The Influence of Traditional Exports on Economic Growth in Tanzania: The VECM Analysis
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Abstract

Background: Tanzania, like other developing countries, sees commerce as one of the most important tools for the country’s growth and progress. Given that export is one of Tanzania’s primary economic sectors, several empirical studies on the relationship between international commerce and the country’s economic growth have been conducted.

Objectives: The study looked primarily at the influence of traditional exports as the primary independent variable. Furthermore, the Natural Logarithm of Terms of Trade (TOT), the currency rate, and Foreign Direct Investment (FDI) are control variables, whereas GDP is the dependent variable.

Methods: The research employed time-series data from the World Bank, the Bank of Tanzania (BOT), and the United Nations Conference on Trade and Development (UNCTAD) that spans 31 years from 1991 to 2021 based on the Vector Error Correlation Model (VECM).

Results: The findings revealed a link between Tanzania’s economic growth and traditional exports, trade terms and currency rate. Furthermore, studies have found a negative and substantial association between exchange rates and economic growth in both the short and long run.

Conclusion: The findings indicated that trade terms and traditional exports had a favorable and considerable influence on economic growth in the short run. In the long run, traditional exports and FDI had a negative and positive influence on economic growth, but trade terms had a considerable and positive effect. As a result, the study argues that Tanzania’s government should prioritize export promotion measures above traditional exports to accelerate Tanzania’s economic growth. The government should prioritize the establishment of factories that will add value to traditional export items.

Keywords: Developing countries, economic growth, Tanzania, Traditional Exports

JEL Classification: F43, N17, N70, O47
Introduction

Private domestic investment benefits a country's economy, society, and politics. Different economists are interested in the economic causes of country growth and wealth achievement at various levels. International commerce, among other things, has become a hot topic of discussion when it comes to economic growth drivers since it adds to GDP growth, exchange rate, current deficit correction, and Foreign Direct Investment (Dewi and Hung, 2019). Tanzania, for example, is a free market participant in overseas trade, accounting for 42% of GDP in 2021 (MoA, 2021). According to the most recent available country statistics from 2019, importers in Vietnam (21.1% of the global total), the Netherlands (21.1%), the United Arab Emirates (23%), Rwanda (2.7%), Uganda (3.1%), China (3.8%), the Democratic Republic of the Congo (3.8%), Kenya (5.8%), Belgium (6.3%), Switzerland (6.8%), India (19.2%), and South Africa purchased 77.4% of Tanzanian exports (UNCTAD, 2021). Tanzania's total export in 2020 is USD 1.7 billion (32.6% of total export of goods and services), with precious metals accounting for USD 1.7 billion (32.6% of total export of goods and services), copper accounting for USD 476.3 million (9.1%), ore, slag, and ash accounting for USD 416.9 million (8%), fruits and nuts accounting for USD 416.5 million (8%), and oil seeds accounting for USD 262.8 million (5%) (Nguto, 2020).

Tanzania initiated a variety of trade-related efforts, including trade liberalization in 1986, the establishment of the Tanzania Exporters Association (TANEXA), and the drafting of trade policy in 2003, among others (MoIT, 2013). Furthermore, Tanzania has signed a number of trade union agreements with other nations in order to boost its export performance, including the East African Community (EAC) in 1999 and the Southern Development Community (SADC) in 2003 (Nguto, 2020). Tanzania also benefits from trade agreements such as the African Growth and Opportunity Act (AGOA) of the United States and the European Union's Everything but Arms (EBA). These initiatives give the country duty-free access to the US and EU markets (Nguto, 2020). The goal is to reduce trade imbalances and alleviate economic issues. The most important characteristics of trade imbalance are worth of the country's export falls below the worth of its imports, the country will use more money to purchase imports rather than export goods (Mputu, 2016). In this circumstance, Terms of Trade are predictable to have a great effect on the rise of exports. Despite various programs, the contribution of export on the economic growth in Tanzania has been volatile as shown below in the Figure 1.

Figure 1
Tanzania Goods and Service Exports Trend from 1991 to 2021
Traditional export contributes significantly to market expansion, income generation, competition facilitation, job creation, and information exchange. Even though foreign commerce is critical to economic progress, the market for traditional items is volatile in terms of volume and price, affecting Tanzania's economic growth (Tripathi et al., 2021). Tanzania has implemented several trade and fiscal policy reforms to enhance exports since independence (Nguto, 2020). However, the value of the export share has remained low throughout time. Tanzania has never enjoyed a trade surplus since the 1980s, as evidenced by the fact that (Nguto, 2020). For example, Tanzania's trade imbalance expanded to USD 1,784.7 million in 2021 from USD 1140.7 million in 2020, with total exports being USD 6,751.1 million and imports totaling USD 9,678.3 million.

However, while examining the influence of exports on economic growth, they did not distinguish the effect of traditional as the independent variable. Urriola and Baral (2018) discovered, using a VAR model, that traditional agricultural exports had a favorable but small influence on economic growth in the short run. In explaining the variance in economic growth, the study disregarded other key variables such as terms of trade and currency rate. As a result, it is critical to include the VECM approach in this study, which adjusts in both the short and long run using the Error Correction Term (ECT), which is a crucial requirement for long-run equilibrium (Kagoma, 2019). Therefore, this research aims to fill the knowledge gap that exists in the literature by investigating the impact of traditional export to economic growth in developing countries specifically Tanzania.

**Review of Literature**

Heckscher-Ohlin Trade Theory; Absolute advantage and comparative advantage theories, as well as the Heckscher-Ohlin Samuelson model, are utilized in international trade and growth literature. The Heckscher-Ohlin-Samuelson model, which is an extension of the comparative advantage idea proposed by Eli Heckscher (1991) and Bertil Ohlin in 1933, was refined in 1948 by Paul Samuelson (Mkubwa, 2019). Countries have a varied variety of factor endowments, according to these economists. As a result, worldwide inequalities in factor endowments (labor/capital) describe the foundation for specialization and comparative cost gaps. Prebisch-singer theory; classical economists such as Thomas Malthus, David Ricardo, and others anticipated that when land and other natural resources became scarce, the terms of trade for conventional products would rise, forcing their prices up.

According to Andenew and Woldeyohannes (2021) used econometric approaches to evaluate the impact of international trade performance on Ethiopian economic growth. The study used yearly time series data from 1989/90 to 2018/19 to examine the pattern of export agricultural goods and economic growth in Ethiopia. The autoregressive distributed lag (ARDL) model was used to regress the following variables: export value, gross capital creation, gross labor force, real exchange rate, and imports. The Granger causality approach was used to assess the direction of causation between export and economic growth. Long-term data suggest that agriculture export has a positive and significant effect on economic growth. Mlambo et al. (2019) studied the influence of processed and unprocessed export items on South Africa's GDP from 1896 to 2012.

According to Omanus and Utonga (2019) examined the link between exports and Tanzania's economic development using time series data from 1980 to 2015. Exports to other countries are assessed as a percentage change in products and services, whereas economic growth is recorded as a percentage change in GDP. As part of the econometrics investigation, the existence of unit root, cointegration, and causality were all examined. The Johansen cointegration and granger causality tests were used to evaluate the long-run relationship between variables. The results of co-integration demonstrate that there is only one co-integrating equation. Economic growth
and exports were found to be linked using the causality test. The regression results suggest that there is a long-term relationship between Tanzanian exports and economic development (Okyere & Mensah, 2020).

Previous studies similar to this study did not capture the terms of trade, exchange rate and FDI, most of studies which have already been conducted. In explaining the variance in economic growth, the study disregarded other key variables such as terms of trade and currency rate. As a result, it is critical to include the VECM approach in this study, which adjusts in both the short and long run using the Error Correction Term (ECT), which is a crucial requirement for long-run equilibrium (Kagoma, 2019).

**Figure 2**
*Conceptual Framework*

Source: Constructed from Kagoma, 2019.

**Material and Methods**

The annual time series research approach was employed because it permits statistical conclusions to be applied when analyzing the relationship between two or more variables (Mohamed, 2020). The research looked at annual repeated data from the same unit of analysis because they provide insight into the sources of trends or systematic patterns throughout time. The key factors of production in this model are capital and labor forces (Edeme et al., 2016), as specified in the function below.

\[ Y_t = f (L_t, K_t) \]  \hspace{1cm} (1)

Where, \( L_t \) = Terms of Trade and \( K_t \) = Exchange Rate

To achieve the major goals of how traditional export and total export effect Tanzania's economic growth. It was important to integrate the study’s goal variable and replace for \( L_t, K_t \). The function presented as follows:

\[ Y_t = f (TX_t, TOT_t, EX_t, FDI_t) \]  \hspace{1cm} (2)

However, the model with natural logarithm to evaluates the effect analysis of traditional export on the economic growths in Tanzania is presented as follows:

\[ \log GDP_t = \beta_0 + f_3 \log TX_t + f_1 \log TOT_t + f_2 \log EX_t + f_3 \log FDI_t + E_t \]  \hspace{1cm} (3)

\[ \log GDP_t = \beta_0 + f_3 \log TOT_t + f_2 \log EX_t + E_t \]  \hspace{1cm} (4)

Where, \( GDP_t \) = natural logarithm of Gross Domestic Product, \( TX \)=natural logarithm of traditional export, \( TOT \)= natural logarithm of Terms of trade, \( E \) = natural logarithm of real exchange rate, \( FDI \)= natural logarithm of foreign direct investment and \( \beta_0 \) to \( \beta_3 \) = coefficients.
Results and Discussion

Traditional Exports (TX)

Figure 4 shows that traditional exports from 1991 to 2021 fluctuated with an upward trend. Figure 3 provides a summary of economic growth and traditional export trends from the year 1991 to 2021.

**Figure 3**
*Trend of the Unit of GDP and Total Export*

![Trend of the Unit of GDP and Total Export](image)

*Source: BOT, 2022.*

Figure 3 shows that the traditional exports (TX) reached maximum value of USD 1021.8 million in 2021 and minimum value is USD 94.91 million in 1991 and make the difference of USD 926.9 million from the maximum value to minimum value. In 1991 the value was USD 94.91 million, then in 1992 rose to USD 175 million. An upward trend with significant implication to country economic growth observed from 1993, 1994, 1995 and 1996 were the total value of traditional stand for USD256.19 million, USD 336.83 million, USD 383.55 million, and USD 436.31 million. The consistent increase in the total value from 1991 to 1997 was associated with several reasons, accelerate reforms based on the tariffs was among of the reasons which act as catalyst for investment resulting to the increase of the exports. In the next years the decline of traditional exports was associated with a decline in production levels, poor strategies on export sector, resulted to downward trend of traditional exports from a total value of USD 435.34 million in 1997 to USD 220 million in 2003 (BOT, 2002).

Correlation Analysis

On this study correlation Analysis performed by Pairwise matrix, the correlation coefficient of the test reveal how strongly the chosen independent factors affects the outcome variable by explaining the relationship that persists between independent variable and dependent variable (Dangal & Gajurel, 2021). The purpose of the test was to determine whether the variable was perfectly collinear before running the test. A low correlation indicates that the variables are hardly related, while a high correlation means that two or more variables are highly related. The results of correlation matrix for all variables are presented in Table 1.
Table 1

Correlation Matrix

<table>
<thead>
<tr>
<th>Variable</th>
<th>GDP</th>
<th>TX</th>
<th>TOT</th>
<th>EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX</td>
<td>0.795</td>
<td>1.000</td>
<td>0.000*</td>
<td>0.000*</td>
</tr>
<tr>
<td>TOT</td>
<td>0.852</td>
<td>0.795</td>
<td>1.000</td>
<td>0.000*</td>
</tr>
<tr>
<td>EX</td>
<td>-0.531</td>
<td>-0.443</td>
<td>-0.364</td>
<td>1.000</td>
</tr>
<tr>
<td>FDI</td>
<td>0.134</td>
<td>-0.182</td>
<td>-0.202</td>
<td>-0.016</td>
</tr>
</tbody>
</table>

*Source: Researcher Estimation Results, 2022.*

Variance Inflation Factor Test (VIF)

The study employed the Variance Inflation Factor (VIF) as a correlation test to confirm. The VIF is proposed as a good indicator for multicollinearity because it gives the degree of collinearity of the predictors. According to Kagoma (2019) to the problem with collinearity to the independents variable it leads to the underestimation of the statistical significance of a given variable. The Rule of thumb of the VIF value suggested that, the value less than 10 has been justified as an indicator of the absence of multicollinearity among the independent.

Table 2

Variance Inflation Factor Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>I/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX</td>
<td>1.26</td>
<td>0.794</td>
</tr>
<tr>
<td>TOT</td>
<td>1.17</td>
<td>0.853</td>
</tr>
<tr>
<td>TX</td>
<td>1.16</td>
<td>0.865</td>
</tr>
<tr>
<td>FDI</td>
<td>1.04</td>
<td>0.946</td>
</tr>
</tbody>
</table>

*Source: Researcher Estimation Results, 2022.*

Unit Root Test

Test of unit root is an important concept in analysis process as it provides useful analytical tools and act as pre statistical tests. Stationarity means that the statistical properties of time series do not change over time (Mohamed, 2020). Augmented dickey fuller (ADF) and the Phillips-Perron (PP) tests were used for each variable in levels and differences to check the presence of the unit root. Unit root test as important test in time series analysis since it helps to avoiding spurious regression by applying the appropriate model. The best results were obtained from the ADF test and PP test and used to select the appropriate model (VECM) to be used. Table 3 shows the unit test for each variable.
Table 3

Stationarity Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>First Difference</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Statistics</td>
<td>Critical Value</td>
<td>Test Statistics</td>
</tr>
<tr>
<td>GDP</td>
<td>-1.434</td>
<td>-2.989</td>
<td>-3.489*</td>
</tr>
<tr>
<td>TX</td>
<td>-0.832</td>
<td>-2.989</td>
<td>-3.853*</td>
</tr>
<tr>
<td>TOT</td>
<td>0.565</td>
<td>-2.989</td>
<td>-4.669**</td>
</tr>
<tr>
<td>EX</td>
<td>-2.317</td>
<td>-2.989</td>
<td>-7.590*</td>
</tr>
<tr>
<td>FDI</td>
<td>-1.714</td>
<td>-2.989</td>
<td>-6.179*</td>
</tr>
</tbody>
</table>

The PP TEST

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>First Difference</th>
<th>Order Of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Statistics</td>
<td>Critical Value</td>
<td>Test Statistics</td>
</tr>
<tr>
<td>GDP</td>
<td>-0.832</td>
<td>-2.986</td>
<td>-4.116*</td>
</tr>
<tr>
<td>TX</td>
<td>-2.692</td>
<td>-2.986</td>
<td>-4.625*</td>
</tr>
<tr>
<td>TOT</td>
<td>1.227</td>
<td>-2.986</td>
<td>-4.667*</td>
</tr>
<tr>
<td>EX</td>
<td>-3.979</td>
<td>-2.986</td>
<td>-3.729*</td>
</tr>
<tr>
<td>FDI</td>
<td>-1.673</td>
<td>-2.986</td>
<td>-8.409*</td>
</tr>
</tbody>
</table>

Source: Researcher Estimation Results, 2022.

Results in Table 3 revealed that all variables used in the study were non-stationary at their levels, as confirmed by their test statistics which are greater than their corresponding critical values at 5% levels of significance. However, after taking their first differences as a way common way to transforming a non-stationary series to be stationary, all variables became stationary. Results supported by their test statistics which are now less than their corresponding critical values at 5% levels of significance. Therefore, the null hypothesis of the unit root was rejected at 0.05 levels of significance; suggesting that all variables of interest are integrated of order one (I(1)) which means is stationary after first difference. Figure 4 below indicates that all variables are a stationary logarithm of FDI.

Figure 4

Time Series Plot for Smoothed Data
Normality Test

The test for normality was performed to ensure that residuals follow a normal distribution. The common used normality test by different economist (Machumu, 2020; Kalaitzi & Chamberlain, 2020; Yusuf & Omar, 2019; Mputu, 2016) known as Jarque-Bera test. The data are said to be normally distributed if their overall probability is greater than 0.05. The hypothesis of the test is presented as; : normally distributed; : not normally distributed. Table 4 below presents the results of the test.

Table 4
Jarque- Bera Test

<table>
<thead>
<tr>
<th>Equation</th>
<th>Chi2</th>
<th>Df</th>
<th>Pro&gt;Chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.133</td>
<td>2</td>
<td>0.209</td>
</tr>
<tr>
<td>TX</td>
<td>1.038</td>
<td>2</td>
<td>0.595</td>
</tr>
<tr>
<td>TOT</td>
<td>4.149</td>
<td>2</td>
<td>0.126</td>
</tr>
<tr>
<td>EX</td>
<td>1.060</td>
<td>2</td>
<td>0.589</td>
</tr>
<tr>
<td>FDI</td>
<td>0.167</td>
<td>2</td>
<td>0.920</td>
</tr>
</tbody>
</table>

Source: Researcher Estimation Results, 2022.

Results in Table 4 show results from Jarque-Bera test. From the table the overall probability values and probability value for each variable is greater than 0.05. The overall probability value is 0.58690 which is greater than 0.05 (5%) critical value, hence the null hypothesis was accepted that the residuals are normally distributed. The data used for analysis followed normal distribution which means that the number of shocks that occurred throughout the sample period did not impact the findings. Figure 5 shows normal distribution of the data used in the study.

Figure 5
Normal Distribution

Figure 5 shows histogram is bell-shaped which implies the residual are normally distributed.
Heteroscedasticity Test
The model was subjected to heteroscedasticity test using Cameron and Trivedi’s decomposition of LM-test. The test considers the variation of mean and variance to endogenous variable over time (Mohamed, 2020). Table 5 below shows that the model is free with heteroscedasticity since the P-value for heteroscedasticity is greater than 5% of probability.

Table 4.5
*Cameron and Trivedi’s Decomposition of IM-Test*

<table>
<thead>
<tr>
<th>Source</th>
<th>Ch2</th>
<th>df</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heteroscedasticity</td>
<td>28.683</td>
<td>20</td>
<td>0.094</td>
</tr>
<tr>
<td>Skewness</td>
<td>6.941</td>
<td>5</td>
<td>0.225</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.280</td>
<td>1</td>
<td>0.257</td>
</tr>
</tbody>
</table>

*Source: Researcher Estimation Results, 2022.*

Results in Table 5 show that, probability value was 0.094, which is greater than 0.05. Hence that, the null hypothesis of homoscedasticity was accepted and conclude the residual of series has a constant variance from 1991 to 2021. Also, residual is normally distributed since p-value for skewness and Kurtosis is greater than 5% probability level.

Autocorrelation Test
Autocorrelation is the correlation between the error term arising in time series data. Such correlation in the error terms often arises from the correlation of the omitted variables that the error term captures. The study employed Lagrange-multiplier test for autocorrelation in the residuals. Table 6 below shows results of LM test.

Table 4.6
*Lagrange-Multiplier Test*

<table>
<thead>
<tr>
<th>Lag</th>
<th>Chi2</th>
<th>Difference</th>
<th>Prob &gt; chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50.474</td>
<td>36</td>
<td>0.0553</td>
</tr>
<tr>
<td>2</td>
<td>40.926</td>
<td>36</td>
<td>0.2631</td>
</tr>
<tr>
<td>3</td>
<td>35.486</td>
<td>36</td>
<td>0.4929</td>
</tr>
</tbody>
</table>

*Source: Researcher Estimation Results, 2022.*

Table 6 above suggests that the model does not suffer from serial correlation problem for all three lags. The p-value was greater than the 5% level which stand as 0.05529, 0.26312 and 0.49287 for 1, 2 and 3 lag respectively. Hence the null hypothesis of no serial correlation cannot be rejected.

Lag Length Selection
Lag length selection by information criteria was used to avoid the risk of losing degree of freedom, statistical insignificant of coefficient, multicollinearity and miss specification of errors that occurred during selection of lags (Woldeyohannes, 2021). Akaike Information Criterion (AIC), Hannan and Quinn Information Criterion (HQIC), and Schwarz Bayesian Information Criterion (SIBC) were used to determine the optimal lag lengths. Table 7 shows the lag length criteria results for GDP, traditional exports, terms of trade, exchange rate and Foreign Direct Investment.

Table 7
*Lag Length Selection*

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>HQIC</th>
<th>SBIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-0.949</td>
<td>-0.862</td>
<td>-0.664</td>
</tr>
<tr>
<td>1</td>
<td>-9.867</td>
<td>-9.257</td>
<td>-7.869</td>
</tr>
<tr>
<td>2</td>
<td>-11.086</td>
<td>-9.951</td>
<td>-7.375</td>
</tr>
<tr>
<td>3</td>
<td>-16.917*</td>
<td>-15.259*</td>
<td>-14.493*</td>
</tr>
</tbody>
</table>

*Source: Researcher Estimation Results, 2022.*
Results in Table 7 reveal that, the three optimal lags are the most appropriate lag to consider during analysis, because all three-selection criterion have minimum values of AIC, HQIC SBIC. From the rule of thumb "the lower the value the better the model". Hence lag 3 is preferred for this selection due to the fact that the smallest value of all three criterions lies at three lags.

**Cointegration Test**

All variables were thoroughly established and demonstrated to be integrated in same order I (1). This provide the rationale for conducting a cointegration test to determine whether the variables GDP, traditional exports (TX), terms of trade (TOT), exchange rate (EX) and Foreign Direct Investment (FDI) are abounded together in long-term or otherwise. The Johansen cointegration test was used in this analysis because it has many desirable statistical qualities and has been proven to be especially helpful in the number of comparatives investigations (Nguto, 2020; Rwenyagila, 2013). The Johansen cointegration test identifies all cointegration equations relevant to the variable employed in the investigation through comparing the trace statistics or max statistics. Rejected condition of the null hypothesis of no cointegration and acceptance of alternative hypothesis of cointegration exist if it is confirmed by test statistics which is greater than critical values. Table 8 below shows the results of trace statistics and Max-Eigen statistics.

**Table 8**

<table>
<thead>
<tr>
<th>Trace Statistics</th>
<th>Max-Eigen Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace statistic</td>
<td>Critical value</td>
</tr>
<tr>
<td>Maximum rank</td>
<td></td>
</tr>
<tr>
<td>r=0</td>
<td>275.908</td>
</tr>
<tr>
<td>r=1</td>
<td>182.432</td>
</tr>
<tr>
<td>r=2</td>
<td>101.679</td>
</tr>
<tr>
<td>r=3</td>
<td>59.694</td>
</tr>
<tr>
<td>r=4</td>
<td>20.266</td>
</tr>
<tr>
<td>r=5</td>
<td>0.529*</td>
</tr>
</tbody>
</table>

**Source:** Researcher Estimation Results, 2022.

Results in Table 8 showed that the null hypothesis of no cointegration is rejected at r=5. Findings revealed that there were at least five significant integration equations based on trace statistics, the conclusion which is supported by Max-Eigen. The results show the variables which were used in this study have the long-run association. Consequently, it is crucial to recognize the equations in concern and conduct a causality test by granger causality test.

**Vector Error Correction Model (VECM)**

In order to compare traditional export's effects on economic growth, the study used VECM approach. According to findings of the cointegration test, a maximum of five cointegration equations were found. Cointegration meets the VECM's condition, hence it is obvious that the model is ideal for this inquiry because it can be adjusted for both long and short-run effects. Table 9 shows the short run results.

**Table 9**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Err</th>
<th>z</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.799</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECT</td>
<td>-0.198</td>
<td>0.053</td>
<td>-3.761</td>
<td>0.000*</td>
</tr>
<tr>
<td>GDP</td>
<td>0.625</td>
<td>0.339</td>
<td>-1.840</td>
<td>0.066***</td>
</tr>
</tbody>
</table>

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L2D.  0.475  0.303 -1.564  0.118
TX
LD  -0.100  0.103 -0.971  0.330
L2D.  0.158  0.129 -1.230  0.019**
TOT
LD  0.646  0.401  1.612  0.107
L2D.  0.213  0.448  0.485  0.634
EX
LD  -0.257  0.329 -1.712  0.086***
L2D.  -0.002  0.373 -2.320  0.020**
FDI
LD  -0.020  0.079 -0.251  0.799
L2D.  0.023  0.079  0.293  0.773
Cons  0.063  0.061  1.031  0.303

Source: Researcher Estimation Results, 2022.

Table 9 showed the error correction terms (ECT) have a negative coefficient (-0.198508) and significance at 1% level. This means that the terms of trade, exchange rate and GDP are moving together in the long run. The ECT terms suggesting that previous years' error is corrected within the current year at a convergence speed of 19.85%. The R-squared value revealed that about 79.9% of the total variations in the dependent variable were explained by changes in the explanatory variables. Table 10 shows the results of Long Run Error Correction model for six variables.

Table 10
Long Run Results

| Variable | Coefficients | Std. Err | z     | P>|Z|  |
|----------|--------------|----------|-------|------|
| GDP      | 1            |          |       |      |
| TX       | -0.141       | 0.165    | -0.863| 0.392|
| TOT      | -0.961       | 0.412    | -2.330| 0.020**|
| EX       | 2.967        | 0.341    | 8.704 | 0.000*|
| FDI      | -0.323       | 0.144    | -2.241| 0.025**|

Source: Researcher Estimation Results, 2022.

The results in Table 10 revealed that traditional export had a positive effect and statically insignificant in the long run. The results a correspond with the theory of Prebisch (1950) who claimed on the deterioration conditions of trade for traditional products (Fahmy, 2021). The insignificant traditional export to economic growth is contrary to our expectation reflected in the hypothesis. This is because economic growth has a positive relationship with export value since increased production leads to surplus output in an open economy being exhausted on international market. The results in Table 9 further show that the second lag value of traditional export is positive and significant at 5% level. This implies that, traditional exports have a favorable impact on economic growth in the short run. Hence, on average an increase of a percentage in the traditional exports has resulted in an increase in economic growth by 0.1580969 percentage, under ceteris paribus. This result was the same with studies conducted by Urriola and Baral (2018) on the impact of traditional on economic growth of Peru.

Causality Test
The causal link between traditional export, grand total export, terms of trade, exchange rate,
Foreign Direct Investment and economic growth was examined using the granger causality test. If there was causation effect from one variable to another, the estimates from VAR were used in the study. Variable X is said to have granger-caused variable Y in time series data if the current value of Y is dependent on previous value of X, ..., so that in that scenario the past value of X likely to aid in predict Y (Odetola & Etumnu, 2013). The results of the granger causality test for all variables are shown in Table 11.

### Table 11
Granger Causality Test

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Prob &gt; chi2</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX GDP</td>
<td>0.002</td>
<td>Causality</td>
</tr>
<tr>
<td>GDP TX</td>
<td>0.000</td>
<td>Causality</td>
</tr>
<tr>
<td>TOT GDP</td>
<td>0.000</td>
<td>Causality</td>
</tr>
<tr>
<td>GDP TOT</td>
<td>0.000</td>
<td>Causality</td>
</tr>
<tr>
<td>EX GDP</td>
<td>0.000</td>
<td>Causality</td>
</tr>
<tr>
<td>GDP EX</td>
<td>0.008</td>
<td>Causality</td>
</tr>
<tr>
<td>FDI GDP</td>
<td>0.041</td>
<td>Causality</td>
</tr>
<tr>
<td>GDP FDI</td>
<td>0.000</td>
<td>Causality</td>
</tr>
</tbody>
</table>

Source: Researcher Estimation Results, 2022.

Results Table 11 showed that traditional export granger cause GDP at 1% significance. Implies that GDP helps to predict the traditional export in Tanzania. On the other side, the test suggests that economic growth granger cause traditional export at 1% level of probability value. The non-traditional export, terms of trade and exchange rate granger cause economic growth 1% significance level. Foreign Direct Investment found statistical significance at 5% level, which means that FDI granger cause economic growth. The same results obtained by Nguto (2020), Shobande (2019), Umar (2022), Eliakim (2020), and Machumu (2020).

### Diagnostic Check

#### Structural Break Test
The study employed cumulative sum square (CUSUM) as the structural break test of the economic growth equation. The guideline of CUSUM testing approach says that if the line of estimated model is within the CUSUM fixed lines, the estimated model will be stable. On the other hand, if the line of estimated model is out of the CUSUM fixed lines, the estimated model is not stable. The figure below shows CUSUM test result (Chindengwike, 2020; Chindengwike, 2021; Chindengwike, 2022 and Chindengwike, 2023).

#### Figure 6
CUSUM Test

![CUSUM Test](diagram)
Results in Figure 6 the fitted line of the estimated model is in the CUSUM fixed two lines. Therefore, this estimated model is valid and can be used for prediction and planning in future series movement of traditional export, terms of trade and exchange rate.

**Conclusion and Recommendations**

According to the findings, the terms of trade have a positive and significant effect on GDP in both the long and short term. As a result, the lag value of conventional exports has a considerable and positive effect on economic growth in the short term but is minor and beneficial in the long run. According to the findings, traditional export has a positive and substantial influence on economic growth in Tanzania in the short term, but a negative and significant effect in the long run. Traditional export is critical to Tanzania's social and economic development since it generates foreign cash and creates jobs. Government subsidies can assist in lessening volume fluctuations. As a result, consistent contribution will be noted. In order for the country to enjoy regular trading conditions, the granger causality test suggested that there is two-way causation between terms of trade and economic growth in Tanzania at 1% percent level. This study revealed that the influence of the exchange rate on economic growth in Tanzania is significance and negative both the in long run and in the short run. Researchers out of the study may increase sample size and use other econometrics approach such as ARDL approach on the non-traditional exports.

**References**


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