitly in Section 6.4.

Beta-convergence is strong and highly significant across all specifications. The pooled OLS estimate of -0.229 implies that roughly 23% of any given inflation gap closes within a year, corresponding to a half-life of 2.6 years. The fixed-effects estimate of -0.535 describes materially faster adjustment roughly 53.5% closed within a year, a half-life under one year — since removing country-specific fixed effects restricts the comparison to how quickly each country returns to its own historical norm instead of conflating that with between-country differences in average inflation levels (WAEMU's low average versus WAMZ's high average, Table 1). The more relevant number for assessing how quickly a member state recovers from a shock is closer to the fixed-effects half-life. For comparison, EU inflation convergence

studies typically report half-lives of two to four years (Busetti et al., 2007); ECOWAS's fixed-effects estimate implies notably faster within-country mean reversion, though this speed should be read alongside the sigma-convergence and robustness results below, which show that fast within-country catch-up has not prevented renewed cross-country dispersion. Among the conditional-model controls, central bank financing is the only consistently significant driver of subsequent inflation change, directly supporting the fiscal-dominance channel identified in the Literature Review.

Dynamic Panel GMM

Variable	Arellano-Bond	Blundell-Bond
Lagged inflation (AR1)	0.372 (p=0.726)	0.701 (p=0.574)
Fiscal deficit	0.120 (p=0.631)	0.117 (p=0.652)
GDP growth	0.046 (p=0.741)	0.110 (p=0.542)
Trade openness	0.043 (p=0.394)	0.002 (p=0.952)
Central bank financing	0.042 (p=0.689)	0.094 (p=0.033)
Reserves	-1.230 (p=0.008)	-0.821 (p=0.544)
AR(2) test (p)	0.427	0.691
Hansen test (p)	0.266	0.397
Number of instruments	7	9
Number of groups	13	13

Table 6. Dynamic panel GMM results (2008–2023)

With 13 groups and 7–9 instruments, instrument count stays below the number of groups in both specifications, the rule-of-thumb threshold below which instrument proliferation is not generally considered a serious threat to Hansen test validity. Both estimators pass their autocorrelation and over identification diagnostics cleanly. However, the persistence motivation offered in Section 3.3 for preferring system GMM is not straightforwardly borne out here: the AR(1) coefficient is statistically insignificant under both estimators (p=0.726, p=0.574), evidence against high persistence instead of for it. An AR(1) coefficient of 0.701, even imprecisely estimated, would imply roughly 70% of a shock carries over annually materially slower than the 53.5% average annual gap closure the fixed-effects beta-convergence estimate implies, though the two are not directly comparable, describing persistence in levels versus reversion of a lagged level toward a country mean. This tension is acknowledged, not resolved: the point estimates move in the theoretically expected direction as difference GMM's weak-instrument problem attenuates under system GMM, but it is equally possible that inflation persistence in this sub-panel is genuinely lower than the literature typically assumes, in which case system GMM should be read as a standard safeguard against Nickell bias, not a claim resting on a persistence result this paper's own data do not clearly establish.

The reserves coefficient is markedly less stable than the central bank financing result: negative and significant under difference GMM (-1.230, p=0.008) but shrinking by roughly a third and losing significance under system GMM (-0.821, p=0.544), most plausibly reflecting the small subgroup size interacting with the WAEMU pooled-BCEAO measurement issue. This result is treated as suggestive, not a robust finding on a par with central bank financing, and is not relied upon in the Discussion.

Robustness Checks

Sample	β	SE	p	N
Baseline (full sample)	-0.230	0.038	<0.001	331
Excl. outlier episodes	-0.315	0.037	<0.001	327
Pre-COVID (2000-2019)	-0.298	0.039	<0.001	271
Post-COVID (2020-2023)	-0.007	0.106	0.951	60
Excl. Nigeria	-0.247	0.040	<0.001	308

Table 7. Robustness checks: absolute beta-convergence under alternative samples

Excludes Ghana 2022–2023, Sierra Leone 2023, and Guinea 2005–2006 currency-crisis episodes.

Two results stand out. Excluding documented outlier episodes strengthens the convergence finding (β moves from -0.230 to -0.315), confirming the headline result is not an artefact of extreme observations. More consequentially, beta-convergence essentially disappears post-COVID: the coefficient collapses to -0.007, statistically indistinguishable from zero (p=0.951), against the strong pre-COVID estimate (β=-0.298, p<0.001). This corroborates the sigma-convergence reversal in Table 4 through an entirely independent test — both point to whatever convergence process operated through the 2000s and 2010s not operating, or not being detectable, in the small number of post-2020 years available. With only four post-COVID years (N=60), this should be treated as indicative, not definitive, but it is consistent enough with the sigma-convergence finding to carry real weight in the Discussion. Excluding Nigeria changes the coefficient only marginally (-0.247 versus -0.230), indicating the full-sample result is not driven by Nigeria alone.

Club Convergence

The Phillips-Sul log-t regression, estimated on the twelve ECOWAS countries with complete 2000–2023 inflation series, rejects the null of full-panel convergence (b=-1.291, t=-2.190, below the -1.65 critical value).

Club	Members	Zone composition
Club 1	Nigeria, The Gambia	WAMZ only
Club 2	Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Ghana, Guinea-Bissau, Mali, Niger, Senegal, Togo	WAEMU + Cabo Verde + Ghana (WAMZ)

Table 8. Convergence clubs

Club membership does not cleanly track the institutional WAEMU/WAMZ boundary. Ghana, formally a WAMZ member, clusters with the WAEMU-dominated club instead of with Nigeria and The Gambia, its own zone-mates, who form a small, distinct, more divergent club.

Discussion

This discussion is organised around the three research questions set out in Section 1.3. Sections 5.1 and 5.2 address Research Question ii, on the durability of convergence and its drivers; Section 5.3 returns to Research Question i, on the stationarity discrepancy between the first- and second-generation tests; and Sections 5.4 and 5.5 address Research Question iii, on whether convergence clubs track the existing institutional boundary and what that implies for sequencing.

Beta-convergence is unambiguous and robust in the full-sample specifications. Sigma-convergence complicates this picture: dispersion fell meaningfully through 2021, but that decline was entirely erased by the 2022–2023 shock. The robustness checks sharpen this tension: beta-convergence is strong pre-COVID but collapses entirely post-COVID, statistically indistinguishable from zero. Beta-convergence describes a tendency and sigma-convergence describes an outcome, but the post-COVID collapse shows the tendency itself may not have survived 2020–2023 intact, not merely its cumulative outcome. A currency union launched on full-sample beta-convergence evidence alone could be caught off guard by exactly the dispersion spike, and possible breakdown in catch-up dynamics, observed at the end of this sample.

Across three separate empirical approaches, central bank financing of government deficits emerges as the most consistent predictor of poor inflation outcomes, pointing toward monetisation of deficits, not fiscal deficits as such, as the driving channel of divergence. The finding illustrates the efficiency gain Blundell and Bond (1998) predicted: difference GMM loses significance on this variable while system GMM recovers it, identifying central bank independence and fiscal-monetary separation as the more binding constraint on convergence. The reserves coefficient, by contrast, is considerably less stable across the same GMM specifications; given this instability and the reserves-measurement caveat noted earlier, no policy weight is placed on the reserves finding, and the fiscal-dominance conclusion rests on central bank financing alone.

Contrary to the pattern in prior WAMZ literature (Mogaji's (2016) finding of high persistence; Balogun's (2009) finding that price stabilisation was not durably achieved), CIPS - this paper's designated primary test once cross-sectional dependence is confirmed, finds WAMZ inflation stationary, more strongly rejecting than WAEMU (Z[t-bar] = -6.24 versus -5.63). Taken at face value, both currency arrangements exhibit genuine mean reversion, undercutting a simple “CFA peg anchors, floating currencies don't” reading of the data. This sits in tension with WAMZ's first-generation IPS result (-0.35, failing to reject), which aligns with the existing literature's persistence findings. Whether this reflects a structural change in WAMZ inflation dynamics since prior studies' endpoints, or an IPS finite-sample artifact at N=6, is flagged for future work; the paper's headline conclusion rests on CIPS as specified in advance.

The Phillips-Sul results speak directly to the sequencing question now under active discussion. A WAEMU-first strategy would, on this evidence, be leaving behind Ghana, whose inflation dynamics resemble WAEMU's own members more closely than Nigeria's; conversely, a Nigeria-led first wave excluding WAEMU would be built around precisely the pairing — Nigeria and The Gambia — identified here as the region's most persistently divergent cluster. If the underlying macroeconomic data, not the existing institutional boundary, is taken as the basis for sequencing, the more defensible grouping is closer to the ten-country Club 2 identified here than to WAEMU versus WAMZ. This pattern has a European precedent: Busetti et al. (2007) find EMU inflation, having converged during the pre-euro Exchange Rate Mechanism period, subsequently diverged into two stability clubs even after monetary union was formally in place heterogeneity of this kind can persist, and potentially widen, inside a currency union that assumes it away at launch.

Implications for the July 2027 Timeline

Whether Burkina Faso's earlier apparent inflation isolation reflects economic divergence that contributed to political rupture, or is simply a symptom of the same institutional breakdown that produced the AES withdrawal, cannot be established from inflation data alone, and no causal claim is made here; the association is suggestive enough to merit caution and future research with post-2023 data. Taken together, the evidence supports a qualified, not categorical, answer to whether ECOWAS is ready for monetary union. Strong beta-

convergence and a clear link between fiscal-monetary discipline and better outcomes point toward genuine progress. The sigma-convergence reversal and a club structure cutting across existing sequencing proposals caution against treating July 2027 as a date at which readiness will simply have arrived; the WAMZ IPS/CIPS discrepancy, while not bearing on this conclusion directly, is a reminder that stationarity results in short annual panels warrant cross-checking across test generations before being built into policy timelines.

Conclusion

This paper tested whether ECOWAS macroeconomic data over 2000-2023 supports readiness for a July 2027 monetary union, rather than assuming it. Five findings stand out. First, inflation is stationary across the full panel and both subgroups under the CIPS test, though an unresolved IPS/CIPS discrepancy for WAMZ warrants future work. Second, beta-convergence is strong and robust. Third, sigma-convergence was real through 2021 but fully reversed by the 2022-2023 shock. Fourth, central bank financing of deficits is the most consistent driver of poor outcomes across three methods. Fifth, convergence clubs do not track the WAEMU/WAMZ boundary. Ghana clusters with WAEMU, while Nigeria and The Gambia form an isolated pairing. The evidence supports partial and uneven readiness. ECOWAS has not failed to converge, but convergence cannot be taken as secured.

Policy Implications

Three policy recommendations follow. For the ECOWAS Commission and WAMA, sequencing decisions should be informed by empirically derived convergence clusters instead of the pre-existing WAEMU/WAMZ boundary alone. For national governments, particularly within WAMZ, strengthening statutory limits on central bank deficit financing is likely to matter more for inflation convergence than fiscal deficit reduction targets considered in isolation. For WAMA's surveillance framework, the sigma-convergence reversal argues for monitoring dispersion trends on a rolling basis instead of a single-point assessment shortly before the 2027 deadline.

Several limitations qualify these findings. The WAMZ subsample's unit root evidence rests on only six countries, and the IPS/CIPS discrepancy is treated as an open question, not resolved here. The conditional beta-convergence and GMM results exclude Liberia and Nigeria entirely from 2008–2023 owing to a complete absence of trade openness data for both; Nigeria's exclusion is material given its dominant weight in ECOWAS GDP, and these results describe thirteen countries' dynamics, not the full fifteen-member panel. The dynamic GMM estimates, while passing diagnostic tests, rest on a statistically insignificant AR(1) coefficient under both estimators, in tension with the persistence-based motivation for system GMM, and the reserves coefficient is considerably less stable across estimators than the central bank financing result. The Phillips-Sul clustering would benefit from formal merge testing to verify Club 2's borderline internal log-t statistic. The AES withdrawal's relationship to the divergence patterns documented here is noted as an association worth further investigation, not a causal claim.

Once post-2023 data becomes available for Niger, Mali, and Burkina Faso outside the ECOWAS framework, a comparative study of their inflation trajectories could clarify whether their earlier divergence contributed to or resulted from the broader institutional rupture. Extending the club convergence methodology to fiscal and exchange-rate convergence criteria would test whether the Ghana/WAEMU clustering identified here holds across the full set of Maastricht-style benchmarks.

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