

Foreign Direct Investment, Trade and Economic Growth in Ghana: An Empirical Analysis

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Abstract

The research was to examine the effects of FDI inflows and trade in the economic development of Ghana, using annual time series data for the period 1986 to 2013, through the application of (ADF) unit root, Johansen's co-integration test and Granger causality test. The results affirmed the existence of autocorrelation and unit root with Granger causality showing, unidirectional complimentary causal links from FDI to GDP; which means that FDI inflows could lead to the economic growth of Ghana. However, the result of Granger causality test for Trade indicated that there was (independence) links between Trade and GDP for the Ghana scenario, and this could be attributed to the fact that Ghana imports more than it exports.

Keywords: Foreign Direct Investment, Trade, Granger causality, Ghana, Economic growth.

JEL Classification: D22, F21, P45

1. Introduction

Economic globalisation has become the main trend of world economy in the 21st century; therefore factors of production are elegant at a faster rate in the global scope in order to achieve the optimal allocation of resources in the world. Foreign direct investment (FDI) is a fundamental parameter for economic growth and development. It has importance in an increasingly globalised economy, for both developing and developed countries; Julio et al., (2013). Developing countries in Asia, Latin America and Africa, particularly West African countries, have come gradually to see FDI inflows as a source of economic development, modernisation, income growth, employment, and poverty reduction. In recent years, the importance of FDI inflows in different economies has recognised greater attention in both theoretical and empirical literature (Imoudu, 2012; Adams, 2009). Different channels through which FDI inflows can efficiently affect economic growth involve both negative and positive sides (Gorg and Greenway, 2004); Asiedu and Gyimah - Brempong, 2008). The importance of FDI inflows in Africa is not yet realised, as a relatively small amount of foreign investment portfolio exist in this region (Anyanwu, 2006) when compared with other regions of the globe. This is apparently reflected by their currently pursued economic policies, which is explicitly intended to improve conditions to attract FDI inflows and to maximise the benefits of the presence of FDI in their economy. Over the past two

decades, these countries have implemented broad ranging economic reforms, including the liberalisation of their foreign trade, investment regimes, domestic markets and privatisation of state companies, which has had an effect on the flow and nature of foreign investment.

The steadily growing economy of Ghana in majority of its sectors, has made Ghana one of the most famous and prevalent destinations in Africa. Ghana's ever-expanding markets, liberalisation of trade policies, development in technology and telecommunication as well as loosening of diverse foreign investment restrictions, have further collectively made Ghana, the apple of investors' eye, for most productive, profitable, and secure foreign investment. According to a recent survey by the United Nations Conference on Trade and Development (UNCTAD 2008), Ghana has conspicuously emerged out as the second most popular and preferable destination in the entire world, after China, for highly profitable foreign direct investment. The structural adjustment programme (SAP) in 1980s, has made Ghana much more liberal in its economic policies to attract more FDI inflows to increase its economic growth and hence implicitly alleviate poverty (IMF, 2000).

2. Literature Review

2.1 The Market Imperfection Theory and Foreign Direct Investment

Stephen Hymer (1979) argued that due to market imperfections, the type of assets possessed by multinational enterprises (MNEs) cannot be relocated certainly. He therefore identified two major types of market imperfections associated with MNEs as (1) Multinational enterprises advantages with respect to firms with no foreign set-ups—claiming that this violated the assumptions of perfect competition; (2) resulting from costs of transactions (Lattore, 2008; Denisia, 2010). He further explained that control of foreign enterprises was important to apt fully the returns on advantages the firm possessed (Denisia, 2010). This implies that, FDI becomes the only option for the firms to minimise the cost of uncertainty in order to survive the imperfect market; direct ownership is the viable strategy to be adopted. Moreover, he stated that firm-specific advantages can be exploited in foreign countries by MNEs (Lattore, 2008). These advantages may include ownership of a trademark, innovations, exclusive marketing know-how, patents, management skills and secured sources of finance as well as enjoying economies of scale derived from plant size, etc. (Lattore, 2008, Moran 2013). Therefore, industries where vertical integration takes place will be characterised by high merchant concentration, which creates barriers to entry (Lattore, 2008).

2.1.1 The Internalisation and Product Cycle Theory

Raymond Vernon (1966), his theory is widely known as the Product Life-Cycle theory – PLC (Vernon, 1966; Lattore, 2008) and entails three main stages. Vernon argued that most production processes went through these stages or product life-cycle. The first stage is characterised mainly as innovation phase whereby firms produce for the local market demand (US in this case). The fundamental importance of this stage is that it enables the firm to satisfy local demand with sufficient profits to allow for it to engage in research and development, thereby enhancing product quality. Hence, research development and the production processes are efficiently coordinated (Lattore, 2008). The second stage emphasises on market-seeking outside the home country (mainly Western Europe, at the time of the formulation of this theory). In the stage, the product begins to be exported (to Western Europe). In a third stage, this is where some competitors arise in Europe. If conditions are favourable, the firm will establish foreign subsidiaries there to countenance the increased competition and it may also establish subsidiaries in less developed countries to have access to cheaper labour costs to enhance its competitiveness. The fundamental importance of the product life cycle theory was the innovative attempt to give relevant explanation specifically relating to the expansion of US enterprises in foreign markets, especially after the Second World War. Consequently, (Lattore, 2008) noted that the theory “explains FDI as a reaction to the threat of losing markets as a product matures, and as a search of cheaper factor costs to face competition”. Again, this theory is concerned mainly with FDI flows among capital-rich countries or

capital abundant countries, not comprehensive enough to account for other types of FDI flows, especially those flowing from developed to developing countries.

2.1.2 The Eclectic Paradigm (Ownership, Location, Internalisation)

John Dunning, combined the prevailing FDI theories to formulate a more comprehensive theory resulting in what has been described as the Eclectic Theory of FDI, (Denisia, 2010; Lattorre, 2008; Dunning, 1977). The British economist, theory is based on the “OLI paradigm (“Ownership-specific” advantages, “locational” advantages and “Internalisation” advantages). The eclectic theory endeavored to incorporate the three main strategies through which firms try to get involved in the global economy or operate in foreign markets, namely, exports, FDI and contracts (i.e. licensing, technical assistance, management as well as franchising) - (Denisia, 2010; Lattorre, 2008). Dunning’s OLI paradigm was the dominant analytical framework for accommodating economic theories of the determinants of FDI and trade in the last part of the 20th century (Dunning, 2002). According to the OLI, paradigm, foreign production of multinational enterprises (MNEs) is determined by the interaction of the interdependent three OLI variables, which comprise three sub-paradigms as well.

Ownership (O) sub-paradigms, asserts that MNEs with greater competitive advantage, relative to other MNEs and domestic firms in the foreign country seeking to invest, are more likely to increase foreign production through ownership of natural limited resources, patents, trademarks; technology as well as knowledge broadly defined so as to contain all forms of innovation activities; such as economies of scale and scope; greater access to financial capital. (Denisia, 2010). The Location (L) sub-paradigms, emphasises that MNEs are mainly from resource endowments (natural resources, labour, etc.). Location advantages of different countries are the crucial factors to determining who will become host country for the activities of the transnational corporations and all things being equal, makes firm more profitable to produce and sell in the host country instead of producing those goods at home and export to other countries (Lattorre, 2008). The internalisation (I) sub-paradigms, raised concerns in the ways in which MNEs consolidate and exploit their competitive advantage, given the location advantages of the foreign location. MNEs will engage in FDI rather than licensing as there are more important benefits of internalising foreign intermediate product markets. (Nguyen, 2013).

2.2. Relations between Foreign Direct Investment (FDI) and Trade.

Foreign direct investment relates to trade in diversionary aspect of regional integration. This occurs when there are location advantages for foreign companies in their home country but the existence of tariffs or other barriers of trade prevent the companies from exporting to the host country. The foreign companies therefore outflow the barriers by establishing a local enterprise within the host economy in order to gain access to the local market. The local enterprise presence should be sufficient to circumvent the trade barriers, since the foreign company wants to maintain as much of the value-added in its home economy. (Abor *et al.*, 2008). International trade and capital mobility are the parameters in determining a country’s economic growth, represented by productivity and output levels. International trade contributes to industrialisation, job creation, income growth, and development in the home country. The rationale is that trade increases domestic and international competition, which in turn, influences an economy’s productivity. Through exports, a country is able to experience a higher demand for its goods and services, increasing the output levels. Importing goods and services from foreign countries is said to enhance efficiency and productivity of domestic firms, leading to economic growth. Because developing nations may lack the knowledge and technology to utilise their resources efficiently and effectively, international trade and foreign investments may serve as substitutes for such, exposing these economies to new technologies and intellectual capital, which will in turn lead to economic growth.

Moreover, an increased in intra-firm trade mainly arise from the benefits that accrue from common governance, such as economies of shared information and distribution channels between headquarters and subsidiaries. The network of a multinational enterprise creates externalities in

information. It also helps to reduce uncertainties about market conditions, changes in consumer tastes and the distributional route, particularly for horizontally integrated FDI. Under the same corporate governance, foreign subsidiaries that are part of an MNE's network may show more willingness to purchase from other subsidiaries within the network to minimise transaction costs. Because of these direct effects, the impact of FDI on trade flows will be imminent, although the direction of trade will still depend on the investment motivations of the MNE's headquarters. Exports to the FDI source country will increase if the FDI is driven by a strategy of outsourcing for cost minimisation, whereas imports from the FDI source country will increase if subsidiaries rely heavily on production components and intermediate goods from the headquarters (Zejan 2012)

In addition, FDI facilitates specialisation and improves productivity through lowering entry barriers as a result of increased capital usage and increased service provision (Rivera-Batiz and Rivera-Batiz 1991). The amount of capital stock that is raised via FDI will lower the costs of capital and thereby induce the entry of new firms. An increase in the number of firms gives rise to specialisation and diversification of the industry in the host economy. The entry of a multinational enterprise per se ensures that the market is contestable and competitive, although oligopolistic MNEs potentially want to maximise their monopolistic power in the host country. As a matter of fact, developing countries may lack the knowledge, and technology to utilise their resources efficiently and effectively. FDI and Trade may serve as substitutes for such exposing these economies to new technologies and intellectual capital, which will in turn lead to economic growth.

2.3. Relationship between FDI, Trade and Economic Growth

Foreign Direct Investment and trade are two most important channels for a country to participate in international markets. In deepening of economic globalisation, the relationship between trade and investment is intensified, so investment becomes an important factor influencing trade growth of various countries. FDI and Trade inflows have been widely recognised as very important parameters in the economic growth process. Past empirical studies, both cross country and country specific, on FDI and trade interaction on FDI-growth nexus and trade-growth nexus have concluded that both FDI inflows and trade promote economic growth, however, there are clear indications that the growth enhancing effects from FDI inflows and Trade vary from country to country Fosu, & Frimpong (2006). However the extent to which FDI contributes to economic growth depends on the economic and social condition or the quality of environment of the recipient country. Meaning that, the quality of environment is associated with the rate of savings in the host country. In studies conducted by Wijeweera, Villano, & Dollery, (2010) gave their excellent contribution to the empirical literature on the relationship between FDI, Trade and the rate of growth of GDP using a stochastic frontier model and employing panel data covering 45 countries over the period 1997 to 2004. Four main inferences were analysed from their findings. Firstly, FDI inflows exerted a positive impact on economic growth in the presence of a highly skilled labour but FDI by itself did not induce efficiency gains. Secondly, by merely increasing FDI inflows, a country could not improve its efficiency. Thirdly, corruption had a negative impact on economic growth. Finally, trade openness increases economic growth by means of efficiency gains. The implication is that, poor nations can increase their economic growth rate by reducing or curbing the level of corruption, improve the level of education; and then, strongly encourage FDI.

Likewise Mounir (2013), examined the relationship between FDI, trade and economic growth in Tunisia by applying the bounds testing (ARDL) approach to cointegration for the period from 1970 to 2008. His empirical result indicated that there was no significant Granger causality from FDI to economic growth, from economic growth to FDI, from trade to economic growth and from economic growth to trade in the short run. Moreover, Shaikh and Hussain (2012) research on international trade, FDI inflow and economic growth in Pakistan. Multiple regression model was employed and data was taken from (1975 – 2010) to explore the impact of selected explanatory variables on economic growth of Pakistan. The results of their findings revealed that, FDI has positive impact on the trade growth in Pakistan.

In summary, it can therefore be concluded that all the literatures have shown both theoretically and empirically that there was causal relationship between FDI and economic growth. Even though, literatures regarding the effect of FDI on economic growth has been inconsistent but a careful review reflected that FDI may affect economic growth directly and indirectly. However, in Ghana most of the FDI has been dominated into natural resources, which seek to exploit endowment of natural resources, obviously, the production and extraction of the resources is bound to the precise location but given that most resources can be found in a relatively large number of locations; firms usually choose locations on the basis of differences in the production cost; In the case of Ghana scenario is due mainly to the availability of abundant natural resources' such as crude oil, gold, bauxite, manganese etc.

3. DATA AND METHODOLOGY

3.1 Data

The study employed annual time series data for the period 1986 – 2013 obtained from published sources. The major sources of data included World Bank, World Development Indicators (WDI), International Financial Statistics CD-ROM 2012, African Development Indicators (ADI), and WTO Trade Statistics. Other sources included annual reports of Bank of Ghana (BOG), Ghana Statistical Services (GSS) and State of the Ghanaian Economy (various issues) by Institute of Statistical, Social and Economic Research (ISSER). All estimations as well as the various econometric tests were carried out using the Eviews 7.0 econometric software.

3.2 Methodology

The ordinary least square (OLS) estimation was used based on the fact that it is the best model suited for testing specific hypothesis about the nature of economic relationship according to Gujarati 2004. The properties of the variables in the time series were examined. Unit Root Test and Granger Causality Test were performed in order to determine the relationship between FDI inflows and trade on the Ghana economy. The purpose of this study is to examine the effects of foreign direct investment and trade on economic growth in Ghana. The findings of this study if implemented will not only help investors, government and academia, but will enable Ghana as a whole to attract more foreign direct investment for economic development. The use of content analysis of relevant literature and reports from various scholars was corroborated in the selection of some macroeconomic variables for the result. Thus the model is adopted to take the following specification.

$$Y_t = f(A, K, L) \quad (1)$$

Where:

Y_t is real GDP at time t , A is the total factor productivity (TFP) while K and L are the usual capital and labour inputs respectively.

Here, A captures the total factor productivity of growth in output not accounted for by increase in capital and labour. According to endogenous growth theory, A is endogenously determined by economic factors.

Therefore, in Ghana and for that matter in this study, it is assumed that

$$A = g(\text{OPENNESS}, K, \text{INFL}, \text{AID}) \quad (2)$$

Where:

OPENNESS measures the extent of openness of the economy measured as a ratio of total trade (sum of exports and imports) to GDP; INFL is Inflation, a reflection of macroeconomic instability and K is gross fixed capital formation as a ratio to GDP; AID is foreign aid measured as a ratio to GDP.

$$K = g(\text{GDP}, \text{FDI}, \text{EXCHR}, \text{TAXR}) \quad (3)$$

Where:

FDI is foreign direct investment as a ratio to GDP; EXCHR is measured as Cedi per Dollar,

TAXR is measured as a ratio to GDP.

$$L = g(GDP, K, WAGE) \quad (4)$$

Where:

WAGE is measured as a ratio to GDP

Substituting equation (2), (3) and (4) into equation (1) yields:

$$GDP_t = h(OPENNESS_t, FDI_t, INFL_t, AID_t, K_t, L_t, EXCHR_t, TAXR_t, WAGE_t) \quad (5)$$

However, data on the active employed labour force are not readily available (Ramirez, 2006), so many empirical studies (e.g. Li and Liu, 2005; Vamvakidis, 2002; Pattillo et al., 2002) use population as a proxy for labour. Hence, labour, L_t is dropped from the model.

Therefore, equation (5) can be expressed as

$$GDP_t = \beta_0 + \beta_1 OPENNESS_t + \beta_2 POPGR_t + \beta_3 INFL_t + \beta_4 FDI_t + \beta_5 K_t + \beta_6 AID_t + \beta_7 EXCHR_t + \beta_8 TAXR_t + \beta_9 WAGE_t + \mu_t \quad (6)$$

where μ_t is the error term. All the other variables have already been defined.

4. Estimation Techniques

4.1 Unit Root Test

To avoid spurious regression, we conducted the Augmented Dickey-Fuller (ADF) test and the Philips-Perron (PP) test to check whether each data series is integrated and has a unit root, thereby testing the stationarity of the variables. A variable that has unit root is non-stationary in the level form becomes stationary after being difference once. Such a variable is also called integrated of order one and it usually denoted by $I(1)$, Hatemi- J and Hacker pointed out that it is important to test for unit root because in the unit roots the standard distribution of test statistics are not correct and there is risk of having spurious regression result.

The formula is expressed as follows;

$$\Delta y_t = a_0 + a_1 y_{t-1} + \sum_{i=1}^n a_i \Delta y_i + e_t \quad (7)$$

4.2 Co-integration Test

Vector Autoregressive, (VAR) is used to the optimal lag length for the Johanson Co-integration Test, Johanson (1991) which is based on the AIC and SC criteria was used to test for the co-integration relationships among the series in the model. Two or more variables are said to be co-integrated (there is a long-run equilibrium relationship), if they share common trend. Co-integration exists when a linear combination of two or more non-stationary variables is stationary. Johanson (1991) co-integration techniques were developed to test and determine the number of co-integrating relationships between the non-stationary variables in the system using a maximum likelihood procedure.

4.3 Granger Causality Test

Granger causality test was conducted to identify causal relationship between the variables employed and to determine whether the current lagged values of one variable affect another. According to Granger (1969) a variable y is caused by another variable x if y can be predicted well from the past values of y and x than from past values of y alone. The Granger test may be explained with the help of the following equation:

$$X_t = a_0 + \sum_{j=1}^m a_j x_{t-j} + \sum_{j=1}^n b_j y_{t-j} + e_t \quad (8)$$

$$Y_t = c_0 + \sum_{j=1}^m c_j x_{t-j} + \sum_{j=1}^n d_j y_{t-j} + w_t \quad (9)$$

5. Results Presentation and Discussion

5.1 Unit Root Test Analysis

Granger causality tests require the use of stationary time-series data (Granger and Newbold, 1974; Ong, 1994; Huang, 1995). Under existing practice the unit root test is conducted to check the stationarity of data series. This step is very vital because if non-stationary variables are not identified and used in the model, it will lead to a problem of spurious regression, whereby the results suggest that there are statistically significant relationships between the variables in the regression model when in fact all that is evidenced is contemporaneous correlation rather than meaningful causal relationships. The Augmented Dickey-Fuller test was used and the test results are presented in table 1.

Table 1: ADF Unit Root Test Results at Levels

ADF AT	LEVELS			PP AT	LEVELS			
Variable	ADF-Stat	OI	BW	Prob**	PP-Stat	OI BW	Prob**	
LOGGDP	-1.2923	I(0)	[4]	0.8642	-5.9617	I(0)	[3]	0.0002
LOGTRA	-1.7413	I(0)	[0]	0.7044	-1.7788	I(0)	[2]	0.6868
LOGTAX	-7.8422	I(0)	[1]	0.0000	-4.0913	I(0)	[16]	0.0173
LOGPOP	-5.3607	I(0)	[0]	0.0009	-5.3754	I(0)	[3]	0.0009
LOGK	-2.9358	I(0)	[0]	0.1677	-2.7802	I(0)	[4]	0.2158
LOGINF	-3.8861	I(0)	[2]	0.0282	-3.8795	I(0)	[2]	0.0273
LOGFDI	-2.6987	I(0)	[1]	0.2450	-2.3312	I(0)	[2]	0.4044
LOGEXC	-1.1623	I(0)	[1]	0.8975	-1.7734	I(0)	[1]	0.6894
LOGAW	1.8544	I(0)	[2]	1.0000	-0.4218	I(0)	[7]	0.9983
LOGAID	-5.2905	I(0)	[0]	0.0011	-5.2892	I(0)	[3]	0.0011

Source: Computing Using Eviews 7.1 Econometric Package

Table 2: ADF and PP Unit Root Test Results at First Difference

ADF AT	FIRST	DIFF.		PP AT	FIRST	DIFF.		
Variable	ADF-Stat	OI	BW	Prob**	PP-Stat	OI BW	Prob**	
LOGGDP	-7.8814	I(1)	[3]	0.0000*	-22.1224	I(1)	[17]	0.0000*
LOGTRA	-4.7195	I(1)	[0]	0.0044	-4.7290	I(1)	[4]	0.0044
LOGTAX	-7.4267	I(1)	[1]	0.0000*	-7.9842	I(1)	[1]	0.0000*
LOGPOP	-7.7664	I(1)	[1]	0.0000*	-19.6526	I(1)	[1]	0.0000*
LOGK	-5.3215	I(1)	[1]	0.0012*	-15.6881	I(1)	[11]	0.0012*
LOGINF	-4.8028	I(1)	[3]	0.0044*	-8.3967	I(1)	[25]	0.0044*
LOGFDI	-4.2257	I(1)	[1]	0.0138*	-4.7185	I(1)	[5]	0.0138*
LOGEXCH	-7.8076	I(1)	[0]	0.0000*	-7.8076	I(1)	[6]	0.0000*
LOGAW	-4.5603	I(1)	[1]	0.0066*	-4.5603	I(1)	[9]	0.0066*
LOGAID	-8.2921	I(1)	[1]	0.0000*	-8.2921	I(1)	[10]	0.0000*

Source: Computing Using Eviews 7.1 Econometric Package

The unit root test result reveal that all the variables trade, capital, average wage and FDI equation are non-stationary at their levels but become stationary after first differencing. From the tables, all the variables are stationary at first difference, This suggests the use of co-integration analysis since the concept of co-integration requires variable must be stationary after differencing at least once.

5.2 Lag Selection Criteria

Prior to estimating for the co-integration equation and granger causality test relationships, we have used final prediction error, Akaike Information Criterion, Schwarz Criterion and Hannan Quinn information criterion in the study and the results are presented table 3. The criterion suggested the lag of 1 at which the values of information criterions are minimum.

Table 3: Akaike Information Criterion/ Schwarz Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-139.5959	NA	3.08E-08	11.0811	11.56112	11.22389
1	72.93912	251.8934*	1.22E-11*	2.745250*	8.024586*	4.315073*

Source: Computing Using Eviews 7.1 Econometric Package

Note: indicate indicates lag order selected by the criteria., LR: Sequential modified likelihood ratio (LR) test statistic (each test at 5% level), FPE: Final Prediction Error, AIC: Akaike information Criterion, SC: Schwarz Criterion, HQ: Hannan Quinn Criterion

5.3 Co- integration Test Analysis

The stationary linear combination is called the co- integrating equation and may be interpreted as a long run equilibrium relationship between variables. The common objective is to determine the most stationary linear combination of the time series variables under consideration. Consequently, Johansen and Juselius (1988, 1990) co-integration technique has been employed for the investigation of stable long run relationships between foreign direct investment, GDP and trade in Ghana by using both the trace and Maximum-Eigen tests statistics. The results are presented in table 4 and 5.

Table 4: Johansen Cointegration (Trace) Test Result

Hypothesized No. of CE(s)	Eigen-Value	Trace-statistic	0.05 Critical Value	Prob.
None*	0.870107	162.7003	125.6154	0.0000
At most 1*	0.766634	109.6331	95.75366	0.0039
At most 2*	0.708015	71.79932	69.81889	0.0345
At most 3	0.573987	39.79199	47.85613	0.2300
At most 4	0.359196	17.60654	29.79707	0.5952
At most 5	0.165474	6.035725	15.49471	0.6913
At most 6	0.049961	1.332551	3.841466	0.2484

Source: Computing Using Eviews 7.1 Econometric Package

Trace test indicates 3 Cointegrating Equation(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Table 5: Johansen Cointegration (Maximum Eigen-Value) Test

Hypothesized No. of CE(s)	Eigen-Value	Trace-statistic	0.05 Critical Value	Prob.
None*	0.870107	53.06715	46.23142	0.0081
At most 1	0.766634	37.83378	40.07757	0.0876
At most 2	0.708015	32.00733	33.87687	0.0822
At most 3	0.573987	22.18545	27.58434	0.2110
At most 4	0.359196	11.57081	21.13162	0.5903
At most 5	0.165474	4.703173	14.26460	0.7787
At most 6	0.049961	1.332551	3.841466	0.2484

Source: Computing Using Eviews 7.1 Econometric Package

Maximum Eigen-Value test indicates 1 Cointegrating Equation(s) at the 0.05 level

The results of both, the trace (table 4) and the maximum – eigen test (table 5) indicate that co - integrating equation exist at 5% significance level. Therefore the null hypothesis of no co-integrating equation is rejected. Consequently, it can be concluded that there is a significant long- run relationship between the given variables. Since variables can either have long run or short run effects, then an error correction model (ECM) is used to disaggregate this effect.

Table 6: The result of the long run co-integrating relationship

Variable	Coefficient	Std Error	t-statistic	Prob.
LOGTRA	1.280514	0.60750	2.11	0.0350**
LOGFDI	-0.257523	0.16173	-1.59	0.1120
LOGEXCR	-0.548044	0.19599	-2.80	0.0050*

R-squared = 0.4849 AIC = 3.898879 SC = 5.205364 HQ = 4.275099 RMSE = 0.743086

*, ** indicate significance at 1% and 5% level respective

The result of the long run co-integrating relationship in the GDP model shows that GDP growth and trade have significant positive effects in Ghana where as foreign direct investment inflows has a negative one. Long-run trade was positive and significant, as a result of the trade liberalization policy adopted by Ghana and export diversification policy to open up the economy, increased competition, efficiency and transfer of technology as well as raise foreign exchange earnings to enhance productivity.

The long - run estimates show that the coefficient of trade is 1.280514 which means that a 1 percent increase in trade openness leads to approximately 1.28% increase in GDP growth in the long-run. The positive sign of the Trade variable supports the theoretical conclusion that trade openness (and hence liberalisation of trade) contributes positively to GDP growth. This implies that trade (sum of export and import to GDP, a measure of trade liberalisation) has a very significant impact on GDP growth. This is consistent with theoretical expectation of the classical views on the role of trade in the macro economy.

The long – run estimates show that the coefficient of FDI expressed as a ratio to GDP was found to be negative -0.2575230 and insignificant. Thus, a percentage increase in FDI reduces GDP growth by approximately 2.6%. The negative impact of FDI in Ghana with regards to GDP growth may as a result of the following reasons: (i) Overconcentration of FDI in the mining and construction industries. Mining accounts for the lion's share of the total FDI in Ghana. Investors are attracted by Ghana's wealth of gold, bauxite, diamond, manganese and oil exploration around 70% of all (FDI) is concentrated in this sector (UNCTAD, 2012). (ii) Moreover, FDI in the mining sector provides few employment, because mining is a relatively capital- intensive activity that provides foreign exchange primarily through increased exports and government revenue. Therefore, few technology spillovers result from mining FDI, in contrast to efficiency-seeking FDI into manufacturing and assembly, which typically have more technology spillovers (iii) Furthermore, and the most important point is the regular repatriation of their profits from investment to the account of their parent companies in the form of dividends or royalties transferred to shareholders as well as the simple transfer of accrued profits. This repatriation results in huge capital outflows from the host country and thereby negatively affects the balance of payment and GDP growth.

Table 7: Results of Short Run Dynamic and Error Correction Model

Variable	Coefficient	Standard Error	t-statistic	Probability
DLOGGDP(-1)	-0.3755	0.24427	-1.54	0.1240
DLOGK(-1)	-0.0682	1.0192	-0.07	0.9470
DLOGINF(-1)	-0.2620	0.3564	-0.74	0.4620
DLOGFDI(-1)	0.2248	0.2663	0.84	0.3990
DLOGAID(-1)	-0.0231	0.0999	-0.23	0.8170
DLOGPOP(-1)	-0.10744	0.1102	-0.98	0.3290
DLOGTAX(-1)	1.3877	-0.5464	2.54	0.0110**
DLOGEXC(-1)	0.6203	0.7125	0.87	0.3840
DLOGAW(-1)	-14.5377	9.7746	-1.49	0.1370
DLOGTRA(-1)	-2.3715	1.3703	-1.73	0.0840***
ECM(-1)	-0.5833	0.2925	-2.49	0.0370**
CONSTANT	0.08058	0.3815	0.2100	0.8330

R-squared = 0.7435 Adj. R-squared = 0.70219 F-stat = 40.5851 Prob (F-stat) = 0.0001 AIC = -23.1565

SB = -16.9144 HQ = -21.359 DW = 2.2715

Source: Computing Using Eviews 7.1 Econometric Package

The coefficient of foreign direct investment inflows 0.2248 in the short run is positive and again insignificant. Because of repatriation of profit, FDI is not growth enhancing in Ghana. The negative relationship between GDP growth and FDI in the long run which is a clear indication that FDI inflows in Ghana do not benefit the wider sector of the Ghanaian economy. FDI benefits the agriculture sector as well as the manufacturing sector. However, in the short run the coefficient of trade -2.3715 and again significant at 5% level. Prior to the period chosen for the study, Ghana's exports were primary products whose prices were constantly fluctuating with a general downward trend.

The coefficient of the error correction term indicates the speed of adjustment in eliminating deviation from the long run equilibrium. It shows how much time would be taken by the economy to reach at long run equilibrium. Its coefficient is statistically significant with t-values of -0.5833. This implies that the speed of adjustment is approximately 583.3% it means that if there is a deviation from equilibrium, approximately 583.3% of GDP growth is corrected annually as the variable moves towards restoring equilibrium.

The R- square expressed in coefficient the variables. The adjusted of correlation shows strength of the linear relation

Table 8: Long-run Diagnostic Test Table

Diagnostic	Statistic	Conclusion
Ramsey Rest Test	F-statistic = 2.2083 (0.1567) Log likeli hood=3.4908(0.0617)	Equation is correctly specified
ARCH Test	F-statistic = 0.1100 (0.8954) Obs*R-squared = 0.2475 (0.8836)	There is no ARCH element in the residual
Breusch-Godfrey-Serial correlation LM Test	F-statistic= 2.7477 (0.0822) Obs*R-squared = 1.424828 (0.0822)	No serial correlation
Multivariate Normality	Jack-Bera test = 1.1738 p-value = 0.5561	Residuals are normal

Source: Author's Computation using Eviews 7.1 Package

The result from the diagnostic test in table 8, shows that the model is correctly specified, has no ARCH element in the residual, no serial correlation and the residuals are normal which concludes that the model suffers no any aforementioned econometric problem.

Figure 1: Stability Test of Residuals

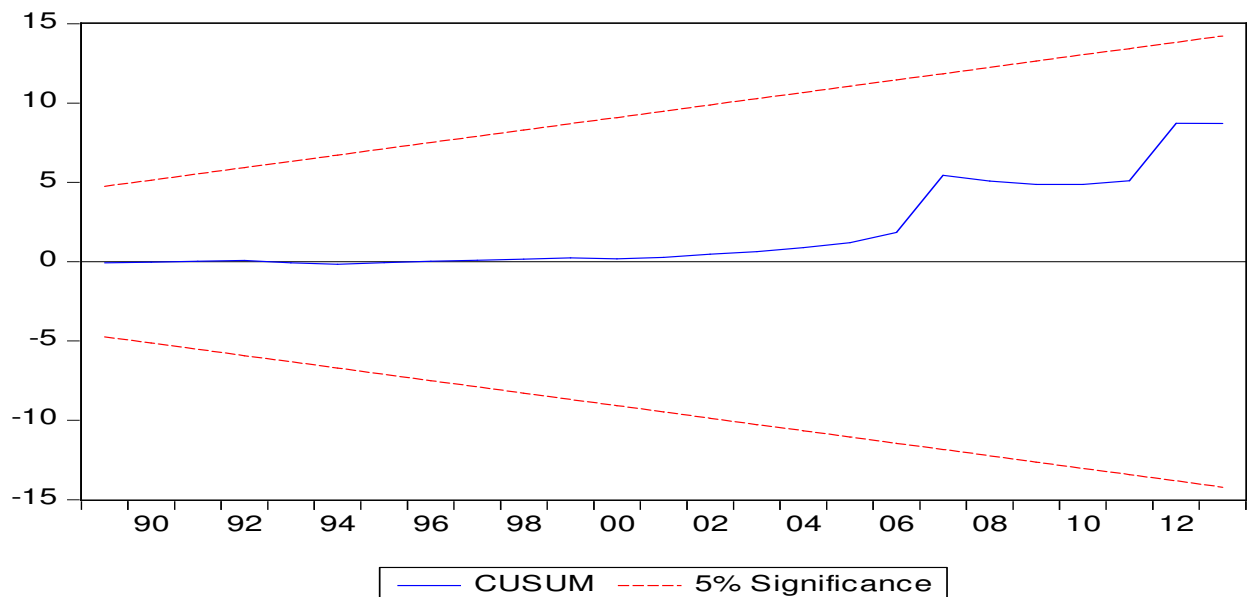


Figure 1 above present the VEC stability diagnostic check, it shows that graph line is not outside the two graph line bar, which means that the VEC model is stable and good in statistical terms such that further analysis can be carried out using the model. The graph above shows the stability test conducted by employing the Cumulative Sum of Residual (CUSUM), as regards stability test, evidence from the figure 6 – 1 above shows that the (CUSUM) plot lie within the 5% critical bound thus providing support that the parameters of the model do not suffer from any structural instability over the period of study.

The Granger causality test result has established a unidirectional complimentary causal links from FDI to Gross Domestic Product (GDP) which means that FDI inflow can lead to the economic growth of Ghana but not the other way round. This supports the existence of growth hypothesis. However, the result of Granger causality test for Trade (OPENNESS) indicates that there is (independence) links between Trade and Gross Domestic Product (GDP). This implies that no causal link was found between the two for the Ghana scenario, this can be attributed to the fact that Ghana imports more than it exports. This therefore supported the existence of neutrality hypothesis.

Foreign direct investment inflows is very important as it provides much needed capital for investment, increases competition in the Ghanaian industries, and aids local firms to become more productive by adopting more efficient technology and also assist in the attainment of Sustainable Development Goal (SDGs) targets. In essence, the study tested all the hypothesis raised, achieved the best desire objectives set and has provided valuable contributions to knowledge to policy makers and the leaders in charge of affairs of the country.

6. Conclusion

In conclusion, even though theory suggests positive effects of FDI inflows on economic growth, in the case of Ghana, the accomplished empirical result however finds no positive but negative relationship between the two components. Nevertheless this study concludes that FDI has contributed essentially to the GDP growth in Ghana through various sectors. Ghana as a country to achieve FDI positive impact on GDP growth, should divert her FDI inflows into the agricultural and manufacturing sectors of the economy, where there is large concentration of labour force. Moreover, an appropriate policy and gradually improved absorptive capacity of governments to minimise the negative effects of FDI and allow these economies to reap the benefits of investments at the maximum. Ghana is not adequately using the opportunities they were given through its natural resources endowment to build up the manufacturing and social capital in exchange for resource depletion which has caused low level of industrialisation in the country. Hence, there is the need to redirect resources to the manufacturing and service sectors to increase competition, efficient utilisation of these resources which will in turn lead to higher productivity to achieve economic growth.

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