



THE RELATIONSHIP BETWEEN ECONOMIC GROWTH, INTERNATIONAL TRADE AND FOREIGN DIRECT INVESTMENT

Xin Wang

School of Finance and Economics, Jiangsu University, Zhenjiang, 212013, P. R. China

13852985800@163.com, wangxin66666@tom.com

Rahmatu Chibsah 

School of Finance and Economics, Jiangsu University, Zhenjiang, 212013, P. R. China

rahmatuchibsah@stmail.ujs.edu, chibsah55@gmail.com

Evans Garti

School of Finance and Economics, Jiangsu University, Zhenjiang, 212013, P. R. China

egarti2018@gmail.com

Abstract

This study investigates the relationship between International Trade, Foreign Direct Investment (FDI Inflows) and Economic growth in Ghana over the period 1983-2017. The study employed the Granger Causality test using the Vector Error Correction Model in the Presence of an integrated series to explore the causal relationship amongst the variables under observation. The Johansen's approach for cointegration was also used to explore the long run equilibrium relationship of the variables. The Cointegration analysis suggested that there is a long-run equilibrium relationship between economic growth, trade and FDI inflows in Ghana. The results of Granger causality test showed that there is a unidirectional causality from Economic growth to FDI, from International Trade to Economic growth and from International Trade to FDI inflows. We therefore recommend that, policy makers should keep focus on promoting international trade in Ghana, given that it causes Economic growth and enhances FDI inflows.

Keywords: Economic growth; Foreign Direct Investment Inflows; International Trade; Granger causality; Cointegration; Vector Error Correction Model

INTRODUCTION

Although it is widely acknowledged that exports play an important role as a potential source of economic growth, exploring the relationship between exports and economic growth is still ongoing and therefore the nature of the relationship between export and growth has been a subject of considerable debate for a long time. FDI have been defined as a transfer of capital, technology, management, and entrepreneurship to a foreign country which allows a firm to operate and provide goods and services in a foreign market. Foreign Direct Investment (FDI) can be seen as an important tool for economic development, especially for the less developed countries like Ghana. It enables capital-poor countries, to build up physical capital, create employment opportunities, develop productive capacity, enhance skills of local labor through transfer of technology and managerial know-how, and help integrate the domestic economy with the global economy.

International Trade and FDI inflows are widely viewed as very important factors in the growth process of an economy. Trade openness upgrade the skills in an economy through the importation and adoption of advanced production technology and innovation where as FDI inflows bring about increasing and augmenting the supply of funds for domestic investment in the host country. The impact of trade openness on economic growth can be positive and significant due mainly to the accumulation of physical capital and technological transfer. FDI inflows can also increase the host country's export capacity causing the developing country to increase its foreign exchange earnings (Anbu 2015). FDI inflows given the transfer of capital create new jobs for the host country and encourages technology transfer to the host economy. This in the long-run boosts the overall economic performance in the host economies.

Given this background, this study therefore seeks to add to the literature of the relationship between Economic growth, FDI inflows and International Trade by finding the direction of causality between them in Ghana where literature on the subject matter is limited. The study employed a time series data covering the period 1983-2017. All data used are sourced from World Development Indicators (WDI) a database of the World Bank Group. The rest of the paper is structured as follows: Section 1 presents a brief literature review and a brief overview of Ghana's foreign direct investment inflows and international trade volumes, Section 2 gives the methodology and estimation procedures employed in the study, while section 3 deals with the empirical analysis of the results and finally the conclusion and policy recommendations.

LITERATURE REVIEW

The relationship between FDI, international trade and economic growth have been on and growing very large in the literature. The effect of each one of the two variables of FDI and trade

on economic growth has generally been studied for many countries using various sample periods and econometric approaches and method. Exploring the relationship between trade openness, the analysis focused on the dynamic causal relationship between real GDP growth, real exports, real imports, gross capital formation as proxy for capital, and the labor force. A study by (Nkechi 2011) examining the impact of FDI on Economic growth through human capital stock found out that FDI in Ghana, has positive significant effect on growth in the long run implying that FDI potentials in these country has positive relationship with the growth of their various country. This means that in the long run FDI can provide much needed capital and offer the possibility of technology spillovers to the host economy. A study by (Awokuse 2015) examined the relationship between economic growth and trade openness for three countries in Latin America and the results suggested that there is a long run equilibrium relationship between the variables in the system for all three countries.). Many early studies of the links between exports and growth confirm a statistical relationship between export growth and output growth (Michaely 1977; Balassa 1978; and Fedder 1982). According to (Stamatiou & Dritsakis, n.d.), there is a triangular relationship among FDI, exports and economic growth. This implies that FDI has both direct and indirect impact on economic growth through trade. FDI inflows can play a vital role in host countries since it increases the supply of funds for investments. Furthermore, FDI inflows not only can increase the export capacity of the host country but also encourage the creation of new jobs.

A study by (Chitiga 2006) to investigate the impact of openness to trade on the flow of FDI into Africa found out that, the FDI to GDP ratio responds well to increased openness in the whole economy and in the services sector in particular using cross-country data from selected African countries observed over four periods: 1980-1985, 1985-1990, 1990-1995 and 1995-2000.

Aided by recent advancements in time series modeling techniques (cointegration and error correction models), there has been an increase in country-specific studies focusing on the relationship between export performance and economic growth (Richards 2001; Awokuse 2003, 2006). These more recent studies addresses the methodological issues of non-stationarity of variables and explicitly accounts for the existence of long-run cointegrating relationships by correctly applying error correction modeling (ECM) techniques.

Foreign direct investment (FDI) inflows can have a direct or indirect relationship with economic growth. (Amin and Khalid 2014) examined the relationships between FDI and Economic growth from 1994 up to 2012. The results show that the main finding of the FDI-EG relation is significantly positive, but in some cases it is negative or even null. And within the relation, there exist several influencing factors such as the adequate levels of human capital, the

well-developed financial markets, the complementarity between domestic and foreign investment and the open trade regimes, etc.

Awokuse 2003 re-examined the export-led growth (ELG) hypothesis for Canada by testing for Granger causality from exports to national output growth using vector error correction models (VECM) and the augmented vector autoregressive (VAR) methodology developed in Toda and Yamamoto (1995). The empirical results suggested that a long-run steady state exists among the model's six variables and that Granger causal flow is unidirectional from real exports to real GDP.

Many studies have been analyzing and exploring the relationship between trade and economic growth especially for developing countries. Most of this literature attributes the effects of exports on economic growth to several factors. One of the key factors however is that exports promote thresholds effects due to economies of scale, increased capacity utilization, productivity gains, and greater product variety. It is also argued that exports of goods and services provide the opportunity to compete in the international markets that leads to technology transfer and improvement in managerial skills.

International Trade and FDI Inflows in the Ghanaian Economy

The economy of Ghana was listed as The World's Fastest Growing Economy in 2011 in an economic research led by Economy Watch with data coming from the IMF's tracker of GDP Growth in constant prices in the national currency (not converted to US dollars), with an economic growth predicted to be about 20% in 2011. Ghana is a Middle Income Economy well-endowed with natural resources, Ghana has more than twice the per capita output of the poorer countries in West Africa that is known for its gold in colonial times. Ghana remains one of the world's top gold producers. Other exports such as cocoa, oil, gas, timber, electricity, diamond, bauxite, and manganese are major sources of foreign exchange. Ghana is essentially an exporter of primary products, mainly gold, cocoa, and timber, and an importer of capital goods, foodstuffs, and fuels. Merchandise exports amounted to \$1.7 billion in 1999, of which cocoa contributed the largest share. The other main exports were aluminum, gold, timber, diamonds, and manganese.

Prior to 1980, the economy of Ghana has not been involving systematically into related phenomenon of FDI and Multinational Enterprises (MNEs). Ghana embarked on an economic reform program in 1983 after years of economic decline in 1970s, which led to the adoption of the World Bank /IMF program on Structural Adjustment Program (SAP). Reduction on government deficit spending, a floating exchange rate, reduction in an eventual elimination of import tariff and other trade barriers and elimination of barriers to FDI inflow with the three of six

main key objectives of the ERP-SAP. This was to boost economic growth through international trade and FDI inflows.

Since the reform and the ERP-SAP, FDI and trade volumes have increased substantially in the Ghanaian economy. Both economic drivers have seen steady growth in Ghana with the highest exports at \$1.7 billion and imports at \$2.5 billion both in 1999.

Figure 1 and figure 2 below give the trend graph of FDI inflows to Ghana and Trade volumes respectively.

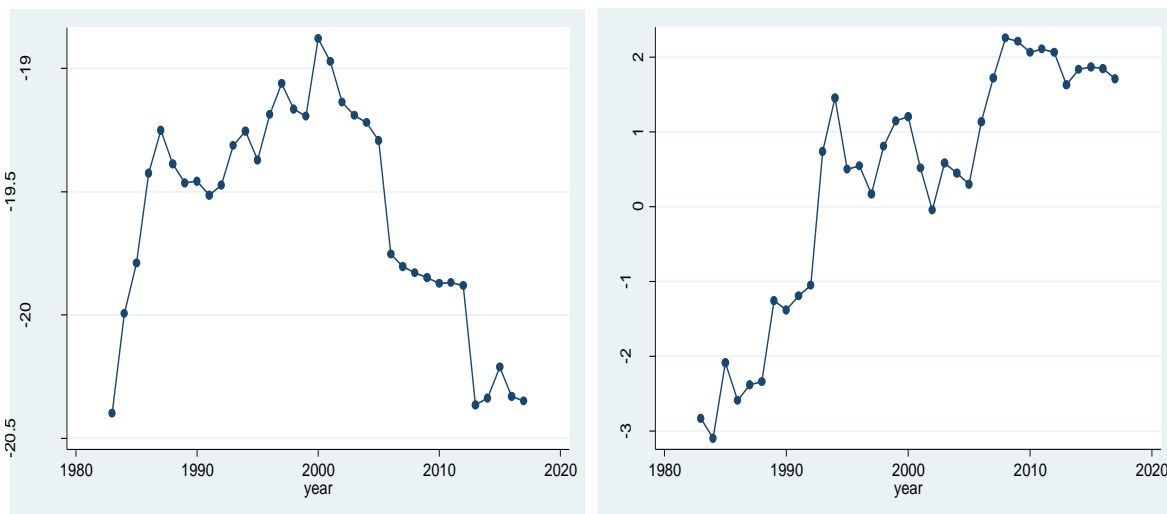


Figure 1. Trade in Ghana from 1983-2017 Figure 2. FDI inflows to Ghana from 1983-2017

Source: Author's Estimations from Stata

METHODOLOGY

Research Design and Data

This study employed mainly secondary data in conducting all analysis. Annual time series data from 1983-2017 on economic growth (real GDP per capita), FDI and trade was used in this study. The choice of data was informed by the fact, after the economic downturn in the Ghanaian economy, the economy started to pick up after the IMF structural adjustment program that brought in more FDI and further open the economy for more trade during the 1983. The economic growth variable was measured by real GDP per capita, that is, adjusted for inflation (price fluctuations) is denoted by Y . FDI is the value of real gross foreign direct investment inflows to GDP ratio; Trade openness is the total sum of exports and imports as divided by GDP.

All data used was sourced from World Development Indicators (WDI) 2017 report International Financial Statistics and other published materials duly referenced. The natural logarithm of all variables was taken to linearized exponential trends in time series data if presents.

Estimation Procedures

The Granger causality test was used in a time series setting to determine the direction of causality between variables under study. Adopting the OLS method of estimations, the study employed Granger Causality test using the Vector Error Correction Model to establish the causal relationship between International Trade, FDI and Economic Growth in the presence of cointegrated vectors of a stationary series. The VECM is important because it re-introduces the lost information by differencing time series data, (Engle 1987).

Following the methods adopted by (Anbu 2015), the Granger causality test of cointegrated series was therefore modeled as follows;

$$\Delta y_t = \alpha_0 + \sum_{i=1}^p \beta_i \Delta y_{t-i} + \sum_{i=1}^p \gamma_i \Delta x_{t-i} + \sum_{i=1}^p \delta_i \Delta z_{t-i} + \varepsilon_t \quad (1)$$

With the null and alternative hypothesis stated as;

$$h_0: \gamma_1 = \gamma_2 = \gamma_p = 0 \text{ and } \delta_1 = \delta_2 = \delta_p = 0$$

$$h_1: \gamma_1 \neq \gamma_2 \neq \gamma_p \neq 0 \text{ and } \delta_1 \neq \delta_2 \neq \delta_p \neq 0$$

Where y is real gdp per capita; x is trade openness; z is fdi inflows

ANALYSIS AND RESULTS

Unit Root Test and Cointegration Test

Unit roots test are very important in dealing with time series data as they are characterized with the presence of unit roots and are mostly not stationary in the levels which tends to give spurious regression results. In order to get the integrated process of $I(1)$, there is the need to perform the unit root test. The Augmented Dickey-Fuller unit root test is adopted in this study to test for the presence of unit root since it requires that the error correction model to be individually independent and homogeneously distributed.

Using the model adopted by (Torayeh N.M 2011) of unit root test that is to determine whether the series is consistent with $I(1)$ process with stochastic trend or with $I(0)$ that is stationary with a deterministic trend. According to them, the vector of $I(1)$ variables y_t is said to be integrated if the vector of $B_t \dots B_{y_t}$ is trend stationary and there exist t of such linearly independent vectors (Torayeh N.M 2011). This shows that, y_t is integrated with rank t and the hypothesis is therefore set as

$$\Delta y_t = \eta + bt + \beta y_{t-1} + \sum \alpha \Delta y_{t-1} + \xi_t \quad (2)$$

$$H_0: \eta, b, \beta = (\eta, 0, 0)$$

$$H_1 = (\eta, b, \beta) +/ - (\eta, 0, 0)$$

Table 1. Results of Augmented Dickey-Fuller Unit root test (using Stata)

variable	Levels (with trend)		variable	First Difference (with trend)	
	Test statistics 5%	P-value I(0)		Test statistics 5%	P-value I(1)
<i>Lrgdp</i>	-3.564	0.9911	<i>lrgdp</i>	-2.978	0.0085
<i>Ltrade</i>	-3.564	0.1347	<i>ltrade</i>	-2.978	0.0000
<i>Lfdi</i>	-3.564	0.5806	<i>lfdi</i>	-2.978	0.0000

From the table above, the stationarity of the variables was explored to determine the order of integration of each variable in the model. The Augmented Dickey-Fuller (ADF) test for estimating unit root was employed in this study. The results in the table above show that, all the variables under study were not stationary at the levels but became stationary after the first difference with an integration order of $I(1)$. This implies that, the null hypothesis of the presence of unit root was rejected and established that, series is stationary and integrated of order $I(1)$. This therefore provides a necessary rationale for estimating cointegration.

The Johansen's Cointegration Test

Estimating the presence of long-run equilibrium relationship between time series variables is very important hence the need for cointegration test. The Johansen's multivariate approach that uses vector autoregressive model and vector error correction model are very useful in determining the importance of each variable in explaining the variations of the endogenous variables. The Johansen's test uses two test; Trace Test and Maximum Eigen Value. Formulating the cointegration model that allows for two or more relationships, the vector (1) variable is said to be cointegrated if there exist at vector B_i such that it is trend stationary and there exist linearly independent vectors, $B_i, i = 1, \dots, r$ then y_t is said to be cointegrated with a cointegrated rank r .

Table 2. The results of the Johansen's Multivariate Cointegration test (using Stata)

Maximum Rank	Eigen Value	Trace Test statistics	Critical values (5%)
0	.	32.9138	29.68
1	0.48398	10.4191*	15.41
2	0.21297	2.2765	3.76
3	0.06476		

From the table above, both trace test statistic and Maximum Eigen value are showing at least two cointegrating equations between the variables under consideration. At 5% significance level, the trace test indicates at least 2 cointegrating equations. Therefore, the null hypotheses of no cointegration are rejected, implying long run relationship amongst the variables. This shows a stable long run relationship among the variables.

Granger Causality Analysis

Table 3. The results of the Granger Causality analysis

Null hypothesis	Test statistics (chi-square)	P-value	Decisions
<i>lrgdp</i> does not granger cause <i>lfdi</i>	-3.50	0.000***	Reject null hypothesis
<i>lrgdp</i> does not granger cause <i>ltrade</i>	0.72657	0.695	Fail to reject null hypothesis
<i>lfdi</i> does not granger cause <i>lrgdp</i>	0.18181	0.913	Fail to reject null hypothesis
<i>lfdi</i> does not granger cause <i>ltrade</i>	2.7339	0.255	Fail to reject null hypothesis
<i>ltrade</i> does not granger cause <i>lrgdp</i>	13.846	0.001***	Reject null hypothesis
<i>ltrade</i> does not granger cause <i>lfdi</i>	4.6768	0.096*	Reject null hypothesis

*denotes rejection at 10%, **denotes rejection at 5% and ***denotes rejection at 1% respectively

From the results above, *lrgdp* granger causes *lfdi* but *lfdi* does not granger causes *lrgdp* implying that, there exists a unidirectional causality from real GDP to FDI in Ghana. Also, *lrgdp* does not granger causes *ltrade* but *ltrade* does granger causes *lrgdp* showing a unidirectional causality from trade to real GDP. Finally, *lfdi* does not granger causes *ltrade* but *ltrade* granger causes *lfdi* showing a unidirectional causality from trade to FDI. The results given in table 3 above show that, there is a causal relationship between FDI inflows, Economic Growth and International Trade at least from one direction in Ghana.

CONCLUSIONS AND POLICY RECOMMENDATIONS

The study seek to examine the relationship between Economic growth, FDI inflows and International Trade in Ghana using annual time series data from 1983-2017. The study employed the Granger Causality Test which uses the Vector Error Correction Model (VECM) to show the relationship and the direction of causality between the variables under study.

The study therefore concluded that; most time series variables are not stationary at the levels but become stationary after the first difference. Also, there is a stable long run equilibrium relationship between Economic Growth, FDI inflows and International Trade in Ghana given the existence of at least two cointegrating relationship from the Johansen's test for Cointegration. Also, there is a unidirectional causality from Economic Growth to FDI inflows, from International Trade to Economic growth and from International Trade to FDI inflows. This means that, Economic growth has the potential for causing FDI inflows in Ghana, and International Trade has enough information to cause and forecast both FDI inflows and Economic growth in Ghana. Also, FDI inflows and International Trade are part of the key factors affecting Economic growth, however, FDI inflows does not influence Economic growth and Trade in Ghana.

The study therefore recommended that, Government of Ghana and policy makers should focus more on promoting International trade by encouraging local producers to produce more for both local consumption and exports to foreign markets by giving tax incentives and subsidies. This will boost economic growth and in turn attract foreign investors to the economy thereby promoting FDI inflows and generating more revenue to the government and the economy for prospective growth.

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