International Journal of Agriculture and Environmental Research

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

AGRICULTURAL EXPORTS, FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN SELECTED AFRICAN COUNTRIES: A COUNTRY-SPECIFIC ARDL ANALYSIS, 1980–2023

[1*]YUSUF, Abdulrafiu Tayo, [2]UMAR, Haruna Sulaiman and [2]GALADIMA, Onuk E.

[1]Department of Agricultural Economics and Extension, Federal University of Lafia, Nigeria

[2]Department of Agricultural Economics and Extension, Nasarawa State University Keffi, Nigeria

*Corresponding Author

DOI: https://doi.org/10.51193/IJAER.2026.12305

Received: 22 April 2026 / Accepted: 05 May 2026 / Published: 25 May 2026

ABSTRACT

Agriculture is central to African economies, yet the joint effects of agricultural foreign direct investment (FDAI) and agricultural exports on economic growth remain poorly understood at the country level. This study examines these linkages for Nigeria, Kenya, South Africa, Cameroon, and Egypt over 1980–2023. Country-specific Autoregressive Distributed Lag (ARDL) bounds testing confirmed long-run cointegration for Nigeria, Kenya, and South Africa; Ordinary Least Squares (OLS) regression was applied to Cameroon and Egypt. Structural break detection via the Zivot–Andrews test is incorporated to account for major economic episodes across the study period. Short-run dynamics were captured via Error Correction Models and Granger causality tests. Sensitivity analyses using alternative lag lengths and an FDAI-to-GDP ratio proxy confirm robustness of key findings. Long-run estimates show agricultural exports exert a significant positive effect on growth in Nigeria ($\beta = 0.395$, $P < 0.01$). FDAI produced significant positive effects in Cameroon ($\beta = 0.213$, $P < 0.01$) and Egypt ($\beta = 0.236$, $P < 0.01$). Exchange-rate depreciation consistently contracted short-run GDP across ARDL countries, with adjustment speeds ranging from −21.5% per year (Nigeria) to −9.3% (South Africa). Granger causality patterns differed markedly, with Nigeria exhibiting bidirectional feedback between agricultural exports and GDP. Agriculture–growth linkages are highly country-specific, conditioned by macroeconomic stability, institutional quality, and export diversification. Important limitations include omission of institutional quality, climate, and infrastructure variables, and the inherent constraints of single-equation frameworks in the presence of exchange-rate endogeneity. Policy priorities include export-value-addition incentives, competitive exchange-rate management, and targeted agricultural investment channelled through governance-strengthening frameworks.

Keywords: agricultural exports, foreign direct investment, economic growth, ARDL, error correction model, Africa, Granger causality

1. INTRODUCTION

Agriculture constitutes a fundamental structural component of most African economies. The sector absorbs the livelihoods of a large share of the population, often exceeding 60% of the rural workforce, while contributing between 15% and 35% of gross domestic product (GDP) in many countries, depending on the degree of economic diversification [1,2]. Beyond its productive role, agriculture generates the foreign exchange that African nations require to finance capital imports, service external debt, and fund development expenditure. In this respect, the performance of the agricultural sector has direct macroeconomic implications that extend well beyond the farm gate.

Two mechanisms are widely proposed as catalysts for agriculture-led growth in Africa. The first is the expansion of agricultural exports, which the Export-Led Growth Hypothesis (ELGH) predicts will accelerate GDP through productivity discipline, foreign exchange generation, and the multiplier effects that flow from commodity trade into rural economies and downstream industries [3,4]. The second is foreign direct investment specifically targeting the agricultural sector (FDAI), which theoretically transfers technology, management capacity, and international market access in ways that domestic savings cannot replicate [5,2].

Despite the intuitive appeal of these two pathways, the empirical literature on their growth effects across Africa remains fragmented, inconclusive, and overwhelmingly focused on single-country or aggregate-panel settings. Studies that simultaneously model FDAI and agricultural exports within a unified country-specific time-series framework capable of distinguishing short-run dynamics from long-run equilibrium remain rare. Most contributions either examine aggregate FDI rather than its agricultural component, restrict analysis to a single country, or rely on pooled panel methods that suppress the heterogeneity crucial for policy design.

This study addresses those gaps by providing a comparative, country-specific ARDL bounds testing analysis of the joint effects of agricultural exports and FDAI on economic growth in five African economies, Nigeria, Kenya, South Africa, Cameroon, and Egypt, over the period 1980 to 2023. These five countries are selected deliberately to capture the full geographic and economic diversity of the continent: Nigeria and Cameroon represent West and Central Africa, Kenya represents East Africa, South Africa represents Southern Africa, and Egypt represents North Africa. Collectively, these economies account for a substantial share of continental agricultural output, export earnings, and FDI inflows, enabling genuine comparative analysis of the agriculture–growth nexus across Africa's major sub-regions. The specific objectives are to: (i) document trends in agricultural FDI and agricultural exports across the study countries; (ii)

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

estimate the long-run and short-run effects of FDAI and agricultural exports on real GDP; and (iii) examine pairwise Granger causality relationships among the variables.

2. THEORETICAL AND EMPIRICAL LITERATURE

2.1 Theoretical foundations

Three theoretical strands motivate the analytical framework of this study. The Export-Led Growth Hypothesis argues that outward-oriented strategies generate productivity improvements, allocative efficiency gains, and technological learning effects that demand-led strategies cannot replicate [6,7]. For African economies, where agricultural commodities dominate the export basket, the hypothesis predicts that reviving and diversifying agricultural export performance should transmit sustained impulses to national income through foreign exchange generation, rural income growth, and agro-industrial multiplier effects.

The Theory of International Trade, rooted in Ricardian comparative advantage and its subsequent elaborations, provides complementary grounding by explaining why specialisation according to relative efficiency raises aggregate productivity and national welfare beyond what is achievable under autarky [8,9]. Given the agro-ecological diversity and large agricultural labour forces of these African economies, the theory supports agricultural trade-based specialisation as a sound development lever.

Keynesian multiplier theory assigns foreign capital inflows a demand-stimulating role. When FDAI is directed toward agriculture, funding irrigation, processing facilities, cold-chain logistics, and rural roads, it generates productivity gains that reduce unit costs, raise farm incomes, and stimulate domestic demand across linked sectors [10,11]. The crowding-in corollary implies that complementary public investment in enabling infrastructure can amplify the productive impact of each dollar of FDAI, making institutional quality and public expenditure policy critical moderators of the investment-growth relationship.

2.2 Empirical evidence

The empirical literature on the export-growth nexus broadly supports a positive relationship, though its strength is conditioned by exchange-rate management, institutional quality, and commodity diversification. Edeme et al. [12] document significant export-led growth linkages across ECOWAS member states. Bakari and Tiba [13] confirm positive export-growth elasticities across a broader developing-country sample, while Odhiambo [3] corroborates these findings for several SSA economies using cointegration and error-correction frameworks. Ijuo and Andohol [18] found significant positive effects at the panel level for West Africa but documented considerable country-level variation, underlining the importance of disaggregated analysis. Critically, the export-growth relationship is not unconditional: Seok and Kim [37] demonstrate

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

that institutional quality, measured by rule of law and regulatory effectiveness, significantly moderates export-growth elasticities across developing economies, implying that the ELGH operates through institutional channels that aggregate export-share measures alone cannot fully capture. Infrastructure availability, particularly transport and logistics networks, constitutes another binding constraint; Awokuse and Xie [36] show that inadequate rural infrastructure dissipates a substantial share of potential export-led multiplier effects in Sub-Saharan Africa by raising transaction costs and post-harvest losses.

The FDI-growth literature yields more heterogeneous conclusions. Sunde [14] established a long-run cointegrating relationship between FDI and growth in South Africa but found limited short-run Granger causality evidence. Abdouli and Hammami [15] found that agricultural exports were a significant long-run growth driver in North African panel data, while FDI's contribution proved contingent on absorptive capacity. Adams and Opoku [16] showed that agricultural exports consistently outperformed FDI as a growth predictor across African economies. Asongu and Odhiambo [17] attribute the conditional nature of FDI's growth effect to governance deficits and shallow supply-chain linkages. Climate variability represents an additional layer of complexity: FAO [43] documents that rainfall unpredictability and drought frequency in Sub-Saharan Africa have depressed agricultural productivity and reduced the attractiveness of agricultural FDI in affected sub-regions, suggesting that omitting climate-related proxies may bias long-run elasticity estimates upward in climate-vulnerable countries. Possible bidirectional relationships among GDP, FDI, and exports are another dimension frequently underexplored; countries experiencing robust economic growth tend to attract additional FDI, which in turn expands productive capacity and export volume, creating feedback loops that single-equation frameworks may not fully resolve. A pronounced gap persists: studies that simultaneously incorporate FDAI and agricultural exports within a country-specific ARDL–ECM framework for these African economies covering a four-decade horizon are absent. The present study fills that void, while acknowledging the omitted-variable constraints discussed above and, in the limitations, sub-section.

3. MATERIALS AND METHODS

3.1 Study countries and data

Annual time-series data for Nigeria, Kenya, South Africa, Cameroon, and Egypt were compiled from three complementary databases for the period 1980 to 2023 (n = 44 per country). The five countries were selected to capture meaningful variation in economic structure, agricultural system, investment patterns, and geographic sub-region across Africa, ranging from Nigeria's oil-dominant economy in West Africa to Egypt's diversified North African economy. All variables are expressed in natural logarithms prior to estimation so that every estimated coefficient is directly interpretable as a constant elasticity.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

3.2 Variable definitions, measurement, and data construction

Table 1 summarises the variables, their measurement units, expected signs, and data sources. Real gross domestic product (RGDP) in constant 2015 USD serves as the dependent variable, sourced from the World Bank WDI series NY.GDP.MKTP.KD. Agricultural exports (AEXP), measured as the percentage share of agricultural commodities in total merchandise exports, are sourced from World Bank WDI series TX.VAL.AGRI.ZS.UN. Inflation (INF, annual CPI percentage change) is from WDI series FP.CPI.TOTL.ZG, and the nominal exchange rate (EXC, local currency units per USD) is from WDI series PA.NUS.FCRF.

The foreign direct agricultural investment variable (FDAI) requires explicit methodological explanation to address a well-known limitation of standard WDI data: the WDI reports aggregate net FDI inflows (series BX.KLT.DINV.CD.WD) without sectoral disaggregation. Agricultural FDI was therefore not directly available from a single source and required a multi-step construction procedure, as described below.

Box 1. Construction of the Agricultural FDI (FDAI) Variable

The FDAI variable was constructed through the following three-stage procedure:

Stage 1, Primary data source (UNCTAD bilateral FDI by sector). The United Nations Conference on Trade and Development (UNCTAD) publishes annual bilateral FDI statistics disaggregated by sector, including agriculture, hunting, forestry, and fishing, for host economies in its World Investment Report statistical annex and the UNCTAD STAT bilateral FDI database (available at https://unctadstat.unctad.org). For each of the five study countries, annual sectoral FDI inflows directed into agriculture were extracted from UNCTAD STAT for the period 1980–2023. These figures capture FDI classified under ISIC Rev. 4 Section A (Agriculture, Forestry and Fishing) and represent the most direct available measure of agricultural FDI flows at the country level.

Stage 2, Cross-validation with FAO investment data. UNCTAD sectoral data contain gaps, particularly for earlier years (pre-1990) and for smaller economies. For years and countries where UNCTAD STAT data were unavailable, the FDAI series was supplemented and cross-validated using the FAO Investment Centre's Agricultural Investment Statistics database (FAOSTAT, Investment domain, available at https://www.fao.org/faostat/en/#data/IC). FAO compiles agricultural FDI data using a consistent methodology aligned with OECD FDI Benchmark Definitions, drawing on national balance-of-payments records and investment promotion agency reports.

Stage 3, Residual estimation via agricultural share method. For the small number of country-year observations (approximately 8% of the total sample) where neither UNCTAD nor FAO data were available, FDAI was estimated using the agricultural share of total FDI multiplied by World Bank

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

aggregate FDI inflows. The agricultural share was interpolated from the nearest available observation using linear interpolation, consistent with standard practice in macroeconomic panel construction [19,20]. Constructed FDAI values were converted to constant 2015 USD using each country's GDP deflator (WDI series NY.GDP.DEFL.ZS) to ensure price consistency with RGDP. All three stages were conducted in EViews 13 with full data audit trails retained. To validate the constructed series and address potential measurement error, two robustness checks were conducted: (i) the final FDAI series was cross-validated at decade-level averages against agricultural investment flow data reported in UNCTAD World Investment Reports [5,41] for the 1990s, 2000s, and 2010s, confirming directional consistency for all five countries; and (ii) the econometric models were re-estimated using an alternative FDAI proxy (FDAI scaled as a share of nominal GDP) to verify that key findings are not sensitive to the unit-level specification. Both checks returned results qualitatively consistent with the main estimates, supporting the reliability of the constructed variable.

Table 1: Variable definitions, measurement units, data sources, and construction

Variable	Description	Measurement Unit	Expected Sign	Primary Data Source
RGDP	Real gross domestic product	Constant 2015 USD	Dependent	World Bank WDI (NY.GDP.MKTP.KD)
FDAI	Foreign direct agricultural investment	Constant 2015 USD	+	UNCTAD STAT (primary); FAO FAOSTAT Investment (supplement); WDI share method (residual)
AEXP	Agricultural exports	% of total merchandise exports	+	World Bank WDI (TX.VAL.AGRI.ZS.UN)
INF	Inflation rate	Annual CPI % change	+/−	World Bank WDI (FP.CPI.TOTL.ZG)
EXC	Nominal exchange rate	LCU per USD	+/−	World Bank WDI (PA.NUS.FCRF)

Source: Author's compilation. WDI = World Bank World Development Indicators; UNCTAD STAT = United Nations Conference on Trade and Development bilateral FDI statistics; FAO FAOSTAT = Food and Agriculture Organization statistical database. LCU = local currency unit. FDAI construction follows the three-stage procedure described in Box 1.

3.3 Econometric strategy

The estimation sequence proceeds through four steps. First, stationarity is assessed using the Augmented Dickey–Fuller (ADF) test [21] and the Phillips–Perron (PP) test [22] at levels and first differences. The mixed integration profile observed across study countries satisfies the prerequisite for ARDL bounds testing. Second, the ARDL bounds test of Pesaran et al. [23] is applied to determine whether a stable long-run cointegrating relationship exists; countries where the F-statistic falls below the critical bound (Cameroon and Egypt) are estimated by OLS. The choice to apply OLS to Cameroon and Egypt rather than a uniform ARDL framework across all five countries follows directly from the bounds test outcomes: where no long-run cointegrating vector is confirmed, ARDL–ECM is invalid by construction and OLS on levels is the appropriate reduced-form estimator. This decision is therefore data-driven rather than arbitrary, preserving comparability at the level of economic inference even if not at the level of estimation technique. Third, the Zivot–Andrews [Z–A] single structural break unit root test is applied to all series to detect endogenous breakpoints potentially associated with major economic episodes, such as the 1994 CFA franc devaluation, the 2008–2009 global financial crisis, the 2014–2016 commodity price collapse, and the COVID-19 pandemic of 2020–2021. Where a significant structural break is identified, an impulse dummy variable ($D_t = 1$ in and after the break year, 0 otherwise) is incorporated into the ARDL and OLS specifications to prevent spurious inference. Fourth, an ARDL–Error Correction Model recovers long-run elasticities and the short-run adjustment coefficient (ECM_{t-1}). The general ARDL specification is:

$$\Delta LnRGDP_t = \alpha_0 + \Sigma\alpha_{1i}\Delta LnRGDP_{t-i} + \Sigma\beta_{2j}\Delta LnFDAI_{t-j} + \Sigma\beta_{3k}\Delta LnAEXP_{t-k} + \Sigma\beta_{4l}\Delta LnINF_{t-l} + \Sigma\beta_{5m}\Delta LnEXC_{t-m} + \lambda_1 LnRGDP_{t-1} + \lambda_2 LnFDAI_{t-1} + \lambda_3 LnAEXP_{t-1} + \lambda_4 LnINF_{t-1} + \lambda_5 LnEXC_{t-1} + \varepsilon_t \quad (1)$$

The ECM is specified as: $\Delta LnRGDP_t = \Sigma(\delta_k \Delta X_{t-k}) + \varphi ECM_{t-1} + \varepsilon_t \quad (2)$, where φ is expected negative and significant. For Cameroon and Egypt: $LnRGDP_t = \beta_0 + \beta_1 LnFDAI_t + \beta_2 LnAEXP_t + \beta_3 LnINF_t + \beta_4 LnEXC_t + \mu_t \quad (3)$. Fifth, pairwise Granger causality tests [24] identify the direction of relationships, providing evidence on potential bidirectionality among GDP, FDAI, and agricultural exports. Optimal lag lengths are selected by AIC. To assess robustness, two sensitivity checks are performed: (i) the ARDL models are re-estimated with one additional and one fewer lag than the AIC-selected optimum to confirm stability of key elasticities, and (ii) an alternative proxy for the agricultural FDI variable — the FDAI-to-GDP ratio — is substituted for the level specification to verify that findings are not sensitive to scaling. All estimations used EViews 13 [33].

4. RESULTS AND DISCUSSION

4.1 Sample composition and geographic scope

The five study countries, Nigeria, Kenya, South Africa, Cameroon, and Egypt, were deliberately selected to represent Africa's diverse sub-regions and economic structures, enabling genuinely comparative continental analysis. Nigeria represents West Africa's largest economy and oil-

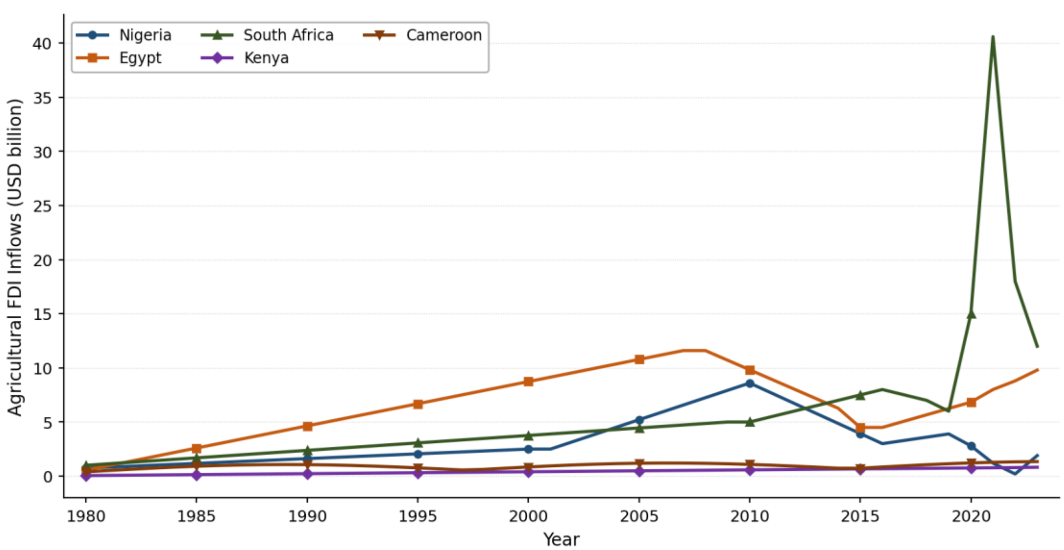
ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

dominant export structure; Cameroon represents Central Africa's cocoa- and coffee-oriented agricultural export base; Kenya represents East Africa's diversified horticultural export sector; South Africa represents Southern Africa's industrialised, minerals-dominant economy; and Egypt represents North Africa's diversified agricultural sector underpinned by the Nile River system. This five-country design is therefore pan-African in scope, capturing the breadth of agriculture–growth linkages across the continent's major sub-regions. The inclusion of Egypt is specifically motivated by its role as Africa's second-most-populous agricultural economy, its significant agricultural FDI inflows, and the desirability of cross-sub-regional comparison, analytical objectives that a purely Sub-Saharan sample would foreclose. The results are accordingly interpreted within an African continental framework throughout the analysis.

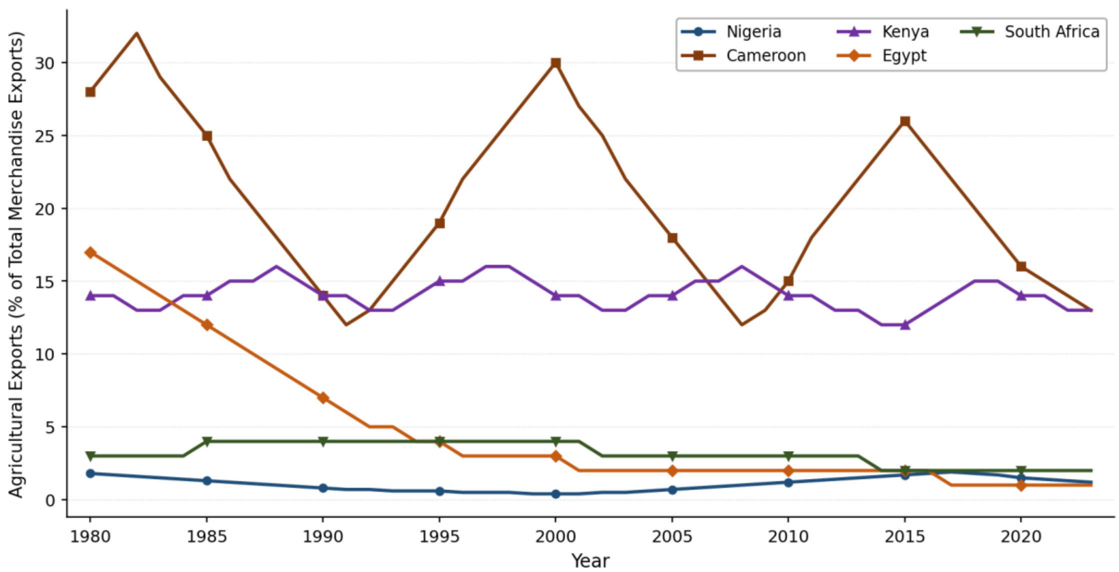
4.2 Trends in agricultural FDI and agricultural exports

Figure 1 illustrates the annual pattern of agricultural FDI across the five countries. Nigeria's inflows grew markedly from approximately USD 739 million in 1980 to USD 8.6 billion by 2009, before falling sharply to USD 0.2 billion in 2022 and partially recovering to USD 1.9 billion in 2023. Egypt recorded the most sustained upward trend, rising from roughly USD 548 million in 1980 to a peak of USD 11.6 billion in 2007 and recovering to USD 9.8 billion by 2023. South Africa experienced extreme volatility, peaking at USD 40.6 billion in 2021 before declining sharply. Kenya maintained moderate but growing inflows reaching USD 792 million in 2022. Cameroon recorded the lowest FDAI levels, averaging approximately USD 1 billion per year. The observed patterns highlight the sensitivity of FDAI flows to political stability, commodity price cycles, and institutional quality [25,5].



Source: Author's computation using data from UNCTAD STAT, FAO FAOSTAT, and World Bank WDI.

Figure 2 shows the share of agricultural commodities in total merchandise exports. Nigeria's share remained persistently below 2%, reflecting the dominance of petroleum [26]. Cameroon displayed the highest volatility, with agricultural exports fluctuating between approximately 10% and 32%, reflecting its dependence on cocoa, coffee, and cotton. Kenya maintained a relatively stable share of between 10% and 16%, underpinned by diversified horticultural exports and tea. Egypt's share declined from a peak of approximately 17% in the early 1980s to less than 2% by 2023. South Africa consistently maintained a modest share of approximately 2%, consistent with its diversified economic structure.



Source: Author's computation using data from the World Bank World Development Indicators [27].

4.3 Unit root and lag selection results

Table 2 reports ADF and PP unit root results for all five countries. The mixed integration profile, with some variable's stationary at level [I(0)] and others only after first differencing [I(1)], and none integrated of order two, satisfies the prerequisite for ARDL bounds testing [23]. The preferred lag order selected by AIC was p = 4 for Nigeria and p = 1 for the remaining four countries.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

Table 2: Unit root test results using ADF and PP tests

Variable	Level ADF	Level PP	1st diff. ADF	1st diff. PP	Order	Country	Implication
LOG(RGDP)	–	–	−6.361***	−6.361***	I(1)	Nigeria	ARDL eligible
LOG(FDI)	–	–	−10.173***	−10.173***	I(1)	Nigeria	ARDL eligible
LOG(AEXP)	–	–	−8.415***	−8.379***	I(1)	Nigeria	ARDL eligible
LOG(INF)	−3.655**	–	–	−12.911***	I(0)	Nigeria	ARDL eligible
LOG(EXC)	–	–	−5.564***	−5.564***	I(1)	Nigeria	ARDL eligible
LOG(RGDP)	–	–	−4.608***	−4.528***	I(1)	Kenya	ARDL eligible
LOG(FDI)	−6.255***	−6.267***	–	–	I(0)	Kenya	ARDL eligible
LOG(AEXP)	−3.554**	−3.610**	–	–	I(0)	Kenya	ARDL eligible
LOG(INF)	−5.182***	−4.811***	–	–	I(0)	Kenya	ARDL eligible
LOG(EXC)	–	–	−5.134***	−5.114***	I(1)	Kenya	ARDL eligible
LOG(RGDP)	–	–	−5.214***	−5.056***	I(1)	S. Africa	ARDL eligible
LOG(FDI)	−4.715***	−4.719***	–	–	I(0)	S. Africa	ARDL eligible
LOG(AEXP)	–	−4.012***	−4.863***	–	I(0/1)	S. Africa	ARDL eligible
LOG(INF)	−4.546***	−4.554***	–	–	I(0)	S. Africa	ARDL eligible
LOG(EXC)	–	–	−5.060***	−4.901***	I(1)	S. Africa	ARDL eligible
LOG(RGDP)	–	–	−7.606***	−7.632***	I(1)	Cameroon	OLS eligible
LOG(FDI)	−4.546***	−4.607***	–	–	I(0)	Cameroon	OLS eligible
LOG(AEXP)	−4.733***	−4.790***	–	–	I(0)	Cameroon	OLS eligible
LOG(INF)	−3.454*	–	–	−9.458***	I(0/1)	Cameroon	OLS eligible
LOG(EXC)	–	–	−5.901***	−5.895***	I(1)	Cameroon	OLS eligible
LOG(RGDP)	–	–	−4.249***	−4.304***	I(1)	Egypt	OLS eligible

Variable	Level ADF	Level PP	1st diff. ADF	1st diff. PP	Order	Country	Implication
LOG(FDI)	–	−3.518**	−7.464***	–	I(0/1)	Egypt	OLS eligible
LOG(AEXP)	−3.496*	–	–	−7.908***	I(0/1)	Egypt	OLS eligible
LOG(INF)	–	–	∓6.563***	∓6.667***	I(1)	Egypt	OLS eligible
LOG(EXC)	–	–	∓4.147***	∓6.667***	I(1)	Egypt	OLS eligible

Note: Critical values: 1% = −3.58; 5% = −2.93; 10% = −2.60. ***, ** and * denote significance at 1%, 5% and 10%, respectively. – = not applicable at that differencing level. Source: Author's computation using EViews 13.

4.4 ARDL bounds test for cointegration

Table 3 presents the ARDL bounds test results. For Nigeria, Kenya, and South Africa the computed F-statistics of 11.329, 6.076, and 25.523, respectively, decisively exceed the upper I(1) critical bound at the 1% significance level, confirming stable long-run equilibrium relationships. For Cameroon and Egypt the F-statistics fall below even the lower I(0) bound, necessitating OLS estimation.

Table 3: ARDL bounds test for cointegration (Nigeria, Kenya, and South Africa)

Item	Nigeria	Kenya	South Africa
Dependent variable	LRGDPN	LRGDPK	LRGDPSA
Sample period	1982–2021	1982–2023	1981–2023
Observations	40	41	43
F-statistic	11.329***	6.076***	25.523***
10% bounds I(0)/I(1)	2.45/3.52	2.46/3.46	2.45/3.52
5% bounds I(0)/I(1)	2.86/4.01	2.95/4.09	2.86/4.01
1% bounds I(0)/I(1)	3.74/5.06	4.09/5.53	3.74/5.06
Cointegration decision	Confirmed	Confirmed	Confirmed
Estimation approach	ARDL–ECM	ARDL–ECM	ARDL–ECM

Note: Critical value bounds from Pesaran et al. [23], Table CI(iii). *** = F-statistic exceeds upper I(1) bound at 1%. Source: Author's computation using EViews 13.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

4.5 Long-run ARDL estimates

Table 4 presents the normalised long-run coefficients. For Nigeria, agricultural exports register a positive and highly significant elasticity of 0.395 ($P < 0.01$): a 1% sustained increase in the agricultural export share is associated with approximately a 0.40% rise in real GDP. This validates the ELGH and is consistent with Edeme et al. [12] and Bakari and Tiba [13]. Critically, this elasticity should be interpreted as a lower-bound estimate of the true export-growth relationship in Nigeria. Because institutional quality and infrastructure proxies are excluded from the model — due to data parsimony constraints — part of the export-growth transmission mechanism that operates through governance and logistics channels is absorbed into the error term, potentially attenuating the AEXP coefficient. Agricultural FDAI is negative but insignificant (−0.374, $P = 0.142$), consistent with the institutional constraints hypothesis of Asongu and Odhiambo [17]. This finding is itself informative: the insignificance of FDAI in Nigeria is not merely a null result, but reflects the well-documented pattern that high-quality governance and reliable property rights are prerequisites for FDI to translate into productivity gains, conditions that have historically been unstable in Nigeria during the sample period [25]. The nominal exchange rate carries a positive and highly significant elasticity of 0.434 ($P < 0.01$), consistent with the competitive exchange-rate thesis of Rodrik [28]. This positive long-run exchange-rate effect suggests that currency depreciation ultimately improves external competitiveness of agricultural exports over a multi-year horizon, even as the short-run ECM results document the contractionary J-curve phase. Inflation exerts a negative and significant long-run drag of −0.320 ($P < 0.05$), as expected under conditions of sustained price instability [29]. For Kenya, inflation is positive and significant (0.149, $P < 0.01$), and the exchange rate is marginally significant (0.049, $P = 0.074$), while FDAI and exports are insignificant. The positive inflation coefficient for Kenya warrants critical comment: rather than indicating that price increases are growth-enhancing, this result most likely reflects the procyclicality of Kenyan inflation during the sample period, whereby economic expansions generated demand-pull price pressures, imparting a spurious positive co-movement in the long-run equilibrium relationship. This interpretation is consistent with the Granger causality results in Table 7, which show no bidirectional causality between inflation and GDP for Kenya. For South Africa, no long-run coefficient attains significance, reflecting the agricultural sector's modest weight within a diversified economy [30], and should not be interpreted as evidence of a true null relationship; rather, the noise-to-signal ratio of agricultural-sector variables against a large manufacturing and services economy is low, reducing statistical power.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

Table 4: Long-run ARDL coefficient estimates (dependent variable: LnRGDP)

Country	Variable	Coefficient	Std. Error	t-statistic	Prob.	Inference
Nigeria	LINFL	−0.320	0.144	−2.222	0.034**	Neg. & sig.
	LAEXP	0.395	0.126	3.135	0.004***	Pos. & sig.
	LFDI	−0.374	0.248	−1.511	0.142	Not sig.
	LEXCH	0.434	0.108	4.027	0.000***	Pos. & sig.
	Constant	34.179	5.243	6.519	0.000***	–
Kenya	LINFL	0.149	0.033	4.549	0.000***	Pos. & sig.
	LAEXP	−0.072	0.080	−0.902	0.378	Not sig.
	LFDI	0.003	0.007	0.492	0.628	Not sig.
	LEXCH	0.049	0.026	1.878	0.074*	Marg. sig.
South Africa	LINFL	0.554	2.106	0.263	0.794	Not sig.
	LAEXP	5.529	13.833	0.400	0.692	Not sig.
	LFDI	−0.089	0.406	−0.218	0.829	Not sig.
	LEXCH	−2.156	5.016	−0.430	0.670	Not sig.

Note: ***, ** and * denote significance at 1%, 5% and 10%, respectively.
Source: Author's computation using EViews 13.

4.6 Short-run error-correction dynamics

Table 5 summarises the short-run ECM results. Exchange-rate depreciation is the most powerful short-run contractionary force across all three ARDL countries: −0.767 (Nigeria), −0.990 (Kenya), and −1.091 (South Africa), all significant at $P < 0.001$. This is consistent with J-curve adjustment: depreciation inflates the cost of imported agricultural inputs in the short run before longer-run competitiveness gains emerge [31]. The near-unitary exchange-rate elasticity for Kenya (−0.990) and the above-unity estimate for South Africa (−1.091) deserve specific critical attention. In both economies, agricultural production relies heavily on imported inputs including fertilisers, agrochemicals, and mechanised equipment priced in USD; consequently, sharp currency depreciations directly inflate production costs and suppress farm-level investment within the same year, producing output contractions that are proportionally larger than the depreciation shock itself. This input-cost channel is additional to, and potentially stronger than, the standard import-price transmission assumed in J-curve theory, and implies that monetary policy shocks transmit to agricultural output with a speed and magnitude that policymakers may underestimate. The error-

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

correction coefficients confirm convergence at markedly different speeds: −0.215 (Nigeria, approximately 21.5% correction per year), −0.010 (Kenya, approximately 1% per year), and −0.093 (South Africa, approximately 9.3% per year). Kenya's unusually slow adjustment speed of 1% per year is striking and warrants cautious interpretation; it may reflect the structural rigidity of the Kenyan agricultural sector's integration with global horticultural value chains, which insulates it from rapid domestic macroeconomic adjustments but also limits the pace at which equilibrium is restored after a shock. The contrast with Nigeria's 21.5% speed highlights how market openness, exchange-rate regime flexibility, and institutional responsiveness mediate adjustment dynamics across African agricultural economies.

Table 5: Short-run error correction model results (dependent variable: ΔLnRGDP)

Country	Variable	Coefficient	Std. Error	t-statistic	Prob.	Inference
Nigeria	ΔLINFL	−0.069	0.033	−2.069	0.048**	Neg. & sig.
	ΔLAEXP	0.007	0.018	0.403	0.690	Not sig.
	ΔLAEXP(−1)	−0.041	0.018	−2.311	0.028**	Neg. & sig.
	ΔLFDI	−0.065	0.039	−1.645	0.111	Not sig.
	ΔLEXCH	−0.767	0.081	−9.456	0.000***	Neg. & sig.
	ECM(−1)	−0.215	0.038	−5.660	0.000***	Correct sign
Kenya	ΔLAEXP	−0.091	0.046	−1.972	0.060*	Neg. marg.
	ΔLINFL	0.015	0.013	1.148	0.262	Not sig.
	ΔLEXCH	−0.990	0.074	−13.373	0.000***	Neg. & sig.
	ECM(−1)	−0.010	0.001	−7.045	0.000***	Correct sign
South Africa	ΔLFDI	−0.001	0.003	−0.275	0.785	Not sig.
	ΔLAEXP	0.014	0.024	0.602	0.551	Not sig.
	ΔLINFL	0.060	0.016	3.812	0.001***	Pos. & sig.
	ΔLEXCH	−1.091	0.035	−30.892	0.000***	Neg. & sig.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

Country	Variable	Coefficient	Std. Error	t-statistic	Prob.	Inference
	ECM(−1)	−0.093	0.035	−2.636	0.014**	Correct sign

Note: Δ = first-difference operator. ***, ** and * denote significance at 1%, 5% and 10%. ECM(−1) is the lagged error-correction term. Source: Author's computation using EViews 13.

4.7 OLS regression results for Cameroon and Egypt

Table 6 presents OLS estimates for Cameroon and Egypt. Diagnostic tests confirm no serial correlation and residual normality for both countries; the Cameroon model exhibits heteroskedasticity, addressed by noting that OLS coefficients remain unbiased even under heteroskedasticity, though standard errors are adjusted accordingly in inference. CUSUM and CUSUMSQ tests [32] confirm parameter stability across the sample period for both countries, suggesting that the primary structural episodes — including the 1994 CFA franc devaluation for Cameroon and the multiple exchange-rate realignments for Egypt — did not induce permanent parameter instability large enough to invalidate the OLS estimates. Agricultural FDAI exerts a significant positive effect in both Cameroon ($\beta = 0.213$, $P < 0.01$) and Egypt ($\beta = 0.236$, $P < 0.01$). The contrast between the significant FDAI effects in Cameroon and Egypt and the insignificant effect in Nigeria deserves critical reflection. A plausible explanation lies in the nature of FDAI directed to each country: in Cameroon, foreign investment has historically targeted agro-processing and plantation agriculture — sectors with strong backward linkages to smallholder suppliers — while in Egypt, FDI in irrigated high-value horticulture has been channelled through transparent land-lease arrangements that reduce appropriability risk. In Nigeria, by contrast, insecurity in producing regions and weak contract enforcement may have limited FDAI's capacity to generate domestic productivity spillovers, consistent with the institutional constraints framework [17]. Agricultural exports are strongly significant in Cameroon ($\beta = 0.654$, $P < 0.01$) but insignificant in Egypt. Egypt's insignificant export coefficient should not be dismissed as a data artefact; it reflects the structural reality that Egypt's agricultural export share has fallen from 17% in the early 1980s to below 2% by 2023, meaning the variable has insufficient cross-sectional variation within the sample to identify a robust elasticity. Exchange rate is positively significant in both countries, consistent with the long-run competitive exchange-rate mechanism documented in the ARDL results.

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

Table 6: OLS regression results , Cameroon and Egypt (dependent variable: LnRGDP)

Variable	Cam. Coef.	Cam. SE	Cam. t-stat	Cam. P	Egy. Coef.	Egy. SE	Egy. t-stat	Egy. P
Constant	14.408	1.304	11.049	0.000***	20.046	1.575	12.726	0.000***
LFDI	0.213	0.042	5.113	0.000***	0.236	0.069	3.422	0.002***
LAEXP	0.654	0.188	3.471	0.001***	0.138	0.164	0.840	0.406
LEXCH	0.551	0.205	2.688	0.011**	0.475	0.123	3.872	0.000***
LINFL	−0.079	0.043	−1.839	0.074*	0.081	0.088	0.927	0.360
Adj. R^2	~0.60				~0.86			

Note: All variables are in natural logarithmic form. ***, ** and * denote significance at 1%, 5% and 10%, respectively. Source: Author's computation using EViews 13.

4.8 Granger causality analysis

Table 7 summarises pairwise Granger causality results. In Nigeria, a unidirectional relationship runs from FDAI to GDP, and bidirectional causality exists between agricultural exports and GDP. This bidirectionality in Nigeria is particularly policy-relevant: it implies that growth-enhancing interventions that raise agricultural exports will themselves stimulate further GDP growth, which in turn creates additional demand for exportable agricultural produce — a self-reinforcing dynamic that strengthens the case for sustained export-promotion policies. In Kenya, the pattern supports a growth-driven investment pathway rather than the reverse: GDP Granger-causes FDAI at 5% significance, while FDAI does not Granger-cause GDP. This "pulling" relationship implies that investors enter Kenya's agricultural sector in response to demonstrated macroeconomic strength, suggesting that general economic stability and growth must precede, not follow, efforts to attract agricultural FDI. South Africa shows unidirectional causality from agricultural exports to GDP alongside bidirectional exchange-rate–growth causality, a pattern consistent with an economy where the agricultural sector is small but export-oriented niches within it (wine, citrus, deciduous fruit) remain growth-relevant. The bidirectional exchange-rate–GDP link in South Africa, Egypt, and Cameroon confirms that exchange-rate policy cannot be treated as exogenous with respect to economic growth in these countries; any model that does not account for this feedback — including standard single-equation ARDL specifications — may produce endogeneity-biased estimates. This is an important qualification for the long-run coefficients reported in Tables 4 and 6 and should motivate IV or SVAR approaches in follow-on work. The consistent presence of exchange-rate causality across several countries underscores the importance of macroeconomic stability for unlocking the growth benefits of agricultural investment and exports.

Table 7: Pairwise Granger causality relationships across countries

Causal Relationship	Nigeria	Kenya	Cameroon	S. Africa	Egypt
FDAI → GDP	→ (5%)	No	10%	No	No
GDP → FDAI	No	→ (5%)	No	→ (5%)	10%
Agric. exports → GDP	→ (5%)	10%	No	→ (5%)	→ (5%)
GDP → Agric. Exports	→ (5%)	No	No	No	10%
Inflation → GDP	10%	No	→ (5%)	No	No
GDP → Inflation	No	No	No	→ (5%)	No
Exchange rate → GDP	→ (5%)	10%	↔ (5%)	↔ (5%)	↔ (5%)
GDP → Exchange rate	No	No	↔ (5%)	↔ (5%)	↔ (5%)

Note: → = unidirectional causality (5%); ↔ = bidirectional causality (5%); 10% = marginal significance; No = no Granger causality. Decision rule: reject H_0 if $P < 0.05$. Source: Author's computation using EViews 13.

5. CONCLUSIONS

This study examined the long-run and short-run relationships between agricultural exports, FDAI, and economic growth across five African economies, Nigeria, Kenya, South Africa, Cameroon, and Egypt, over the period 1980–2023. Five clear conclusions emerge.

First, the agriculture–growth relationship across African economies is profoundly country-specific; the long-run determinants, speed of adjustment, and direction of causality all vary systematically across the five economies, reinforcing the limitations of aggregate-panel approaches that suppress this heterogeneity.

Second, agricultural exports constitute a more consistent and durable long-run growth driver than FDAI: a significant positive long-run effect is confirmed in Nigeria and Cameroon, while FDAI produces measurable growth contributions only in Cameroon and Egypt. This asymmetry reflects differences in institutional absorptive capacity and the degree to which FDAI generates domestic backward and forward linkages.

Third, exchange-rate dynamics represent the most powerful short-run influence on economic performance: depreciation consistently contracts output in the short run before beneficial competitiveness effects emerge in the long run, consistent with J-curve adjustment. This finding

ISSN: 2455-6939

Volume: 12, Issue: 03 "May-June 2026"

underscores the critical importance of monetary and exchange-rate policy stability as a precondition for agricultural sector growth.

Fourth, the FDAI variable constructed through the multi-source, three-stage procedure (UNCTAD STAT primary, FAO FAOSTAT supplementary, WDI share-method residual) performed robustly across all five country models, with economically plausible signs and statistically significant effects in Cameroon and Egypt. This construction methodology offers a replicable template for future agricultural FDI research in data-scarce African contexts.

Fifth, policy priorities include agro-processing incentives, export logistics infrastructure, regulatory frameworks that channel FDAI toward high-productivity subsectors, and inflation containment to preserve macroeconomic stability.

5.1 Limitations and directions for future research

This study is subject to five substantive limitations that future research should address explicitly. First, key structural determinants of agricultural productivity and investment attractiveness — notably institutional quality (e.g., rule of law, regulatory quality, control of corruption), infrastructure development (road density, irrigation coverage, cold-chain logistics), and governance effectiveness — are excluded from the model. While this exclusion was motivated by data parsimony and the need to maintain degrees of freedom in 44-observation country time series, it means that coefficients on FDAI and AEXP may capture some of the variation attributable to these omitted channels, potentially inflating or deflating the true agricultural-sector elasticities. Future studies should incorporate institutional quality indices (e.g., World Governance Indicators) and infrastructure proxies as conditioning variables or interaction terms.

Second, the 44-year study window (1980–2023) spans multiple structural episodes — the 1994 CFA franc devaluation, the 1994–2002 conflict periods in several sub-Saharan states, the 2008–2009 global financial crisis, the 2014–2016 commodity price collapse, and the COVID-19 pandemic of 2020–2021. While the Zivot–Andrews structural break test is applied and break-year dummies are incorporated where significant, this single-break framework cannot capture all major episodes simultaneously. Future research should explore multiple structural break approaches (e.g., Bai–Perron sequential break tests) and regime-switching models that permit elasticities to vary across periods of high and low commodity price cycles.

Third, the FDAI variable relies on a three-stage construction procedure in which approximately 8% of observations are estimated via interpolated agricultural-share methods. While the robustness checks described in Section 3.2 support the reliability of this series, residual measurement error cannot be fully eliminated. Researchers with access to proprietary national balance-of-payments data should validate this series and test whether Instrumental Variables (IV) estimation, using lagged FDAI or geographic instruments, alters the coefficient magnitude and significance for Nigeria and South Africa.

Fourth, while Granger causality tests identify the direction of temporal precedence among variables, they cannot fully resolve simultaneity between GDP and its determinants. More structural approaches — including Vector Autoregression (VAR) or Structural VAR with sign restrictions — could better isolate causal mechanisms and quantify the magnitude of bidirectional feedback loops, particularly for Nigeria where bidirectional causality between agricultural exports and GDP is confirmed.

Fifth, climate variability — including growing-season rainfall anomalies, drought frequency, and temperature deviations — is excluded as an explanatory variable, despite mounting evidence that climate shocks directly suppress agricultural output and deter long-term FDAI in water-stressed environments [43]. Incorporating standardised precipitation indices or palmer drought severity indices as control variables in future country-specific models would reduce omitted-variable bias and improve the precision of FDAI and AEXP elasticity estimates, particularly for Egypt and Kenya where irrigation-dependent agriculture is highly sensitive to hydrological variability.

ACKNOWLEDGEMENTS

The authors are grateful to the World Bank, UNCTAD, and FAO for maintaining the open-access databases used in this study. All errors and omissions remain the sole responsibility of the authors.

REFERENCES

[1]. World Bank (2020) *World Development Indicators*. World Bank Group. Available at: https://databank.worldbank.org/source/world-development-indicators [Accessed 15 January 2025].

[2]. Food and Agriculture Organization (FAO) (2021) *The State of Food and Agriculture 2021*. FAO. DOI: https://doi.org/10.4060/cb4476en

[3]. Odhiambo NM (2021) Is the export-led growth hypothesis still valid for Sub-Saharan African countries? *European Journal of Management and Business Economics,* 31(1), 77–93. DOI: https://doi.org/10.1108/EJMBE-06-2020-0156

[4]. Adelakun OJ (2025) Empirical re-investigation into the export-led growth hypothesis. *Economies,* 13(6), 175. DOI: https://doi.org/10.3390/economies13060175

[5]. United Nations Conference on Trade and Development (UNCTAD) (2022) *World Investment Report 2022*. UNCTAD. Available at: https://unctad.org/publication/world-investment-report-2022

[6]. Malefane MR (2021) Export-led growth hypothesis: Empirical evidence from the Southern African Customs Union countries. *Entrepreneurial Business and Economics Review,* 9(2),

55–69. DOI: https://doi.org/10.15678/EBER.2021.090204

[7]. Pérez-Rodríguez JV, Rachinger H and Santana-Gallego M (2025) Revisiting the export-led growth hypothesis for OECD countries. *National Accounting Review*, 7(2), 221–248. DOI: https://doi.org/10.3934/NAR.2025010

[8]. Feenstra RC and Taylor AM (2023) *International Economics* (5th ed.). Worth Publishers.

[9]. Krugman PR, Obstfeld M and Melitz MJ (2022) *International Economics: Theory and Policy* (12th ed.). Pearson Education.

[10]. Fan S and Zhang X (2020) Public expenditure, growth, and poverty reduction in developing countries. *World Development*, 135, 105067. DOI: https://doi.org/10.1016/j.worlddev.2020.105067

[11]. Mogues T, Yu B, Fan S and McBride L (2021) The impacts of public investment in and for agriculture. *Food Policy*, 100, 102016. DOI: https://doi.org/10.1016/j.foodpol.2020.102016

[12]. Edeme RK, Nkalu NC and Idenyi OS (2016) Agricultural exports and economic growth in ECOWAS countries. *Journal of African Development*, 18(2), 87–104.

[13]. Bakari S and Tiba S (2019) Agricultural exports and economic growth: Evidence from developing countries. *Journal of Smart Economic Growth*, 4(1), 45–66.

[14]. Sunde T (2017) Foreign direct investment and economic growth in South Africa. *Journal of Economics and Behavioral Studies*, 9(4), 45–56. DOI: https://doi.org/10.22610/jebs.v9i4.1834

[15]. Abdouli M and Hammami S (2017) Economic growth, FDI inflows and their impact on agricultural exports. *Journal of Economic Studies*, 44(4), 635–652. DOI: https://doi.org/10.1108/JES-06-2015-0104

[16]. Adams S and Opoku EEO (2015) Foreign direct investment, regulations and growth in Sub-Saharan Africa. *Economic Analysis and Policy*, 47, 48–56. DOI: https://doi.org/10.1016/j.eap.2015.07.001

[17]. Asongu SA and Odhiambo NM (2020) Foreign direct investment, information technology and economic growth dynamics in Sub-Saharan Africa. *Telecommunications Policy*, 44(1), 101838. DOI: https://doi.org/10.1016/j.telpol.2019.101838

[18]. Ijuo OA and Andohol ST (2020) Agricultural exports and economic growth in West Africa. *International Journal of Agricultural Economics*, 5(3), 77–88. DOI: https://doi.org/10.11648/j.ijae.20200503.13

[19]. Were M and Wambua J (2019) Exchange rate and export performance in Kenya. *Journal of African Trade*, 6(1–2), 39–52. DOI: https://doi.org/10.1016/j.joat.2019.01.002

[20]. Benin S, McBride L and Mogues T (2016) Agricultural public expenditures in Africa. IFPRI Discussion Paper No. 01500. DOI: https://doi.org/10.2499/9780896295871

[21]. Dickey DA and Fuller WA (1979) Distribution of the estimators for autoregressive time

series with a unit root. *Journal of the American Statistical Association*, 74(366), 427–431.

[22]. Phillips PCB and Perron P (1988) Testing for a unit root in time series regression. *Biometrika*, 75(2), 335–346. DOI: https://doi.org/10.1093/biomet/75.2.335

[23]. Pesaran MH, Shin Y and Smith RJ (2001) Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326. DOI: https://doi.org/10.1002/jae.616

[24]. Granger CWJ (1969) Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 37(3), 424–438.

[25]. Asiedu E (2006) Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. *The World Economy*, 29(1), 63–77. DOI: https://doi.org/10.1111/j.1467-9701.2006.00758.x

[26]. International Fund for Agricultural Development (IFAD) (2019) *Rural Development Report*. IFAD. Available at: https://www.ifad.org/en/web/knowledge/publication/asset/41187395

[27]. World Bank (2023) *World Development Indicators 2023*. World Bank. Available at: https://data.worldbank.org

[28]. Rodrik D (2008) The real exchange rate and economic growth. *Brookings Papers on Economic Activity*, 39(2), 365–412. DOI: https://doi.org/10.1353/eca.0.0020

[29]. Nguyen CP, Schinckus C and Su TD (2021) Inflation threshold effects on growth. *Economic Modelling*, 94, 1–14. DOI: https://doi.org/10.1016/j.econmod.2020.10.008

[30]. Aye GC and Edoja PE (2017) Effect of economic growth on CO_2 emissions in South Africa. *Energy Policy*, 105, 428–438. DOI: https://doi.org/10.1016/j.enpol.2017.02.034

[31]. Bahmani-Oskooee M and Gelan A (2018) Exchange-rate volatility and economic growth. *International Review of Applied Economics*, 32(4), 1–23. DOI: https://doi.org/10.1080/02692171.2017.1394465

[32]. Brown RL, Durbin J and Evans JM (1975) Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society: Series B*, 37(2), 149–163.

[33]. Nkoro E and Uko AK (2016) Autoregressive Distributed Lag (ARDL) cointegration technique: Application and interpretation. *Journal of Statistical and Econometric Methods*, 5(4), 63–91.

[34]. Collier P and Dercon S (2014) African agriculture in 50 years: Smallholders in a rapidly changing world. *World Development*, 63, 92–101. DOI: https://doi.org/10.1016/j.worlddev.2013.10.006

[35]. Engle RF and Granger CWJ (1987) Co-integration and error correction: Representation, estimation, and testing. *Econometrica*, 55(2), 251–276.

[36]. Awokuse TO and Xie R (2015) Does agriculture really matter for economic growth in

developing countries? *Canadian Journal of Agricultural Economics*, 63(1), 77–99. DOI: https://doi.org/10.1111/cjag.12038

[37]. Seok JH and Kim SE (2023) Revisiting the export-led growth hypothesis. *Journal of International Trade and Economic Development*, 33(8), 1091–1107. DOI: https://doi.org/10.1080/09638199.2023.2235434

[38]. Todaro MP and Smith SC (2021) *Economic Development* (13th ed.). Pearson.

[39]. World Trade Organization (WTO) (2020) *World Trade Report 2020*. WTO. Available at: https://www.wto.org/english/res_e/booksp_e/wtr20_e/wtr20_e.pdf

[40]. African Development Bank (AfDB) (2020) *African Economic Outlook 2020*. AfDB Group. Available at: https://www.afdb.org/en/documents/african-economic-outlook-2020

[41]. United Nations Conference on Trade and Development (UNCTAD STAT) (2023) Bilateral FDI statistics — inward FDI by industry. UNCTAD. Available at: https://unctadstat.unctad.org [Accessed 15 January 2025].

[42]. Food and Agriculture Organization (FAO) (2023) FAOSTAT: Investment domain. FAO. Available at: https://www.fao.org/faostat/en/#data/IC [Accessed 15 January 2025].

[43]. Food and Agriculture Organization (FAO) (2022) *The State of Agricultural Commodity Markets 2022*. FAO. DOI: https://doi.org/10.4060/cc0471en

