The Relationship between Exports and Economic Growth: The Case Study of Gambia

Musa Sawaneh

Department of Economic Development and International Economics, Kocaeli University, Turkey

Abstract:- **Every country's desire is sustainable economic development through economic growth. For most countries, the consistency of its gross domestic product is of huge concern for its government and policymakers. Either a developed or developing country, economic growth has been seen to promote export; similarly, export is viewed to be an essential determinant of economic growth. But the debate of what causes economic development is heated among researchers and economists as there is yet to be any consensus on the topic. This paper contributes to the investigation of the relationship between export and economic growth for the Gambia from 1990 to 2017. Using annual time series economic data, we applied the econometric techniques of ADF test to prove stationarity, acceptance of the null hypothesis of Granger causality and Johansen's cointegration test. The Vector Autoregressive (VAR) model was conducted and the findings indicate a positive relationship between export and economic growth. The R-squared of 77.67% from the vector autoregressive test results made us accept the export-led growth hypothesis for the Gambia. Thus, we recommended policymakers to create judicious and strategic policies that would promote export to boost the economic growth of the Gambia.**

Keywords: **Economic growth, Export, The Gambia, ADF, Granger Causality, Cointegration, Vector Auto regression Test**

I. INTRODUCTION

A country that wants to avoid a vicious circle; strong and sustainable economic growth is a primary prerequisite to economic development. The Gambia exports development is a fundamental player in promoting economic growth so to achieve sustainable economic development. It is unarguable that in an economy, there are many contributors to GDP and an increase in a country's real GDP is seen as an important indicator of a country's welfare.

The debate of export-led growth hypothesis (ELGH) and the growth-driven export hypothesis (GDEH) is still happening among economist. The proponent of the export-led growth hypothesis claimed that export promotion through meaningful policies like exchange rate depreciation or export subsidies improves economic growth. On the contrary, some economist argued that it is the economy's growth that naturally boosts export growth through international trade. Undoubtedly, there is no international trade without export and with the advancement of technology; regionalization and globalization are at a rapid move. Stiglitz (2007) argued that the success of China and India is largely caused by both export-led growth and technology through globalization. Today, China's products are in every continent or country and arguably community. According to Easterly (2007), export means accessibility to the global market and permit increased production while trade promotes a well-organized system of allocation of resources, and trade adds to economic growth by generating long-run gains.

These heated debates among economists take us back to Adam Smith and David Ricardo's classical theories of absolute advantage and comparative advantage on international trade. Both economists argued that international trade plays a pivotal role in economic growth. The neoclassical made emphasis on the use of comparative advantage in international trade which was later polished by contemporary economists of Eli Heckscher and Bertil Ohlin in their H-O model that tempts to describe the patterns of trade.

Aims and Scope

Knowing that economic growth is necessary for a nation's sustainable economic development, this paper aims to analyze the effect of export on economic growth in the case of the Gambia from 1990 to 2017. Due to its labor capacity, the Gambia was over-reliant and depending entirely on rain-fed agriculture as the only God of its sustenance and thus the 2012 drought spread in West Africa's Sahel crisis caused several disasters in the Gambia. There were scores of crop failures, food hikes, urban-rural migration as hundreds of vibrant young people search for paid labor to send money back to their hungry family and relatives. So this paper shall investigate the diversity of the export structure with its capacity to export more product, decrease unemployment thus could be an alternative aspect of concentration. In our quest to determine their relationship, we would gain a meaningful understanding of the issue. We shall determine if any casual relationship exists, that is, if export leads to economic growth or vice versa. A unique analysis of the invisible exportation of tourism, physical agriculture raw and semi-finish products and the industrial sectors. Through our findings, we shall recommend policymakers or government on the role of export towards economic growth.

The Overview of The Gambian Economy

The Gambia is the smallest mainland country in Africa and located the far end of the West with an area size of 11,300 km square surrounded by Senegal in all three sides except for a 60 km Atlantic Oceanfront. It has a population of apparently 2.1 million of which over 60% are youths with

2.05% population growth rate and 87.8% dependency ratio. From Worldometer, the population density in the Gambia is 214 per Km2 and 61.3% lives in urban and peri-urban settlements. A legacy of authoritarianism, weak institution, and political instability has led the Gambia to be ranked as one of the poorest countries in the world with 48.8% of its population living below the poverty line of less than $1.25 per day. Central Intelligence Agency World Factbook 2018 ranked the Gambia to have an inflation rate (consumer prices) value of 8.3%, a budget deficit of 17.6% and an external debt of $619.7 million as per 31 December 2017.

With its vulnerability to external shocks, the Gambia has a small economy that is dependent on tourism (service), agriculture (farming, fishing, animal rearing), industries (woodworking, metalworking), and remittance. The location on the ocean and proximity to Europe has made the Gambia one of the tourist destinations in Africa. Remittance inflows to the Gambia have covered up to one-fifth of its GDP in 2017. The subsistence rain-dependant agriculture used to be the largest contributor to the Gambia's GDP with over 70% and a labor force of 75% in the 1990s. The end of the 20th century to the beginning of the 21st century is seeing a slow vanishing of concentration from agriculture to service sectors. As of 2017, the used to be life determinant agriculture is now the second highest contributor to the Gambia's economy with a GDP of 20.4% and the industrial sector covers 14.2%. The services sector that comprises of tourism, government activities, communications, transportation, finance, and all other private economic activities that do not produce material goods contribute up to 65.4% to GDP in 2017.

However, the Gambia export growth is viewed to be important because it has a huge effect on foreign exchange and international market which brings revenue. According to the Observatory of Economic Complexity (OCE), the Gambia is the 177 largest export economies in the world. The agriculture, industry and service sector all contribute to the top exports of the Gambia. In 2017, the Gambia exported $109.7 million and imported $316.1 million, resulting in a negative trade balance of $206.4. The exports of the Gambia are peanut products, fish, cotton lint, palm kernels, rough wood, cashew, used clothing and its top export destinations are Mali 36.3%, Guinea 24.5%, Senegal 12.3%, China 11.7%, Guinea-Bissau 5.8% in 2016.

The highest export in the Gambia is the invisible export of tourism. Tourism is the highest earner of foreign exchange as hundreds of thousands of tourist visit the Gambia to boost not only the export sector but other economic sectors as well. According to the World Travel and Tourism Council report 2018, in 2017, tourism had generated visitor exports of $114.9 million, a direct contribution of 8.2% and a total contribution of 21.3% to GDP. The totality of the traditional exports and the invisible exports of tourism counts a lot in the GDP of the Gambia. We can infer that from the statistics above that fluctuations in exports on average might create uncertainties, instability and discourage foreign direct investment thus hold back the economic growth pace of the Gambia.

II. LITERATURE REVIEW

In terms of the theoretical and empirical literature, there are numerous studies that have been conducted to find the nexus between export and economic growth, however, the debate with respect to export being a key factor for economic growth has been happening since time immemorial. The argument of the export-led growth hypothesis (ELGH) and the growth-driven export hypothesis (GDEH) can be tracked down from the founding fathers of modern economic thought, the classical. Both Adam Smith and David Ricardo argued that international trade is a key factor in economic growth and that specialization brings economic gains. Their arguments were that a country will gain an advantage if it should export goods that it produce in copious to a country that does not produce or produce in minimal. Their theories have been criticized by many past and contemporary economics who indicated that foreign trade hypothesis as an engine of growth can be harmful to poor developing countries. The neo-classical continued by emphasizing on the idea of comparative advantage and that the positive externalities encourage economic growth.

In the empirical literature, there are multiple findings with regards to these studies and it has been substantiated by researchers and economists that there exists a relationship between export and economic growth; although some findings showed no relationship between them. For instance, Boltho (1996) investigated whether growth in Japan for three periods of its modern economic history (1913-37, 1952-73, and 1973-90), was export-led. The results of five very different tests suggested that domestic forces rather than foreign demand propelled longer-run growth. This was particularly so in the high-growth period of 1952-73. He concluded that exports may, however, have been crucial in initiating several cyclical upswings.

Abu-Bader and Abu-Qarn (2004). examined the export-led growth (ELG) hypothesis for nine the Middle East and North Africa (MENA) countries in three-variable vector autoregressive and error correction models. When they considered total exports, there results rejected the ELG hypothesis in almost all of the countries examined. However, when they considered only manufactured exports, they found no causality for countries with relatively low shares of manufactured exports in total merchandise exports and bidirectional causality for countries with relatively high shares. Their findings suggested that promoting exports may contribute to economic growth only after a certain threshold of manufactured exports has been reached.

Shihab and Soufan (2014) studied the causal relationship between economic growth and exports in Jordan using the Granger methodology in order to determine the direction of the relationship between the two variables during the period 2000-2012. The study found that there is a causal

relationship going from the economic growth to Export, and not vice versa. Based on the outcome of causality tests, the changes in the economic growth help explain the changes that occur in the Export.

Kilavuz and Topcu (2012) investigated the effect of different classifications of export and import on economic growth in 22 developing countries in the 1998–2006 period and they based their test on two models, via panel data analysis. According to the results of their first model, the analysis of which included variables such as high and low-tech manufacturing industry exports, investment and population, it was found that only two variables, high-tech manufacturing industry export and investment, have a positive and significant effect on growth. In addition to the first model which included the analysis of all variables, the second model investigated the effect of high and low-tech manufacturing industry imports on growth. Their findings revealed that only high-tech manufacturing industry export, investment, and low-tech manufacturing industry import have a positive and significant effect on growth.

Iqbal and Hameed (2012) examined the causality between exports and economic growth of Pakistan, through the application of econometric technique Granger causality by using real exports of Pakistan, real GDP of Pakistan, and real terms of trade of Pakistan. The results were based on annual data collected from 1960 to 2009. The empirical results from Granger causality technique clearly indicated that there exists unidirectional causality from GDP to exports in Pakistan but not vice versa.

In the case of India, Mishra (2011) attempted to reinvestigate the dynamics of the relationship between exports and economic growth for India over the period 1970 to 2009. Applying popular time series econometric techniques of cointegration and vector error correction estimation, the study provided the evidence of stationarity of time series variables, the existence of long-run equilibrium relationship between them, and finally, the rejection of export-led growth hypothesis for India by the Granger causality test based on vector error correction model estimation. To simply put, India proved the hypothesis of growth-driven exports over the sample period.

According to Abdullah, Shaari et al (2017), a rise in export can boost economic growth and vice versa. Their study attempted to prove the existence of bidirectional relationships between export and economic growth in Malaysia. They collected annual data on export, GDP, employment and fixed capital formation and they conducted analysis from 1984 to 2014. They employed the Vector Autoregressive Model (VAR) and they found out that there is a bidirectional relationship between export and economic growth in Malaysia.

Chen (2007) attempted to assess the validity of the Export-led Growth (ELG) and the Growth-driven Export (GDE) hypotheses in Taiwan by testing for Granger causality using the vector error correction model (VECM) and the bounds testing methodology developed by Pesaran et al. (PSS, 2001). The empirical results substantiate that a long-run level equilibrium relationship exists among exports, output, terms of trade and labor productivity of the model and that Granger causal flow between real exports and real output is reciprocal. They concluded that their results attested to the advantage of the export-led growth strategy for continuous growth in Taiwan.

China's swift growth and success in the alleviation of poverty amazes the world until today. Razmi (2008) used a simple framework with a Kaleckian flavor to analyze structural developments in the Chinese economy and to understand some of the distributional consequences. Some of the possible sources of these distributional developments were then further analyzed using a trade-theoretic approach. Other aspects of China's investment- and export-led growth strategy were discussed along with the problems that the focused pursuit of such a strategy has raised. They concluded that China's growth model may now have outlived its utility, both on economic and socio-political grounds.

Due to the replacement of import-substitution by export-led growth, Palley (2002) administered the export displacement hypothesis by analyzing the changing pattern of U.S. imports. The evidence showed that there is significant cross-country crowding out, with exports to the U.S. from the four East Asian tiger economies (Taiwan, South Korea, Hong Kong, Singapore) being subject to a large crowding out effect from China. Japanese exports to the U.S. have also become subject to a large crowding out effect from Mexico.

Medina-Smith (2000) analyzed the case of Costa Rica using annual data for the period 1950-1997. In using several procedures to test for cointegration, the study went beyond the traditional neoclassical theory of production as they estimated an augmented Cobb Douglas production function and examined empirically the short-term as well as the long-run relationship. The study revealed that the ELGH is valid in this particular case; however, the empirical results showed that physical investment and population mainly drove Costa Rica's overall economic performance from 1950 onwards.

Pandhi (2007) made an analysis on the theories behind the role that exports play in the growth and used regression analysis for four African nations' economic data from 1981-2003, namely the Democratic Republic of the Congo, Nigeria, Malawi, and Guinea Bissau. The data showed a mostly positive relationship between exports and growth and mixed results for the other independent variables, investment, and population.

According to Yee Ee (2015), the export-oriented growth strategy is valid in Sub-Saharan African countries. They investigated the validity of Export-Led Growth (ELG) hypothesis in selected Sub-Saharan African (SSA) countries for the period 1985 to 2014. A new generation panel data

approach was applied such as panel unit root, panel cointegration, Fully Modified OLS (FMOLS) and Dynamic Ordinary Least Square (DOLS). Their empirical findings of the study revealed that the panel unit root is stationary after the first difference and presents a cointegration. After the confirmation of panel cointegration, it proved that there exists a long-run relationship between exports and growth based on FMOLS and DOLS results. FMOLS and DOLS estimation showed a positive impact of investment, government expenditure and exports on economic growth.

In the case of the Gambia, Gibba and Molnar (2016) made a study on the causal relationship between the Gambia exports and economic growth (GDP) using the Error Correction Model (ECM) for the time series data period 1980-2010. They estimated econometric models to test for time series properties: unit root (ADF) and Co-Integration (Johansen's procedure). With these (time series) data, a short and long-run relationship was established between GDP and exports using an Error Correction Model (ECM). The empirical results found the R-squared to be 63.49%. This statistically implies that the Gambia's economic growth (GDP) can be explained by its total export at a rate of 63.49%, meaning that total export growth is a good determinant of economic growth. However, from 2003 to 2010, there was a negative relationship between GDP and exports which they argued that it might be due to domestic and international, social and economic changes, including the fiscal deficit trends.

According to Ceesay (2017) export is negatively correlated with GDP. Their study examined the general impact of trade on economic growth in the Gambia from 1965 to 2016. Accordingly; they have done three analyses in order to get appropriate answers to their research problems. They performed some econometric methods such as the Augmented Dickey-Fuller test, Johansen co-integration test, and vector error correction model. The findings of the stationary test showed the presence of unit root. The OLS regression results showed that import, interest rate, real effective exchange rate, and inflation are positively correlated with GDP, while export is negatively correlated with GDP. The result showed that GDP lag, import, and real effective exchange rate cannot influence economic growth whiles export, interest rate, and inflation can highly influence the economic growth of the Gambia, even though export negatively influence economic of the Gambia.

It is clear that from the above pieces of literature, the heated debate is incessant. Some findings are proponents of the ELGH while some research total rejected the hypothesis by hypothesizing that countries should be growth-driven export. The investigation of past works of literature on export and economic growth nexus are uncountable however for the case of the Gambia it is limited. This paper is going to re-investigate the effect of export on the economic growth of the Gambia and argue or support the findings for Ceesay (2017) and Gibba and Malnor (2016).

III. METHODOLOGY

3.1 Data

The main goal of this paper is to investigate the effect of export on the economic growth of the Gambia. The study uses annual time series data set which was sourced from the World Bank Development Indicator covering the period 1990-2017. The investigation is based on four economic variables and they are Gross Domestic Product (GDP), Export (EX), Import (IM) and Agriculture (AG).

3.2 Model specification

In the model, GDP (current US$) is used as a proxy for economic growth and the dependent variable, while Exports of goods and services (% of GDP), Imports of goods and services (% of GDP) and Agriculture, forestry, and fishing, value added (% of GDP) are the independent variables.

In finding the economic growth and export nexus, the methods used for estimation were first, to do Wald Test (also called the Wald Chi-Square Test) which we used to test the goodness of fit of an explanatory variable. We employed Unit roots test to check for stationarity attributes, Ganger Causality test for causality and Cointegration test to determine the long-run relation between the two variables. The natural model is as follows:

$$GDP = \pi_0 + \pi_1 EX + \pi_2 IM + \pi_3 AG + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

which is interpreted as;

π_0 **= the intercept**

π_1**____**π_3 **= Coefficients of the explanatory variables**

μ_t**= the error term**

Heteroscedasticity is a huge problem so we turned the variables into their natural logarithms to avoid it.

$$LGDP = \pi_0 + \pi_1 LEX + \pi_2 LIM + \pi_3 LAG + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

and L= log

We conducted a Wald Chi-Squared test to check the significance of the variable and our result from table (1) reject the null hypothesis thus proving that the variables should be included in the model.

Table (1) Wald Test

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	178209.6	(4, 24)	0.0000
Chi-square	712838.4	4	0.0000

Source: Author's own calculation using E-views.

3.3 Unit Root Test

Upon confirming the significance of the variables from the Wald Test, we now test for unit root. Unit Root Test is done to determine whether a variable stationary or not. The stationarity or non-stationarity of the data series could be tested by using many tests presented in economic literature such as KPSS test, Phillps and Person (PP) test but the well-known test is the Augmented Dickey-Fuller (ADF) technique which we used here. The ADF test at AR(2) is used and it consists of regressing the series of the first difference against the series lagged once, lagged difference terms in addition to the constant and time trend which is optional. It can be written as follows:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \beta \Delta Y_{t-1} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

We added more lags in equation (5) in other to remove serial correlation from the error term which might not affect the consistency of our OLS estimator but might disrupt its efficiency:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \sum_{i=1}^{h} \beta \Delta Y_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

In the regression process, the unit root test is directed on the coefficient of Yt-1 from equation (5). The set hypotheses; the null hypothesis is that the variable Yt is non-stationary (H0: $\delta = 0$) while the alternative is that Yt is stationary (H1: $\delta < 1$). If the coefficient of Yt is equal to zero, it means the variable Yt contains a unit root otherwise n the other hand, if the coefficient is less than 1, we reject the null and conclude that Yt is stationary. We used the E-views statistical software to run the regression on each data series and MacKinnon (1996) one-sided p-values served as the benchmark for rejection and otherwise.

3.4 Granger Causality Test

The Granger causality test was developed to test if one time series is beneficial in forecasting another variable. It was proposed by Clive Granger in 1969 and he argued that if a variable (say export) "Granger-causes" another variable (say GDP), then the past values of export should contain information that helps predict GDP.

For better illustration, let's consider the bivariate linear autoregression model of our two variables i.e. GDP and export by stating a basic AR(1) model:

$$(gdp)_t = \alpha_0 + \beta 1 (gdp)_{t-1} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(6)$$

From the equation (6), we create our vector autoregressive (VAR) distributed lag model where the summation helps us to get rid of serial correlation. The equations are as follows:

$$(gdp)_t = \alpha + \sum_{i=1}^{p} A_i (gdp)_{t-i} + \sum_{i=1}^{p} \delta_i (ex)_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots..(6)$$

$$(ex)_t = \alpha + \sum_{i=1}^{p} A_i (gdp)_{t-i} + \sum_{i=1}^{p} \delta_i (ex)_{t-i} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots..(7)$$

The p is the highest lagged value that can be included in the model and A and δ are the coefficients of the variable while μ and ε are the unused variables (error term). The hypotheses are as follows:

Export (ex) does not Granger cause Economic growth (GDP)

Economic growth (GDP) does not Granger cause Export (ex)

In equation (6), export does not Ganger cause GDP if the coefficient δ is insignificant (H_0: $\delta = 0$) but does if otherwise. From equation (7), GDP does not Granger cause Export if the coefficient A is insignificant (H_0: $\delta = 0$). In similar manner, if the reduction in the variance of the error term μ (or ε) was due to the inclusion of EX (or GDP) in both equation, then we can infer that EX (or GDP) Granger causes GDP (or EX). Using E-views statistical software, our null and alternative hypotheses are as follows respectively:

H_0: Export (ex) does not Granger cause Economic growth (GDP) and vice verse.

H_1: Export (ex) does Granger cause Economic growth (GDP) and vice verse.

3.5 Cointegration Test

After observing for unit root and Granger causality of the data series, we are to determine if there is a long-run relationship between the variables. So to investigate the long-run economic growth and export nexus, we applied the Johansen Cointegration using the maximum likelihood test procedure. This approach is based on two test statistics, the maximum eigenvalue test statistic and trace test statistics. The Johansen test implies estimating unrestricted vector autoregressive (VAR) model:

$$Y_t = A_o + \sum_{j=1}^{p} A_j Y_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(8)$$

Where $Y_t = K$ which is a vector non-stationary I(1), A_o is a vector of constant, p is the maximum lags value, A_j is the matrix of variables that can be estimated and μ_t is the vector of innovation that is independent and identically distributed. This study used the E-views statistical software to check if GDP and export has a long-run relationship.

IV. RESULTS, FINDINGS AND INTERPRETATION

The stationarity of the model depends on the result of our unit root test. As alluded above, we used the Augmented Dickey-Fuller test on the model as shown in Table 2.

Table 2: Augmented Dickey-Fuller Test Results

Variable				Level		First difference	
	Critical values 1%	Critical values 5%	Critical values 10%	T-value	P-value	T-value	P-value
GDP	-3.71	-2.98	-2.63	-1.12	0.69	-8.24	0.00
EX	-3.70	-2.97	-2.63	-5.23	0.00	-7.69	0.00
IM	-3.69	-2.97	-2.63	-3.42	0.02	-7.99	0.00
AG	-3.69	-2.97	-2.62	-2.13	0.24	-6.54	0.00

Source: Author's own calculation using E-views.

Table 2. portray the result of the ADF test for stationarity and the critical value of 10, 5 and 1 percent levels of significance were employed. The null hypothesis of the presence of unit root is accepted for GDP and AG at their level as the p-value is greater than 0.05 while EX and IM rejected the null hypothesis at their levels. All the variables rejected the null hypothesis at their first difference. Therefore in the first difference, the variables are stationary and integrated into the same order of one, that is I(1).

Table 3: Granger Causality Test Results

Null Hypothesis	F-Statistic	Probability
LEX does not Granger Cause LGDP	1.65224	0.2156
LGDP does not Granger Cause LEX	2.33451	0.1215

Source: Author's own calculation using E-views.

The table 3 shows the result from the Granger causality and the significant value used is alpha 0.05 percent level. Siting from the probability value, the null hypothesis that export does not Granger-Cause GDP and that GDP does not Granger-Cause export are both accepted at 5 percent level of significance.

Table 4: Hypotheses Assessment Summary

S.No	Null Hypothesis	Sig.	Probability	Decision
1	LEX does not Granger Cause LGDP	0.05	0.2156	Accept
2	LGDP does not Granger Cause LEX	0.05	0.1215	Accept

Source: Author's own calculation using E-views.

Lag Length Selection Test.

We do not arbitrarily determine lags as it may cause the model to lose its degrees of Freedom, bring statistically insignificant coefficient, multicollinearity, and specification error. We, therefore, use the lag length selection test to know which lag is the best fit for investigating the relationship between the variables. There are up to four ways to choose from the test such as Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ). However, the most common is the Akaike Information Criterion (AIC) and Schwarz Information Criterion (SC) and in this study, we use lag 3 of AIC from the table (5).

Table 5: Lag Length Selection test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	49.90588	NA	2.99e-07	-3.672470	-3.477450	-3.618380
1	99.70931	79.68548*	2.04e-08	-6.376745	-5.401644*	-6.106293
2	117.5242	22.80304	1.98e-08	-6.521934	-4.766753	-6.035122
3	137.4921	19.16918	1.97e-08*	-6.839366*	-4.304104	-6.136192*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

Table 6: Johansen's Cointegration test statistic

Hypothesized No. of CE (s)	Eigenvalue	Trace Value	5 percent Critical value	Prob.**
None*	0.342427	12.60063	15.49471	0.1303
At most 1	0.100420	2.539857	3.841466	0.1110

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Hypothesized No. of CE (s)	Eigenvalue	Max-Eigen Statistic	5 percent Critical value	Prob.**
None*	0.342427	10.06078	14.26460	0.2080
At most 1	0.100420	2.539857	3.841466	0.1110

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's own calculation using E-views.

Our results from table 5 show the long-run relationship between GDP and export. We used the Johansen Cointegration method in our investigation and the findings of Trace test portray no long-run relationship between export and GDP, in other words, we fail to reject the null hypothesis of no cointegration between the two variables. The Maximum eigenvalue test also ascertained this result. Therefore, we can conclude that our two variables of investigation have no long-run relationship between them so we cannot use the Vector Error Correction Model (VECM) instead we Vector Autoregression (VAR) test will be appropriately conducted.

Table 7: VAR test Results

Dependent Variable: LGDP	Coefficient	Standard Error	T-Statistics	Probability
LGDP(-1)	1.047933	0.209219	5.008790	0.0000
LGDP(-2)	-0.047477	0.204405	-0.232269	0.8175
LEX(-1)	0.280516	0.182388	1.538014	0.1315
LEX(-2)	0.016135	0.195204	0.082655	0.9345
C	-0.970866	3.029561	-0.320464	0.7502
Dependent Variable: LEX	Coefficient	Standard Error	T-Statistics	Probability
LGDP(-1)	-0.387116	0.252161	-1.535192	0.1322
LGDP(-2)	0.082772	0.246360	0.335979	0.7386
LEX(-1)	0.426807	0.219824	1.941586	0.0589
LEX(-2)	0.079992	0.235270	0.340002	0.7355
C	7.835283	3.651384	2.145839	0.0377

Source: Author's own calculation using E-views.

The Vector Autoregressive is essential to measure the causal relationship which can be seen in table 7 and it shows that there is a significant relationship between GDP and its first lag, likewise EX and its first lag. It also shows that GDP of lag 2, EX (export) at both lag 1 and 2 are insignificant to economic growth (GDP) and similarly, GDP of lag 1 and 2, and EX (export) of lag 2 does not have any significant impact on EX (export). We can also see that a 1% increase in the first lag value of GDP will increase GDP by 1.05% and a 1% rise in the first lag value of export, the export will increase by 0.43%. In addition, we conducted a Wald test and the outcome shows that export at lag 1 and 2 jointly does not have any effect on economic growth (GDP).

V. CONCLUSION AND RECOMMENDATION

International trade has been viewed to be one of the determinants of economic growth by both the Classical and Contemporary economist. However, the reduction of import substitution and to the elevation of export promotion in the mid-1970s in the developing countries has seen a great shift. Also, the debate between ELGH and GDEH is common in the literature and different results support both hypotheses. This research was conducted to examine the effect of export on economic growth for 27 years period (1990 to 2017). In our quest to advance the exciting research on the heated topic, we employed the popular econometric methodologies by firstly using a Wald test to check for the relevance of the variables in the model. The outcome of the Wald test shows that the variables are relevance.

The ADF unit root test was also conducted and the findings discovered that all the data series are stationary at first difference. The Granger causality procedure accepted the null hypothesis of no causality at both ends. After determining the best lag, we used the Johansen Cointegration test and the indicated results of no cointegration in the two variables permitted us to conduct the Vector Autoregressive (VAR) test. Table 8 [Appendix] outcomes signaled that a relationship exists between export and economic growth. The outcome of the VAR test showed a positive relationship between export and GDP. This empirical result indicates that these two variables are related in the past. From the empirical Appendix, the R-squared was found to 77.67%. Statistically, this means that 77.67% of the Gambia's GDP (a proxy for Economic growth) can be explained by the overall export (both goods and services). This result conforms to the export-led growth hypothesis and findings of Gibba and Molnar (2016) which indicated that 63.49% of the GDP can be explained by total export.

We can conclude that using OLS, the log regression results from Table 9 [Appendix] indicated that both Export and Agriculture are negatively correlated with GDP but

Import is positively correlated. The negative correlation might be due to the West Africa Ebola crisis, drought spread in West Africa's Sahel, spontaneous economic and social instability. These findings are clear empirics that exportation (particularly tourism) is vital to the economic growth of the Gambia. Thus the government or policymakers are recommended to devise well-carved policies that are essential to the micro and macroeconomics of the country thus boost the export sector of both goods and services. The booming of the export (Tourism) opens multiple doors for other sectors thus increase GDP. The agricultural sector should be revitalized to avoid primitive, rain-dependent and subsistence farming system. Modern, irrigation and a mechanized farming system should be encouraged to promote the exportation of farm products.

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Appendix

Vector Autoregression Estimates
Date: 12/31/18 Time: 11:42
Sample (adjusted): 1992 2017
Included observations: 26 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LGDP	LEX
LGDP(-1)	1.047933	-0.387116
	(0.20922)	(0.25216)
	[5.00879]	[-1.53519]
LGDP(-2)	-0.047477	0.082772
	(0.20441)	(0.24636)
	[-0.23227]	[0.33598]
LEX(-1)	0.280516	0.426807
	(0.18239)	(0.21982)
	[1.53801]	[1.94159]
LEX(-2)	0.016135	0.079992
	(0.19520)	(0.23527)
	[0.08265]	[0.34000]
C	-0.970866	7.835283
	(3.02956)	(3.65138)
	[-0.32046]	[2.14584]
R-squared	**0.776774**	0.509399
Adj. R-squared	0.734255	0.415952
Sum sq. resids	0.185817	0.269924
S.E. equation	0.094066	0.113373
F-statistic	18.26880	5.451170
Log likelihood	27.34174	22.48784
Akaike AIC	-1.718595	-1.345218
Schwarz SC	-1.476654	-1.103277
Mean dependent	20.48231	3.269025
S.D. dependent	0.182474	0.148350

Determinant resid covariance (dof adj.)	0.000102
Determinant resid covariance	6.63E-05
Log likelihood	51.30111
Akaike information criterion	-3.177008
Schwarz criterion	-2.693125
Number of coefficients	10

Source: Author's own calculation using E-views.

Table 9

Dependent Variable: LGDP
Method: Least Squares
Date: 12/31/18 Time: 15:51
Sample: 1990 2017
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEX	-1.223750	0.168752	-7.251757	0.0000
LIM	0.461497	0.145850	3.164185	0.0042
LAG	-0.274722	0.146551	-1.874582	0.0731
C	23.64504	0.558100	42.36703	0.0000

R-squared	0.758899	Mean dependent var	20.44526
Adjusted R-squared	0.728762	S.D. dependent var	0.246050
S.E. of regression	0.128144	Akaike info criterion	-1.139756
Sum squared resid	0.394103	Schwarz criterion	-0.949441
Log likelihood	19.95659	Hannan-Quinn criter.	-1.081575
F-statistic	25.18117	Durbin-Watson stat	0.764244
Prob(F-statistic)	0.000000		

Source: Author's own calculation using E-views.