Wayamba Journal of Management

Volume 14 Issue II December 2023

Determinants of Foreign Direct Investments in Sri Lanka

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Abstract

Foreign Direct Investment (FDI) has become an engine of growth and vital for economic development. Sri Lanka has also been entertaining FDI seeking acceleration of economic growth through various channels such as employment generation, poverty alleviation and creating foreign exchange. However, the factors that are likely influence the FDI inflow has been varied country to country in terms of their Institutional and socio-economic characteristics. Accordingly, this study investigates the determinants of FDI in Sri Lanka during the time period from 1990 to 2017, using annual time series data extracted from the World Bank, and Central Bank databases. We can choose the data reason of 1990 to 2017, that datas have stronger and stability to identify in the determinents in FDI. As determinants, the study incorporates six variables such as gross domestic product, inflation, trade openness, labor force and tourism income. The study employs ADF unit root test, Johansen's Co integration analysis and Error correction model based on the Vector error correction model (VECM) to ascertain the significance of macroeconomic and country specific factors on FDI inflow in Sri Lanka. The results derived from this study suggest that all variables are significantly influencing on the FDI in the long run. Gross domestic product and labor force have positive impact, whereas inflation, trade openness, and tourism income are found to hurt FDI.

Keywords: *Sri Lanka, Foreign Direct Investment, Gross Domestic Product, Inflation, Trade Openness, Co-integration,Vector Error Correction,*

Received: 28th September 2023

Accepted:04th January 2024

Published: 04th March 2024

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httpp://ocid.org/0000-0000-3854-3946

DOI:
https://doi.org/10.4038/wjm.v14i2.7609

pp: 85 - 95

ISSN: 2012-6182

Wayamba Journal of Management
Department of Business Management
Wayamba University of Sri Lanka

Journal Home Page:
https://fbsf.wyb.ac.lk/wayamba-journal-of-management

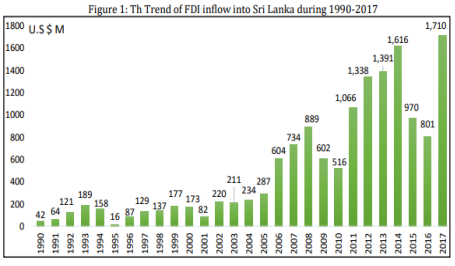
Introduction

As far as the acceleration of Global economic growth is concerned the growth in flow and stocks of FDI has been vital. It has been revealed that Foreign Direct Investments (FDI) serve as an engine of economic growth through various channels such as enhancing employment opportunities, increasing per capita income, trade promotion, and poverty alleviation. However, the distribution and the size of FDI are unequal as various factors determine the flow of FDI from the home country to the host country. Especially, the less-developing countries face difficulties in attracting FDI despite the fact that FDI is immensely important to these countries. Numerous factors possibly determine the FDI in a host as well as in-home countries that can be classified as pushing and pulling factors. Pushing factors are responsible for moving the FDI from the home countries whereas pulling factors in the host country side are responsible for attracting the FDI. The direction and magnitude of the influence of these factors depend on the socio-economic, demographic, institutional, and environmental factors of home and host countries.

Sri Lanka is also in the line of entertaining FDI after the trade liberalization which was introduced in 1977, since then the country has been successful in receiving FDI into the economic system, especially after 2009 when the civil war ended. The successive measures in government policies have also addressed all the ways to attract FDI in such a way as creating free trade and investment zones, reduction of food subsidies, development projects to improve tourism potentials, development infrastructure, transportation, and so on. Contrarily, political instability, terrorist attacks, the level of corruption, poor policies on property rights, and outdated transportation, such as railways are possibly hindering the inflow of FDI. Therefore, the inflow and utilization of foreign direct investment in Sri Lanka is at a very low level compared to other developing countries. Abbott et al (2012). Therefore, it is imperative to increase foreign direct and private investment in Sri Lanka rather than relying solely on the income of the government to facilitate development in the country. Though Sri Lanka has implemented all the ways to attract FDI inflows, as shown in Figure 1, its overall trend shows an increasing trend with major fluctuations indicating that possible development in uncertainty in economic contribution of FDI. Therefore, this study selects some factors theoretically and empirically to investigate whether these variables are significantly contributing to attracting FDI into Sri Lanka.

Source: Central Bank Report – 2017

Figure 1: Th Trend of FDI inflow into Sri Lanka during 1990-2017



Methods

This study uses annual time series data for 27 years for the period 1990 - 2017. The data were extracted from the World Bank database and the annual report of the Central Bank of Sri Lanka. As the first step, the Augmented Dickey-Fuller Analysis is employed to test the stationary properties of time series data because miss-conducting econometric analysis avoiding time stationary properties would give a spurious result and lead to inappropriate conclusions. As the second step, Johansen's Cointegration analysis and Error correction model based on the Vector error correction model (VECM) are employed to investigate the short and long-run relationship among the variables. Foreign direct investment is treated as the dependent variable whereas GDP, Inflation, Trade Openness, labor force, and tourism income have been used as independent variables to analyze the factors that determine foreign direct investment. The econometric model used for this study is specified as follows:

$$\boldsymbol{lnFDI}t = \boldsymbol{\alpha}0 + \boldsymbol{\alpha}\ 1\ \boldsymbol{lnGDP}\ t + \boldsymbol{\alpha}\ 2\boldsymbol{lnCPI}\ t + \boldsymbol{\alpha}3\boldsymbol{lnTOP}\ t + \boldsymbol{\alpha}4\ \boldsymbol{lnLAB}\ t + \boldsymbol{\alpha}5\ \boldsymbol{lnTOU}\ t + \boldsymbol{\varepsilon}t$$

Where:

lnfdi= logarithm of foreign direct investment (in US dollars)

$\alpha 0$ = constant

lngdp= logarithm of gross domestic product (in US dollars)

lncpi= logarithm of consumer price index (in US dollars)

lntop= logarithm of trade openness (Defined as the sum of exports and imports over GDP)

lab = logarithm of labor force

into = logarithm of tourism income (in US dollars)

ε = error term

Results

Unit Root Test When analyzing time series data, it is necessary to evaluate the trend and stationary of the variables. Most of the macroeconomic variables are non– non-stationary. Thus, invariance and parallel invariance of the time series data are not consistent with time. The problem with non -stationary time series is that the OLS can simply lead to spurious sequences. Then the variables will have no real connections. The dependent variable and the independent variables used in this case are converted to logarithmic form. The Unit root test for each of the time series variables used in this study is based on the test equations of Intercept, Trend & Intercept, None.

Table – 2 shows that, the Trace test and the maximum Eigenvalue test evidently generate conflicting results. The trace test indicates at least three co-integrating equations at the 5 percent level of the model. On the other hand, the maximum Eigenvalue test indicates at least one co-integrating equation at the 5 percent level of the model. The results reveal the existence of a long-run equilibrium relationship between the variables. However, the study's main aim is to establish if there is a long-term relationship between the variables and not necessarily the number of co - integrating vectors, so the null hypothesis of no cointegration was

rejected at 0.05 percent level of significance from both the trace statistic and the maximal-Eigen value. This indicated that there is a co-integrating relationship among the variables,

Table 3 shows the results of normalized co – integration coefficients. According to the results, all the variables taken in the study for determining FDI in Sri Lanka are statistically significant at the 1% and 5% level having a long-run relationship. The model is followed by the long-term equation of FDI as follows:

$\boldsymbol{lnfdi}t = \boldsymbol{\alpha}\ 0 + \boldsymbol{\alpha}\ 1\ \boldsymbol{lngdp}\ t + \boldsymbol{\alpha}\ 2\boldsymbol{lncpi}\ t + \boldsymbol{\alpha}3\ \boldsymbol{lntop}\ t + \boldsymbol{\alpha}4\ \boldsymbol{lnlab}\ t + \boldsymbol{\alpha}5\ \boldsymbol{lntou}\ t + \boldsymbol{\varepsilon}t$

$\boldsymbol{lnfdi}t = -138.6612 + 3.795508\ \boldsymbol{lngdp}\ t - \mathbf{1}.\ \mathbf{226325}\boldsymbol{lncpi}\ t - 1.321235\boldsymbol{lntop}\ t + \mathbf{4}.\ \mathbf{972501}\ \boldsymbol{lnlab}\ t - 0.296955\boldsymbol{lntou}\ t$

The results suggest that GDP and labor force have a positive impact on FDI inflows in Sri Lanka. However, CPI, trade openness, and tourism income have a negative effect on FDI inflows in Sri Lanka. The results are explained in detail below. Gross Domestic Product (GDP) The positive co - integrating coefficient of 3.795508 illustrates a positive relationship between GDP and the FDI inflows. According to the coefficient for GDP, a 1% increase in GDP would cause FDI to be increased by 3.8 %. The results confirm the priori expectations and are in line with the findings of Enisan (2017) in Nigeria. GDP is statistically significant in explaining changes in FDI inflows, suggesting that GDP is an important factor in attracting FDI inflows into Sri Lanka. Inflation The Consumer Price Index (CPI) is used as a proxy variable for inflation. The negative co - co-integrating coefficient of 1.226325 as a measure of economic stability shows a negative relationship between CPI and FDI inflows into Sri Lanka. FDI reveals that a 1.2 % decrease in FDI performance is explained by a 1% increase in CPI. The results agree with a prior expectation that macroeconomic instability discourages FDI inflows and is consistent with Demirhan and Masca (2008) in Developing Countries. The variable is statistically significant explaining that any macroeconomic instability brings with it economic uncertainty. Trade Openness The empirical results show that the co – co-integrating coefficient for trade openness is 1.321235, illustrating a negative relationship between trade openness and FDI inflows into Sri Lanka. FDI reveals that a 1.3% decrease in FDI performance is explained by a 1% increase in trade openness. These results are consistent with Rebecca Penn (2017) in India and correspond to the prior expectations. Labor force According to the results, the co - integrating coefficient for the labor force is 4.972501, illustrating a positive relationship between the labor force and FDI inflows denoting a 1% increase in the labor force would translate to a 5% increase in FDI inflows. labor force is statistically significant in explaining changes in FDI inflows. The results are consistent with

Leitao and Faustino (2010) in Portugal. Tourism income A negative coefficient of 0.296955 indicates a negative relationship between FDI inflows and tourism income with statistically significant at a 5% level, implying that a 1% change in tourism income will render a 0.3% decrease in FDI inflows

This section seeks to analyze the short-run effects of the explanatory variables on the FDI inflows. The persistence of the analysis is to determine whether the short-run dynamics are influenced by long-run equilibrium co - integrating vectors. Table 4 shows the results of the Error Correction Model. In the results, the technique of speed adjustment parameters explores how quickly the system returns to equilibrium after a random shock. According to the results, the error correction term of foreign direct investment is -0.395553 and it is statistically significant at 1% level. Labor force and tourism income are statistically significant at a 10% level, whereas the coefficients for Gross Domestic Product, Inflation, and Trade Openness are insignificant. The coefficient for D_lnfdi indicates that the speed of adjustment to the long-run equilibrium is significant and can be concluded that 39% of deviation would be eliminated annually.

Last year's FDI was statistically Positive and significant at a 1% level in the current FDI inflows, meaning that when other factors don't change, a 1% increase in last year's FDI would translate to a 0.651068 increase in current year FDI inflows. At the same time, independent variables weren't statistically significant. Residual Diagnostic Test The residuals were examined for the Serial Correlation test employing Historam normality and Heteroskedasticity Test. The results are reported in detail below in Table 5.

According to the results as can be seen in the LM test for serial correlation, the test statistic is 0.898677 with a probability of 0.3431. Thus, the model is significant at all levels of significance; hence the null hypothesis which states that the error terms are independent cannot be rejected.

Discussion

In general, foreign direct investment has a greater influence on the economic development of a country. Therefore, it is necessary to maintain the FDI inflow in an optimal manner without getting into a loophole. Hong Kong and Singapore, which have a smaller land area and population compared to Sri Lanka, are the countries that receive more foreign direct investments than Sri Lanka. In this, Hong Kong with a population of 7 million receives an average of 108 billion US dollars annually, Singapore with a population of 56 million receives an average of 62 million US dollars annually, and the Netherlands with a population of 17 million receives an average of 92 billion US dollars annually as foreign direct investments.

Today's development of these

countries cannot be compared with Sri Lanka. Therefore, the following recommendations can be made to bring about a similar economic development in Sri Lanka similar to the economic development that has occurred in these countries.

In the case of Sri Lanka, domestication is limited. But the market is the countries like India, China, and Bangladesh which are close to Sri Lanka and have the biggest domestic market and sales. Because of that, foreign investors with big brand names choose other countries instead of Sri Lanka as their investment destination. Therefore, to attract more foreign investments, the Sri Lankan government must examine how to expand the borders of domestic markets in its economic policies.

To attract more foreign direct investment, the country's infrastructure needs to be improved. However, all developments in Sri Lanka are centered around Colombo. The most important reason for this is the lack of adequate infrastructure in other parts of the country. This means that facilities such as electricity, water, transport, and communication should be provided uniformly in all areas to carry out investments

Inflation as a socio-economic factor plays a major role in creating a stable economic environment in the country. So the government should pay more attention and follow the policies of the time to maintain the inflation in the best way. Because when inflation is high, foreign direct investment is also low

A report by the trade association pointed to a decline in tourist arrivals and revenues in the future. It is also mentioned that the quality of tourist accommodation for tourists is not sufficient compared to other Asian countries. Unless these problems are resolved, not only tourist arrivals but also income cannot be increased Therefore, the Sri Lankan government should create the best environment to attract more foreign investments in tourism. Giving priority to the development of the country's workforce means that it is necessary to prepare the country's workforce to be able to cooperate with foreign investors who are making investments in a country like Sri Lanka. Only then can the ideas of the investors be fully implemented in the country and the country can fully enjoy the benefit of the said projects. It is a huge responsibility to implement the training sessions nationwide and prepare the country's workforce for it.

A free market economy necessitates changes in Sri Lanka's trade policy. At present, it is necessary to resolve the contradictions found in Sri Lanka's export and import operations and trade policy with other countries. Through this, the investments of investors from different countries come into the country and the openness of Sri Lanka for the future, which is only dependent on countries like China, can get more investments.

Conclusion

The main aim of this study was to analyze the determinants of FDI in

Sri Lanka by incorporating GDP, Inflation, Trade Openness, Labor force, and Tourism income as determining variables using time series data from 1990 - 2017. Firstly, using Unit root analysis the stationary properties of time series data were tested, and accordingly, as a second step, Johansen's Co - integration analysis was employed to investigate the long-run relationship among the variables. Thirdly, the Vector Error Correction model was employed to study the dynamic relationship between the variables. GDP and Trade openness were found to have a positive relationship with FDI inflows in Sri Lanka. Further, inflation, trade openness, and tourism income were found to have a negative relationship with FDI inflows into Sri Lanka.

Author Contributions

This Article is fully made by me. I collected all data from the World development indicators.

Acknowledgments (If any)

This Article is created by me. Here used data is very updated and clear information is given. So in the future, this Article may help to improve our country's F

Figures and Tables

Table 1

Variables	ADF Test	Intercept p-value (5%)	Trend & Intercept	None	Stationary Mark	Order of Integration
Life	Level	0.9127	-6.1422			Non Stationary
	1st Difference	-6.9582	-6.7365		**	Stationary I(1)
Lngdp	Level	0.3890	-1.5035			Non Stationary
	1st Difference	-4.1365	-4.0471		**	Stationary I(1)
Lncpi	Level	-2.0744	-0.6992			Non Stationary
	1st Difference	-3.7254	-4.0269		**	Stationary I(1)
Lnlab	Level	0.5050	-2.6111			Non Stationary
	1st Difference	-5.6510	-5.5183		**	Stationary I(1)
Lntop	Level	-0.4976	-2.2495		*	Non Stationary
	1st Difference	-4.3140	-4.4416		**	Stationary I(1)
Lntour	Level	1.3349	-0.5492		*	Non Stationary
	1st Difference	-3.4294	-3.6667		**	Stationary I(1)

Source: Created by Researcher

Table 2

Table – 2: Johansen Tests for Cointegration Unrestricted Cointegration Rank Test (Trace)				
Maximum Rank (r)	Eigen Value	Trace Statistic 5%	Critical Value	Probability Value
0	0.904544	142.2404	95.75366	0.0000
1	0.704873	81.16416	69.81889	0.0047
2	0.564360	49.43505	47.85613	0.0353
3	0.477323	27.83065	29.79707	0.0829
4	0.282713	10.96206	15.49471	0.2138
5	0.085464	2.322800	3.841466	0.1275
Trace test indicates 3 co-integrating eqn (s) at the 0.05 level				

Source: Created by Researcher

Table 3

Table – 3 Vector Error Correction Model						
Variables	D_lnfdi	D_lngdp	D_lncpi	D_lntop	D_lnlab	D_lntou
α Coefficients -	-0.395553***	-0.006754	0.002879	-0.087112	0.027744*	-0.217754*
Standard Errors	0.06470	0.01539	0.02833	0.05256	0.01305	0.11452
T-Statistics	-6.11329	-0.43881	0.10164	-1.65730	2.12576	-1.90146
*, **, *** indicate 10%, 5%, and 1% significant levels, respectively.						

Source: Created by Researcher

Table 4

Table – 4: Short Run Testing						
Variables	D_lnfdi (-1)	D_lngdp (-1)	D_lncpi (-1)	D_lntop (-1)	D_lnlab (-1)	D_lntou (-1)
α Coefficients	0.651068***	2.916790	2.324601	0.491593	2.092066	-0.548656
Standard Errors	0.18737	3.54333	2.33383	0.89900	3.63365	0.46719
T-Statistics	3.47471	0.82318	0.99605	0.54682	0.57575	-1.17437

Source: Created by Researcher

Table 5

F-statistic	0.696358	Prob. F (1,21)	0.4134
Obs*R-squared	0.898677	Prob. Chi-Square (1)	0.3431

Source: Created by Researcher

Table 6

F-statistic	0.168861 Prob	Prob. F(1,25)	0.6846
Obs*R-squared	0.181146	Prob. Chi-Square(1)	0.6704

Source: Created by Researcher

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