Effect of Net Exports on Economic Growth in Tanzania: Evidence from Time Series Data (2001–2020)

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Abstract: This study examined the effect of exports and imports on economic growth in Tanzania, using quarterly time series data for 2001Q1–2020Q4. Drawing on Ricardian Comparative Advantage and Export-Led Growth (ELG) theory, the analysis employed an Autoregressive Distributed Lag (ARDL) model and Granger-causality tests to identify both short-run dynamics and long-run relationships. Descriptive statistics reveal steady but shock-prone growth, a persistent trade deficit (ln imports > ln exports) and notable exchange-rate and inflation variability. Granger-causality results show bidirectional predictive links between exports and growth and one-way causality from imports to growth. ARDL long-run estimates indicate that exports and a more depreciated exchange rate (higher ln TZS/USD) are associated with higher growth whereas imports are negatively associated with growth once exports and macro controls are held constant; inflation is positively associated with growth, consistent with pro-cyclical price behavior, while foreign direct investment (FDI) is statistically insignificant. Short-run results show that export shocks are initially contractionary, import shocks expansionary and depreciation contractionary on impact, with a large and significant error-correction term implying rapid convergence to the long-run path. The findings support a calibrated ELG strategy that emphasizes export diversification and value addition, careful management of import composition and exchange-rate and macroeconomic policies that safeguard competitiveness and external sustainability in Tanzania.

Keywords: Net exports; economic growth; time series; trade balance; Foreign Direct Investment; FDI.

Introduction

Net exports denote the difference between a nation's aggregate exports and its aggregate imports. A favorable net export statistic signifies that a nation is exporting more products and services than it is importing, potentially resulting in heightened output, revenue and employment in the local economy. Net exports significantly influence economic growth, as they represent the equilibrium between a nation's exports and imports (Mankiw, 2020).

Some developed countries exemplify how net exports promote the economic growth. For instance, Chung et al. (2021) postulate that net exports in Germany have contributed to its economic stability. Jiang et al. (2013) reported the role of the Export-Led Growth Theory, which asserts that increased exports support the economic growth by fostering economies of scale, enhancing productivity and promoting the adoption of new technologies (Dash, 2009; Kalaitzi). Literature indicates that nations with strong export sectors generally achieve elevated economic growth rates, since exports enhance domestic output and provide employment, amplifying the overall economic activity (Kalaitzi et al., 2020).

The relationship between net exports and economic growth has been extensively studied, with findings varying among countries and economic conditions. While some researchers (Prasetyo & Susandika,

2022; Tampubolon & Nababan, 2018) highlight the positive impact of net exports on growth through increased productivity, others (Zimmerman & Wheaton, 2021; Megersa & Cassimon, 2017) argue that in certain economies, particularly in Sub-Saharan Africa, this relationship is complex. For example, Adeleye et al. (2015) found that Nigeria's heavy reliance on oil exports has led to diminished growth rates. Additionally, factors, such as currency fluctuations, trade regulations, and global economic conditions affect the effectiveness of net exports in fostering growth (Viphindrartin, 2023).

The impact of net exports on economic growth in Africa varies due to diverse economic structures and trade interactions (Grabowski, 2016). A crucial factor is dependence on primary commodities, which frequently characterize African export profiles. Research suggests that economies reliant on agricultural exports experience low GDP elasticity, agricultural export elasticity for affluent African countries estimated at 0.043 (Adeabah & Asongu, 2022). This underscores the need for export diversification to enhance the growth potential. Moreover, dependence on a limited array of commodities exposes nations to fluctuations in global markets, impacting the overall economic stability and growth (Nwogwugwu & Umeghalu, 2021; Olakojo, 2017).

Foreign Direct Investment (FDI) significantly influences export performance and subsequently, economic growth. Research indicates that FDI inflows from countries such as China have substantially enhanced Africa's economic growth by increasing export capabilities and generating employment (Doku et al., 2017). However, the effectiveness of these investments depends on institutional quality and governance, which can either promote or hinder the benefits of FDI on net exports and economic growth (Musikavanhu et al., 2021).

In Tanzania, net exports significantly affect economic growth, given the nation's reliance on agricultural exports for foreign exchange and employment. Net exports influence the GDP by enhancing production capabilities and generating revenue from export operations. However, the country's dependence on a limited array of commodities makes it vulnerable to external shocks, potentially hindering growth during fluctuations in global prices (Estmann et al., 2022; Dimoso & Utonga, 2019).

Although existing research recognizes a connection between net exports and economic growth in Tanzania, most studies have predominantly focused on traditional sectors, such as agriculture and raw material exports. Therefore, there remains a notable gap in the literature regarding the growing contribution of emerging sectors—particularly services and manufacturing exports—to economic growth. This study addresses that gap by examining the effect of net exports of both goods and services, rather than limiting the analysis to primary commodities. By incorporating data on a broader range of export categories, the study offers a more comprehensive understanding of how shifts in the structure of Tanzania's export economy, especially the rise of the service and manufacturing sectors—impact the overall economic performance. Additionally, the impact of regional trade agreements, particularly the African Continental Free Trade Agreement (AfCFTA) on Tanzania's export performance remains underexplored (Nyarire Makilagi & Oh, 2023). Addressing these gaps will provide valuable insights into how Tanzania can capitalize on its export potential across diverse industries for sustainable economic growth. Given data and modelling constraints, the analysis focuses on aggregate quarterly series and does not explicitly distinguish sectoral or firm-level mechanisms. Therefore, the results should be interpreted as providing a macro-level benchmark that future, more disaggregated studies can refine.

The role of net exports in driving the economic growth remains a widely debated topic in economics literature, with varying conclusions across different economy contexts. Developed economies have linked robust export sectors to sustained economic growth and stability. However, in developing countries, such as Tanzania, the relationship remains complex, influenced by factors, such as commodity dependency, exchange rate volatility and limited industrialization. Tanzania's export sector is largely driven by agricultural commodities, which are susceptible to global price fluctuations and supply chain inefficiencies. The country continues to run a trade deficit, where net imports exceed net exports, raising concerns about the sustainability of its external balance and economic growth trajectory. Existing studies primarily examined the impact of specific export categories (e.g., agricultural and manufacturing exports) on economic growth. However, a comprehensive study examining the effect of both

goods and service exports on economic growth is lacking. This study seeks to fill this gap by establishing the impact of net exports on the Tanzania's economic growth from 2001 to 2020, using the Autoregressive Distributed Lag (ARDL) model. By incorporating both goods and service exports, this study provides a broader understanding of how Tanzania's trade balance influences its economic performance. The findings will inform policymakers on the effectiveness of trade policies and highlight the need for strategic interventions to enhance export performance and economic resilience.

Literature Review

This section presents the Ricardian Comparative Advantage Theory and the Export-Led Growth Theory as theoretical underpinnings. The section further presents the empirical literature review that guided the study.

Theoretical Literature Review
Ricardian Comparative Advantage Theory
David Ricardo's Comparative Advantage Theory posits that nations should specialize in producing goods where they have a relative efficiency advantage (Ricardo, 1817). This theory remains highly relevant to Tanzania, given its strong comparative advantage in agricultural exports such as coffee, tea and cashew nuts (Chindengwike, 2023). By leveraging this advantage, Tanzania can enhance its export performance, generate foreign exchange and stimulate the economic growth. Furthermore, specialization in agriculture aligns with the broader objective of export-led development, which underscores the significance of trade as a vehicle for economic progress (Smith, 1776).

The Comparative Advantage Theory suggests that trade allows countries to allocate resources more efficiently, leading to increased productivity and economic expansion. For Tanzania, prioritizing agricultural exports can enhance employment, boost foreign exchange reserves and improve the overall balance of payments. Additionally, this theory highlights the importance of reducing trade barriers and improving production efficiency to maximize gains from international trade.

Export-Led Growth Theory
The Export-Led Growth (ELG) Theory asserts that increasing exports drive the economic growth by fostering productivity, economies of scale and employment generation (Dash, 2009; Kalaitzi &

Chamberlain, 2020). This model is particularly applicable to Tanzania, where agricultural and mineral exports significantly contribute to GDP (Mtaturu, 2016). The ELG theory suggests that policies promoting export diversification and value addition can enhance the Tanzania's economic resilience. Research has shown that increasing agricultural exports positively influences the Tanzania's GDP growth, further validating the applicability of the ELG theory in the country's context (Dimoso & Utonga, 2019).

Moreover, ELG theory emphasizes the role of government policies in promoting a conducive trade environment, including investment in infrastructure, trade facilitation and export incentives. Tanzania's participation in regional and international trade agreements further strengthens its potential for export-led growth. However, structural challenges, such as inadequate industrialization and limited access to credit must be addressed to maximize the benefits of export-led strategies.

Empirical Literature Review
Numerous studies examined the relationship between net exports and economic growth across different economies, yielding varied findings. Globally, Nguyen (2020) found that exports positively and significantly affect the economic growth. Similarly, Tunçsiper and Horor (2023), using time series data from 1980 to 2021, established that exports drove the economic growth in Turkey. Comparable findings were reported in Indonesia and Korea (Annisa et al., 2022; Lee & Kim, 2019). In Nigeria, agricultural exports were found to have a significant impact on the economic growth (Verter & Bečvářová, 2016; Ijirshar, 2015). In Lebanon, Saad (2012) employed Granger causality tests and identified a strong positive relationship between exports and the economic growth. However, studies by Kurniawati (2021) and Kim & Lin (2009) indicated that the trade-growth relationship varies depending on economic conditions, suggesting that net exports may not always lead to economic expansion without supportive policies.

Findings from Tanzania
Several studies examined the link between exports and economic growth in Tanzania. Kilindo (2019) analysed the impact of exports on Tanzania's economic growth from 1970 to 2017, employing the Johansen cointegration and Phillips-Perron tests. The study found a long-run relationship between exports and economic growth. Similarly, Alam and

Myovella (2017) established that agricultural exports Granger-cause GDP growth, reinforcing the importance of export-led strategies. However, their findings highlight challenges such as inadequate mechanization, trade barriers and weak infrastructure that hinder export growth. Moreover, Mkubwa et al. (2014) examined trade liberalization and its impact on the economic growth in Tanzania. The study found that while trade liberalization fosters growth, its benefits are contingent on institutional quality and export diversification. Unlike previous studies that focused solely on agricultural exports and trade liberalization, this study investigated the effect of net exports of both goods and services on economic growth, utilizing the ARDL approach to capture both short-run and long-run effects.

Tanzania's economic structure heavily relies on the export of raw materials, which limits its potential for industrial growth. Studies suggest that the country should focus on adding value to its exports to enhance competitiveness in global markets. Furthermore, export diversification beyond agriculture and minerals into manufacturing and services is crucial for sustainable economic growth.

Methodology

This section outlines the methodological framework used to investigate the relationship between net exports and economic growth in Tanzania. It details the research design employed, elaborates on the population and sampling methods and describes the data types and their sources. Furthermore, the section addresses how validity and reliability were assured, specifies the statistical techniques utilized for data analysis, and explains the ethical considerations taken into account throughout the research process.

Design

This study employed an explanatory research design, which aims to establish causal relationships between variables through hypothesis testing. Explanatory design is suitable for examining cause-and-effect relationships and was particularly appropriate for this study as it enabled the investigation of how net exports influence the economic growth in Tanzania. Specifically, the study utilized time series data from 2001 to 2020, collected quarterly. Employing the Autoregressive Distributed Lag (ARDL) model, the design allowed for comprehensive evaluation of both short-run and long-run dynamics, making it ideal for exploring economic phenomena that evolve over time.

Population and Sampling

The population comprised all quarterly economic data pertaining to net exports and GDP growth in Tanzania from 2001 to 2020. The sample included all available observations within this time frame, resulting in a total of 80 quarterly data points. Since the study relied on secondary time series data, the entire population of relevant data was used without omission. This approach was appropriate as it ensured comprehensive coverage of the period under review, allowing for robust trend analysis and accurate estimation of the relationship between net exports and economic growth.

Data Types and Sources

The study employed time series data spanning from 2001 to 2020 on quarterly basis to examine the effect of net exports of goods and services on the economic growth in Tanzania. The dependent variable is economic growth, measured by GDP while the explanatory variable is net exports for goods and services. The control variables include net imports of goods and services, FDI, and exchange rate. The data was sourced from the Bank of Tanzania and the World Bank Development Indicators.

Validity and Reliability

The validity of this study was ensured by using quarterly time series data spanning from 2001 to 2021, allowing for a thorough investigation of long-term trends and causal relationships between net exports and economic growth. The study employed the Autoregressive Distributed Lag (ARDL) model, which is well-suited for examining both short-run and long-run dynamics, thereby enhancing construct validity. Additionally, by incorporating relevant control variables, such as net imports, foreign direct investment (FDI) and exchange rate, the study minimized omitted variable bias and improved internal validity.

Reliability was guaranteed through the use of authoritative and consistent secondary data sources—specifically, the Bank of Tanzania and the World Bank Development Indicators. These sources are recognized for their rigorous data collection and reporting standards, ensuring that the data accurately represent the economic conditions relevant to the study. Furthermore, standardized statistical procedures and diagnostic tests were applied to check for issues like autocorrelation and

Heteroscedasticity, reinforcing the stability and consistency of the results across different time points.

Data Analysis

Data analysis was conducted using the Autoregressive Distributed Lag (ARDL) model, which is suitable for small samples and allows for estimating both short-run and long-run relationships. To ensure robustness and validity of the model, key diagnostic tests were conducted, including unit root tests for stationary, autocorrelation tests, and heteroskedasticity checks.

Ethical Considerations

This study necessitates the examination of many ethical factors to uphold the integrity and credibility of the research process. To ensure ethical compliance, data was sourced from reputable and publicly accessible databases, specifically the Bank of Tanzania and the World Bank Development Indicator, thereby eliminating concerns related to data confidentiality and informed consent. The study adhered to academic integrity by accurately citing all data sources and avoiding any form of data manipulation or misrepresentation. Additionally, the study followed institutional ethical guidelines for the use of secondary data and maintained transparency in the methodology, including acknowledgment of any limitations that might influence the interpretation of results.

Findings and Discussion

This section presents and interprets the findings. The presentation of findings displays statistical tables for easy reference.

Descriptive Analysis

Summary statistics over 2001Q1--2020Q4 indicate moderate average real GDP growth (mean 4.7, SD 2.4), alongside a persistent trade deficit, as mean ln(imports) exceeds mean ln(exports). Exchange-rate variability in TZS/USD: mean 7.3, SD 0.3, range 6.7--7.7 indicates exposure to external shocks via terms-of-trade and capital-flow channels. Inflation (mean 6.9, SD 3.6, range 3.0--19.4) reflects commodity and policy cycles over the sample. ln(GDP) varies modestly (mean 9.4, SD 0.1).

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Growth	80	4.7	2.4	1.1	10.2
Log of GDP	80	9.4	0.1	9.2	9.6
Exports	80	7.2	0.6	5.9	7.9
Imports	80	7.5	0.6	6.2	8.2
FDI	80	5.4	0.5	4.4	6.3
Exchange rate	80	7.3	0.3	6.7	7.7
Inflation rate	80	6.9	3.6	3.0	19.4

Source: Computed from National Bureau of Statistics and Bank of Tanzania data

Table 1 signals an economy growing steadily but under external-balance strain and macro-volatility risk. The persistent gap where mean ln(imports) > ln(exports) points to a structural trade deficit that must be financed through external inflows (FDI, borrowing, reserves), heightening exposure to terms-of-trade swings and global liquidity cycles. These financing needs and exposure to movements in world commodity and capital markets are precisely the "pressures" reflected in the behavior of the exchange rate over the sample period. The observed exchange rate variability (ln TZS/USD) is consistent with these pressures and suggests that competitiveness shocks and their inflation pass-through are a material transmission channel, justifying the inclusion of the exchange rate in the empirical model and the emphasis on the predictable FX management.

The wide dispersion in inflation indicates alternating commodity and policy episodes over 2001–2020 (including global downturns), reinforcing the case for robust price-stability frameworks and for controlling price dynamics when estimating growth equations. Meanwhile, the modest variation in ln(GDP) alongside a broader spread in quarterly growth rates implies that much of the action occurs in short-run fluctuations around a stable long-run path, which is precisely the environment where an ARDL approach separating long-run relationships from short run adjustments is informative. Taken together, these descriptive patterns foreshadow the regression results: long-run growth gains are likely to be tied to stronger export performance and competitiveness while import heavy absorption and FX volatility can weigh on activity unless counterbalanced by structural reforms and credible macro stabilisation (Verter & Bečvářová, 2016).

Diagnostics and Causality

Pre estimation checks support the ARDL strategy. As reported in Tables 2 to 4, Augmented Dickey Fuller (ADF) tests show a mix of I(0) and I(1) variables and no I(2) series at the 5% level, satisfying the basic requirements for an ARDL bounds-testing framework (Pesaran et al., 2001; Dickey & Fuller, 1979).

Table 2: Level tests

Variable	Spec.	Lag (AIC	ADF stat.	p-value	Critical @5%
Growth (quarterly %)	intercept	2	-3.390	0.011	-2.900
ln(GDP)	intercept+trend	0	-9.053	0.000	-3.468
ln(Exports)	intercept+trend	3	-5.964	0.000	-3.470
ln(Imports)	intercept+trend	3	-3.358	0.057	-3.470
ln(ER TZS/USD)	intercept+trend	0	-9.831	0.000	-3.468
ln(FDI)	intercept+trend	0	-8.792	0.000	-3.468
Inflation (CPI %)	intercept	0	-7.757	0.000	-2.899

Table 3: First-difference tests

Variable	Spec.	Lag (AIC)	ADF stat.	p-value	Critical @5%
Growth (quarterly %)	intercept	7	-5.001	0.000	-2.903
ln(GDP)	intercept	10	-5.488	0.000	-2.905
ln(Exports)	intercept	5	-6.642	0.000	-2.902
ln(Imports)	intercept	6	-6.308	0.000	-2.903
ln(ER TZS/USD)	intercept	10	-5.460	0.000	-2.905
ln(FDI)	intercept	3	-8.008	0.000	-2.901
Inflation (CPI %)	intercept	5	-6.633	0.000	-2.902

Table 4: Summary Chosen integration order at 5%

Variable	Spec. (chosen)	Lag (AIC)	ADF stat.	p-value	Critical @5%	Order
Growth (quarterly %)	intercept	2	-3.390	0.011	-2.900	I(0)
ln(GDP)	intercept+trend	0	-9.053	0.000	-3.468	I(0)
ln(Exports)	intercept+trend	3	-5.964	0.000	-3.470	I(0)
ln(Imports)	intercept (Î")	6	-6.308	0.000	-2.903	I(1)
ln(ER TZS/USD)	intercept+trend	0	-9.831	0.000	-3.468	I(0)
ln(FDI)	intercept+trend	0	-8.792	0.000	-3.468	I(0)
Inflation (CPI %)	intercept	0	-7.757	0.000	-2.899	I(0)

Table 5: Residual Diagnostics for ARDL Growth Equation

Test	Statistic	df / lags	p-value	Decision
Breusch Godfrey LM (lag 1)	1.583	1	0.208	Fail-to-reject if p>0.05
Breusch Godfrey LM (lag 4)	8.755	4	0.068	Fail-to-reject if p>0.05
Breusch Pagan (heteroskedasticity)	42.152		0.000	Fail-to-reject if p>0.05
Jarque Bera (normality)	4.318		0.115	Fail-to-reject if p>0.05
RESET (functional form)	1.001		0.372	Fail-to-reject if p>0.05

Residual diagnostics for the ARDL growth equation are summarised in table 5. Breusch Godfrey LM tests (lags 1 and 4) do not indicate problematic serial correlation at conventional levels. The Ramsey RESET test does not reject the functional form, and the Jarque Bera statistic suggests approximate normality of residuals. The Breusch Pagan test points to heteroskedasticity, so inference relies on heteroskedasticity-robust standard errors. Together with CUSUM and CUSUMSQ plots that remain within the 5% bounds, these results support the stability of the estimated parameters over 2001–2020 and provide a reasonable basis for interpreting both short-run adjustments and long-run relationships.

Granger-causality results in Table 6 reveal the bidirectional predictive causality between exports and growth (Growth ← Net exports: χ^2=11.76, p=0.003; Net exports ← Growth: χ^2=27.00, p=0.000) and one-way predictive causality from imports to growth (Growth ← Net imports: χ^2=9.92, p=0.007; Net imports ← Growth: χ^2=0.64, p=0.725). Interpreted economically, the two-way link between exports and growth is consistent with Export-Led Growth (ELG): exports help predict real activity via learning-by-exporting, scale economies and foreign exchange easing while higher growth in turn relaxes

supply and capacity constraints, enabling firms to expand and upgrade their export baskets (Dimoso & Utonga, 2019; Kilindo, 2019; Lee & Kim, 2019).

The imports → growth finding likely reflects an absorption/imported input channel: during expansions, firms and households import more intermediate and capital goods (and some consumption goods). Therefore, imports help predict near-term output movements (Mkubwa, et al., 2014). Crucially, Granger causality is predictive, not structural: it can coexist with a negative long-run import coefficient once exports and macro controls are held constant (as shown in the ARDL), meaning that import surges may accompany short run booms yet weigh on growth in the long run through balance-of-payments and competitiveness pressures (Adeabah & Asongu, 2024). This pattern short-run absorption vs. long-run external-constraint effect matches comparative evidence from emerging and resource-dependent economies (Sermcheep, 2019; Verter & Bečvářová, 2016).

Table 6: Granger Causality Tests

Equation	Excluded	chi2	df	Prob > chi2
Economic growth	Net exports	11.76	2	0.003
Economic growth	Net imports	9.92	2	0.007
Net exports	Economic growth	27.00	2	0.000
Net exports	Net imports	43.24	2	0.000
Net imports	Economic growth	0.64	2	0.725
Net imports	Net exports	0.03	2	0.987

Table 7: ARDL Regression Results – Growth

Term	Coefficient	Std. Error / Note
Adjustment (ECT)	-0.711***	(0.118)
Long run: Net exports	0.665**	(0.293)
Long run: Net imports	-0.469***	(0.174)
Long run: Exchange rate	0.718***	(0.226)
Long run: FDI	0.0266	(0.0724)
Long run: Inflation rate	0.3211***	(0.0953)
Short run: D.lnexpmilusd	-0.507***	(0.177)
Short run: LD.lnexpmilusd	-0.269**	(0.124)
Short run: L2D.lnexpmilusd	-0.0966	(0.0946)
Short run: D.lnimpmilusd	0.380***	(0.134)
Short run: LD.lnimpmilusd	0.295**	(0.121)
Short run: D.lner	-0.741*	(0.404)
Short run: LD.lner	0.119	(0.444)
Short run: L2D.lner	0.254	(0.416)
Short run: D.lnfdimilusd	0.0355	(0.0531)
Short run: LD.lnfdimilusd	0.00159	(0.0502)
Constant	7.164***	(1.345)
Observations	77	
R-squared	0.568	
Significance	*** p<0.01, ** p<0.05, * p<0.1	

Note: Standard errors in parentheses. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively

Long-run Relationships

In the long run, the elasticity of growth with respect to exports is positive and significant (β=0.665, SE 0.293, $p<0.05$; see Table 7), indicating that export expansion is associated with faster growth in line with Export-Led Growth via learning-by-exporting, scale and foreign-exchange easing (Dimoso & Utonga, 2019; Kilindo, 2019; Lee & Kim, 2019). Conversely, imports carry a negative elasticity (β=−0.469, SE 0.174, $p<0.01$; Table 7), once exports and macro controls are held constant, suggesting that over this period, higher imports correlate with weaker long-run growth plausibly reflecting consumption-heavy composition and balance-of-payments pressures (Mkubwa et al., 2014; Adeabah & Asongu, 2024).

The exchange-rate coefficient on ln(TZS/USD) is positive and significant (β=0.718, SE 0.226, $p<0.01$), implying that depreciation is associated with higher long-run growth under this coding; however, the net effect is known to be state-dependent given

inflation pass-through and balance-sheet channels (Kim & Lin, 2009; Kurniawati, 2021).

FDI is statistically not significant (β=0.0266, SE 0.0724), echoing evidence that growth payoffs hinge on sectoral targeting and domestic linkages (Doku et al., 2017; Bacovic, 2021; Prasetyo & Susandika, 2022). Inflation also enters with a positive and significant long-run coefficient (β=0.3211, SE 0.0953, p<0.01). This should not be interpreted as a policy recommendation for higher inflation; instead, it is most plausibly capturing pro cyclical price dynamics during commodity and demand upswings and the limitations of aggregate CPI as a proxy for underlying competitiveness conditions.

Short-Run Dynamics and Adjustment
Short-run coefficients in Table 7 show that export shocks are contractionary on impact (Δln(exports) = −0.507, p<0.01; lag 1 = −0.269, p<0.05), consistent with adjustment costs and timing frictions across orders, inventories and shipping. Import shocks are expansionary contemporaneously (Δln(imports) = +0.380, p<0.01; lag 1 = +0.295, p<0.05), in line with imported-input demand during cyclical upswings. Depreciation is contractionary on impact (Δln(TZS/USD) = −0.741, p<0.10), plausibly via cost-push and balance-sheet effects, but its long-run association turns positive as competitiveness gains materialize. Crucially, the error-correction term is large, negative and highly significant (ECT = −0.711***, SE 0.118), implying rapid convergence about 71% of any disequilibrium is corrected each quarter pointing to a tightly cointegrated trade growth system.

Comparative Perspective
The estimated elasticities align with international evidence in Türkiye, Indonesia and Korea, where exports raise growth in cointegrated systems despite short-run frictions (Tunçsiper & Horoz, 2023; Millia et al., 2021; Annisa & Taher, 2022; Lee & Kim, 2019). Among resource-dependent African economies, export effects tend to be positive but smaller and more volatile without value addition while import surges can crowd out local activity mirroring the negative long-run import coefficient (Verter & Bečvářová, 2016; Ijirshar, 2015; Adeabah & Asongu, 2024). Rising service trade in ASEAN underscores the growth potential of tourism, transport and ICT for Tanzania (Sermcheep, 2019). Finally, the exchange rate pattern negative on impact, positive in the long run matches studies showing depreciation helps up to thresholds beyond which pass-through and balance-sheet stress dominate (Kim & Lin, 2009; Kurniawati, 2021).

Synthesis across the Three Tables
Taken together, Table 1 establishes a context of steady growth amid external-balance and price volatility; Table 2 demonstrates exports ↔ growth and imports → growth in prediction, justifying a specification that model exports and imports separately rather than collapsing them into a single net-exports regressor. Table 7 quantifies a positive long-run export channel with negative long-run import pressure, where a state-dependent exchange-rate effect (short-run contraction, long-run competitiveness) and rapid error correction validate the cointegrating relationship.

Conclusions and Recommendations
Conclusions
Using quarterly data for 2001Q1–2020Q4 and an ARDL framework, supported by standard diagnostics, the study shows that Tanzania's long-run growth is positively associated with exports and a more competitive (depreciated) exchange rate, but negatively associated with imports once exports and macro controls are held constant; inflation exhibits a positive, pro-cyclical association with growth while average FDI effects are statistically insignificant. These results support a pragmatic export-led growth strategy that emphasises diversification and value addition in agro-processing, light manufacturing and tradable services alongside policies that steer import composition toward intermediate and capital goods, manage the exchange rate to balance competitiveness with stability and prioritise "high-quality" FDI projects that generate domestic linkages rather than inflows per se. Given that the analysis is based on aggregate quarterly series and does not model sectoral or firm-level heterogeneity, the findings should be viewed as a macro-level benchmark that future REER-based, sectoral, and firm-level studies can refine.

Recommendations
Based on the findings and conclusions, the study gives the following recommendations:
1. Ministry of Industry and Trade, in collaboration with relevant sector ministries, should accelerate export diversification and upgrading by supporting agro-processing (cashew, coffee, tea, horticulture), basic manufactures (wood products, textiles, leather) and tradable services (tourism,

transport/logistics, ICT) through targeted, performance-based incentives linked to increases in processed-export shares.

2. Tanzania Revenue Authority and port/rail authorities should reduce structural trade costs by implementing single-window customs, applying risk-based inspections, setting and publicly reporting clear time-to-clear targets and accelerating corridor upgrades; on the other hand, the Ministry of Finance and development finance institutions should expand export finance instruments (pre/post shipment and FX-risk tools) through dedicated facilities, streamlined eligibility and disbursement procedures, and predictable pricing caps.

3. Tanzania Investment Centre and EPZA should prioritise the quality of FDI by screening for export-oriented, linkage-rich projects with explicit local-supplier and technology-transfer commitments, offering streamlined aftercare to high-performing exporters and discouraging low-linkage, footloose investments.

4. Bank of Tanzania, in coordination with the Ministry of Finance, should calibrate exchange-rate policy to preserve competitiveness with stability, building adequate reserve buffers and using credible monetary policy to contain inflation pass-through from depreciation.

5. National Bureau of Statistics and Ministry of Finance should establish a quarterly Trade–Growth Dashboard (covering processed-export share, export/GDP, logistics indicators, REER volatility and domestic content measures) and publish an annual Export Competitiveness Review to guide timely trade and industrial policy adjustments.

References

Adeabah, D. and Asongu, S. (2022). Agricultural export elasticity and growth in Africa. Journal of Interdisciplinary Economics, 36(2), 204–223.

Adeabah, D. and Asongu, S. (2024). Agricultural export, growth and the poor in Africa: A meta-analysis. Journal of Interdisciplinary Economics, 36(2), 204–223.

Adeleye, J. O., Adeteye, O. S. and Adewuyi, M. O. (2015). Impact of international trade on economic growth in Nigeria (1988–2012). International Journal of Financial Research, 6(3), 163–172.

Alam, F. and Myovella, G. (2017). Causality between agricultural exports and GDP and its implications for Tanzanian economy. IOSR Journal of Economics and Finance, 8(6), 36–49. https://doi.org/10.9790/5933-0806013649.

Annisa, N. and Taher, A. R. Y. (2022). The effect of foreign debt, labor force, and net exports on Indonesia's economic growth (1986 Q1–2020 Q4). Jurnal Ekonomi dan Bisnis Jagaditha, 9(1), 39–46.

Bacovic, M. (2021). Domestic vs. foreign direct investment, economic growth, and productivity in Southeast Europe. Academia Letters, 2(1), 33–46.

Chindengwike, J. (2023). Tanzania's comparative advantage in agricultural exports. African Journal of Agricultural Economics, 18(1), 44–59.

Chung, W., Fleischer, S. and Müller, T. (2021). Net exports and long-run stability in Germany. Journal of European Economic Studies, 43(3), 455–478.

Dash, R. (2009). Revisited export-led growth hypothesis: An empirical study of India. South Asia Economic Journal, 10(2), 305–324.

Dickey, D. A. and Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American Statistical Association, 74(366), 427–431.

Dimoso, R. and Utonga, D. (2019). The nexus between export and economic growth in Tanzania. International Business & Economics Studies, 1(2), 95–106.

Doku, I., Akuma, J. and Owusu-Afriyie, J. (2017). Effect of Chinese foreign direct investment on economic growth in Africa. Journal of Chinese Economic and Foreign Trade Studies, 10(2), 162–171.

Estmann, C., Sørensen, B. B., Ndulu, B. and Rand, J. (2022). Merchandise export diversification strategy for Tanzania. The World Economy, 45(8), 2649–2695.

Grabowski, R. (2016). Resource-based economies and deindustrialisation: Lessons from Indonesia for Sub-Saharan Africa. Canadian Journal of Development Studies, 37(1), 27–46.

Ijirshar, V. U. (2015). The empirical analysis of agricultural exports and economic growth in Nigeria.

Journal of Development and Agricultural Economics, 7(3), 113–122.

Jiang, X., Kim, S. and Lee, J. (2013). Export structure and economic performance: Evidence from OECD and Asian economies. International Economics Review, 56(4), 901–930.

Kalaitzi, A. and Chamberlain, T. (2020). Export-led growth hypothesis: Evidence from the Middle East. Journal of Economic Studies, 47(4), 957–971.

Kalaitzi, A., Adeniyi, O. and Chamberlain, T. (2020). Exports and output growth in developing economies. International Journal of Economics and Finance, 12(7), 78–90.

Kim, D. and Lin, S. (2009). Trade openness and growth: New empirical evidence. Journal of Macroeconomics, 31(2), 356–365.

Kilindo, A. A. (2019). Exports and economic growth in Tanzania: 1970–2017. International Journal of Business Management and Economic Review, 2(4), 15–25.

Kurniawati, V. (2021). The impact of net export, investment, labour, and exchange rate on Indonesia's economic growth (2000–2020). Jurnal Akuntansi, Manajemen dan Ekonomi, 23(2), 40–50.

Lee, S. and Kim, S. (2019). How large is the impact of exports on economic growth? KDI School Working Paper 19–14.

Mankiw, N. G. (2021). Principles of economics (9th ed.). Cengage Learning.

Megersa, K. and Cassimon, D. (2017). Export instability and long-term growth. African Development Review, 29(1), 74–87.

Millia, H., Syarif, M., Adam, P., Rahim, M., Gamsir, G. and Rostin, R. (2021). The effect of export and import on economic growth in Indonesia. International Journal of Economics and Financial Issues, 11(6), 17–23.

Mkubwa, H. M., Mtengwa, B. A. and Babiker, S. A. (2014). The impact of trade liberalization on economic growth in Tanzania. International Journal of Academic Research in Business and Social Sciences, 4(5), 514–532.

Mtaturu, J. (2016). The relationship between export and economic growth in Tanzania: Granger causality approach (1976–2013). African Journal of Economic Review, 4(2), 140–158.

Musikavanhu, L. T., Tlhalefang, J. B., Ntsosa, M. and Bakwena, M. (2021). Does institutional quality influence the oil price–economic growth nexus in Africa? European Journal of Business and Management Research, 6(5), 56–69.

Nguyen, C. H. (2020). The impact of foreign direct investment, aid, and exports on economic growth in Vietnam. Journal of Asian Finance, Economics and Business, 7(10), 581–589.

Nyarire Makilagi, B. and Oh, J. (2023). What determines Tanzania's trade? A gravity approach. International Area Studies Review, 26(4), 438–448.

Nwogwugwu, U. C. and Umeghalu, C. C. (2021). International trade and economic misery in African countries with low human development. International Journal of Finance Research, 2(4), 212–243. https://doi.org/10.47747/ijfr.v2i4.446.

Olakojo, S. A. (2017). Export commodity prices and long-run growth in primary commodity–based African economies. CSEA Working Paper WPS/17/02.

Pesaran, M. H., Shin, Y. and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289–326.

Prasetyo, A. S. and Susandika, M. D. (2022). FDI-led growth and export-led growth hypothesis in ASEAN. e-Journal Ekonomi Bisnis dan Akuntansi, 9(2), 88–93.

Ricardo, D. (1817). On the principles of political economy and taxation. Fundação Calouste Gulbenkian.

Saad, W. (2012). Causality between economic growth, export, and external debt servicing: The case of Lebanon. International Journal of Economics and Finance, 4(11), 134–143. https://doi.org/10.5539/ijef.v4n11p134

Sermcheep, S. (2019). Services export and economic growth in ASEAN countries. Journal of Asian Economic Integration, 1(2), 163–182.

Smith, A. (1776). An inquiry into the nature and causes of the wealth of nations. W. Strahan and T. Cadell.

Tampubolon, J. and Nababan, T. S. (2018). International trade and North-Sumatra's local economy. JEJAK: Jurnal Ekonomi dan Kebijakan, 11(2), 323–337.

Tunçsiper, Ç. and Horoz, İ. (2023). The effect of exports on economic growth in Türkiye (1980–2021). JOEEP: Journal of Emerging Economies and Policy, 8(1), 65–72.

Verter, N. and Bečvářová, V. (2016). The impact of agricultural exports on economic growth in Nigeria. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 64(2), 691–700.

Viphindrartin, S. (2023). Global conditions and the export–growth nexus in developing economies. Journal of Economic Development Studies, 14(1), 22–35.

Zimmerman, P. and Wheaton, E. (2021). Net export shocks and macroeconomic volatility in Sub-Saharan Africa. African Review of Economics and Finance, 13(2), 90–108.