A STUDY ON THE IMPACTS OF EXPORT AND IMPORT ON GHANA'S ECONOMIC GROWTH

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Abstract: The research studies the impact on global trade import and export on Ghana's economy using import, export and foreign direct investment as dependent variables and gross domestic product as independent variable. The study used ordinary least square regression as the model of analysis using Augmented Dickey fuller method to determine if the variables have unit root thus determining if the variable are stationary or not stationary at level. The unit root test detected that three variables were stationary after first difference that is import, foreign direct investment and gross domestic product while export was differenced twice and became stationary.The research recommends the government of Ghana to focus on promoting an export-led economy. The government should make good use of its resource abundance in cocoa, manganese, oil, timber, gold etc. Various production sites can be opened to aid in processing of natural resources within the country and also new policy "one district one factory" implemented should be regulated effectively to curtail the problem of inter dependency. This will boost the country's economy as well as promoting trade facilitation in the long run.

Keywords: Annual import, Annual export, FDI, OLS Regression.

1. INTRODUCTION

The theory of comparative advantage makes us understand that different nations trade among each other for goods and services because of the difference in resource endowment which includes human capital, financial capital and technical capabilities etc. Some nations have some resources in abundance whiles other may not have. While those without resource have the technical know-how in managing resources, hence there is the need for international trade. The importance of international trade is subject to the fact that no country can produce all goods and services which citizens need for their daily consumption. Due to this , economists suggests trade relationship is needed to enable different countries to export and import goods and services in order to meet the demand of citizens and also serve as a source of revenue to the government. This underlines the need for global trade since countries are interdependent on each other and necessitates the need for exportation and importation goods and services so as to generate revenue to finance government project and aid economic development. It is difficult to find an example of a closed economy in recent times. Economies all over the world have become open but the measure of openness varies from one country to another [26]. This usually requires two or more countries across borders to be involved in international trade activities. Global trade has remained to be "catalyst of growth" for global economy whiles imports and exports remains a significant component. The debate on the relationship between export development and economic growth has exhibited significant interest in the field of economics expansion. Since 1983, the government of Ghana has introduced several policies to regulate the pattern of Ghana's trade structure. Some of these policies included the devaluation of the currency (cedi) as well as increasing producer prices for fundamental exports such as cocoa which is one of Ghana's main exports to offset the advantages of smuggling such cash crop across the country's borders. In addition, the government introduced an inter-bank foreign exchange market to facilitate currency exchange.

2. LITERATURE REVIEW

 Ghana's main exports products includes gold, cocoa, timber and imports foods, oil and gas, as well as capital goods. Export partners included the United Kingdom, Togo, Germany, Italy, the Netherlands, the United States, and France. Import partners were Nigeria (supplying most of Ghana's oil requirement), the United Kingdom, Italy, Germany, the United States, Spain, France, Côte d'Ivoire, and the Netherlands. The figure below represents the top ten countries Ghana exports. The country with more shares is South Africa with 46.89%, second is Netherlands with 12.32%. From the data, Nigeria and Burkina Faso the two West Africa countries which are part of the top ten export destination. Nigeria is the ninth country with 2.26% of share while Burkina Faso least shares is with total share of 1.85%.
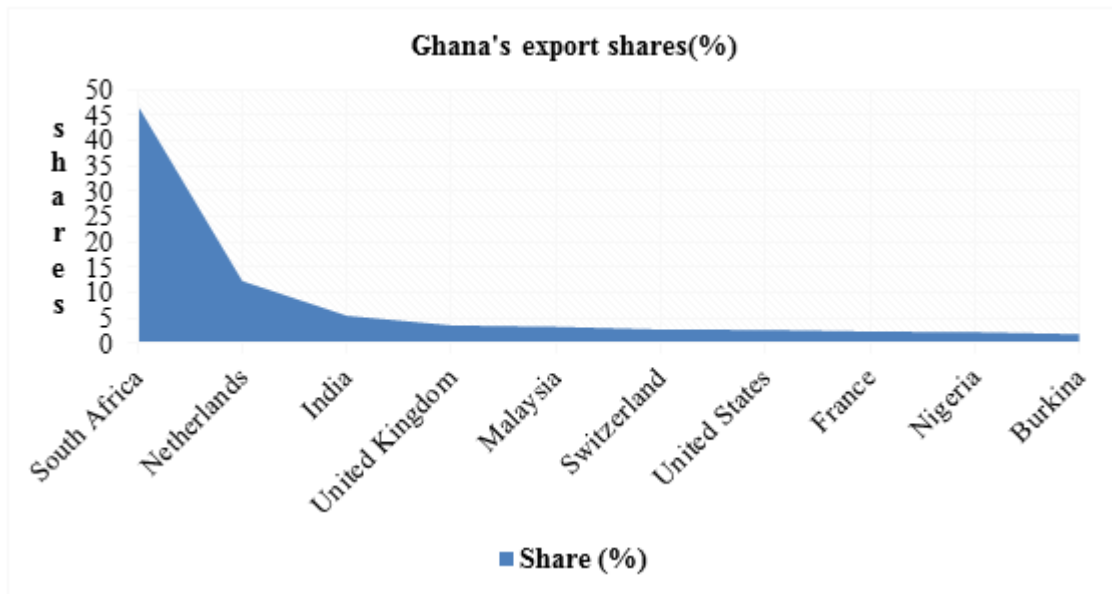

Figure 1: The figure below represents the top ten countries Ghana export Source CIA

2.1 GHANA EU TRADE RELATION:

The relationship between Ghana and the European Union in trade development is categories in three sections. The benefits the two countries obtain from trade, the economic partnership and agreement development narrowed toward achieving a great condition which will favor the private sector. The EU has remained to be one of the Ghana's important trade partner and the paramount station of products exported from Ghana.
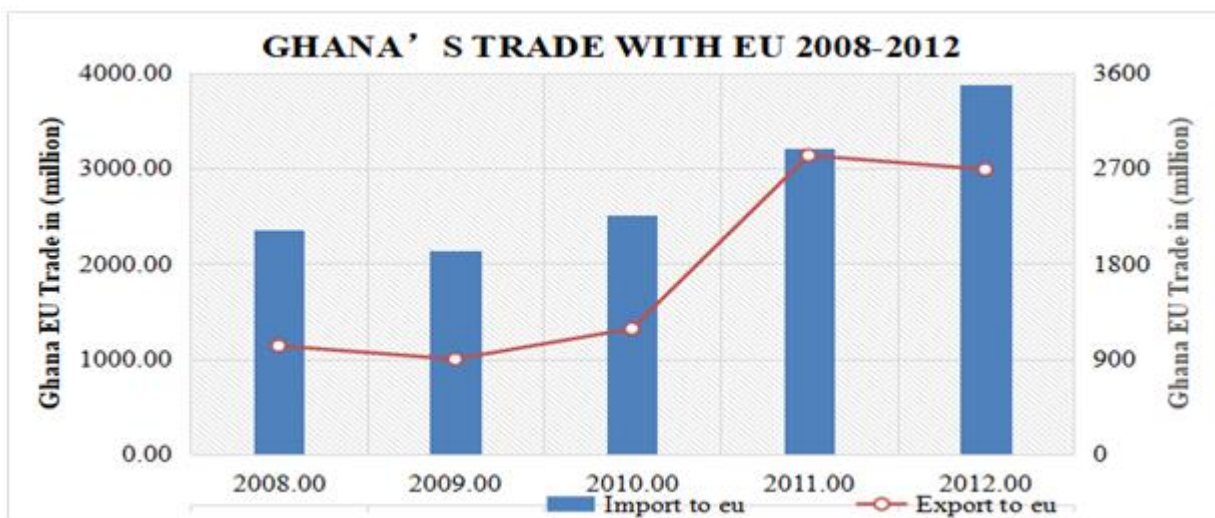

Figure 2: above represents Ghana's trade with EU source:Word bank

Products imported from the EU by Ghana are mostly machines, chemical products, vehicles and transport equipment as well as mechanical appliance. In 2011, Ghana's export to the EU diverted from agricultural products to oil production, which contributed 47% share of Ghanaian export product to the EU.Trade facilitation and regional integration is the support the EU provides to Ghana whiles providing conducive trade environment remains the out most.

[16] undertook a research on the long term and short term relationship among real import, real export and economic growth using the multivariate Granger causality and the co integration from 1960 to 2003.The research disclosed that a long term relationship among export, import and economic growth. Their study stated that a long-run relationship among import, export and economic growth revealed unidirectional causality from export to output but did not identify any significant causality between import and export.

Also, [11] carefully researched about the long run causality between growths and export with the studied the long-run causality between export and growth using significance of error correction term. This research also concluded that export expansion is insufficient to explain the patterns of real economic growth.

According to [15] China's great economic growth performance could be traced down to its increasing and active participation in international trade with its flexible trade policies. The country has targeted the world market because of its speedy growth in economic development. Furthermore, [23] established in his study that, there is relatively no long run relationship between imports, export and real GDP. This research further established the fact that there is no short run and long causality between the increase in export and economic growth in China using the Granger causality model. In addition, [17] suggested that trade plays a key factor in the growth of a country's economy which provides a positive impact on global trade and economic development. This research affirmed the importance of long run effect of investment and export on Australia's economy. The fact supporting the positive and important significant long period effects massively provides mixed effects of the output of trade. Furthermore, the dynamic effects between imports and exports have impact on gross domestic product. According to the dynamic trade theory which is based on neoclassical assumptions, an increase in growth rate and the volume of resources available in a particular country eventually leads to an increase in trade gains.

The merits of international connections in trade, investment, and skilled services can be illustrated by considering the simple act of making and bringing to market an item of apparel, say a fashionable woolen men suit, raw materials, machines, general merchandise etc. The benefits of export growth on a country's economic development have been analyzed differently by various economist using different econometric models. Using the ordinary least square method, [1] studied on the effects oil production has on a producing country's economy. The outcome of the research stated that there is a positive relationship between investment and economic development as well as oil rents. The conclusion stated that oil rents in most rich developing nations in Africa do not promote economic development. Also, [4] researched on the causal relationship between export and economic performance from 1965 to 1995 for several developing countries in Latin America and Asia. The results showed that there is positive relationship between economic performance and export. The research also provides the empirical evidence about the hypothesis that export lead to high import.

3. METHODOLOGY

The major econometric model used in the research is the ordinary least square regression model. Since time series variables will be used, it is important to examine the properties of the variables to avoid spurious regression. In order to check if the variables are stationary or not stationary and also if they have unit root analysis, the Augmented Dickey Fuller test and the Johansen test will be used [3]. Ordinary least square regression model is represented as:

$$GDP=f \{FDI, EXP, IMP, \mu t\} \qquad (3.1)$$

Where;

GDP=Gross Domestic Product

EXP= Export

IMP= Import

FDI =Foreign direct investment

U=Stochastic variable (error term)

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The econometric model is represented as

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 EXP + \beta_3 IMP + \mu t \qquad (3.2)$$

By representing the model in logarithm form, the econometric model becomes;

$$Log\ GDP = \beta_0 + \beta_1 log FDI + \beta_2 log EXP + \beta_3 log IMP + \mu t \qquad (3.3)$$

4. DATA AND ANALYSIS

4.1 FACTORS AFFECTING CARGO THROUGHPUT AT THE TEMA PORT:

Speculations of information made by port workers have got a great impact on the port Tema port cargo throughput. Information circulated by field workers and importers concerning port related issues remained a major challenge which had effect on port volume [8]. Due to this problem, GPHA implemented what they term Eye on Port. The idea behind this is to interact with port workers to explain certain policies and the reasons for their implementation in order to educate them and also reduce rumor in the industry.
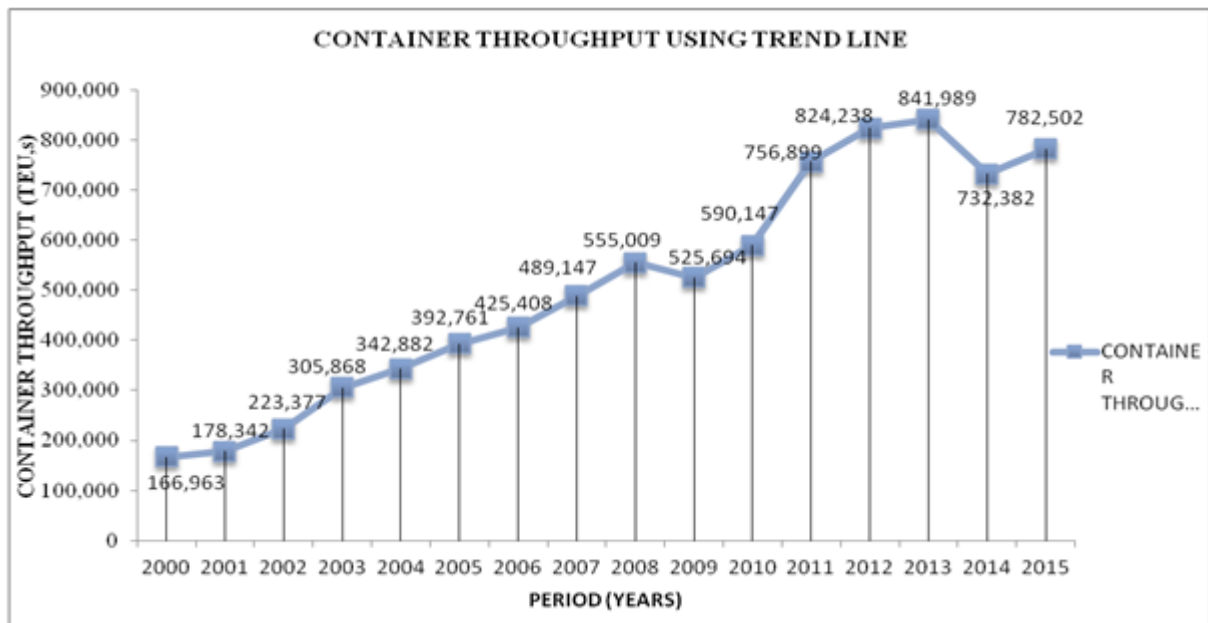

Figure 3: Port of Tema Container Throughput Trend(2000-2015). Source: GPHA

Poor implementation of the Axle Load policy is one of the major reasons which led to a steep fall in container throughput in 2014 thus, leading to loss of transit trade to neighboring ports. This policy included vehicle weight limit, vehicle measurement limits, maximum driving periods which discouraged importers from using the port as their transit point since specific weight of container volume needs to be transported at a particular point in time. Privatization of Meridian Port Services (MPS) has led to a greater increase in container throughput for the port of Tema as well as the acquisition of loading and discharging equipment by (MPS) and the efficient and maximum utilization of equipment has led a steadily increase in container and cargo throughput and reduction turnaround time of vessels calling the port.

4.2 UNIT ROOT TEST:

The Augmented Dickey-Fuller test is carried out to test if the variables have the unit root or not. This is conducted to determine if the variable are stationary or not [3].

Table 1: Augmented Dickey Fuller Unit Root Test

Variable	Coefficient	Critical value 5%	Mackinnon Value	Remark of order of co integration
GDP	-0.928	-3.600	0.0029	1(1)
IMPORT	-0.913	-3.600	0.0046	1(1)

Source: Author's computation

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The Augmented Dickey-Fuller (ADF) unit root test for the variables from table 4 shows that import, and gross domestic product became stationary after first difference while export was difference twice to become stationary.

4.3 co integration test:

<p align="center">Table 2: Lag selection</p>

```
. varsoc GDP FDI IMP EXP, maxlag(3)

    Selection-order criteria
    Sample:  1978 - 2016                      Number of obs     =        39

   ┌─────────────────────────────────────────────────────────────────────────┐
   │ lag │   LL      LR     df    p     FPE      AIC      HQIC      SBIC        │
   ├─────────────────────────────────────────────────────────────────────────┤
   │  0  │ -3488.65                     7.2e+72  179.11   179.172   179.281     │
   │  1  │ -3377.54  222.22  16  0.000  5.5e+70  174.233  174.539   175.086     │
   │  2  │ -3341.7   71.681  16  0.000  2.0e+70  173.215  173.766   174.751     │
   │  3  │ -3252.87  177.66* 16  0.000  5.3e+68* 169.481* 170.276*  171.699*    │
   └─────────────────────────────────────────────────────────────────────────┘

    Endogenous:  GDP FDI IMP EXP
     Exogenous:  _cons
```

Source; Author's computation using stata

The lower the likelihood- ratios, Akaike Information Criterion, Schwarz Bayesian Information Criterion values the better. From the result above, lag 3 was selected using the VAR diagnostics test. The LL-3252.87 equals likelihood- ratio is177.66, Akaike Information Criterion is equal to 169.48, Hannan-Quinn Information Criterion is equal to 170.28. SBIC is 171.69. Therefore three lag is more appropriate to carry out the VECM model as its indicated by" *" in the output

JOHANSEN TEST OF CO INTEGRATION:

In testing for co integration, the Johansen's method will be used below is the presented of Johansen's co integration test using *Vecrank* to determine the number of co integrating equations.

<p align="center">Table 3: Johansen test for co integration results</p>

```
. vecrank GDP FDI EXP IMP, trend(constant) lags(3) max

                   Johansen tests for cointegration
  Trend: constant                              Number of obs =     39
  Sample:  1978 - 2016                                  Lags =      3

                                                     5%
  maximum                            trace      critical
    rank    parms      LL      eigenvalue  statistic    value
       0      36   -3342.3486        .     178.9514    47.21
       1      43   -3288.1143   0.93804     70.4827    29.68
       2      48   -3267.3041   0.65603     28.8623    15.41
       3      51   -3253.8098   0.49943      1.8738*    3.76
       4      52   -3252.8729   0.04691
```

Source; Author's computation using stata

The previous output table presented the statistics for lag order selection. From the above results using Johansen test for co integration, it is suggested that maximum rank 3 should be used in carrying out the vector error correction model. The null hypothesis no co integration will be rejected. Therefore we accept the hypothesis that there is one co integrating equation in bivariate model the results obtained for trace statistics is 1.87. Since the variables are co integrated, the vector error correction model is appropriated to use.

Having determined that there is a co integrating equation, the VECM will be carried out using *vec* [21]. Since the variables are co integrated. All the variables became stationary after first difference. The vector error correction estimates the parameter in the co integrating equation is to adjusts the coefficients, estimates the short-run coefficients, standard functions that have useful interpretations.

Table 4: Vector error correction model result

```
Vector error-correction model

Sample:  1978 - 2016                      No. of obs    =         39
                                          AIC           =   169.4774
Log likelihood = -3253.81                 HQIC          =   170.2579
Det(Sigma_ml) =  3.45e+67                 SBIC          =   171.6529

Equation          Parms     RMSE     R-sq      chi2     P>chi2

D_GDP               12     2.1e+09   0.6917    60.5837   0.0000
D_FDI               12     1.4e+08   0.8558   160.2274   0.0000
D_IMP               12     5.1e+08   0.9175   300.1101   0.0000
D_EXP               12     2.7e+08   0.9554   578.1304   0.0000


                 Coef.   Std. Err.      z    P>|z|    [95% Conf. Interval]

D_GDP
      _ce1
       L1.    .6977398   .3445171    2.03    0.043    .0224986   1.372981

      _ce2
       L1.   -8.535919   3.360937   -2.54    0.011   -15.12323  -1.948604
```

Source; Author's computation Using stata

The overall output of the model fits well. The output above contains information about the sample; the fit of the various equations and the overall model fits statistics. The first estimation table contains the short run parameter along with their standard error, z statistics and 95% confidence interval. Vector error model automatically converts all the variables into first difference and makes them stationary. It can see from the table above that lag 1 of error correct two has a negative coefficient and also a significant p valve of less than 5%

Table 5: Ordinary Least Squares regression model results

```
. regress GDP FDI imports exports

    Source  |      SS         df       MS           Number of obs =       42
------------+----------------------------------    F( 3,    38) =   977.68
     Model  |  7.5692e+21     3   2.5231e+21       Prob > F      =   0.0000
  Residual  |  9.8066e+19    38   2.5807e+18       R-squared     =   0.9872
------------+----------------------------------    Adj R-squared =   0.9862
     Total  |  7.6673e+21    41   1.8701e+20       Root MSE      =   1.6e+09


       GDP  |    Coef.    Std. Err.      t    P>|t|    [95% Conf. Interval]
------------+-----------------------------------------------------------------
       FDI  |  4.015732    .8338407    4.82   0.000    2.327709    5.703754
   imports  |  1.702722    .3004399    5.67   0.000    1.094513     2.31093
   exports  | -.6412388    .3600354   -1.78   0.083   -1.370092    .0876147
     _cons  |  3.01e+09    3.79e+08    7.94   0.000    2.24e+09    3.77e+09
```

Source; Author's computation Using stata. $R^2=0.98$ Adjusted $R^2=0.98$ 95% level of confidence using stata

From the OLS result,the coefficient of FDI is 4.016 which implies that, a unit increase in FDI causes GDP to rise by 4.02 units. The coefficient of import is 1.702 which means that, a unit increase in import leads to an upward movement in GDP by 1.702 unit. Import and FDI have a positive relationship with GDP, which implies that both have a positive on economic growth FDI produce greater positive effect than import. The co-efficient of export is negative 0.641, denoting that it is inversely related to GDP therefore a unit increase will lead to a decrease in GDP and vice versa. Whiles IMP and FDI have a positive co-efficiensubmit.nj@gmail.comt that is a direct relationship with economic growth. The R^2 is 0.98 *which* signifies that there is a positive correlation between the variables. The test of significance shows that the entire exogenous variable is significant except export. The p value for import and FDI is 0.00 which signifies that the variable provides much contribution to economic with economic growth. Thus import and FDI is reliable predictor of Ghana's economic growth while export is not

5. CONCLUSION

The main objective of the paper is to determine the impact import and export has on Ghana's economic growth. In order to achieve this, Gross domestic product for Ghana was used as the dependent variable while import, export and foreign direct investment were used as the independent variables. All the relevant dependent and independent variables were specified in the linear equation model.

The study used ordinary least square regression as the model of analysis using Augmented Dickey fuller method to determine if the variables have unit root thus determining if the variable are stationary or not stationary at level. The unit root test detected that three variables were stationary after first difference that import, foreign direct investment and gross domestic product while export became stationary after first difference at level two. The Johansen co-integration was used to determine if the variables were co integrated and also the vector error correction model was to find out the long-run and the shows run economic relationship. The hypothesis for this empirical research is both import and export has a positive impact on Ghana's Economic growth. The empirical findings of this research deduced that import has a significant effect on Ghana's economic growth while export remains insignificant. Hence the null hypothesis is rejected. Unlike other countries, Import and export has a significant effect on economic growth with serves as a catalyst to economic development. From the empirical analysis, import and foreign direct investment remained significant whiles export remain insignificant. This was concluded on the basis that Ghana mostly depends on foreign countries for both financial aid and importation of goods and services. With regards to this, the research recommends the government of Ghana to focus on promoting an export-led economy. The government should make good use of its abundant resource in cocoa, manganese, oil, timber, gold etc. Various production sites can be opened to aid in processing of of natural resources. These will serve as a means of reducing unemployment are in the country. The new policy "one district one factory" initiated by the new government should be regulated effected to curtail the problem of inter dependency.

6. RECOMMENDATION

The following recommendation are highlighted below:

- The government should implement export led polices to serve as a catalyst to boost the export and manufacturing sector.

- The government should have a set policies that will promote domestic production of goods and services.In order to balance imports and export, the government to impose high taxes on imported commodities which are locally manufactured in the country to discourage importation of such commodities.

- Tightening security at the country's borders to curtail smuggling of goods in to the country.

- More investment should be made at opening more factories and manufacturing sites to promote production of made in Ghana goods. This will also serve as a source of employment to the nation and reduce the level of unemployment.The Ministry of trade and ministry should work at reviving the coals textile , tomatoes and sugar firms which also contributed to export growth.

From the results, it can be concluded that, Ghana has less gain with trading with other countries since it import than export. The government and the Ministry of trade and industries should implement policies that will benefit the country. Also the government should investment and train employee by establishing industries that will produce made in Ghana products instead of depending on other country's technical know-how.

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