Causal relationship between foreign direct investments, exports and economic growth: Empirical evidence from Sri Lanka

G.A.K.N.J. Abeyrathne

*Department of Social Sciences, Rajarata University of Sri Lanka,
Mihintale, Sri Lanka.*
abeyrathne.rjt@gmail.com

Introduction

Accelerating the growth of Gross Domestic Product (GDP) and per capita income is a prominent macroeconomic challenge for the developing nations. As a lower middle income country, achieving the upper income level is a one of main objectives of Sri Lanka. Lower GDP may causes number of macroeconomic issues. The relationship between Foreign Direct Investment (FDI), Exports (EXP) and GDP have been tested jointly and separately by various researchers based on developing and developed economies in European, African and Asian regions. The current external economic policy of Sri Lanka focuses the economic growth through attracting foreign direct investments and promoting exports. Central Bank of Sri Lanka (2016) states that, national trade policy should focus on market expansion, trade and tariff rationalization, trade facilitation and attracting export oriented FDI to expand the export base and improve Sri Lanka's competitiveness in terms of exports and FDI. However, a positive relationship between FDI, exports and GDP should be factor that is important for success of these policies and it may require a time lag to have the benefits. As stated in economic theory FDI is one of key drivers of economic growth. FDI contributes to increase the export performances (Dritsaki et al., 2004, Feridun & Sissooko, 2011; Pacheco-Lopéz, 2005). Szkorupowa (2014) has tested the relationship between GDP, FDI and EXP by using 2001-2010 data in Slovakia (Member of European Union since 2004) and found that, there is a short term and long term relationship between these variables. Mandishekwa (2014) has investigated the causal relationship between economic growth and investment and found that, causality does not run in any direction and hence the two are independent. Thilakaweera (2011) has investigated the long-run relationship and causality between real per capita GDP, FDI and the level of the infrastructure in Sri Lanka over the period 1980 to 2011 and found a causality between above variables. Mustafa and Sandirasegaram (2012) have tested the impact of foreign direct investment on economic growth in Sri Lanka by using 1978-2012 annual time series data and found that, FDI positively and statistically influences to determine economic growth in Sri Lanka. But it is difficult to find the researches based on GDP, FDI and EXP, related to very recent data in Sri Lanka. Thus, this paper

aims to investigate the short run and long run relationship between FDI, EXP and GDP in Sri Lanka.

Methodology

This study used annual time series data on EXP, FDI and GDP in Sri Lanka for the period from 1978 to 2016. The data were collected through the annual reports of Central Bank of Sri Lanka. All the variables were measured in terms of US Dollar millions. Nominal values were taken for all the variables. A stationary test was performed as the first step of analysis. Augmented Dickey Fuller test (ADF) was used in this purpose. In order to determine the causality the Granger Causality Test was used. Johansen cointegration test was used to check the cointegration between above two variables. Cointegration is based on Vector Autoregressive model (VAR).

Results and discussion

The stationary test was performed by employing ADF test. The lag length of the time series was based on Schwarz criterion. Table 1 shows the results of ADF test at level form and first difference.

Table 1 Results of ADF test

Variable	Level			1st Difference		
	Lagged	t - Statistics	Probability	Lagged	t - Statistics	Probability*
GDP	9	-0.3605	0.9059	9	-4.9268	0.0003
FDI	9	-0.9456	0.7617	9	-6.2710	0.0000
EXP	9	-1.1234	0.6966	9	-6.6502	0.0000

*Note: * significancant at 1% level*

According to Table 1 t-statistics of ADF test for GDP, FDI and EXP indicated that, all the variables were statistically insignificant at least at 0.10 probability level in the level form. However, data were stationary at the 0.01 probability level at their first difference $I(1)$. Therefore Johansen cointegration test was employed to test the long run relationship between GDP, FDI and EXP. Table 2 shows the result. According to the above results the null hypothesis of no cointegration was rejected at 0.05 probability level. Then, the existence long run relationship was found between GDP, FDI and Exports. In order to identify the short run relationship between FDI, EXP and GDP the Granger causality test was employed. The result of Granger Causality Test is shown in Table 3. The causality between FDI, EXP and GDP was tested by using deferent lags. This enables to determine how past records of the variables for a short period of one year and a medium period of two to three years affect their current value.

According to the results, a two directional causality can be identified at lag 2 as the F statistics was significant at0.05 probability level. The result revealed that, FDI Granger causes GDP, exports Granger cause GDP, GDP Granger cause FDI and GDP Granger cause exports as the probability values for the directions of causality were less than 0.05. Thus, it can be concluded that there is a short run bidirectional causal relationship between FDI, EXP and GDP.

Table 2 Result of Johansen co integration test

Unrestricted Cointegration Rank Test (Trace)			
Hypothesized No of CE (S)	Eigen value	Trace Statistics	0.05 critical value	Probability[**]
None*	0.586652	42.16227	29.79707	0.0012
At most 1	0.154938	9.474011	15.49471	0.3233
At most 2	0.083972	3.245227	3.841466	0.0716
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)			
Hypothesized No of CE (S)	Eigen value	Max eigen statistics	0.05 critical value	Probability[**]
None*	0.586652	32.68826	21.13162	0.0008
At most 1	0.154938	6.228783	14.26460	0.5840
At most 2	0.083972	3.245227	3.841466	0.0716

Note: ** *denote rejection of null hypothesis at 5% level*

Table 3 Result of Granger Causality test

Null Hypothesis	Lags	Observations	F-Statistics	Prob.
FDI does not Granger Cause GDP	1	38	0.01325	0.9090
GDP does not Granger Cause FDI			20.7861	6.E-05
EXP does not Granger Cause GDP		38	1.79951	0.1884
GDP does not Granger Cause EXP			0.02750	0.8692
FDI does not Granger Cause GDP	2	37	3.040213	0.0457
GDP does not Granger Cause FDI			14.1408	4.E-05
EXP does not Granger Cause GDP		37	5.85823	0.0068
GDP does not Granger Cause EXP			3.52045	0.0415
FDI does not Granger Cause GDP	3	36	4.02183	0.0165
GDP does not Granger Cause FDI			6.39096	0.0019
EXP does not Granger Cause GDP		36	11.0723	5.E-05
GDP does not Granger Cause EXP			2.17085	0.1129

Conclusion and recommendations

This study empirically evaluates the short run and long run relationship between GDP, FDI and exports. Evidences of this study showed that, there is a long run as well as short run relationship between GDP, FDI and exports during the period under review. These findings confirm that exports and foreign direct investments have a prominent role to play in Sri Lankan economy. The study stresses the need of ensuring conducive environmental in the country to promote exports through FDIs to achieve desired economic development. The development policies

should be focused to expand the value addition of exports in agricultural, industrial and service sectors.

Keywords: *Economic growth, exports, foreign direct investments (FDI), gross domestic product (GDP)*

References

Central Bank of Sri Lanka. (2016). Annual Report, Central Bank of Sri Lanka, Colombo, Sri Lanka.

Dritsaki, M., Dritsaki, C.H., & Adamopoulos, A. (2004). A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for Greece, *American Journal of Applied Sciences*, 3, 230.

Feridun, M., & Sissooko, Y. (2011).'Impact of FDI on Economic Development: A Causality Analysis for Singapore, *International Journal of Economic Sciences and Applied Research*, 1, 7.

Mandishekwa, R. (2014). Causality between Economic Growth and Investment in Zimbabwe. *Journal of Economics and Sustainable Development*, 5(20).

Mustafa, A.M.M., & Santhirasegaram, S. (2012). The Impact of Foreign Direct Investment on Economic Growth in Sri Lanka. *Journal of Management*, 3(1) , 27-32.

Pacheco-Lopéz, P. (2005). Foreign Direct Investment, Exports and Imports in Mexico. *World Economy*, 25, 1157.

Szkorupowa, Z. (2014). A causal relationship between foreign direct investment, economic growth and export for Slovakia'. *Procedia Economics and Finance*, 15 ,123 – 128.

Thilakaweera, B H.P.K. (2011). Economic Impact of Foreign Direct Investment in Sri Lanka'. Staff Studies, 41(1-2), Central Bank of Sri Lanka.