Impact of Tourism and Foreign Direct Investment on Gross Domestic Production: Forecasts for the Case of Sri Lanka

A. M. M. Mustafa

Abstract*: *Tourism industry is found as the second rapidly growing business after the information and communication technology in the global arena. A number of economies are triumphant in marketing their tourism destinations along with the generation of a considerable amount of foreign currency earnings due to the origination of tourism industrial sector. After economic reforms initiated in Sri Lanka in year 1977 onwards, the governments have thereafter implemented a number of various fruitful policies and development projects so as to promote the tourism industrial sector in pursuit of economic growth and development. This study investigates the Contribution of Tourism and Foreign Direct Investment (FDI) to Gross Domestic Production (GDP) in Sri Lanka. The software such as EViews 10, Excel, and Minitab are used to analyze the data. To achieve its goal, the nonparametric approaches such Nearest Neighbor Fit, Kernal Fit, and Confidence Ellipse to find the relationship were used in this study. Error Correction Mechanism, Co-Integration, and Analysis of Causality are the econometric techniques used to find the relationship. This study employs annual data for the period from 1977 to 2017and forecasted the data from 2018 to 2022 in order to find out the future potential of the contribution. The co-integration regression result revealed that the relationship between Tourism Receipts and Gross Domestic Production has been positively and statistically significant. The Foreign Direct Investment and Gross Domestic Production have been positively and statistically significant. However short run effect impact multiplier of Tourism Receipts is statistically not significant but Foreign Direct Investment statistically significant. The results of Granger Causality tests, in the variables are one-way causal relationships. According to the results of this study suggests that it is vital for Sri Lankan government to implement some of the marketing efforts to develop the tourism industrial sectors as one of the best destinations in Asian region.

Keywords* : *Tourism; Gross Domestic Production; Foreign Direct Investment; Co-integration; Causality; Forecasting.

I. INTRODUCTION

Globally, tourism is one of the fastest growing industries including in the developing world (Tosun, 2001). The effective benefits such as increase in income, earnings of foreign currency, increase in employment, the diversification in the economic potentials generated due to the development of tourism industry are anticipated in the developing countries. In entering this global competitive industry, developing countries may find tourism benefits only the local elite or multinational corporations, or is achieved at significant economic, social or environmental costs (David & Richard, 2010). Sri Lanka is one of the major tourist attraction destinations in South Asian region. The country has unique opportunities for various kinds of tourism including traditional tourism, adventure tourism, coastal tourism, eco-tourism and safari tourism, cruise tourism, medical tourism etc. Its geographical location, natural beauty and historical and heritage values have made additional potential for promoting tourism in the country (Nahla, 2015).

As the tourism market in the global arena is highly competitive, the effectual transformation in terms of the tourism-centered industries is needed in Sri Lanka to meet the global competitiveness in the industry. This contextual rationale that should be considered in the strategic plan drawn in favor of tourism development by employing SWOT analysis is recommended in the mechanism of implementation for the forthcoming four years in Sri Lanka. It should be designed with the consideration of long-term trend by drafting Tourism Vision - 2025 along with the coincidence of sustainable development goals proposed by United Nations.

After trade liberalization implemented in year1977 in Sri Lanka, the various fruitful policies and projects are implemented by the Sri Lankan government to develop the tourism sector in expediting the growth and development of the country. Further, Sri Lankan government has initiated a number of polices and strategies to motivate and attract FDI towards the tourism industry within the country. In the post war scenario in Sri Lanka, around all the sectors have been progressing towards socio-economic development. The economic condition and the business environment have been boomed targeting the prosperous future of the people after the end of civil war in Sri Lanka.

Tourism sector has reached to a new landmark of 1,274,593 tourists' arrivals in year 2013, exceeding high records in the history that is recorded as 26.7 percent increase over the arrivals in year 2012 as 100,560. In year 2015, the arrival of tourist is 1788390 and in 2017, the arrivals of tourist are 2116407 (Central Bank of Sri Lanka, 2018) Meanwhile, tourism industry led to 67862 direct employments in 2012, whereas in 1998 it was 1338, in 2017 tourism related employment to 359215 in 2017. The income earned from the development of tourism industry was amounting to Rs. 18,863 mn in year 2001, Rs. 40,133 mn in year 2009, Rs. 598,143 in year 2017 respectively. In this background by year 2025, in particular, Sri Lanka is to be recognized by the visitors and tourists as outstanding and bona fide experiences in tourism.

II. REVIEW OF LITERATURE

Revised Manuscript Received on September 25, 2019

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This division reviews some fundamental ideas to analysis the impact of foreign direct investment and tourism to gross domestic production. The study of Georgantopoulos (2013) on "Tourism Expansion and Economic Development: Analysis and Forecasts for the Case of India". This study employed the data that consisted of annual observations during the period 1988-2011 and forecasted generated for the period 2012-2016. Dragouniet. al. (2013) aims to study the associationship between the tourism sector and the economic growth and development in some of the European countries. He found from the analysis that the relationship between the tourism industrial sector and the economic condition of the respective countries was not steady over time in relation to its quantity and direction. Chai Li et.al (2013) examined the Effect of Tourism Receipts on Economic Growth on the basis of Malaysian context. This paper aimed at understanding long run relationships, the directions of Granger causality in the interaction of triangular relationships, and the speed of adjustment. Results showed economic growth and tourism receipts complement each other while unidirectional causality is found from physical capital and health to economic growth. Jayathilake (2013) carried out a research titled "Tourism and Economic Growth in Sri Lanka: Evidence from Co-integration and Causality Analysis".

In the Sri Lankan context, Srinivasan et.al (2012) in his research on "Tourism and Economic Growth in Sri Lanka: An ARDL Bounds Testing Approach" .This research is carried out to find out the effect of tourism sector on the growth and development in Sri Lanka. Primarily, the analysis of this study is based on the models enacted from the literatures reviewed above in the Sri Lankan context. Many researchers have done to investigate the relationship between FDI, Tourism and economic growth in many countries including Sri Lanka. Most of the variables did not capture in the articles done in Sri Lanka. The recent research in Sri Lanka mainly focus the causality, so it has to be identified the other variables which already used in the foreign context in order to find out the influence of Foreign Direct Investment and Tourism Industry to the Gross Domestic Production. At this juncture, this research is investigating the relationship between Foreign Direct Investment, Tourism Receipts, to Gross Domestic Production in econometrically and descriptively based on the variables identified in the above reviewed literatures.

III. METHODOLOGY

The data sources used in this study are Economic and Social Statistics in Sri Lanka, Annual Report of Central Bank of Sri Lanka, World Investment Reports and Annual Statistical Report of Sri Lanka Tourism Development Authority. This part attempts to forecast the variables; Gross Domestic Production (GDP), Tourism Receipts (TR) Foreign Direct Investment (FDI) and Economic Freedom Index (EFI). This study employs annual data for the period from 1977 to 2017 and forecasted the data from 2018 to 2022 in order to find out the future potential of the contribution. The econometric software: EViews10, statistical software: Excel and Minitab16 were used to analysis the data. The non-parametric techniques such as Nearest Neighbor Fit, Kernal Fit and Confidence Ellipse are used in this study as a graphical approach to find the relationship of effect of FDI on the tourism industry in the Sri Lankan context. And also, this relationship is assessed and investigated by using the econometric techniques such as Analysis of Co-integration, Analysis of Causality, and Error Correction Mechanism.

This model, based on Georgantopouls (2013) is devised to find the effect of FDI and the tourism industrial sector contributing the growth and development of Sri Lanka.The analytical functions defined below test the Forecast data contributed to performance of TR, FDI to GDP in Sri Lanka. The following model is defined as follows,

$$LGDP_t = \beta_0 + \beta_1 LTR_t + \beta_2 LFDI_t + \beta_3 LEFI_t + \varepsilon \ldots\ldots\ldots (i)x$$

Where GDP stands for Gross Domestic Production
TR stands for tourism receipts.
FDI stands for Foreign Direct Investment
EFI stands for Economic Freedom Index and
ε Stands for the error term and $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ are parameters.

IV. RESULTS AND DISCUSSION

The forecasting data of variables GDP, TR, FDI and EFI in the particular period, are figured out in following graph.

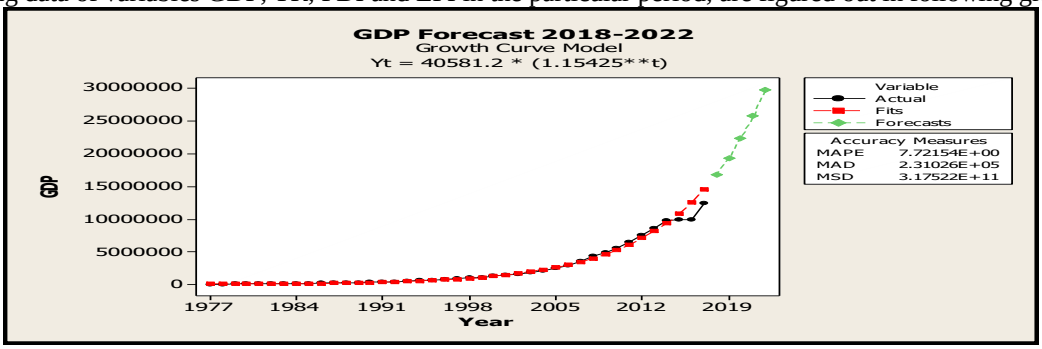

Figure 1 Gross domestic Production Data Forecast 2018 – 202

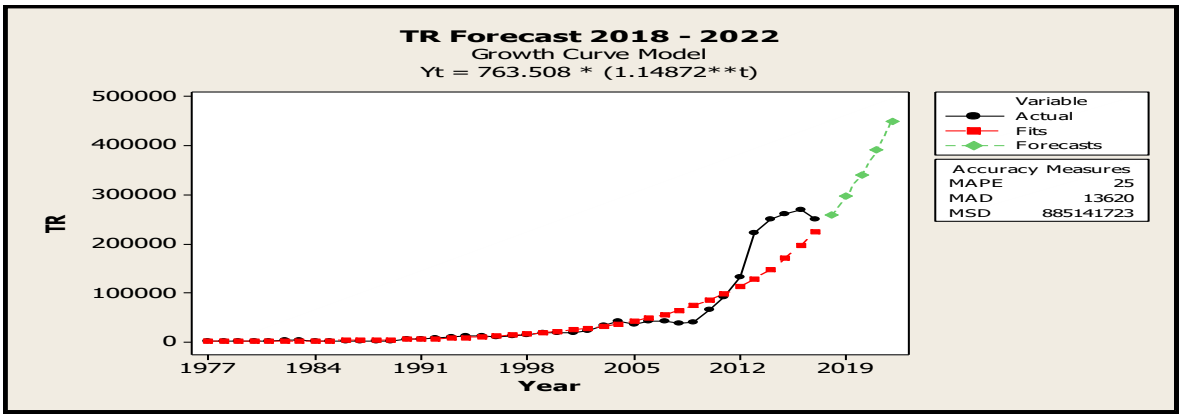

Figure 2 Tourism Receipts Data Forecast 2018 - 2022

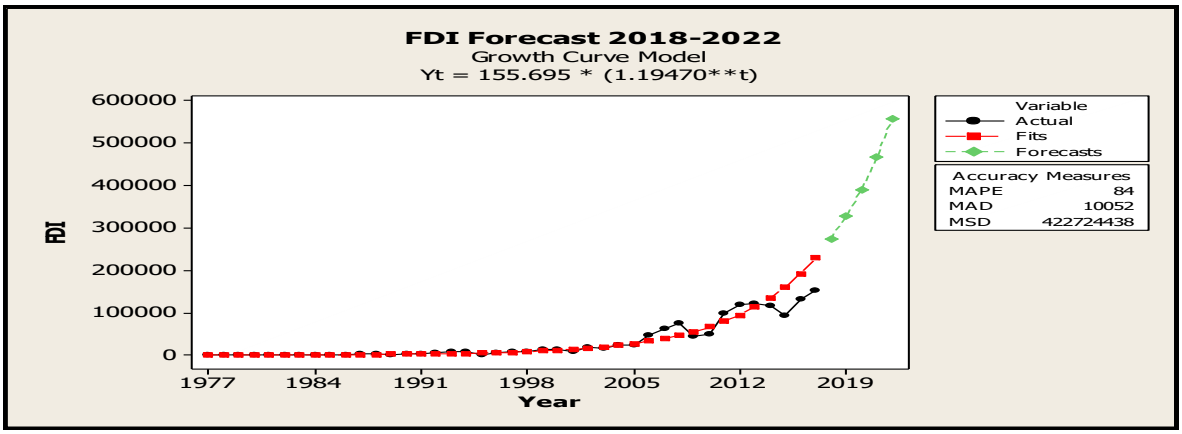

Figure 3 Foreign Direct Investment Data Forecast 2018- 2022

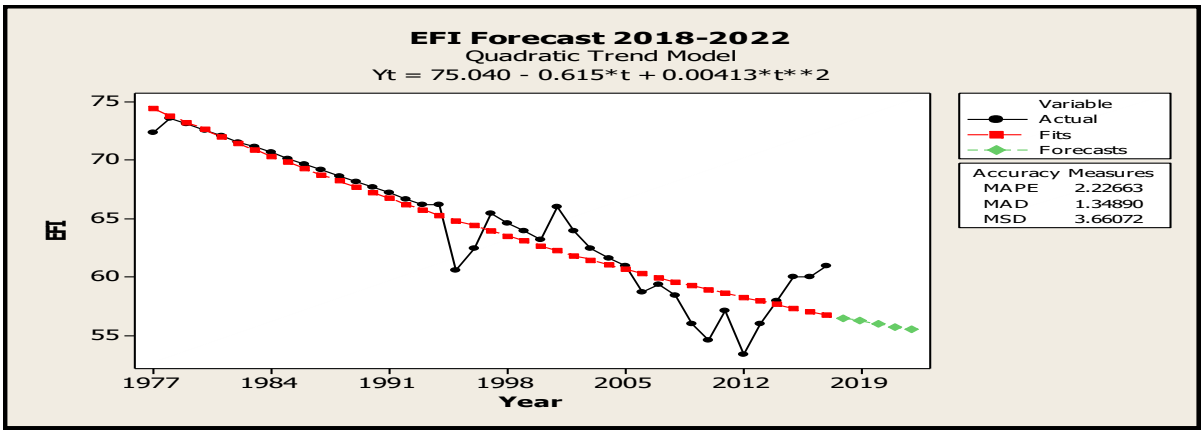

Figure 4 Economic Freedom Index Data Forecast 2018- 2022

Visual Inspection for the relationship between Variables – (GDP: TR)

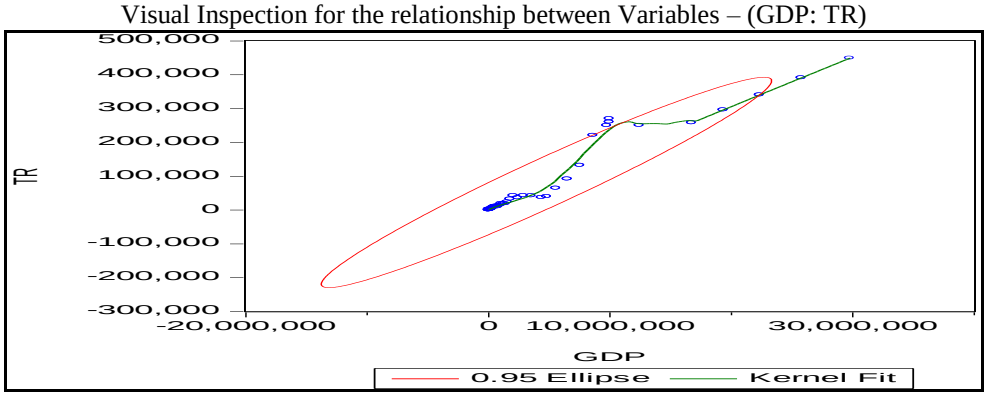

Figure 5 - Kernel Fit with Confidence ellipse – (GDP: TR)

Figure 5 above depicting the diagrammatical presentation of the

variables is underlying to find the trend and the primary assoicationship between GDP and TR. A strong positive relationship between GDP and TR is shown in the above graph of Confidence Ellipse and Kernal Fit. A high correlation relationship is found between the series such as GDP and TR.

Figure 6 below clearly portrays the primary relationship of trend between GDP and FDI which are the forecasting variables in the model. A strong positive relationship is represented by Confidence Ellipse and Kernal Fit. A high correlation relationship is found in the series of GDP and FDI.

Visual Inspection for the relationship between Variables – (GDP: FDI)

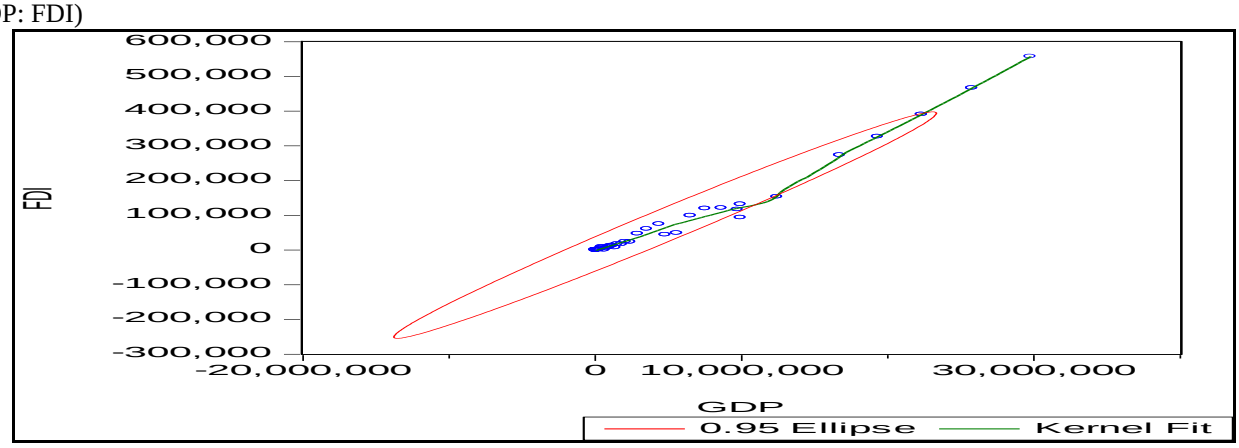

Figure 6 - Kernel Fit with Confidence ellipse (GDP: FDI)

Unit Root Test - Model Variables (LGDP, LTR, LFDI and LEFI)

Before the long-run relationship between tourism receipts, FDI, GDP, and EFI variables are determined, Analysis of Unit Root is found as essential to carry out. Therefore, the first step is to identify in the methodology that the variables being used in this study are in the stationary nature or the non-stationary nature. A wrong conclusion can be drawn from the non-stationary time series data. Thus, the results of the regression due to the presence of non-stationery may mislead to an incorrect conclusion and meaningless results. The ADF Tests are carried out at the series' level form and first difference. Variables results are presented in below table.

Table 1- Unit Root Test Result – Variables of Model (GDP, TR, FDI and EFI)

Variables	ADF Test	Intercept	Decision
LGDP	Level First difference	-0.8801 -4.9705*	Non – Stationary I(1) Stationary
LFDI	Level First difference	0.1852 -6.3579*	Non – Stationary I(1) Stationary
LTR	Level First difference	-0.3564 -4.5795*	Non – Stationary I(1) Stationary
LEFI	Level First difference	-1.0915 -8.088 *	Non – Stationary I(1) Stationary

*Significant at 1%

Based on the results of Table 1 above, the time series variables of the respective model are not free from stationary nature at their level form. But those variables are confirmed its stationary nature at their first difference form. The result exhibited variables are stationary in first difference. The ADF test results shown in the above table confirms that the null hypothesis of "one-unit root against the alternative of stationary" can't be rejected at their level forms. But the alternative hypothesis is confirmed at the first difference level of the variables. Hence, the time series variables used in the model are integrated at order one I (1).

Unit Root Test for Residual Co-integration Regression Equation Model

Table 2 – Unit Root Test for Residual Co-integration Regression Equation Model (GDP: TR)

	t-statistics	prob
ADF test statistics	-3.073242	0.0358

As per the Co-integration Analysis of Engle Granger, ADF test is used to perform the test of Unit Root for regression residuals. Statistics of ADF test is estimated at -3.073. The value of *P*is estimated at 0.0358. The results in the above show the residuals of the model are stationary. According to the above table results conclude that residual is stationary. Variables GDP, TR, FDI, and EFI are co-integrated.

Co-integration Regression Results for the Model

Table 3 –Co-integration Regression Results - Dependent Variable: LGDP

Variable	Coefficient	t Value	Probability (p)
β_0(Intercept)	26.42524	6.138022	0.0000*
Tourist receipts (LTR)	0.623711	8.542306	0.0000*
Foreign Direct Investment (LFDI)	0.133761	2.672939	0.0107*
Economic Freedom Index (EFI)	-4.784231	-5.087102	0.0000*
R-Sq(adj) = 98%, F-statistic 1014.554, F-Stat 0.0000(prob)			

*1% Sig. level

According to above adjusted R^2is very higher and the values of Prob (F-statistic), F-statistic, Schwarz criterion, and Akaike info criterion are accurate. Based on the determination of coefficient of the model, the dependent variable of this model is explained by all the independent variables jointly at 98 percent. It implies that the regression model is statistically significant to assess the associationship between the economic performance and the determinants affecting the economic performance which is recognized as the tourism receipts and FDI.

The model used in this study is significant at 1 % level. Based on the output of the long-run multiple regression, shown in the table above, all the coefficient signs of the variables of the model are theoretically in the expected nature. In addition, the value of coefficient estimated of TR explains that an increase of one million of TR leads to increase the value of GDP by the value of 0.62 Million. A positive and statistical significant long run relationship is found between TR and GDP at one percent. The value coefficient of FDI indicates that an increase of one Million FDI causes to increase the GDP by 0.13 million. A relationship of long run between the variables such as GDP and FDI is found at the positive and statistical significance at one percent.

Table 4 Results of ECM - Dependent Variable: GDP

Variable	Coefficient	t Value	Probability (p)
β_0(Intercept)	0.131399	12.93157	0.0000
D(LTR)	0.040990	0.939424	0.3532
D(LFDI)	0.024806	2.062012	0.0457**
D(LEFI)	-0.789627	-2.536487	0.0152**
RESID01(-1)	-0.086506	-2.218665	0.0322**

*Significant at 1% **Significant at 5%

Based on the results of the error connection mechanism, the speed of adjustment of error correction coefficient term is found statistically as significance. And also, the value of estimated coefficient is negative. This negative sign implies that there is a downward movement of GDP towards the path of equilibrium. In addition, it means that the correction of disequilibrium is estimated at 8.6 percent per annum. It is indicating that GDP is adjusted downward towards the path of equilibrium at 8.6 percent of GDP per year. But, the impact multiplier of short run effect of TR is statistically not significant. FDI at 5% statistically significant level in short run period of Sri Lanka.

Causality Tests:

Table 5 Results of Causality Tests (GDP: TR)

Null Hypothesis	Obs.	F-Statistic	P-Value	Granger Causality
LTR does not Granger Cause LGDP	44	0.23434	0.7922	No
LGDP does not Granger Cause LTR	44	4.07949	0.0246	Yes

Table 5 shows the causality of the two variables such as tourism receipts and economic growth. Accordingly, the null hypothesis of "LGDP does not Granger Cause LTR" is rejected. But, the alternative hypothesis of "LGDP does Granger Cause LTR" is confirmed. There is one way causal relationship between economic growth and tourism receipts. On the basis of the test of the Granger

Causality, LTR (tourism receipts) statistically (the value of *p* is estimated at 0.7922) LGDP. LGDP statistically significant (the value of *p*is estimated at 0.0246) encouraged TR. Thus, one way causal relationship is ensured by the above results.

Table 6 Results of Causality Tests (GDP: FDI)

Null Hypothesis	Obs.	F-Statistic	P-Value	Granger Causality
LFDI does not Granger Cause LGDP	44	0.31448	0.7320	No
LGDP does not Granger Cause LFDI	44	26.5209	5.E-08	Yes

Table 6 shows the causality of the two variables such as FDI and economic growth. There is one way causal relationship between economic growth and FDI. On the basis of the test of the Granger Causality, LFDI is statistically (the value of p is estimated at 0.7320). LGDP is statistically significant (the value of p is estimated at 5.E-8) encouraged FDI. Thus, one way causal relationship between GDP and FDI is ensured by the above results.

Table 7 - The results of diagnostic tests on the basis of the model

Tests	Statistics	Probability
Jarque-Bera (normality test)	1.526350	0.466184
Heteroskedasticity Test: Breusch-Pagan-Godfrey	F statistics 0.676537 Obs. R-squared 2.120439	0.5713 0.5478

The above results show that the regression model is free heteroskedasticity and non-normality of errors and it is well specified with a functional form. In addition, it is steady regression. Hence, it concludes that the model used and applied in this study is strong. The data representation is adequate in the specified model.

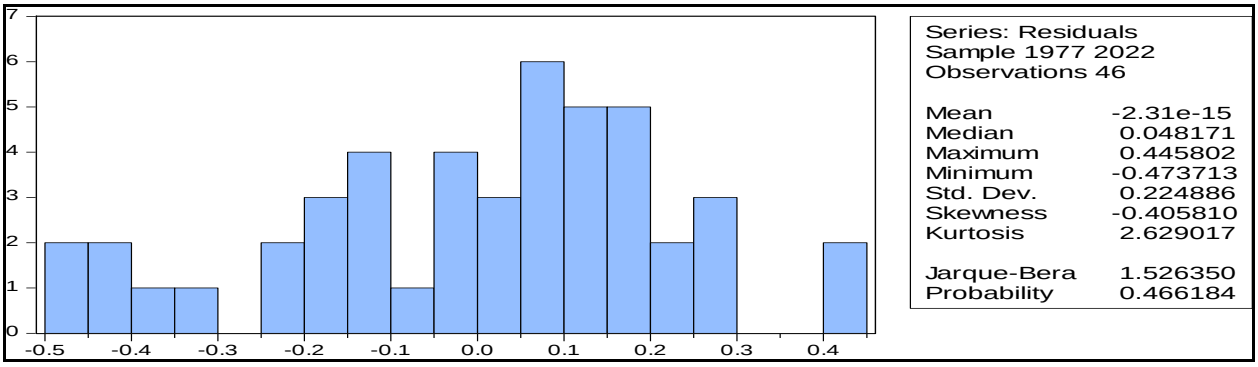

Figure 7 Residual Distribution and Diagnostic tests based on the model

The JB test shows figure 7 that residual is normal distributed.

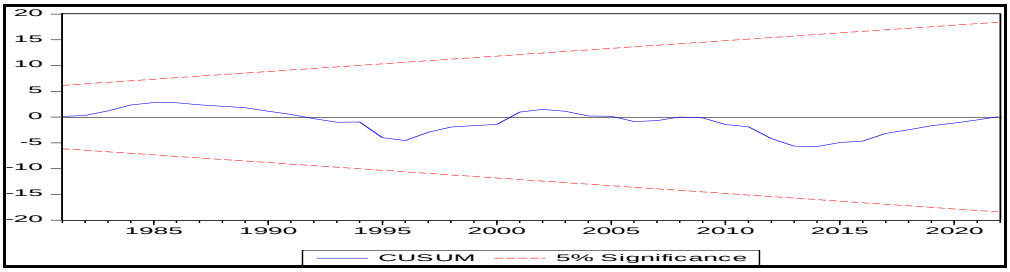

Figure 8 Stability Test for Cumulative sum (CUSUM)

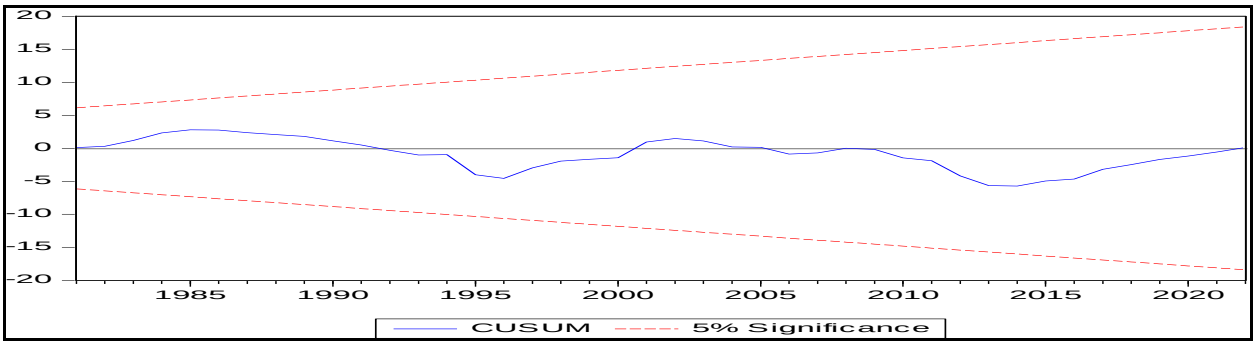

Figure 9 – Test of Stability (Cusum of squares)

The above figures the tests of CUSM and CUSUM of squares are employed by using the residuals of the regression model to assess the stability of long-run parameters estimated in the model. As shown in the above diagram, the blue line is located within the critical boundary at five percent significant level. The hypothesis of "the regression model equation is appropriately defined" is not rejected, rather it is confirmed. Thus, the stability of parameters is proved by these tests. Accordingly, the tests of Residual Diagnosis in terms of Autocorrelation, Normality test, and heteroscedasticity imply that these results are strong.

V. CONCLUSION

The main purpose of the study is to find the tourism and FDI's contribution on GDP in Sri Lankan context. To achieve its goal, the nonparametric approach is the graphical method which is comprised of Nearest Neighbor Fit, Kernal Fit, and Confidence Ellipse so as to find out the relationship between the variables used in this study. In addition, Error Correction Model, Analysis of Causality, and Analysis of Co-integration are the parametric techniques employed to examine the relationship between the defined variables in the model. The annual time series data used in the study ranges from year 1977 to 2017 and forecasted the data from 2018 to 2022 in order to find out the future potential of the contribution. The variables of model tested through nonparametric approach such as graphical method, Confidence Ellipse and Kernal Fit has strong positive relationship between the variables, and also the series are highly correlated in the model. For the model, the parametric econometric techniques such as Co-integration analysis are used for achieving the objective of the study. The Performance of TR, FDI to GDP forecasting model, according to the co-integration regression result revealed that a positive relationship exists between the variables such as TR and GDP and it is statistically significant.

There is long-run positive relationship between the variables such FDI and GDP found and also it is statistically significant. However, TR is statistically not significant but FDI is statistically significant level in short run period of Sri Lanka. According to the results of Granger Causality tests, in the model there are one-way causal relationships. As pointed out in the above context, the role of FDI is significantly played so as to expand the tourism industrial sector in Sri Lanka. The tourism sector in Sri Lanka paves the way to provide the incredible opportunities for the contribution of the receipts of tourism, the increase of GDP and the generation of employment. Presently, the policies of Sri Lankan government consider to attract more number of tourists into the country. The investment opportunities made by the government of Sri Lanka in connection with the upliftment of tourism infrastructural facilities significantly and highly lead to multiplier impacts on the key macroeconomic variables in Sri Lankan economy.

Recommendations

The increase of more arrivals of tourists and the more invited FDI can be expedited by the policy designs and framework drawn by the government of Sri Lanka and the respective policy makers. Accordingly, the increase of more arrivals of tourists and the more invited FDI can be expedited by the policy designs and framework drawn by the government of Sri Lanka and the respective policy makers. Accordingly, simple licensing procedures, minimizing electricity charges, amalgamation in environmental officials, establishing a unique authorized entity for the promotion of tourism, generating opportunities for shopping the branded entertainments and products which are internationally recognized, simplifying the processing channel to approve the investments connected with the promotion of tourism industrial operations, establishing the tourists hotels reputed internationally, the concept of clean city and friendly environments are found as the various factors that should be considered while designing the policies in connection with the promotion of tourism industry in Sri Lanka. Simple licensing procedures, minimizing electricity charges, amalgamation in environmental officials, establishing a unique authorized entity for the promotion of tourism,this will attract investors to take part in the economic growth of the country. These all aspects will invite foreign direct investment for booming up tourism industry in Sri Lanka. So, the government can create many strategies for inviting foreign investors to achieve the real goal of the development of tourism and tourism industry in the island by promoting foreign direct investment which lead the sustainable tourism development growth in Sri Lanka.

The Government can recognize the multiplier effect of tourism development in creating tourism related employment opportunities and expand tourism-based industry in Sri Lanka.

The employment opportunities are directly and indirectly created

by hotels, handicrafts, souvenirs, the business of entertainments and recreations, the operators of tours and travel agents, restaurants, home-stays, and other retail trade. So, these employment opportunities will reduce the burden of unemployment issues to meet government strategy that increase the tourism related employment by Sri Lanka Tourism Strategic Plan 2017-2020, and will invite more investors to the country. Therefore, tourism industry will help the country to achieve many goals in terms of employment and economic growth of the nation. The lack of human resources should be increased and accommodated in the tourism industry. Annually number of graduates are requiring for the tourism industry. So, this kind of training will enable the graduates and other human resources in order to enhance the tourism development in Sri Lanka. So, this human resource in the tourism sector also will invite high potential rate of foreign direct investment to the country.

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