The Impact of International Trade on Economic Growth. Acase Study of Wakiso District-Uganda.

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Abstract: *This study set out to provide evidence for the international trade economic growth with a case study of Wakiso district while using exports, imports and production level as proxy variables for the period 1988-2018.Exports and imports were revealed to have a significant, positive link with economic growth that was substantiated by empirical evidence. The Augmented Dickey Fuller test was applied to conduct unit root tests, and the findings confirmed that some variables weren't level-stationary but had been changed to become stationery. Using the Engle Granger Co-integration test, co-integration was measured and found out that it was relative to the variables' long-term relationships. Within a one-year lag, the speed of long-term variable adjustment was 47 percent. Exports, imports, and output level collectively represented 88 percent of the changes in economic growth. Other variables in the error term, which were not included in the model, accounted for 25% of the fluctuations in the economy's growth. Exports and imports have a considerable impact on economic growth in the short run, as shown by the statistical significance of the F statistic. The results of the autoregressive distributed lag model technique, which was applied, validated the export led hypothesis over the long run, but not over the short run. As opposed to policies that would increase exports, he suggested liberalizing trade policy. Romanus & Dickson (2019) have examined the relationship between exports and economic growth in the Tanzanian context during the years 1980 to 2015. The percentage change in products sold overseas is being used to compute exports. findings show a long-run relationship between exports and economic growth. They insist that there is a need to review export strategies and policies in order to strengthen the economic growth levels in Tanzania. The Granger Causality test was applied for finding causality between import and economic growth. The results indicated a significant relationship between import and economic development for all six countries. The same analysis has also been conducted for OECD countries by Tahir (2013). The result showed that increase in import is significantly stored with economic growth*

Keywords: Imports, Exports, Economic growth

INTRODUCTION

Background to the study

Any government's core goal must be economic growth. As a result, numerous nations engage in international trade, which enables them gradually raise their GNP. For data spanning from 1991 to 2011, Abdullah et al. (2013) used ordinary least squares to establish the unidirectional association between exports and gross domestic product for 50 nations. The result showed that these countries' economies grow far more rapidly as a result of exporting. This study therefore promotes an export promotion approach to help these economies grow even further.

Agrawal (2014) looked at the connection between exports and economic growth in his article The Role of Exports in India's Economic Growth. The causal findings, which showed that growth rate increased after trade liberalization, supported the export-led hypothesis in 1991.

For the South African context, Ajmi et al. (2013) made another illuminating observation when they revealed a large positive link between exports and economic growth. They come to the conclusion that exports can boost economic growth by fostering greater employment possibilities and trade technology development.

Using data from 1976 to 2011, Muhoro and Otieno (2014) developed the export-led hypothesis, which establishes that exports are essential for economic growth in the Kenyan setting.

When the ARDL bounds checking test and the two-stage least squares approach were used on the data, it was discovered that all variables were integrated of order one. The study suggested export promotion measures that would boost export quality and volume, leading to more enduring economic growth.

Saleem and Maqbool (2015) predicted a relationship between exports and economic growth.It was established that exports had a positive effect on economic growth. They insisted that Pakistan should enforce export promotion strategy to achieve sustainable economic growth.

Imoughele & Ismaila (2016),while using 1985-2013 data have explored the effect of exports on Nigerian economic growth.The results showed that exports have a direct and significant effect on economic growth.They have advised that macro economic policies of economy openness be carried out to expand export volume of goods and services.Using multivariate analysis, Keho (2017) opined the export and economic growth nexus for Cote d'voire for the period 1965 2017. Autoregressive distributed lag model approach was used and the results confirmed export led hypothesis for the long run and not short run. He proposed the liberalization of trade policy instead of export expansion policies .In the Tanzanian Context,Romanus & Dickson (2019) have analysed the export and economic growth nexus for the period 1980-2015.Exports are measured in percentage change of goods sold abroad and findings show a long run relationship between exports and economic growth.They insist that there is need to review export strategies and policies in order to strengthen the economic growth levels in Tanzania. Imports refer to goods and services that are sold to a country. These mainly lead to exit of local currency and trade balance deficit (Bakari &Mabrouki, 2017). Qazi et al.(2013) explored the relation between import, export and economic growth for six Asian countries. ARDL technique has been applied for long run whereas; Granger Causality test has been applied for finding causality between import and economic growth. The results indicate significant relation between import and economic development for all six countries. The same analysis has also been conducted for OECD countries by Tahir (2013). The result shows that increase in import is significantly related with economic growth. Chang et al.(2014) have observed an association between imports and economic growth for 1996 to 2011 of South Africa. By using panel causality analysis, the findings prove one-directional causality from economic growth to imports in Gauteng, Mpumalanga, North West and Western Cape. However, two-directional relationship has been evident between imports and economic growth for KwaZulu-Natal. The result proves that import liberalization may not be an effective policy to raise economic performance in South Africa as this inhibits growth rates .According to Sani et al(2015) .'s analysis, increased consumer goods imports may force local businesses to upgrade their sectors in order to compete with rivalry and competition from abroad. Imports can thereby enhance one's capacity for gain. Additionally, a rearrangement of local resources and increase in investment are required to accommodate the commitment of imports for industrialization and financial development. Granger causality analysis was used by Ebrima et al. (2019) to examine the relationship between imports and economic growth in the Gambian setting for data spanning the years 1980–2017. Due to Gambia's reliance on imports, results indicated a favorable link between imports and economic growth. They suggested creating value-added export products and offering tax breaks to encourage a rise in export productivity. Another insightful claim is Muhammad et al.(2019) who found a positive significant relationship between imports and economic growth using Pakistan data spanning from 1975-2014.This study establishes that imports greatly influence gross domestic product. They suggest that Pakistan change its capital goods import policies. These can be used to generate more export-oriented products, resulting in improved efficiency, productivity, and long-term rates of economic growth.

Using the Ordinary Least Square method, Okonkwo et al. (2015) looked at the impact of foreign direct investment on Nigerian economic growth. Economic growth was observed to benefit from production level. They suggested using economic growth strategies to support Nigeria's ongoing output flow.

Masipa (2018) gave the vector error correction model top priority for determining the relationship between output and economic growth in South Africa. Production volume was determined to be positively correlated with economic expansion. as a recommendation for policy, there is need to create a good investment environment in order to enhance productivity levels in South Africa.

Specific objective.

1) To assess whether exports affect growth in the economy.
2) To evaluate whether imports affect growth in the economy.
3) To determine whether production levels affect growth in the economy.

Research assumptions.

Ho1: The level of production has no significant impact on economic expansion.

Ho2: Imports have no significant effect on economic expansion.

Ho3:Exports don't dramatically change economic expansion.

METHODOLOGY

Research design.
Data source.

The analysis used annual time series secondary data spanning from 1988-2018 in Uganda. The secondary data set consists of Gross domestic product, exports, imports and production level observations all obtained from World Development Indicators (2019).

Econometric model.
Model specification.

The econometric model for this precise study is;

GDP=f(exports imports,production level)

This type of production function is essentially effective for developing countries like Uganda greatly endowed with natural resources which require expensive imports to extract them.

This can be expressed in linear form as;

$$InGDP_t = \beta_1 InEXP_t + \beta_2 InIMP_t + \beta_3 IndPI_t + u_t$$

Where

GDP-Economic growth (current US dollars)

EXP-exports of goods and services (current US dollars)

IMP-imports of goods and services (current US dollars)

Dpl-production level (dummy variable)

T-time series observations for the period 1988-2018.

The vestige of other variables is contained predominantly in the error term expressed as u.

Estimation techniques.
Descriptive analysis.

The time series data were descriptively analyzed to ensure normality of distribution using kurtosis and skewness. These include measures of central tendency (mean, median, standard error, variance, standard deviation, and mode).

Correlational analysis.

Correlation coefficient tests were carried out to determine whether a statistically significant and insignificant relationship exists between the variables and can one variable be predicted from another for example GPD on imports and exports.

Diagnostic tests.

As a pretest for time series data, stationarity tests were carried out both at first level and at differencing using unit root tests. If the data conforms to stationarity both at long-run and short run relationship between the variables was also be established for purposes of policy recommendation in Uganda.

Results.

Descriptive Analysis.
The summary statistics of the data utilized in this investigation, including measures of central tendency and measures of variation, are shown in Table 1. Average growth rates were determined to be 24.967%, 16.52%, 31.69%, and 11.72% for the variables LNGDP, LNEXPORTS, LNIMPORTS, and LDpl, respectively.

Table 1: Descriptive Statistics.

	LNGDP	LNEXPORTS	LNIMPORTS	LNFDI
Mean	24.96699	16.52	31.69	11.72
Median	17.234	10.599	21.126	15.62
Maximum	23.625	12.77	24.58	21.79
Minimum	11.20	9.42	20.054	12.51
Std. Dev.	0.54	1.2	0.7	2.3
Skewness	0.9806	0.02485	0.5692	-1.384
Kurtosis	1.83	1.69	1.64	3.70

Source: Author's computation.

Measures of central tendency and measures of variance, which are the characteristics of the data used in this study, are shown in Table 1 as summary statistics. The variables LNGDP, LNEXPORTS, LNIMPORTS, and LDpl were found to have average growth rates of 24.967%, 16.52%, 31.69%, and 11.72%, respectively.

Correlation analysis.

Correlation coefficient tests are carried out to determine the relationship between the dependent and independent variables most particularly quantitative variables.

Table 2 presents the correlation matrix for the variables of this study with LNGDP as the dependent variable.

Table 2: Correlation matrix

	LNGDP	LNEXPORTS	LNIMPORTS
LNGDP	1.000000	0.879	0.899
LNEXPORTS	0.879	1.000000	0.798
LNIMPORTS	0.899	0.798	1.000000

Source: Author's computation.

Given that the correlation coefficient between LNGDP and LNEXPORTS is 0. 879, it is clear that there is a strong and significant positive relationship between the two. Similar to this, the correlation coefficient of 0.899 suggests that LNGDP and LNIMPORTS have a strong, positive, and significant link. This suggests that the study's control variables, imports, and inflows of foreign direct investment—have a strong positive connection with the dependent variable (LNGDP), making them strongly linked with economic growth.

root unit tests.

Unit root tests must be run in order to confirm that the variables remain constant over time before time series data analysis. It was revealed that every variable had a unit root at level, but they were all differenced to create stationarity. According to this, LNGDP, LNEXPORTS, and LNIMPORTS were incorporated in that order.

Table 3: Augmented Dickey Fuller test for LNGDP at level and first difference.

At level	

ADF Test Statistic	1.345	5% Critical Value	-1.8675
At first difference			
ADF Test Statistic	-3.234	5% Critical Value	-1.8675

Source: Author's computation.

Ho: LNGDP has a unit root.

Ha: LNGDP has no unit root

Since the absolute value of the tau test statistic (1.345) is lower than the 5% critical value (-1.8675), we accept the null hypothesis that LNGDP has a unit root and arrive at the conclusion that LNGDP is not I (0).

Since the crucial value at 5% (-1.8675) in absolute terms is bigger than the tau test statistic (-3.234), that indicates that LNGDP is stationary upon differencing, we reject the null hypothesis and conclude that LNGDP is stationary and hence integrated of order one.

Table 4: Augmented Dickey Fuller test for LNEXPORTS at level and first difference.

At level			
ADF Test Statistic	2.345	5% Critical Value	-1.853
At first difference			
ADF Test Statistic	-2.6286	5% Critical Value	-1.8967

Source: Author's computation.

Ho: LNEXPORTS have a unit root.

We reject the null hypothesis that LNEXPORTS has a unit root since the tau test statistic (2.345) in absolute terms is greater than the 5% critical value (-1.853) in absolute terms, and we therefore infer that LNEXPORTS is stationary at level and therefore not I (0).

We reject the null hypothesis and conclude that LNEXPORTS is stationary at first difference and thus integrated of order one because the tau test statistic (-2.6286) in absolute terms is bigger than the crucial value at 5% (1.8967) in absolute terms.

Table 5: Augmented Dickey Fuller test for LNIMPORTS at level and first difference

At level			
ADF Test Statistic	-1.5888	5% Critical Value	-3.9765
At first difference			
ADF Test Statistic	-3.54637	5% Critical Value	-2.34523

Source: Author's computation.

Ho: LNIMPORTS have a unit root.

The tau test statistic (-1.5888) in absolute terms is less than the 5% critical value (-3.9765) in absolute terms thus we accept the unit root and conclude that LNIMPORTS is non-stationary at level hence not I(0).

Upon differencing, LNIMPORTS is stationary since the tau test statistic (-3.54637) in absolute terms is greater than the critical value at 5% (-2.34523) in absolute terms hence we reject the null hypothesis and conclude that LNIMPORTS is stationary at first difference thus integrated of order one.

CO-INTEGRATION TESTS.

When variables move in the same direction over time and only if the error term is stationary, they are said to be co-integrated, thus I (0). Otherwise, if it is revealed to be non-stationary, the model is false or absurd. The LNGDP, LNEXPORTS, and LNIMPORTS long run model was estimated. The Augmented D-Fuller test was used to analyze the residuals, and it revealed that they were stationary at a significance level of 5%.

Table 7: Augmented Dickey Fuller test for residuals at level.

Variable	ADF test statistic	5% critical value	ADF test statistic	5 % critical value	ADF test statistic	5%critical value
Residual	-4.4563	-2.2896	-2.6529	-3.5731	-3.9701	-1.3456

Since the tau statistics in absolute terms are higher than the 5% critical value in absolute terms at level, it is determined that the residuals from the long run equation are stationary. This illustrates that there is co-integration between LNGDP, LNEXPORTS, and LNIMPORTS, prompting the need of a model for correcting errors for results estimate.

Presentation of empirical findings.
Table 8: Long run model with LNGDP as the dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.3372	0.7631	6.028	0.0001
LNEXPORTS	0.50451	0.2345	1.3421	0.025
LNIMPORTS	0.2399	0.2045	1.7294	0.01
LDpl	-0.2341	0.0801	-2.0391	0.0565
R-squared	0.98635	Mean dependent var		32.963
Adjusted R-squared	0.8967	S.D. dependent var		0.5392
S.E. of regression	0.0782	Akaike info criterion		-1.776
Sum squared resid	0.34521	Schwarz criterion		-1.491
Log likelihood	23.18572	F-statistic		564.5118
Durbin-Watson stat	1.461	Prob(F-statistic)		0.000000

Source: Author's computation.

A 1 percent increase in exports results in a 0.50451 percent rise in economic growth over the long run, assuming all other variables remain constant. The fact that the p-value (0.025) is less than 0.05 suggests that exports have a positive, statistically significant impact on economic growth.

Long-term economic growth is boosted by 0.2399 percent for every percent increase in imports, assuming all other variables remain constant. The fact that the p-value (0.01) is less than 0.05 indicates that imports significantly and positively affect economic growth

A 1% increase in output level correlates in a -0.2341 % loss in economic growth, all other things being equal. The fact that the p-value (0.0565) is higher than 0.05 indicates that there is no positive meaningful relationship between output levels and economic growth.R^2 = 0.98635, which means that exports, imports, and production levels all account for 99 percent of variations in economic growth. One percent is not included in the model since it is explained by supplementary variables found in the error term. The data is well-fitted and consequently a good fit because the R^2 is high.

The fact that these variables together have a substantial impact on economic growth over the long term is demonstrated by the F statistic of 564.5118 with a p value of 0.000, which is less than 0.05.**Diagnostic post estimation tests.**
Diagnostic tests are carried out to ensure the residuals are normally distributed, homoscedastic and no presence of auto correlation.

Table 9: Ramsey RESET Test:

Ramsey RESET Test:			
F-statistic	0.28413	Probability	0.7685
Log likelihood ratio	0.2365	Probability	0.6543

Source: Author 'computation.

Ho: The model is correctly specified.

We accept the null hypothesis and conclude that the model is correctly specified since the probability value (0.7685) is greater than 0.05.

Table 10: Serial correlation test.

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.7658	Probability	0.56578
Obs*R-squared	1.87563	Probability	0.3456

Source: Author's computation.

Ho: There is no serial correlation.

The null hypothesis of presence of no serial correlation is accepted since the probability (0.56578) is greater than 0.05.

Conclusion.

Unit root tests were carried out using Augmented Dickey Fuller test and findings showed that some variables were non-stationary at level but were differenced to achieve stationarity. Co-integration was established using Engle Granger Co-integration test citing existence of a long run relationship amongst the variables. The speed of adjustment of the variables to long run was 47 percent within a one-year lag period. 88 percent of the variations in Economic growth were jointly explained by exports, imports, and production level. 25 percent of the variations in economic growth were explained by other variables contained in the error term thus not included in the model. The F statistic was statistically significant thus exports and imports have a significant effect on economic growth in the short run. The results of the autoregressive distributed lag model technique, which was applied, corroborated the export led hypothesis over the long run, but not over the short run. As contrasted to policies that would increase exports, he suggested liberalization trade policy. Romanus & Dickson (2019) have examined the relationship between exports and economic growth in the Tanzanian context during the years 1980 to 2015. Exports are calculated as a percentage change in the value of items sold abroad, and research indicates a long-term link between exports and economic growth. They maintain that in order to boost Tanzania's economic growth rates, it is necessary to evaluate export plans and policies. The Granger Causality test was used to determine the relationship between imports and economic expansion. For all six countries, the data demonstrated a significant relationship between import and economic progress.

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