



The effect of international trade on economic growth: Evidence from Ghana

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Abstract

International trade has been paramount to every country, especially developing economies, as it enables them to access goods and services they cannot produce. The Ghanaian economy has been highly dependent on imports over the years. This study examined the effects of foreign trade (export and import) on economic growth using data from the World Bank from 1990 to 2020. To ensure the accuracy of the results, econometric methods including a unit root test, the Johansen cointegration test, the vector error correction model and the Granger causality test, were employed. The ADF and Kwiatkowski-Phillips-Schmidt-Shin unit root tests showed that the variables were non-stationary at the level and integrated at the first-order difference. The study finds exports and imports to support Ghana's economic advancement. This study recommends the government to supports and encourage domestic firms to produce on a large scale for domestic consumption and exports.

Keywords: Economic growth, exports, GDP, imports, VECM;

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1. Introduction

Foreign trade consists of exports and imports, which leverage the production and consumption of goods and services between countries or regions. Cross-border trade enables countries to enjoy certain goods and services they cannot produce to better the welfare of their citizens. A country can depend on both things that are produced domestically and those that are imported (Dosi et al., 2022; Okyere & Jilu, 2020). Mutual dependence is unavoidable for all nations in the world due to differences in climatic and geographic conditions, natural resources and human abilities (Jacob et al., 2021). By highlighting the significance of trade, well-known conventional trade theories like absolute advantage and comparative advantage simplify the idea of trade (Capelleras et al., 2023; Hoh & Tang, 2021; Shirokova et al., 2019). Exports sustain the circular economy of the world. Both exports and imports could be significant drivers of economic growth, both directly (exports are a component of production) and indirectly (imports of commodities and services, as well as new ideas, information and technology) through the facilitation of exports (Bharti, 2023; Gylfason, 1997). High and growing exports boost static and dynamic efficiency and economic growth by promoting specialisation following comparative advantage. The staple theory is the pertinent economic theory that underpins this primary export-led development (Boame, 1998).

The marine trade revolution began in the 1950s and has significantly changed the trade industry (Miezah, 2021). Any country can prosper economically through trade and globalisation, and Ghana and the African continent have benefited greatly from this process. Throughout the past two centuries and up to the present, trade has been crucial to the growth of Africa. In African countries, economies are expanding, but the expansion does not correspond to the population's living standards (Yennu, 2018). The World Trade Organisation reports that Ghana's trade-to-gross domestic product (GDP) ratio averaged 71% in 2018–2020, indicating that the country's economy depends moderately on foreign trade. The nation is the second-largest producer of gold in Africa and is well-endowed with diamonds, oil and gas. Together, gold, crude oil and cocoa beans (as well as cocoa paste and butter in restricted quantities) make up around 85% of all exports of goods (Secretariat, 2022). In discussions about multilateral trade liberalisation, reducing poverty is becoming an essential factor (Hertel et al., 2001). Ghana's trade with the rest of the world has increased since the Economic Recovery Programme was implemented in 1983, with one of its main policies being the opening of the economy (Chiaraah, 2019). The data from the World Bank indicates that Ghana's imports constantly exceed exports.

The incitement of this paper is because of the current and past increasing imports of goods and services into Ghana's economy, with less attention drawn to exports. A developing country with most of its population having a lower income and saving rate brings many economic and human development challenges. Consequently, inflation has a greater effect on the purchasing power of the people due to most of the goods and services imported. In 1983, the country experienced the highest inflation rate of 122% after independence. However, the current depreciation of the domestic currency and high inflation adversely affects international trade for domestic importers. Consequently, the COVID-19 outbreak affected the GDP growth rate of the country as growth declined from 6.5% in 2019 to 0.4% in 2020, according to World Bank data.

1.1. Literature review

Many research works have been conducted to analyse the impacts of exports and imports on developing countries economic growth. However, this review will focus on a few empirical studies conducted over the years. Some researchers found different results depending on the methods. For instance, Mukit (2020) used the vector autoregressive and cointegration to assess the impact of macroeconomic determinants in Bangladesh. The results showed that although imports had an

insignificant and negative link to GDP, exports had a positive but not significant association with GDP. Hussain (2014) employed the Granger causality and cointegration test to assess the impact of exports and imports in Pakistan. The findings indicated that economic growth (GDP) and exports are related. Nonetheless, it is important to recognise that exports are causally related to economic growth. Conversely, a study on the impact of export and imports on growth in Burundi by Jiying et al. (2020) shows that both an export-led import plan and a growth-led import strategy are evidence that imports drive economic expansion. According to Zahonogo's (2016) findings from the dynamic growth model to assess trade and economic growth in sub-Saharan Africa. The empirical data shows a trading threshold below which more trade openness boosts economic growth and above which the impact of trade on growth falls.

Additionally, Mohsen (2015) employed the Johansen and Granger causality test to investigate the impact of export and investment on growth in Syria. The outcomes show that it is vital to boost the range and quality of exports and streamline the import and export processes. On the other hand, the analysis by Afzal and Manni (2012) using the ordinary least squares (OLSs) to study the effect of trade openness in Bangladesh, the result demonstrates unequivocally that trade liberalisation enhanced GDP growth while having no discernible impact on inflation in the economy. Consequently, Eggoh and Khan (2014) employed PSTR and dynamic GMM to investigate inflation and economic advancement in developing and developed countries. They contended that inflation-growth nonlinearity is sensitive to a country's level of financial development, capital accumulation, trade openness and government expenditures, and empirical findings support both points of view. Furthermore, Bibi et al. (2014) used cointegration and dynamic least squares to assess trade openness, FDI, exchange rate and inflation on growth in Pakistan. The outcome showed that producing import substitutes and cultivating a trade surplus can mitigate the negative effects of trade openness.

Shingil and Panshak (2017) examined the inflation rate and exchange rate effect in the Turkish economy using the autoregressive distributed lag and Toda-Yamamoto Granger non-causality tests. The outcome indicated that when a country heavily depends on imports for key inputs into domestic manufacturing, maintaining a relatively strong exchange rate may have a favourable long-term effect on economic growth. Muritala (2011) used the OLS to establish the effect of investment and inflation on growth in Nigeria and found a negative impact of inflation on real GDP. Uddin and Khanam (2017) employed the OLS method to investigate the impact of exports, imports and economic growth in Bangladesh and concluded that imports negatively correlate with GDP growth. An empirical finding by Were (2015) using the standard regression based on several types of nations reveals that while trade has positively benefited economic growth in developed and developing nations, its impact on least developed nations, which primarily include African nations, is negligible.

However, Taghavi et al. (2012) employed the VAR method to examine the impact of export and imports on Iran's economic growth. The findings show that imports had a significant and negative association with economic growth and a long-term negative impact on economic growth. In contrast, exports had a direct and positive relationship with economic growth over the long term. Akhter (2015) used the descriptive method to assess the impact of exports and imports in Bangladesh, and the result shows that exports have a beneficial impact on economic growth, while imports have a reverse effect. Adegboyega (2017) studied the effect of exports and imports on growth in Nigeria. The Johansen cointegration method results indicated a small but steady long-run link between import-export and economic growth. Consequently, Devkota (2019) employed the dynamic models to investigate the impact of trade on economic advancement in India, and results from the vector error correction model (VECM) show that import and economic growth are causally related in a single direction. Fosu (1990) studied export composition in least-developed countries using a similar framework but recognised the

possible heterogeneity of exports and revealed that the manufacturing export sector has a different positive impact from the primary export sector, which has little to no influence on GDP growth for LCDs.

The analysis by Ugochukwu and Chinyere (2013) using the OLS concludes that Nigeria's growth-led export hypothesis is true. However, Augustin (1990) employed the pooled cross-sectional cum time series in African countries. The outcome shows that export growth is seen to have a positive and large impact on economic growth based on the standard augmented production function specification that considers labour, capital formation and exports. Consequently, the findings by Velnampy and Achchuthan (2013) from a regression result for the impact of export and import on growth in Sri Lanka indicated that export and import have a strong positive link with one another, and both have a large effect on economic expansion. Yolanda (2017) used multiple regression to investigate the impact of export development on unemployment in Indonesia and revealed that export development positively affects unemployment because it shows that export operations do not absorb labour heavily.

1.2. Purpose of study

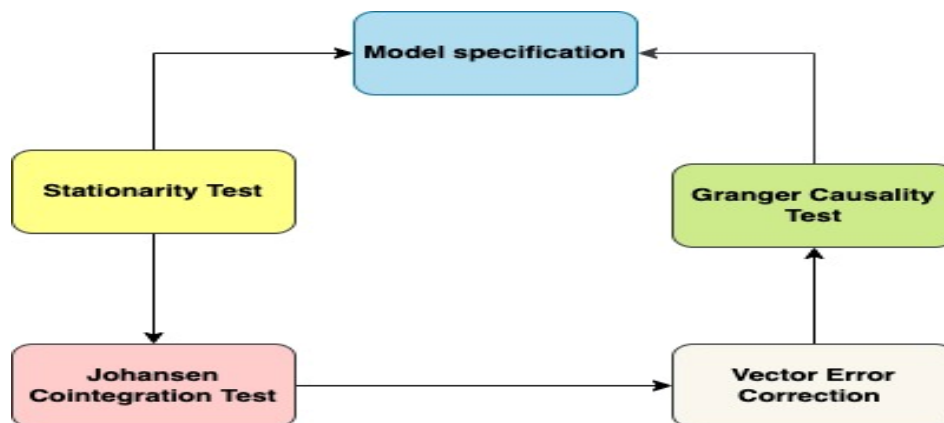
The above literature indicates that exports and imports are significant to economic growth. However, some of the empirical findings showed that the relationship between exports and imports could positively or negatively impact economic development. Due to the limited literature on exports and imports' effect on economic growth in Ghana, this study seeks to contribute to the existing hypothesis on international trade. The results from this current study will determine whether exports and imports stimulate growth in the Ghanaian economy.

2. Materials and Methods

The study aimed to generate proper econometric model specifications to investigate economic growth in Ghana. The empirical studies above show that many macroeconomic indicators have a major role in economic growth. According to Granger (1981), it is well-known that time series analysts have different approaches to analysing economic data. To broaden the scope of the study, the Johansen test, VECM, and the Granger causality were used to assess the long-run and short-run impact on economic growth. This method is based on the approach employed in past literature (Enu et al., 2013; Hobbs et al., 2021). However, Dickey and Fuller (1979) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests were used to assess the properties of the time series variables, whether they are stationary or non-stationary. Figure 1 indicates the flow of the tests to be carried out.

Figure 1

Tests to be Estimated



Source: Authors own plot.

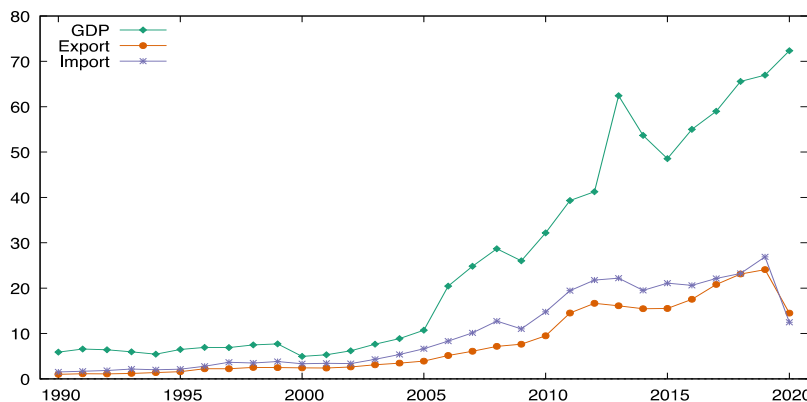
2.1. Data collection

This study used time series data for the analysis from the World Bank from 1990 to 2020. The times series are from the annual frequency for each of the variables. However, this year's range was to assess the post-economic reforms' impact of foreign trade on the country's economic growth. Additionally, there is consistency in the data available from the 90s to the present. However, the purpose of using World Bank data is because it is a recognised organisation that provides credible data for public usage. Ghana has been a net importer, as imports constantly exceed exports. The country's trade balance in 2020 was 2.05 billion United States dollars (USD) and declined to USD 1.07 billion in 2021. However, trade to GDP for 2020 stood at 38.52% and is projected to increase to 58.43% in 2021. According to the World Bank, Ghana's rapid 7% economic advancement annually from 2017 to 2019 was disrupted by the COVID-19 outbreak. The locked down led to a sharp decrease in export commodities. The decline in the economy has a significant effect on households. According to estimates, the poverty rate grew slightly from 25% in 2019 to 25.5% in 2020. The impact of rising global commodity prices has been exacerbated by the cedi's depreciation, which, according to data from the Bank of Ghana, has already fallen by 24% against the USD in 2022.

Consequently, the World Bank report indicated that due to significant oil and gold revenues, the trade balance was in surplus as of June 2022. However, the entire current account recorded a deficit of 1.5% of GDP because of investment income outflows and net services account payments. As a result, in the first half of 2022, the stock of gross international reserves decreased by US\$2 billion to 3.4 months of imports. Figure 2 shows trends of GDP, export and import in Ghana.

Figure 2

Ghana's GDP, Exports and Imports Trend



Source: Authors own plot using World Bank data.

2.2. Model specification

Ghana continues to be a developing and middle-income country and it is important to understand the effect of export and import on economic development in the country. The main research question of this study is: is there a relationship between exports and imports, and how do they influence economic growth in Ghana? The study uses an econometric model through macroeconomic variables and modelled as a function of each other. The variables include GDP, exports and imports.

$$\text{Exports}_t = f(\text{Exports}_{t-q}, \text{Imports}_{t-q}, \text{GDP}_{t-q}) \quad (1)$$

$$\text{Imports}_t = f(\text{Imports}_{t-q}, \text{Exports}_{t-q}, \text{GDP}_{t-q}) \quad (2)$$

$$\text{GDP}_t = f(\text{GDP}_{t-q}, \text{Exports}_{t-q}, \text{Imports}_{t-q}) \quad (3)$$

Exports and imports represent the trade of goods and services; GDP represents the real GDP using 2015 as the base year. The variables exports and imports are measured in current price in the USD, whereas GDP is measured at constant price. The measurement of GDP in constant prices is to eliminate the inflation factor. However, the subscripts t ($t = 1 \dots T$) and q ($q = 1 \dots Q$) show the time and lag length, respectively. However, the VECM equations using our variables based on the conventional error correction model equation can be written as follows.

$$\Delta GDP_t = \alpha_1 + \sum_{i=1}^q \beta_{1i} \Delta GDP_{t-i} + \sum_{i=1}^q \beta_{2i} \Delta Exports_{t-i} + \sum_{i=1}^q \beta_{3i} \Delta Imports_{t-i} + \varphi_1 ECT_{t-1} + \varepsilon_{1t} \quad (4)$$

$$\Delta Exports_t = \alpha_2 + \sum_{i=1}^q \beta_{11i} \Delta Exports_{t-i} + \sum_{i=1}^q \beta_{12i} \Delta Imports_{t-i} + \sum_{i=1}^q \beta_{13i} \Delta GDP_{t-i} + \varphi_2 ECT_{t-1} + \varepsilon_{2t} \quad (5)$$

$$\Delta Imports_t = \alpha_3 + \sum_{i=1}^q \beta_{21i} \Delta Imports_{t-i} + \sum_{i=1}^q \beta_{22i} \Delta Exports_{t-i} + \sum_{i=1}^q \beta_{23i} \Delta GDP_{t-i} + \varphi_3 ECT_{t-1} + \varepsilon_{3t} \quad (6)$$

α_s is the constant to be obtained in each of the equations (VECM). The ECT_{t-1} is one period lagged in the error term. Q represents the lagged length, β_s and φ_s are the coefficients of the variables to be estimated. However, ε_s are the residual terms and are not serially correlated. The ECT , φ shows the speed of adjustment since it measured the rate at which the variable of interest returns to equilibrium in case of any deviation in the independent variable. Δ represents the first difference in the variables.

2.3. Ethics

The data for this study was secondary data. The researchers ensured that the data was ethically sourced and all cited documents are referenced. The study and its findings pose no harm or threat.

3. Results

3.1. Stationarity test

Checking the property of the time series, the ADF and KPSS tests were employed. The study tested for unit root existence in all the variables at a level and first difference. The p -values greater than 5% indicate a unit root (non-stationary) under the ADF test. However, under the KPSS, the test statistic must be higher than 10% of the critical value to reject the null hypothesis of no unit root. Tables 1 and 2 show the ADF and KPSS unit root outcomes.

Table 1

ADF Unit Root Test at Levels and First Difference

Variables	Sample period	ADF T -stat	p -value	Critical value (5%)	ADF T -stat	p -value	Critical value (5%)
GDP	1994–2020	-1.192	0.912	-0.061	-4.159	0.005	-1.292
Exports	1991–2020	-1.721	0.742	-0.145	-2.970	0.003	-0.561
Imports	1991–2020	-2.027	0.586	-0.201	-4.800	0.000	-0.987

Source: Authors' calculations using World Bank Data.

The ADF output shows that GDP, imports, and export were non-stationarity time series. However, all the variables became stationary with the first difference. Therefore, the variables were integrated at order one I (1). The first difference test in exports and imports was from 1991 to 2020, whereas GDP was from 1994. The KPSS unit root test was employed to further confirm the unit root found by the ADF test. Table 2 shows the result of the KPSS test.

Table 2

KPSS Unit Root Test at the Level and First Difference

Variables	Sample size	T-stats	p-value	T-stats	p-value
GDP	1990–2020	0.194	0.020	0.096	>0.10
Exports	1990–2020	0.188	0.025	0.107	>0.10
Imports	1990–2020	0.156	0.045	0.111	>0.10

Source: Authors' calculations using World Bank Data.

The KPSS test findings are like the ADF test, which confirmed that GDP, exports, and imports are non-stationary and integrated at first order difference.

3.2. Johansen cointegration test

Under the Johansen test, there are two special tests: trace and likelihood maximum. The trace and likelihood tests support the rank hypothesis. Rank (0) states that there is no cointegration equation between the variables, whereas, at rank (1), there is at most one cointegration equation. In most cases, the trace test is preferred, but in a situation where the trace and likelihood tests produce the same p-value, the significance level is higher. However, in this test, the p-value must be greater than 5% to accept that there is a cointegration equation in both ranks (0) and (1). The output-adjusted sample range for all the cointegration was from 1994 to 2020. Table 3 shows the cointegration test between exports, imports and GDP. The test is performed with an unrestricted constant.

Table 3

Johansen Test Between GDP, Exports and Imports

Rank	Eigenvalue	Trace test	p-value	Likelihood maximum test	p-value	Conclusion
0	0.799	65.632	0.000	41.800	0.000	Rejected
1	0.596	23.832	0.002	23.550	0.001	Rejected
2	0.011	0.283	0.595	0.283	0.595	Not rejected

Note: Adjusted sample range: 1994 to 2020.

Source: Authors' calculations using World Bank data.

The null hypothesis at the ranks 0 and 1 are rejected because the p-values from the trace and likelihood maximum test were lower than the 5% significance level. However, at rank 2, the null hypothesis is not rejected since both tests produced p-values greater than the critical value. Therefore, the Johansen test proved that there is a long-run relationship between the variables. However, the cointegration coefficients of exports and imports were from the renormalised beta. The cointegration equation using GDP as the dependent variable is as follows:

$$\text{GDP} = 0.824 (\text{exports}) + 1.595 (\text{Imports}) - 82$$

The equation showed that in the long run, there is a positive relationship among the variables towards economic growth in Ghana.

3.3. Vector error correction model

The variables (GDP, exports and imports) are cointegrated, which was indicated by the Johansen test. The error correction model can be estimated using Equations (4)–(6). The VECM model confirms the cointegration and assesses the speed of adjustment in the event of any deviation from equilibrium. The ECT at one period lag must be negative and significant to prove the causal relationship between the variables. Table 4 shows the VECM using exports as the dependent variable.

Table 4

VECM-First Difference Between Exports, GDP and Imports

Variable	Coefficient	Std. error	Test-ratio	p-value
Constant	4.376	1.631	2.683	0.016**
Δ Exports_1	-0.989	0.659	-1.503	0.152
Δ Exports_2	-0.921	0.512	-1.798	0.091*
Δ Exports_3	0.945	0.969	0.975	0.344
Δ GDP_1	0.041	0.926	0.044	0.966
Δ GDP_2	2.231	0.820	2.719	0.015**
Δ GDP_3	-3.219	0.989	-3.254	0.005***
Δ Imports_1	0.291	0.340	0.858	0.4038
Δ Imports_2	-1.204	0.410	-2.939	0.001***
Δ Imports_3	-0.849	0.403	-2.106	0.0514*
EC1	-0.637	0.174	-3.663	0.002***
Adjusted R^2 =				
R^2 = 0.69	0.51	DW = 2.075		

Note: Significant codes: ***1%, **5%, *10%; DW (Durbin-Watson).

Adjusted sample size 1994–2020.

Source: Authors calculation using World Bank Data.

The ECT coefficient of (-0.637) indicates that in terms of any disequilibrium, the variables will converge to equilibrium at an adjustment of over 63.7% in the preceding year. Consequently, the lagged two of exports negatively affect the current volume of exports, whereas the second lag period of GDP positively influences exports. The lagged three of GDP negatively impacts exports. The second and third lags of imports harm exports. Therefore, the significant negative coefficient ECT of exports indicates a long-term interdependence among the variables. The R^2 indicates that 69% of the variation was explained in exports by the regressors. However, the VECM using imports as the dependent variable is in Table 5.

Table 5

VECM-First Difference Between Imports, Exports and GDP

Variable	Coefficient	Std. error	Test-ratio	p-value
Constant	3.864	2.230	1.733	0.102
Δ Exports_1	0.175	0.900	0.195	0.847
Δ Exports_2	-1.278	0.699	-1.826	0.087*
Δ Exports_3	0.981	1.325	0.741	0.469
Δ GDP_1	-1.288	1.266	-1.017	0.324
Δ GDP_2	3.184	1.122	2.838	0.012**
Δ GDP_3	-3.262	1.353	-2.411	0.028**
Δ Imports_1	0.365	0.465	0.786	0.443
Δ Imports_2	-0.815	0.560	-1.456	0.165
Δ Imports_3	-0.566	0.551	-1.026	0.320
EC1	-0.457	0.238	-1.922	0.073*
Adjusted R^2 =				
R^2 = 0.56	0.28	DW = 2.007		

Note: Significant codes: **5%, *10%; DW (Durbin-Watson).

Adjusted sample size 1994–2020.

Source: Authors calculation using World Bank Data.

The ECT coefficient (-0.457) of imports means that, in the case of any disequilibrium, the variables will converge at equilibrium by adjusting over 45.7% in the preceding year. Lag two of GDP positively influences imports, whereas its lag three harms imports. The lagged two exports negatively affect imports. Conversely, the R^2 of 0.56 indicates 56% of the variation explained in imports by exports and GDP. However, Table 6 indicates the VECM using GDP as the explained variable.

Table 6
VECM-First Difference Between GDP, Exports and Imports

Variable	Coefficient	Std. error	Test-ratio	<i>p</i> -value
constant	3.152	1.257	2.507	0.023**
ΔExports_1	-0.291	0.508	-0.573	0.574
ΔExports_2	0.214	0.395	0.543	0.595
ΔExports_3	0.220	0.747	0.295	0.772
ΔGDP_1	0.308	0.714	0.432	0.672
ΔGDP_2	0.756	0.632	1.196	0.249
ΔGDP_3	-1.467	0.763	-1.923	0.072*
ΔImports_1	-0.067	0.262	-0.255	0.802
ΔImports_2	-0.719	0.316	-2.278	0.037**
ΔImports_3	-0.380	0.311	-1.221	0.240
EC1	-0.377	0.134	-2.819	0.012**
Adjusted R^2 =				
$R^2 = 0.75$	0.60	DW = 2.127		

Note: Significant codes: **5%, *10%; DW (Durbin-Watson).

Adjusted sample size 1994–2020.

Source: Authors calculation using World Bank Data.

The ECT coefficient (-0.377) of the dependent variable (GDP) shows that in the case of any deviation from equilibrium, the variables will adjust by over 37.7% in the following year. Based on the outcome in Table 6 from the VECM confirms a long-run independency between exports, imports and economic growth. Conversely, the R^2 of 0.75 represents 75% of the variation explained in GDP by exports and imports.

3.4. Granger causality test

Under these models, the *F*-test and *p*-values are used to determine whether the hypothesis is rejected or not accepted. The *p*-values must be significant to reject the hypothesis and *p*-values greater than 5% indicates no short-run effects. After verifying the long-term relationships and interdependencies between the variables through the Johansen test and VECM, it is significant to investigate the short-term impacts on economic growth. The Granger causality test with GDP as the dependent variable is in Table 7.

Table 7
Granger Causality Test Between GDP, Exports and Imports

Null Hypothesis	Observations	<i>F</i> -test	Probability
Exports do not granger cause GDP	27	11.677	0.0002
Imports do not granger cause GDP	27	10.482	0.0004

Source: Authors' Calculations using World Bank data.

The outcome in Table 7 indicated that exports and imports have a short-run impact on Ghana's GDP. The variables Granger cause GDP because their p -values are statistically significant. However, Table 8 displayed the Granger causality test with export as the explained variable.

Table 8

Granger Causality Test Between Exports, Imports and GDP

Null hypothesis	Observations	F-test	Probability
Imports do not granger cause Exports	27	9.112	0.0008
GDP does not granger cause Exports	27	6.6924	0.0032

Source: Authors' calculations using World Bank data.

The results in Table 8 confirm a short-run relationship between the variables because the p -values of both imports and GDP are significant, leading to the rejection of the null hypothesis. Conversely, the outcome of the Granger causality test using imports as the dependent variable is in Table 9.

Table 9

Granger Causality Test Between Imports, Exports and GDP

Null hypothesis	Observations	F-test	Probability
Exports do not granger cause Imports	27	11.672	0.0002
GDP does not granger cause Imports	27	9.6598	0.0006

Source: Authors' calculations using World Bank data.

The output in Table 9 proved that variables exports and GDP granger cause imports and confirm a short-term relationship between the variables. However, the outcome of the Granger causality test showed a bidirectional relationship between GDP, exports, and imports on economic growth in the Ghanaian economy.

4. Discussion

There is a positive relationship among the variables towards economic growth in Ghana. The positive impact of exports and imports may depend on the type of goods and services and their distribution. If imports are found in primary sectors only, it will lead to a long-run reduction in national productivity. It alters consumer behaviour decisions to select goods and services depending on their fundamental preferences and some macroeconomic aspects (Usman & Usman, 2022). Conversely, imports for industrial operations increase the GDP, all other things being equal. However, Enu et al. (2013) also found a long-run relationship through the Johansen test and shows that export and import are managed through trade policy implementation. Kugler (1991) indicated that it is impossible to rule out the possibility that exports do not enter the cointegrating relationships between investment, GDP and consumption. The trend of export movement and GDP are strongly correlated.

The significant negative coefficient ECT of exports indicates a long-term interdependence among the variables. Siaw et al. (2018) results in the long and short run reveal that cocoa export has a positive and significant impact on economic growth, whereas exporting pineapple and bananas harms economic growth in Ghana. Reza et al. (2019) empirical results showed that trade (exports) has a unique long-run equilibrium relationship with economic growth. Quicoe et al. (2017) findings indicate a strong inverse link between free zone exports and investments and economic growth. Nuhu and Bukari (2021) results indicate that whereas goods exports harm the real effective exchange rates, goods imports have a favourable impact. When both persistence in export and the potential endogeneity of the import

controls are considered imports from high-income nations have little impact on the export orientation of enterprises (Turco & Maggioni, 2013). Richard and John (2015) discovered that plants that export and import have higher productivity than plants that exclusively engage in one of these activities and findings from other nations. Abdullahi et al. (2011) provided evidence of the stage casual chain of exports, imports and income in developing nations.

The lagged two exports negatively affect imports. Mishra (2012) indicated the existence of a two-way relationship between import growth and income growth in the long run. The estimated results show that imports and output, both have a bidirectional relationship (Mishal & Abulaila, 2007). It has been determined that imports from abroad have harmed economic expansion (Tahir et al., 2015). The less significance of the ECT of imports indicates its weakness in the long-run relationship with exports and GDP on economic growth in Ghana. It is because, over the years, the nation had consistently recorded a negative trade balance. Adjei (2019) stated that both in the short and long terms, exchange rate volatility had a considerable negative impact on economic growth during the period. This is due to the high level of risk associated with investing, which discourages expansion and trade on a global scale. However, increased imports of capital and intermediate goods are evidence that import trade supports economic growth (Osei, 2012).

The overall outcome of the Johansen and VECM models indicated that there is a long-term interdependence among the variables studied. The results answered the question of whether there is a long-run relationship between the variables towards economic development in the Ghanaian economy. Balassa (1978) stated that disparities in the rate of income growth between nations have been significantly influenced by trade orientation. Ghana's high dependency on importation increases the prices of goods and services for domestic consumption in the long run. The rapid growth in imports should be directed to important sectors of the economy which can boost sustainable development in the long run. Imports products, particularly those related to technology and machinery can raise economic output. Where countries lack sufficient natural resources, imports of raw materials or natural resources are required, which increases income per capita (Basel et al., 2021). However, Hamdan (2016) found that the effect exports and imports have a positive impact on economic growth.

5. Conclusion

The willingness of countries to participate in international trade has benefited both developed and developing economies. Foreign trade can be enhanced through flexible tariffs that ensure the free movement of goods and services. Trade restrictions are higher in developing economies' which hinders the countries' capacity to unveil their significance. This study investigated the impact of international trade on economic development in Ghana. The study used data from the World Bank from 1990 to 2020 and examined using ADF, KPSS unit root tests, the Johansen cointegration test, the VECM and the Granger causality test. The ADF and KPSS unit root tests found export, import and GDP as non-stationary series at levels. The variables were integrated at first order I (1) to become stationary series. The cointegration test using Johansen found a long-term relationship between the selected variables, where exports and imports impact economic development positively. The Granger causality test between exports, imports and GDP found a bidirectional short-run relationship. The VECM established long-run interdependencies between the variables. The study concludes that exports and imports stimulate economic growth in Ghana.

The study recommends that government implement sound macroeconomic policies that boost trade significance in its economy and support domestic local industries' production for export. It can achieve by providing incentives and credit facilities to domestic firms that would empower them to produce on a large scale for exports. There should be a reduction in the high importation of goods and

services that affects domestic industries' productivity. However, the outcome may not be adequate to explain all the factors influencing the country. Future research should increase the number of variables and observation range to capture a more in-depth result.

References

- Abdullahi, D. A., Enjiang, C., & George, M. (2011). The role of exports, FDI and imports in development: Evidence from Sub-Saharan African countries. *Applied Economics*, 43(26), 3719–3731. <https://www.tandfonline.com/doi/abs/10.1080/00036841003705303>
- Adegboyega, R. R. (2017). The impact of export and import on economic growth in Nigeria: Evidence from VAR approach. *Journal of Management and Social Sciences*, 6(2), 349–364. <https://fountainjournals.com/index.php/JMSS/article/view/148>
- Adjei, E. (2019). Exchange rate volatility and economic growth in Ghana. *International Journal of Business and Social Science*, 10(4), 105–118. <https://www.academia.edu/download/75518848/13.pdf>
- Afzal, N. I., & Manni, H. U. (2012). Effect of trade liberalization on economic growth of developing countries: A case of Bangladesh economy. *Journal of Business, Economics & Finance*, 1(2), 37–44. <https://dergipark.org.tr/en/pub/jbef/issue/32420/360521>
- Akhter, M. (2015). The impact of export and import on economic growth in Bangladesh. *World Vision*, 9(1), 66–81.
- Augustin, K. (1990). Exports and economic growth: The African case. *World Development*, 18(6), 831–835. <https://www.sciencedirect.com/science/article/pii/0305750X9090005I>
- Balassa, B. (1978). Exports and economic growth. *Journal of Development Economics*, 5, 181–189. <https://www.sciencedirect.com/science/article/pii/0304387878900068>
- Basel, J. A., Hafnida, H., & Mohammad, S. O. (2021). Relationship among export, import, and economic growth: Using co-integration analysis. *Psychology and Education*, 58(1), 5126–5134. <https://tinyurl.com/vxh8dw6h>
- Bharti, M. S. (2023). The sustainable development and economic impact of China's belt and road initiative in Ethiopia. *East Asia*, 40, 175–194. <https://link.springer.com/article/10.1007/s12140-023-09402-y>
- Bibi, S., Ahmad, T. S., & Rashid, H. (2014). Impact of trade openness, FDI, exchange rate and inflation on economic growth: A case study of Pakistan. *International Journal of Accounting and Financial Reporting*, 4(2), 236–256. <https://doi.org/10.5296/ijafr.v4i2.6482>
- Boame, K. (1998). Primary-export-led growth: The evidence of Ghana. *Journal of Economic Development*, 23(1), 175–194. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=db7c6f95352e68118475c0a50b5c519a81120c6e>
- Capelleras, J. L., Martin-Sanchez, V., & Zhang, C. (2023). Does social desirability of entrepreneurship matter for early-stage entrepreneurs' internationalization? The moderating role of economic freedom. *BRQ Business Research Quarterly*, 23409444221144462. <https://journals.sagepub.com/doi/abs/10.1177/23409444221144462>
- Chiaraah, A. (2019). Monetary policy and trade openness in Ghana. *Ghana Journal of Development Studies*, 16(2), 241–266. <https://www.ajol.info/index.php/gjds/article/view/188594>
- Devkota, L. M. (2019). Impact of export and import on economic growth: Time series evidence from India. *Dynamic Econometric Models*, 29–40. <https://doi.org/10.12775/DEM.2019.002>
- Dickey, W., & Fuller, W. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74, 427–431. <https://doi.org/10.1080/01621459.1979.10482531>

- Yeboah, E., Chibalamula, H. C., Atiso, F., & Amankwaa-Opoku, W. (2023). The effect of international trade on economic growth: Evidence from Ghana. *Global Journal of Business, Economics, and Management: Current Issues*, 13(1), 91-105. <https://doi.org/10.18844/gjbem.v13i1.8705>
- Dosi, G., Virgillito, M. E., & Yu, X. (2022). Gains from trade or from catching-up? Value creation and distribution in the era of China's WTO accession. *Eurasian Business Review*, 1–48. <https://link.springer.com/article/10.1007/s40821-022-00212-5>
- Eggoh, C., & Khan, M. (2014). On the nonlinear relationship between inflation and economic growth. *Research in Economics*, 68(2), 133–143. <https://www.sciencedirect.com/science/article/pii/S1090944314000027>
- Enu, P., Havi, D. K., & Hagan, E. (2013). The impact of foreign trade on economic growth in Ghana (1980–2012). *International Journal of Academic Research in Economics and Management Science*, 2(5), 174–191. <https://search.proquest.com/openview/b525763922630b11d23e8011621ff080/1.pdf?pq-origsite=gscholar&cbl=1056445>
- Fosu, K. A. (1990). Export composition and the impact of exports on economic growth of developing economies. *Economics Letters*, 34(1), 67–71. <https://www.sciencedirect.com/science/article/pii/0165176590901832>
- Granger, C. (1981). Some properties of time series data and their use in econometric model specification. *Journal of Econometrics*, 16, 121–130. <https://www.academia.edu/download/34342991/1-s2.0-0304407681900798-main.pdf>
- Gylfason, T. (1997). *Exports, inflation, and growth* (pp. 2–39). International Monetary Fund. <https://www.imf.org/external/pubs/ft/wp/wp97119.pdf>
- Hamdan, S. (2016). The effect of exports and imports on economic growth in the Arab countries: A panel data approach. *Journal of Economics Bibliography*, 3(1), 100–107. <http://www.kspjournals.org/index.php/JEB/article/view/600>
- Hertel, W., Preckel, V., & Ivanic, M. (2001). "Multilateral trade liberalization and poverty reduction". World Bank Working Paper.
- Hobbs, S., Dimitrios, P., & Mostafa, E. A. (2021). Does Foreign direct investment and trade promote economic growth? Evidence from Albania. *Economies*, 9(1), 1–19. <https://www.mdpi.com/946978>
- Hoh, J., & Tang, K. B. (2021). Multinational corporation finance and accounting: An empirical transaction cost economics analysis. *IIMB Management Review*, 33(4), 337–346. <https://www.sciencedirect.com/science/article/pii/S0970389621001166>
- Hussain, A. M. (2014). Economic growth, exports and imports in Pakistan: Granger causality analysis. *Journal of Business in Developing Nations*, 13, 31–62. http://www.jjay.cuny.edu/sites/default/files/contentgroups/center_international_human_rights/jbdnv1302_0.pdf
- Jacob, T., Raphael, R., & Ajina, V. (2021). Impact of exchange rate and inflation on the export performance of the Indian economy: An empirical analysis. *BIMTECH Business Perspective*, 1–13. https://www.bimtech.ac.in/wp-content/uploads/2023/01/1682imguf_TomJacob_BSP_rev1.pdf
- Jiying, W., Niyonsaba, E., & Adjei, K. B. (2020). Impact of exports and imports on economic growth in Burundi. *EPRA International Journal of Economic and Business Review*, 8(2), 17–25. <https://doi.org/10.36713/epra0713>
- Kugler, P. (1991). Growth, exports, and cointegration: An empirical investigation. *Weltwirtschaftliches Archiv*, 127(1), 73–82. <https://doi.org/10.1007/BF02707311>
- Miezah, S. W. (2021). Impact of import and export on the Ghanaian economy. *International Journal of Scientific Research in Science and Technology*, 8(5), 377–389. DOI: 10.32628/IJSRST218554.
- Mishal, Z., & Abulaila, Z. (2007). The impact of foreign direct investment and imports on economic growth: The case of Jordan. *Journal of Economic and Administrative Sciences*, 23(1), 1–31. <https://www.emerald.com/insight/content/doi/10.1108/10264116200700001/full/html>

- Yeboah, E., Chibalamula, H. C., Atiso, F., & Amankwaa-Opoku, W. (2023). The effect of international trade on economic growth: Evidence from Ghana. *Global Journal of Business, Economics, and Management: Current Issues*, 13(1), 91-105. <https://doi.org/10.18844/gjbem.v13i1.8705>
- Mishra, P. K. (2012). The dynamics of the relationship between imports and economic growth in India. *South Asian Journal of Macroeconomics and Public Finance*, 1(1), 57–79. <https://journals.sagepub.com/doi/pdf/10.1177/227797871200100105>
- Mohsen, S. A. (2015). Effects of exports and imports on the economic growth of Syria. *Euro-Asian Journal of Economics and Finance*, 3(4), 253–261. https://www.ijmae.com/article_117625_c9763db822cf64247077c77063e79988.pdf
- Mukit, M. H. (2020). An econometric analysis of the macroeconomic determinants impact of gross domestic product (GDP) in Bangladesh. *Atlantic Review of Economics – AROEC*, 5(2), 9–20. <http://www.aroec.org/ojs/index.php/ARoEc/article/view/120/85>
- Muritala, T. (2011). Investment, inflation, and economic growth: Empirical evidence from Nigeria. *Research Journal of Finance and Accounting*, 2(5), 68–76. https://www.academia.edu/download/13142159/11.Investment_Inflation_and_Economic_Growth-Empirical_Evidence_from_Nigeria.pdf
- Nuhu, P., & Bukari, D. (2021). An analysis of export, import, and exchange rate oscillation in Ghana. *IJEPS*, 15, 301–327. <https://link.springer.com/article/10.1007/s42495-021-00060-7>
- Okyere, I., & Jilu, L. (2020). The impact of export and import to economic growth of Ghana. *European Journal of Business and Management*, 12(21), 130–138. https://www.researchgate.net/profile/Isaac-Okyere/publication/343696008_The_Impact_of_Export_and_Import_to_Economic_Growth_of_Ghana/links/5f3a8ca4299bf13404cb40ea/The-Impact-of-Export-and-Import-to-Economic-Growth-of-Ghana.pdf
- Osei, V. (2012). Import demand and economic growth analysis in Ghana. *Journal of Economics and Sustainable Development*, 3(14), 73–90. <https://www.iiste.org/Journals/index.php/JEDS/article/viewFile/3725/3774>.
- Quaicoo, A., Aboagye, Q., & Bokpin, A. (2017). Assessing the impact of export processing zones on economic growth in Ghana. *Research in International Business and Finance*, 42, 1150–1163. <https://www.sciencedirect.com/science/article/pii/S0275531916303609>
- Reza, M. S., Fan, H., Wang, B., Bhuiyan, A. M., & Mehedi, K. A. (2019). Trade (exports) as an opportunity for Bangladesh: A VECM analysis. *The International Trade Journal*, 33(1), 95–110. <https://www.tandfonline.com/doi/abs/10.1080/08853908.2018.1511489>
- Richard, H., & John, M. (2015). The impact of exporting and importing goods and services on productivity in the UK. *The World Economy*, 38(11), 1781–1794. <https://onlinelibrary.wiley.com/doi/abs/10.1111/twec.12292>
- Secretariat. (2022). *Trade policy review* (pp. 1–109). World Trade Organization WT/TPR/S/427. https://www.wto.org/english/tratop_e/tpr_e/s427_e.pdf
- Shingil, E. M., & Panshak, Y. (2017). Exchange rate dynamics, inflation and economic growth: Empirical evidence from Turkish economy. *IOSR Journal of Humanities and Social Science*, 9(3), 42–49. <https://www.academia.edu/download/86313831/G2209034249.pdf>
- Shirokova, G., Ivonen, L., & Gafforova, E. (2019). Strategic entrepreneurship in Russia during economic crisis. *Foresight and STI Governance*, 13(3), 62–76. <https://foresight-journal.hse.ru/data/2019/10/01/1543331439/Shirokova.pdf>
- Siaw, A., Jiang, Y., Pickson, R., & Dunya, R. (2018). Agricultural exports and economic growth: A disaggregated analysis for Ghana. *Theoretical Economics Letters*, 8(11), 2251–2270. https://www.scirp.org/html/22-1501575_86616.htm
- Taghavi, M., Goudarzi, M., Masoudi, E., & Gashti, P., (2012). Study on the impact of export and import on economic growth in Iran. *Journal of Basic and Applied Scientific Research*, 2(12), 12787–12794. <https://www.researchgate.net/profile/Elham-Masoudi>

Yeboah, E., Chibalamula, H. C., Atiso, F., & Amankwaa-Opoku, W. (2023). The effect of international trade on economic growth: Evidence from Ghana. *Global Journal of Business, Economics, and Management: Current Issues*, 13(1), 91-105. <https://doi.org/10.18844/gjbem.v13i1.8705>

[2/publication/362657903 Study on the Impact of Export and Import on Economic Growth in Iran/links/62f6927b52130a3cd717e7c5/Study-on-the-Impact-of-Export-and-Import-on-Economic-Growth-in-Iran.pdf](https://www.scopus.com/publication/362657903/Study-on-the-Impact-of-Export-and-Import-on-Economic-Growth-in-Iran/links/62f6927b52130a3cd717e7c5/Study-on-the-Impact-of-Export-and-Import-on-Economic-Growth-in-Iran.pdf)

- Tahir, M., Khan, I., & Shah, M. A. (2015). Foreign remittances, foreign direct investment, foreign imports and economic growth in Pakistan: A time series analysis. *Arab Economic and Business Journal*, 10(2), 82–89. <https://www.sciencedirect.com/science/article/pii/S2214462515000110>
- Turco, A., & Maggioni, D. (2013). On the role of imports in enhancing manufacturing exports. *The World Economy*, 36, 93–120. <https://onlinelibrary.wiley.com/doi/abs/10.1111/twec.12020>
- Uddin, H., & Khanam, M. J. (2017). Import, export and economic growth: The case of lower income country. *Journal of Business and Management*, 19(1), 37–42. <https://www.academia.edu/download/69676138/e04b5413d67e951297209e8fb6e287d0da8d.pdf>
- Ugochukwu, S., & Chinyere, P. U. (2013). The impact of export trading on economic growth in Nigeria. *International Journal of Economics, Business, and Finance*, 1(10), 327–341. <https://tinyurl.com/7r97zkbv>
- Usman, K., & Usman, B. (2022). The effects of imports and economic growth in Chinese economy: A Granger causality approach under VAR framework. *Journal of Risk and Financial Management*, 15(531), 1–14. <https://www.mdpi.com/1911-8074/15/11/531>
- Velnampy, T., & Achchuthan, S. (2013). Export, import, and economic growth: Evidence from Sri Lanka. *Journal of Economics and Sustainable Development*, 4(9), 147–155. <https://www.iiste.org/Journals/index.php/JEDS/article/view/6493/6514>
- Were, M. (2015). Differential effects of trade on economic growth and investment: A cross-country empirical investigation. *Journal of African Trade*, 2(1–2), 71–85. <https://www.sciencedirect.com/science/article/pii/S2214851515000067>
- Yennu, T. A. (2018). International trade and economic growth in Ghana; Benefits, constraints, and impacts. *Scholar Journal of Applied Sciences and Research*, 19–22. <http://innovationinfo.org/articles/SJASR/SJASR-2-113.pdf>
- Yolanda, H. (2017). Impacts of export development on unemployment in Indonesia. *European Research Studies Journal*, 20(3), 758–773.
- Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade*, 3(1–2), 41–56. <https://www.sciencedirect.com/science/article/pii/S2214851517300014>