Economic Integration, Regulatory Quality and Inclusive Growth in West Africa: Evidence from Ecowas Member States, 2000–2023

Dr. Oluwatosin Yewande Akinbode

Department of Economics, University of Uyo, Nigeria

DOI: https://doi.org/10.47772/IJRISS.2026.101000470

Received: 18 October 2026; Accepted: 23 October 2026; Published: 05 November 2026

ABSTRACT

Regional integration is widely promoted as a route to faster growth and lower poverty in West Africa, yet the evidence for the Economic Community of West African States (ECOWAS) is thin and often descriptive. This paper asks whether deeper economic integration raises economic growth and reduces multidimensional poverty, and whether the answer depends on the quality of regulation. We use a balanced panel of 14 ECOWAS member states over 2000–2023 (322 observations) and estimate first-difference GMM models in which an integration index is interacted with regulatory quality, alongside trade openness, foreign direct investment, infrastructure, inflation, human capital and capital formation. Integration has a significantly negative association with growth where regulatory quality is at or near zero, but the interaction term is positive (significant at the 10 per cent level) and implies that the association turns positive once regulatory quality exceeds roughly 0.21 index units. Foreign direct investment is the only other robust correlate of growth. For poverty, integration and its interaction with regulation are insignificant, whereas better infrastructure and human capital are clearly associated with lower multidimensional poverty. Specification tests flag instrument-validity concerns, which we discuss openly. The findings suggest that integration pays off in ECOWAS only where institutions are strong enough to convert wider markets into productive activity, and that poverty reduction depends more on infrastructure and skills than on integration alone.

Keywords: economic integration; ECOWAS; regulatory quality; economic growth; multidimensional poverty; GMM; West Africa

JEL classification: F15; O55; O43; I32; C23

INTRODUCTION

When the Economic Community of West African States (ECOWAS) was founded in 1975, the argument for it was simple. Small and fragmented economies would gain by pooling their markets, easing the movement of goods, capital and people, and coordinating policy on infrastructure and trade. Five decades later the community has built a trade liberalization scheme, a common external tariff and a long-running plan for a single currency. The African Continental Free Trade Area has now added another layer of ambition on top of these arrangements, which has renewed interest in what regional blocs have actually delivered.

The record is mixed. Intra-regional trade in ECOWAS remains small relative to trade with the rest of the world, and tariff cuts on paper have often been blunted by roadblocks, administrative delays and weak enforcement (Akperan and Kayode, 2010, Akpan and Akinbode 2026) Andoh, Thorson and Gebremariam, 2024). Assessments of institutional progress conclude that the community has built a free trade area and is only part of the way towards a customs union, with the common market and the monetary union still ahead (Towobola and Bamisaye, 2024). Meanwhile, studies of the neighboring West African Economic and Monetary Union (WAEMU) have struggled to find that integration lifted growth (Gnimassoun, 2019; Ogbuabor et al., 2019).

Two gaps stand out. First, most empirical work looks at trade flows or growth in isolation, and says little about whether integration reaches households. Poverty in West Africa is not only a matter of income; it also reflects schooling, health and living conditions, which a multidimensional measure captures better (Alkire and Foster,

2011, Udo and Akpan, 2026, Akpan and Ukere,2024.). Second, the literature tends to treat integration as if its effect were the same everywhere. That is unlikely. A larger market rewards firms only if contracts can be enforced, regulation is predictable and rules are applied evenly, which points to a role for institutional quality as a condition rather than just another control (Rodrik, *et al* 2004 and Udo *et al* 2024).

This paper addresses both gaps. Using a balanced panel of 14 ECOWAS member states from 2000 to 2023, it estimates the association of economic integration with (i) annual GDP growth and (ii) a multidimensional poverty index, and tests whether regulatory quality changes the sign or size of that association. The control set includes trade openness, foreign direct investment (FDI), infrastructure, inflation, human capital and gross capital formation. Because integration, institutions and growth are likely to influence one another, we rely on a GMM estimator in first differences rather than ordinary least squares.

The study makes three contributions. It extends the ECOWAS evidence from trade and growth to multidimensional poverty, using an annual MPI series reconstructed from household surveys. It asks whether the payoff to integration depends on regulatory quality, using an interaction term and an implied turning point that we deliberately treat as suggestive.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical and empirical literature and sets out the hypotheses. Section 3 describes the data, model and estimation strategy. Section 4 reports the results, Section 5 discusses them against the literature and Section 6 concludes with policy implications and limitations.

LITERATURE REVIEW AND HYPOTHESES

2.1 Theoretical background

Three bodies of theory frame the question. The oldest is the static theory of customs unions. Viner (1950) showed that preferential liberalization can create trade, by replacing costly domestic production with cheaper partner supply, or divert it, by replacing cheaper outside supply with partner supply behind a common tariff. Balassa (1961) then set out the now-standard ladder of integration, running from a free trade area to a customs union, a common market and finally an economic and monetary union. Much of the empirical work on ECOWAS still measures progress against these rungs.

The second strand is dynamic. Integration may matter less for the one-off reallocation of resources than for what it does to scale, competition, investment and the diffusion of technology. Larger markets can attract foreign investors who would ignore a single small economy, and FDI in turn is associated with faster growth where the host economy has enough human capital to absorb it (Borensztein, De Gregorio and Lee, 1998). Openness to trade can also support growth, although the causal evidence is contested (Frankel and Romer, 1999, Udo and Akpan 2020).

The third strand is political and institutional. Neo-functionalist accounts argue that cooperation in one area spills over into others and builds supranational institutions over time (Haas, 1958). The corollary for ECOWAS is that the benefits of integration depend on whether member states honours commitments and whether domestic institutions are good enough to deliver them. Cross-country evidence that institutions rank ahead of geography and trade as a determinant of income (Rodrik et al., 2004) supports the idea that regulatory quality conditions what integration can achieve. Infrastructure completes the picture: roads, ports, power and telecommunications are both the physical backbone of any integration scheme and a binding constraint on growth in Sub-Saharan Africa (Calderón and Servén, 2010).

2.2 Empirical evidence from West Africa

The West African literature can be read in four groups: assessments of integration and trade; studies of liberalization, institutions and infrastructure; growth studies; and conceptual and institutional work.

Assessments of integration and trade. Andoh, Thorson and Gebremariam (2024) used a modified gravity equation on data for 2000, 2010 and 2020 to study what limits trade inside ECOWAS. They found that economic

factors largely explain intra-ECOWAS trade and that better transport infrastructure and fewer administrative barriers could raise it substantially. The study speaks directly to the policy questions, but with only three observation years it can miss shorter-run swings in trade. Towobola and Bamisaye (2024) took a different route, assessing ECOWAS against the four-stage integration model using secondary sources. They concluded that the community has reached the free trade area stage and is still completing the customs union, and urged it to pursue its original agenda more purposefully and to submit to regular assessment. The framework is helpful, but it is qualitative, so progress within each stage cannot be measured. Earlier, Akperan and Kayode (2010) examined ECOWAS and borderless trade using secondary data for 1996–2008. They found that the objectives of the trade liberalization scheme and of free movement of labour, capital, goods and services had not been fully met, and tied the weak performance of Sub-Saharan Africa in world trade to reliance on primary exports, high production costs and a thin productive base. They did not compare ECOWAS with blocs such as the East African Community or the Southern African Development Community, which limits how far the conclusions travel.

Liberalization, institutions and infrastructure. Shuaibu (2015) is among the more econometrically careful ECOWAS studies. Using system and difference GMM supplemented by fixed and random effects, the paper found that trade liberalization significantly raises intra-regional trade and that institutional quality and infrastructure are positively associated with trade volumes. Dealing with endogeneity in this way strengthens the findings, although the study does not say which kinds of infrastructure (transport, energy or digital) matter most, and in West Africa that distinction is important. Olayiwola, Osabuohien, Okodua and Ola-David (2015) applied GMM with instrumental variables to panel data for ECOWAS members to study agricultural exports, with a fixed-effects model as a robustness check. They report that regional integration, trade facilitation and telephone density raise agricultural exports, and that integration, income per capita and communications infrastructure support trade facilitation, while the effects of the rule of law and the control of corruption are less clear. That last result is itself informative: institutional effects are hard to pin down, which is part of the motivation for treating regulatory quality explicitly here.

Growth studies. The closest antecedents to the present paper come from WAEMU. Ogbuabor, Anthony-Orji,Ogbonna and Orji (2019) estimated a growth model with instrumental-variable system GMM on annual data for 2000–2015 and found no empirical support for a positive growth effect of WAEMU integration; they identified FDI and institutional quality as important growth drivers and as likely channels through which integration might operate. Gnimassoun (2019), using a gravity-based instrumental-variable strategy to address simultaneity, reached a similar conclusion, namely that integration has not produced significant growth in the union despite its reputation as one of Africa's most successful integration efforts, and he recommended heavy investment in community transport infrastructure. Both studies cover WAEMU only, neither considers poverty, and neither test whether the integration effect changes with institutional quality.

Conceptual and institutional work. Maiyaki (2017) argued that regional integration is a way to address the socio-economic problems of Sub-Saharan Africa, and, in a qualitative review of historical and recent cooperation, singled out democracy, private-sector growth and institutions such as the ECOWAS Treaty as drivers of trade liberalization and policy harmonization. The conclusions rest on argument rather than data. Shobande, Ezenekwe and Uzonwanne (2018) reviewed how theories of economic integration developed and suggested that West Africa needs theory suited to its own conditions instead of models built for richer and more diversified economies; the paper does not show how such theories would be built or tested. Ekpo (2020) used stylized facts and preliminary panel results to argue that integration should benefit members, but that the WAMZ convergence criteria and the link between the Francophone countries and France are not the whole story. Political will, a large infrastructure deficit and fiscal imperatives remain unresolved. The chapter flags these issues clearly without explaining in detail why the criteria are insufficient or how they interact with the wider constraints.

2.3 Gap in the literature

Read together, these studies agree on several points: integration in ECOWAS is incomplete, infrastructure and institutions matter, and the growth payoff in the best-studied sub-bloc is hard to detect. What is missing is a region-wide test that (i) links integration to both growth and poverty, (ii) allows the effect to differ with regulatory quality rather than assuming a single average effect, and (iii) uses an estimator that takes endogeneity seriously. The present paper is built to fill that space.

2.4 Hypotheses

Drawing on the theory and evidence above, we state four hypotheses.

H1: Deeper economic integration is associated with higher economic growth in ECOWAS.

H2: The association between integration and growth strengthens with regulatory quality, so the interaction between integration and regulatory quality is positive.

H3: Deeper economic integration is associated with lower multidimensional poverty.

H4: FDI, infrastructure and human capital are independently associated with higher growth and lower poverty.

The literature gives reasons to doubt H1 and H3 on their own, since WAEMU evidence points to weak average effects. H2 is the conditional claim on which the paper places most weight.

DATA AND METHODOLOGY

3.1 Data and sample

The analysis uses an annual, balanced panel of 14 ECOWAS member states for 2000–2023, giving 322 observations in the first-differenced estimation (14 countries and 23 usable periods). The country list is limited to members for which consistent data on all variables are available. Macroeconomic and governance indicators come from the World Bank, with integration, infrastructure and human-capital indicators drawn from the World Bank, UNCTAD, the African Development Bank and the ECOWAS Commission. The sample ends in 2023 and therefore predates the exit of Mali, Burkina Faso and Niger from the community in January 2025. The multidimensional poverty series is reconstructed from household surveys, as described in Section 3.3.

3.2 Variables

The two dependent variables are annual real GDP growth (GDPG, per cent) and the multidimensional poverty index (MPI), which combines deprivations in health, education and living standards (Alkire and Foster, 2011; see Section 3.3). The key regressors are a composite index of economic integration (ECO_INT), regulatory quality (RQ) and their interaction (ECO_INT×RQ). The interaction allows the marginal association of integration with the outcome to vary with the quality of regulation (Brambor, Clark and Golder, 2006). RQ is a governance measure in the tradition of the Worldwide Governance Indicators (Kaufmann, Kraay and Mastruzzi, 2011). Controls are trade openness (TRN), FDI inflows (FDI), an infrastructure index (INFRA), inflation (INF), a human capital index (HCI) and gross capital formation (GCF). Table 1 defines the variables and the expected signs.

Table 1. Variables and expected signs

Variable	Description	Sign on GDPG	Sign on MPI
GDPG	Real GDP growth, annual %	n/a	n/a
MPI	Alkire–Foster multidimensional poverty index (H × A), reconstructed annual series	n/a	n/a
ECO_INT	Composite index of economic integration	+	−
RQ	Regulatory quality	+	−
ECO_INT×RQ	Interaction of integration and regulatory quality	+	−
TRN	Trade openness, total trade as % of GDP	+	−
FDI	Net FDI inflows, % of GDP	+	−
INFRA	Infrastructure index	+	−
INF	Inflation	−	+

HCI	Human capital index	+	−
GCF	Gross capital formation, % of GDP	+	−

Note: Expected signs follow the theory in Section 2. The sign on the interaction term is expected to be positive for growth and negative for poverty, meaning that integration helps more as regulation improves.

3.3 Measurement of multidimensional poverty

Multidimensional poverty is measured with the Alkire–Foster adjusted headcount ratio, which underlies the global MPI published by the Oxford Poverty and Human Development Initiative (OPHI) and the UNDP (Alkire and Foster, 2011; Alkire and Santos, 2014). A person is counted as poor if deprived in at least one third of weighted indicators covering health (nutrition and child mortality), education (years of schooling and school attendance) and living standards (cooking fuel, sanitation, drinking water, electricity, housing and assets). The MPI is the product of the headcount ratio H, the share of people who are poor, and the intensity A, the average share of weighted deprivations among the poor. It lies between zero and one and, unlike a headcount ratio on its own, it falls when the poor become less deprived even if they remain poor. The dependent variable in our poverty equation is this composite index, not a single-dimension headcount.

Published MPI estimates exist only for years in which a suitable household survey was fielded, which in West Africa means a handful of survey rounds per country, and the global index itself began publication only in 2010. An annual panel for 2000–2023 therefore cannot be lifted directly from published tables. We reconstruct the series in the way that has been done for other countries. Indicator-level data from Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and Living Standards Measurement Surveys (LSMS) are harmonized so that the same deprivations are measured consistently across rounds, the MPI is computed for each survey year, and values for the years between and beyond survey rounds are obtained from comparable proxy indicators and econometric extrapolation. In the estimation sample the first-differenced MPI has a mean of −0.006 and a standard deviation of 0.010, so annual changes are small relative to the level of the index.

This construction has consequences that we take seriously. Interpolated and extrapolated values are smoother than true annual poverty, so the series is more persistent than the underlying reality, and part of its year-to-year movement reflects the proxies used rather than independent observation. Measurement error of this kind biases coefficients towards zero, which may help explain the weak results for integration and regulatory quality in the poverty equation. It can also induce serial correlation in differenced residuals, which is relevant to the AR(2) result reported in Section 4.3. The poverty findings should be read with this in mind.

3.4 Empirical model

Let i index countries and t years. For each outcome $Y \in \{\text{GDPG, MPI}\}$, we estimate

$$Y_{it} = \alpha + \beta_1 ECO_INT_{it} + \beta_2 RQ_{it} + \beta_3 (ECO_INT \times RQ)_{it} + \gamma' X_{it} + \mu_i + \varepsilon_{it},$$

where X contains TRN, FDI, INFRA, INF, HCI and GCF, μ_i is an unobserved country effect and ε_{it} is the error term. With the interaction included, the marginal association of integration with the outcome is $\partial Y/\partial ECO_INT = \beta_1 + \beta_3 RQ$. The coefficient β_1 on its own is therefore the association when RQ equals zero, and it should not be read as an average effect. The value of RQ at which the marginal association changes sign is $RQ^* = -\beta_1/\beta_3$.

3.5 Estimation strategy

Preliminary tests. We test the order of integration of each series with five panel unit-root tests with individual intercepts and trends: Levin, Lin and Chu (2002), Breitung (2000), Im, Pesaran and Shin (2003), and the Fisher-type ADF and Phillips–Perron tests (Maddala and Wu, 1999; Phillips and Perron, 1988). The first two assume a common unit-root process across countries, while the last three allow country-specific processes.

Main estimator. Integration may respond to growth, institutions may be shaped by income, and unobserved country characteristics such as geography, colonial history and resource endowment are correlated with the regressors. We therefore estimate each equation by the difference GMM estimator of Arellano and Bond (1991). First-differencing removes the country effects, and lagged levels of the variables serve as instruments for the differenced regressors. Estimation uses the difference-specification instrument weighting matrix of the software. The instrument rank is 10 in each equation, below the number of countries (14), so the usual rule of thumb against instrument proliferation (Roodman, 2009a, 2009b) is met. Two alternatives are natural robustness checks: forward orthogonal deviations (Arellano and Bover, 1995), which subtract the average of all future observations instead of the previous one and so retain more information when panels have gaps, and system GMM (Blundell and Bond, 1998), which adds level equations instrumented by lagged differences and can be more efficient for persistent series. We return to both in Section 5.

Diagnostics. We report the Arellano–Bond tests for first- and second-order serial correlation in the differenced residuals and the J-statistic for overidentifying restrictions. Valid instruments require a significant AR(1), which arises mechanically from differencing, an insignificant AR(2), and a J-test that does not reject. The J-statistic produced under the difference-specification weighting matrix is a Sargan-type statistic. It is not robust to heteroskedasticity or cross-sectional dependence and tends to over-reject when either is present (Sargan, 1958; Arellano and Bond, 1991), whereas the two-step Hansen (1982) statistic is robust but is weakened by large instrument sets. A rejection by the former is therefore a warning, not proof that the instruments are invalid. Windmeijer's (2005) finite-sample correction is the standard remedy for downward-biased two-step standard errors.

RESULTS

4.1 Unit-root tests

Table 2 reports the panel unit-root tests. Growth (GDPG) is stationary in levels on all five tests, and regulatory quality (RQ) on four of five, with the Breitung test failing to reject for RQ. The other series, including the integration index, the interaction term, trade openness, FDI, infrastructure, inflation, human capital and capital formation, are tested in first differences and are stationary on nearly every test. There are two partial exceptions. For HCI the Breitung test does not reject ($p = 0.376$) although the other four do. For MPI, the two common-process tests (Levin–Lin–Chu, $p = 0.241$; Breitung, $p = 0.995$) do not reject, while the three individual-process tests do ($p = 0.015$, 0.013 and below 0.001, based on 13 cross-sections). Because the individual-process tests are the more appropriate under country heterogeneity, we treat MPI as stationary in first differences, but note the ambiguity.

Table 2. Panel unit-root tests (individual effects and linear trends, one lag)

Series	Form	LLC	Breitung	IPS	ADF–Fisher	PP–Fisher
GDPG	Level	−3.7775 (0.0001)	−5.3482 (0.0000)	−5.7654 (0.0000)	83.626 (0.0000)	205.021 (0.0000)
RQ	Level	−23.2012 (0.0000)	0.0353 (0.5141)	−17.6220 (0.0000)	409.768 (0.0000)	212.190 (0.0000)
ECO_INT	1st diff.	−7.4765 (0.0000)	−8.6368 (0.0000)	−4.4801 (0.0000)	65.425 (0.0001)	139.646 (0.0000)
ECO_INT×RQ	1st diff.	−5.8947 (0.0000)	−7.3539 (0.0000)	−3.7353 (0.0001)	56.763 (0.0010)	144.517 (0.0000)
TRN	1st diff.	−4.9005 (0.0000)	−2.9617 (0.0015)	−7.1875 (0.0000)	103.135 (0.0000)	241.905 (0.0000)
FDI	1st diff.	−3.6209 (0.0001)	−2.5760 (0.0050)	−7.7944 (0.0000)	108.569 (0.0000)	654.825 (0.0000)
INFRA	1st diff.	−1.7748 (0.0380)	−3.5580 (0.0002)	−2.6573 (0.0039)	48.659 (0.0091)	107.056 (0.0000)

INF	1st diff.	−10.1180 (0.0000)	−2.0198 (0.0217)	−12.3032 (0.0000)	169.758 (0.0000)	1306.52 (0.0000)
HCI	1st diff.	−2.8613 (0.0021)	−0.3156 (0.3762)	−3.3018 (0.0005)	64.393 (0.0001)	179.137 (0.0000)
GCF	1st diff.	−8.9092 (0.0000)	−4.9197 (0.0000)	−9.2754 (0.0000)	127.793 (0.0000)	575.604 (0.0000)
MPI	1st diff.	−0.7034 (0.2409)	2.5789 (0.9950)	−2.1696 (0.0150)	44.761 (0.0125)	67.705 (0.0000)

Note: Statistics with p-values in parentheses. Null hypothesis: unit root. LLC = Levin–Lin–Chu t∗; IPS = Im–Pesaran–Shin W-statistic. 14 cross-sections for all series except MPI, where the IPS, ADF and PP tests use 13. Fisher p-values use an asymptotic chi-square distribution.

4.2 Economic integration and growth

Table 3 reports the growth equation. The sample is 322 observations (14 countries, 2001–2023 after differencing).

Table 3. Difference GMM estimates, dependent variable: GDP growth (GDPG)

Variable	Coefficient	Std. error	t-statistic	p-value
ECO_INT	−51.0351∗∗	22.5097	−2.2672	0.0241
RQ	−40.6220	26.1604	−1.5528	0.1215
ECO_INT×RQ	248.3977∗	126.8523	1.9582	0.0511
TRN	0.0657∗	0.0390	1.6866	0.0927
FDI	0.0894∗∗	0.0345	2.5895	0.0101
INFRA	0.0810	0.2898	0.2794	0.7801
INF	0.0549	0.0666	0.8237	0.4108
HCI	−2.7242	13.3273	−0.2044	0.8382
GCF	0.0752	0.0865	0.8688	0.3856

Note: ∗ $p < 0.10$, ∗∗ $p < 0.05$, ∗∗∗ $p < 0.01$. Observations: 322. S.E. of regression 5.644. J-statistic 221.92 ($p = 0.0000$); instrument rank 10. Arellano–Bond AR(1): $m = −6.408$ ($p = 0.0000$); AR(2): $m = −0.188$ ($p = 0.8507$).

Three results stand out. First, the coefficient on ECO_INT is negative and significant at the 5 per cent level (−51.04, $p = 0.024$). Because of the interaction, this is the association when RQ is zero. Second, the interaction ECO_INT×RQ is positive (248.40) and significant at the 10 per cent level ($p = 0.051$), while RQ itself is not significant. Third, FDI is positively and significantly related to growth (0.089, $p = 0.010$): a one-percentage-point higher inflow, relative to GDP, goes with growth that is about 0.09 percentage points higher. Trade openness is positive but only marginally significant ($p = 0.093$). Infrastructure, inflation, human capital and capital formation are not individually significant.

The marginal association of integration with growth is $−51.04 + 248.40 \times RQ$. It is zero at $RQ∗ = 51.035 / 248.398 \approx 0.21$ index units. Below that value deeper integration goes with lower growth, and above it with higher growth. Because the interaction is significant only at the 10 per cent level, and because RQ∗ is a ratio of two imprecisely estimated coefficients, we treat 0.21 as an indicative turning point. It is not a regulatory target on which policy can safely be built. The coefficient on ECO_INT is more strongly significant (5 per cent), but by construction it describes the association only at RQ = 0. A fuller test would report conditional marginal effects with confidence bands across the observed range of RQ (Brambor et al., 2006), which needs the full coefficient covariance matrix. Nor should the sign pattern be read as saying that integration causes slower growth where regulation is weak. It is a conditional association within this sample.

The diagnostics for the growth equation are mixed. The AR(1) test rejects as expected ($m = −6.408$, $p = 0.0000$) and the AR(2) test does not ($m = −0.188$, $p = 0.8507$), so the differenced residuals show no second-order serial

correlation, which supports the use of lagged levels as instruments. The J-statistic is 221.92 with instrument rank 10 and rejects the null that the overidentifying restrictions are valid (p = 0.0000). The rejection cannot be blamed on too many instruments, because instrument proliferation inflates p-values and produces false non-rejection, the opposite of what we observe. More plausible explanations are weak instruments, omitted dynamics or heterogeneity across countries, and the sensitivity of the Sargan-type statistic to heteroskedasticity noted in Section 3.5. We return to these in Sections 4.4 and 5.

4.3 Economic integration and poverty

Table 4. Difference GMM estimates, dependent variable: multidimensional poverty index (MPI)

Variable	Coefficient	Std. error	t-statistic	p-value
ECO_INT	−0.0130	0.0432	−0.3006	0.7639
RQ	0.0085	0.0502	0.1684	0.8664
ECO_INT×RQ	0.1648	0.2435	0.6769	0.4989
TRN	−0.0001	0.0001	−1.5872	0.1135
FDI	−0.00002	0.0001	−0.2705	0.7869
INFRA	−0.0067***	0.0006	−12.0921	0.0000
INF	0.0001	0.0001	0.5540	0.5800
HCI	−0.0634**	0.0257	−2.4694	0.0141
GCF	−0.0002	0.0002	−1.0204	0.3083

Note: * p < 0.10, ** p < 0.05, *** p < 0.01. Observations: 322. S.E. of regression 0.0108. J-statistic 449.36 (p = 0.0000); instrument rank 10. Arellano–Bond AR(1): m = 6.387 (p = 0.0000); AR(2): m = 2.828 (p = 0.0047).

For poverty the picture is different. Neither integration (−0.013, p = 0.764), regulatory quality (p = 0.866) nor their interaction (p = 0.499) is statistically significant, and neither are FDI, trade openness, inflation or capital formation. Two variables stand out: infrastructure (−0.0067, p < 0.001) and human capital (−0.0634, p = 0.014) are both negatively associated with the poverty index. Better roads, power and communications, and a more educated and healthier workforce, go with lower multidimensional poverty, as one would expect since several MPI dimensions measure access to services directly.

These estimates deserve more caution than the growth results. The AR(2) test rejects (m = 2.828, p = 0.0047), which indicates second-order serial correlation in the differenced residuals, and the J-statistic of 449.36 rejects strongly (p = 0.0000). Both cast doubt on the lagged-level instruments in the MPI equation. A likely contributor is the way the dependent variable is built. Interpolated and extrapolated poverty values (Section 3.3) are smoother than true annual poverty and carry correlated measurement error, which feeds into the residuals and can produce exactly this pattern. The infrastructure result is very precise, but precision is not validity, and the signs and magnitudes should be treated as suggestive until they are confirmed with alternative instrument sets and with survey-year observations only.

4.4 Specification diagnostics at a glance

Table 5 collects the diagnostics for both models so that readers can judge the reliability of the estimates directly.

Table 5. Specification diagnostics, difference GMM

Statistic	GDPG model	MPI model
Observations	322	322
Countries / periods after differencing	14 / 23	14 / 23
Instrument rank	10	10
Instruments per country (10 / 14)	0.71	0.71
J-statistic (p-value)	221.92 (0.0000)	449.36 (0.0000)
AR(1) m-statistic (p-value)	−6.408 (0.0000)	6.387 (0.0000)

AR(2) m-statistic (p-value)	−0.188 (0.8507)	2.828 (0.0047)
S.E. of regression	5.644	0.0108
Assessment	AR(2) passes; J rejects	AR(2) fails; J rejects

Note: Difference-specification instrument weighting matrix. The J-statistic is Sargan-type and may over-reject under heteroskedasticity. Instrument rank is below the number of countries in both models.

Two points follow. Instrument proliferation is not the problem here, since the instrument rank is well below the number of countries. The failures are instead of the overidentification test in both models and of the second-order serial-correlation test in the poverty model. The first is consistent with misspecification or weak identification, and the second with the measurement features of the reconstructed MPI series. Neither is resolved by the present estimates, which is why we do not draw causal conclusions from them.

4.5 Summary of hypotheses

Hypothesis	Statement	Verdict
H1	Integration raises growth	Not supported unconditionally (negative at RQ = 0)
H2	Interaction with regulatory quality is positive	Suggestive only (10% level, p = 0.051)
H3	Integration lowers poverty	Not supported (insignificant)
H4	FDI, infrastructure and human capital matter	Partly supported: FDI for growth; infrastructure and human capital for poverty

DISCUSSION

The central finding, offered as suggestive evidence and not as a settled causal result, is that integration in ECOWAS does not pay off automatically. Where regulatory quality is low, deeper integration is not associated with faster growth; where regulatory quality is better, the association turns positive. This fits the WAEMU evidence of Ogbuabor et al. (2019) and Gnimassoun (2019), who failed to find growth gains from integration in the average member, and it lines up with the former's suggestion that institutional quality and FDI are the channels through which integration might work. It also fits the view in Olayiwola et al. (2015), Akpan & Akinbode (2026) and Shuaibu (2015) that institutions and infrastructure shape the trade benefits of integration. Our contribution is to show the conditioning directly, through the interaction term, on a region-wide ECOWAS panel.

There are plausible mechanisms behind the sign pattern. Where rules are unpredictable and enforcement is weak, opening markets to regional competitors can expose domestic firms without giving them the contractual and regulatory environment needed to scale, and can divert activity into informal channels. Where regulation is dependable, the same market access allows specialization and investment. This is the same logic as Viner's distinction between trade creation and trade diversion, with the quality of institutions determining which dominates. It also matches the long-standing complaint, noted by Akperan and Kayode (2010) and by Towobola and Bamisaye (2024), that ECOWAS commitments exist on paper but are unevenly implemented.

The significance of FDI for growth is consistent with Borensztein et al. (1998) and with the emphasis on FDI by Ogbuabor et al. (2019) and Akinbode and Akpan (2025).The absence of a significant human capital or infrastructure effect on growth is more surprising given the theory and the literature (Calderón and Servén, 2010), but both are slow-moving, highly persistent variables, and the first-difference transformation removes much of their cross-country variation, which can weaken estimated effects. Their strong showing in the poverty model is less surprising, since the poverty index itself is built from schooling, health and living-standard indicators.

The poverty results tell a complementary story. Integration, even conditioned on regulation, does not show up in the poverty index, whereas infrastructure and human capital do. Ekpo (2020) identified the infrastructure deficit as one of the unresolved obstacles to integration in the sub-region, and Andoh et al. (2024) and Gnimassoun (2019) both stress transport infrastructure. Our estimates suggest that the same deficit stands between integration and poorer households. Lifting integration without investing in infrastructure and skills is unlikely to reduce poverty by itself.

The diagnostics call for a measured reading. The J-statistics reject in both equations and the second-order serial-correlation test rejects in the MPI equation (Table 5). In difference GMM a J-test rejection can reflect invalid instruments, but also weak identification, country heterogeneity, or the heteroskedasticity sensitivity of the Sargan-type statistic, whereas instrument proliferation (Roodman, 2009a, 2009b) is unlikely with 10 instruments and 14 countries. The 10 per cent significance of the interaction term adds a second reason for caution: it is a modest bar for claims about institutional thresholds. We therefore regard the growth findings as a pattern worth taking seriously and not as a settled causal estimate, and the poverty findings as more tentative still.

The diagnostics call for a measured reading. The Hansen J-statistics reject in both equations, and the second-order serial-correlation test rejects in the MPI equation. In difference GMM, J-test rejection can reflect invalid instruments, but also weak identification, heterogeneity across countries or too many instruments relative to 14 cross-sections (Roodman, 2009a, 2009b). We therefore regard the growth findings as a pattern worth taking seriously rather than a settled causal estimate, and the poverty findings as more tentative still. These concerns are common to dynamic panel studies of regional integration, and their transparent reporting is part of the contribution here

CONCLUSION AND POLICY IMPLICATIONS

This paper examined whether economic integration in ECOWAS is associated with higher growth and lower multidimensional poverty, and whether regulatory quality conditions the answer. Using a 14-country panel for 2000–2023 and difference GMM, we find that integration is negatively related to growth where regulatory quality is near zero, that the interaction with regulatory quality is positive but only marginally significant, implying an indicative turning point near 0.21, and that FDI is positively related to growth. For poverty, integration, regulatory quality and their interaction are insignificant, while infrastructure and human capital are strongly and negatively related to the reconstructed MPI.

Three tentative policy messages follow, to be weighed against the limits of the evidence. First, regulatory reform looks like a complement to integration and not a substitute for it. The results are consistent with predictable regulation and credible enforcement of regional commitments being preconditions for growth gains, but the evidence is at the 10 per cent level and does not identify a specific regulatory target. Second, countries seeking to benefit from integration should compete for FDI that serves regional markets, since FDI is the most robust correlate of growth in our estimates. Third, those hoping that integration will lower poverty should pair it with investment in infrastructure and human capital, which show the clearest association with lower poverty.

The sample of 14 countries was used for the GMM design and ends before the 2025 withdrawal of three Sahelian members, which changes the structure of the community. Future work should add system GMM and orthogonal-deviation estimates with collapsed instruments, report conditional marginal effects with confidence bands, test the poverty results on survey-year data, and examine sector-level outcomes such as the composition of value added. Subject to those caveats, the evidence points in one direction: in West Africa, integration is most likely to deliver when the institutions and infrastructure around it are in place.

REFERENCES

1. Akperan, A. J. and Kayode, S. G. (2010). The role of Economic Community of West African States (ECOWAS) in promoting borderless trade in West Africa. CBN Bullion, 34(4).
2. Akpan, O.M. and Akinbode, O. Y (2026). An Empirical Analysis of Trade Protection and the Nigerian Economy". Journal of Economics and Trade 11 (1):42–59. https://doi.org/10.56557/jet/2026/v11i110100.
3. Akpan, O. M (2024) Public Sector Investment and Poverty Reduction in Nigeria; Evidence from 1981-2022. African Journal of Commercial Studies, 5(4). https://doi.org/10.59413/ajocs/v5.i.4.10
4. Akpan, O. M and Ukere, I. J (2024), Emerging Societal Challenges and Sustainable Economic Development in Nigeria. International Journal of Human, Social Sciences and Management (IJHSSM) 4(1) 385 -398.

5. Akpan, O.M and Udo, U.H. (2020). A Comparative Analysis of the mercantilist trade doctrine and the Nigerian Economy. Global Scientific Journals 8 (10), 1298-131.
6. Akinbode, O. Y and Akpan, O. M. (2025). Unraveling The Nexus: Capital Flows Dynamics, Financial Sector Stability and Their Impact on Economic Development in Nigeria. International Journal of Research and Innovation in Social Science, 9(11), https://doi.org/10.47772/IJRISS.2025.91100286
7. Alkire, S. and Foster, J. (2011). Counting and multidimensional poverty measurement. Journal of Public Economics, 95(7–8), 476–487.
8. Alkire, S. and Santos, M. E. (2014). Measuring acute poverty in the developing world: Robustness and scope of the multidimensional poverty index. World Development, 59, 251–274.
9. Andoh, S. K., Thorson, J. and Gebremariam, Y. (2024). Economic Community of West African States (ECOWAS): A regional integration analysis. Journal of Leadership, Accountability and Ethics, 21(2). https://doi.org/10.33423/jlae.v21i2.7063
10. Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies, 58(2), 277–297.
11. Arellano, M. and Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. Journal of Econometrics, 68(1), 29–51.
12. Balassa, B. (1961). The Theory of Economic Integration. Homewood, IL: Richard D. Irwin.
13. Blundell, R. and Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics, 87(1), 115–143.
14. Borensztein, E., De Gregorio, J. and Lee, J.-W. (1998). How does foreign direct investment affect economic growth? Journal of International Economics, 45(1), 115–135.
15. Brambor, T., Clark, W. R. and Golder, M. (2006). Understanding interaction models: Improving empirical analyses. Political Analysis, 14(1), 63–82.
16. Breitung, J. (2000). The local power of some unit root tests for panel data. Advances in Econometrics, 15, 161–177.
17. Calderón, C. and Servén, L. (2010). Infrastructure and economic development in Sub-Saharan Africa. Journal of African Economies, 19(Suppl. 1), i13–i87.
18. Ekpo, A. (2020). Economic integration in West Africa: A reconsideration of the evidence. In N. Edomah (ed.), Regional Development in Africa. London: IntechOpen. https://doi.org/10.5772/intechopen.86655
19. Frankel, J. A. and Romer, D. (1999). Does trade cause growth? American Economic Review, 89(3), 379–399.
20. Gnimassoun, B. (2019). L'intégration de l'UEMOA est-elle pro-croissance ? Revue d'économie politique, 129(3), 355–390.
21. Haas, E. B. (1958). The Uniting of Europe: Political, Social, and Economic Forces, 1950–1957. Stanford, CA: Stanford University Press.
22. Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. Econometrica, 50(4), 1029–1054.
23. Im, K. S., Pesaran, M. H. and Shin, Y. (2003). Testing for unit roots in heterogeneous panels. Journal of Econometrics, 115(1), 53–74.
24. Kaufmann, D., Kraay, A. and Mastruzzi, M. (2011). The Worldwide Governance Indicators: Methodology and analytical issues. Hague Journal on the Rule of Law, 3(2), 220–246.
25. Levin, A., Lin, C.-F. and Chu, C.-S. J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. Journal of Econometrics, 108(1), 1–24.
26. Maddala, G. S. and Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. Oxford Bulletin of Economics and Statistics, 61(S1), 631–652.
27. Maiyaki, T. B. (2017). The challenges and prospects for regional and economic integration in West Africa. Asian Social Science, 13(5). https://doi.org/10.5539/ass.v13n5p24
28. Ogbuabor, J. E., Anthony-Orji, O. I., Ogbonna, O. E. and Orji, A. (2019). Regional integration and growth: New empirical evidence from WAEMU. Progress in Development Studies, 19(2), 123–143. https://doi.org/10.1177/1464993418822883
29. Olayiwola, W., Osabuohien, E., Okodua, H. and Ola-David, O. (2015). Economic integration, trade facilitation and agricultural exports performance in ECOWAS sub-region. In M. Ncube, I. Faye and A. Verdier-Chouchane (eds), Regional Integration and Trade in Africa. Basingstoke: Palgrave Macmillan, 31–46. https://doi.org/10.1057/9781137462053_3

30. Phillips, P. C. B. and Perron, P. (1988). Testing for a unit root in time series regression. Biometrika, 75(2), 335–346.
31. Rodrik, D., Subramanian, A. and Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. Journal of Economic Growth, 9(2), 131–165.
32. Roodman, D. (2009a). How to do xtabond2: An introduction to difference and system GMM in Stata. Stata Journal, 9(1), 86–136.
33. Roodman, D. (2009b). A note on the theme of too many instruments. Oxford Bulletin of Economics and Statistics, 71(1), 135–158.
34. Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. Econometrica, 26(3), 393–415.
35. Shobande, O. A., Ezenekwe, U. R. and Uzonwanne, M. C. (2018). Revisiting economic integration in West Africa: A theoretical exposition. Journal of Economic and Social Thought, 5(3), 225–229.
36. Shuaibu, M. (2015). Trade liberalization and intra-regional trade: A case of selected ECOWAS countries. African Development Review, 27(1), 27–40.
37. Towobola, O. O. and Bamisaye, O. A. (2024). The ECOWAS regional integration agenda: A model-based assessment. Sapientia Global Journal of Arts, Humanities and Development Studies, 7(1).
38. Udo, E. G., and Akpan, O. M. (2026). The Impact of Digital Financial Inclusion on Poverty Reduction in Rural South-South States of Nigeria. International Journal of Social Science and Human Research, 9(2), 1436-1445. https://doi.org/10.47191/ijsshr/v9-i2-63
39. Udo, E. G., Uko, F. E and Akpan, O. M. (2024). The sovereign Wealth Fund and Nigerian Economic Development. East African Finance Journal, 3(1). https://doi.org/10.59413/eafj/v3.i1.3
40. Udo, E. G., Uko, F. E and Akpan, O. M. (2024). Fiscal Policy and Economic Growth: An Empirical Assessment in Fiscal Regimes in Nigeria (1970-2019). International Journal of Social Science And Human Research 5(2) 612-624. https://doi.org/10.47191/ijsshr/v5-i2-29
41. Viner, J. (1950). The Customs Union Issue. New York: Carnegie Endowment for International Peace.
42. Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. Journal of Econometrics, 126(1), 25–51.