Contribution of Foreign Direct Investment to Trade Balance

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Abstract

This article on contribution of foreign direct investment on trade balance in Nepal during the study period 1995–2018 shows the significant positive relationship between inflows of FDI and trade balance. The main objective of this study was to investigate the impact of FDI on trade balance of Nepalese economy. This study has employed Ordinary Least Squares Method to explore relationship between FDI inflows and trade balance in Nepal. The results indicate that there is significant and positive relationship between FDI and trade balance in Nepal. This study has its implication for policymakers to raise FDI inflows to keep the trade balance in Nepalese Economy. To raise the inflows of FDI, it is necessary to make investment friendly environment for foreigners that lead to raise the export and trade moves towards favorable.

Keywords: foreign direct investment, export, import, trade balance, ordinary least squares method

Introduction

Foreign direct investment has been played the important role for trade balance of the nation. Foreign direct investment is an important channel for technology transfer from developed countries to developing countries. It helps to correct the trade through rise in export of goods and service from one country to other countries. Foreign capital-based industries have not created the fear of hegemony; it raises the knowledge efficiency and competition. A country is unable to catch the pace of economic development without rise in investment because developing countries have no sufficient resources to mobilize the available resources. Foreign investment therefore, plays the important role to raise export as well as economic development of the nation (khoury & Savvides, 2006).

The export of Nepalese goods and services has been limited in comparison with import. Thus, foreign direct investment is necessary to reduce volume of trade deficit through rise in exportable products. However, government of Nepal has made the various

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efforts (subsidies for exportable goods production, no tariff for exports, and tax rewards) to rise the export of goods and services. Export has been accelerating the economic growth and that makes positive multiplier effects on income and employment. It has also enhanced the technological which is necessary condition for economic development of the country (Ajmi et al., 2013).

An increase in investment within the country has been accelerated the economic growth of the country. An increase in inflows of FDI has raised the productive capacity of the economy. Increase in productive capacity of the economy leads to raise the exports of goods and services and it helps to reduce the trade deficit that rise the aggregate demand of the economy. An increase in aggregate demand has raised consumption demand, income, and employment within the country that are the major components of economic development of the nation. Thus, the objective of this paper is to examine the contribution of foreign direct investment on trade balance of the country.

Literature Review

Large number of empirical literature (Athukorala & Menon,1996; Bosworth & Collins, 1999; Hill, 2010; Pang, 1998; Sekkat &Varoudakis, 2004; Temiz & Goken, 2009) have focused on the study impact of FDI on trade balance. These studies found the positive and significant impact of FDI on trade balance.

Pacheco- Lopez (2005) explored the impact of foreign direct investment on trade in Mexico by employing time series data of 1980- 2000. This study employed Engel Granger cointegration test to explore the causal relationship between FDI and trade balance of Mexico. The finding of this study showed the bidirectional causal relationship between FDI, export and import.

Varamini and Kalash (2013) examined the impact of FDI on trade balance of European emerging countries. This study used Engel Granger cointegration test to explore the role of FDI on trade balance of 10 emerging countries of Europe. The finding of this study showed the short run as well as long run significant positive relationship between FDI and trade balance in ten European countries before joining the European Union.

Rana (2014) analysed the relationship between FDI inflows and trade balance in Bangladesh by employing time series data during the period of 1972-2011. This study

employed the Engel Granger cointegration approach to cointegration to explore the long run as well short run relationship between FDI inflows and trade balance of Bangladesh. This study found that FDI was positive and significant factors that directly helps to correct the trade balance.

Mahmoodi and Mahmoodi (2016) examined the causal relationship between FDI and export of goods and services in developing countries by using time series data during the period of 1992-2013. Panel Vector Error Correction Model to cointegration was used to explore the impact of FDI on export. This study found the bidirectional causality between FDI and export of goods and services in European developing countries.

Methodology

This study employed regression analysis to explore contribution of FDI on trade balance of Nepalese economy. Time series data during the period of 1995-2018 were used to examine the contribution of FDI on trade balance. Trade balance refers to export is equals to import of goods and services from Nepal to other countries. Thus, FDI is a positive function of trade balance for Nepal. The effect of FDI on the trade balance (TB) of the economy presented in the following Keynesian open macroeconomic model:

$$TB = C+I+G+X-M \quad \text{(I)}$$

Where, Y = value of national income (GDP)

C = Aggregate consumption expenditure

I = Gross capital formation

G = Government expenditure

X = Value of export

M= value of import

By rearranging this equation XI and written as

$$X - M = C + I + G \quad \text{(II)}$$

Equation (II) explains the trade balance. On the basis of Equation (XVII), this study developed the following model:

$$TB = F(FDI, GDP, GCF, GCE)$$

$$\text{Or, } TB = \alpha + \beta_1 FDI + \beta_2 GDP - \beta_3 GCF - \beta_4 GCE + \mu \quad \text{(III)}$$

Where GDP is the gross domestic product, GCF is the gross capital formation and GCE is the gross consumption expenditure

Data Analysis and Results

Contribution of FDI on trade balance of Nepal has based on Keynesian model. According to Keynesian equation Y = C + I + G + X - M, where Y is the national GDP, C is the consumption expenditure, I is the gross capital formation, G is the government expenditure, X - M was the net export or trade balance. Therefore, trade balance (TB) or X-M is equal to Y- C - I - G. Thus, this study has been employing the Keynesian equation to examine the impact of FDI on net export of Nepal into foreign countries.

Descriptive Statistics

Descriptive statistics have been used to describe the characteristics of variables during the study period. Table 1 presents the summary statistics of dependent trade balance (TB) and independent variables [foreign direct investment (FDI), gross capital formation (GCF), gross consumption expenditure (GCE), gross domestic product (GDP), and life expectancy at birth (LE)] used for the study. It shows number of observations, measures of central tendency, measure of dispersion (standard deviation), minimum and maximum values, skewness, kurtosis, and Jarque-Bera test respectively.

Table 1

Descriptive Statistics of Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	J-B
B	-299995.7	-135311.4	-51849	-1161194	317376.3	-1.3	3.69	6.96
CF	4073679.	2087790.	6724210	80170.0	4246016.	.51	4.75	11.73
CE	965127.9	656374.0	491115.	14487.0	729276.5	.81	2.31	3.00
DI	3408.00	961.40	7512.80	-470	4821.54	.59	4.71	12.56
DP	1088555.	727827.0	007246.	48913.0	828999.0	.89	2.58	3.23
E	65.96	66.60	1.60	8.52	3.78	-0.42	2.16	1.37

Note. Adapted from Economic Survey and Quarterly Economic Bulletin, by Government of Nepal,2020.

Table 1 highlights the nature of variables used in the model. It indicates that the data sets of TB and LE are negatively skewed. Similarly, FDI, GCF, GCE, and GDP are positively skewed. The coefficient of kurtosis of dependent variable (TB

=3.69) and independent variables (FDI=4.71, GCF = 4.75, GCE = 2.31, GDP = 2.58, and LE = 2.16) indicates that the data sets are normally distributed.

Descriptive statistics for the variables FDI, GCF, GCE, GDP, and LE have positive mean and median whereas TB has negative mean and median. The result indicates that the average net export was-299995.7 million with minimum value of -1161194 million and maximum of -51849 million. The standard deviation of TB was 317376 respectively. Similarly, mean values of FDI were 3408 million with minimum value of -470 and maximum value of 17512. The variability of FDI was represented by value of standard deviation which was 4821.54. Similarly, mean value of GCF, GCE, GDP, and LE were Rs. 4073679 million, Rs. 965127.9 million, Rs. 1088555 million, and Rs. 65.96 million with standard deviations of 4246016, 729276.5, 82899, and 3.78 respectively. Finally, Table 6.I also presents the value of Jarque-Bera, which shows the nature of distribution of variables included in the study.

Regression Analysis

Regression analysis between dependent TB and independent variables FDI, GCF, GCE, GDP, and LE have demonstrated in Model 1

Model 1

Estimated Relation between TB and FDI, Dependent variable is TB .

$$TB = -711627.70 + 3.49^{***}FDI - 0.06^{***}GCF - 0.50^{***}GCE + 0.32^{**}GDP + 12157.88^{***}LE$$

T	(-6.91)	(2.82)	(-8.53)	(-3.96)	(2.07)	(6.82)

$AdJ.R^2 = 0.99$, F = 4417.79, DW= 1.72, N = 23

(Note * significant at ten percent or better, ** significant at five percent or better. *** significant at one percent or better)

Model 1 exhibits the coefficient of FDI is 3.49 which is positive and statistically significant at 1 percent level. This positive coefficient explores the direct positive relationship between trade balance (net export) and inflows of FDI in Nepal. Large chunk of inflows of FDI leads to rise the export of goods and services that makes the favorable trade for Nepal. The coefficient of FDI demonstrated that Rs. 1million increase in FDI leads to Rs. 3.49 million increases in net export from Nepal. Similarly, coefficient of GCE and GCF are negative and statistically significant at 1 percent level. This implies that there is

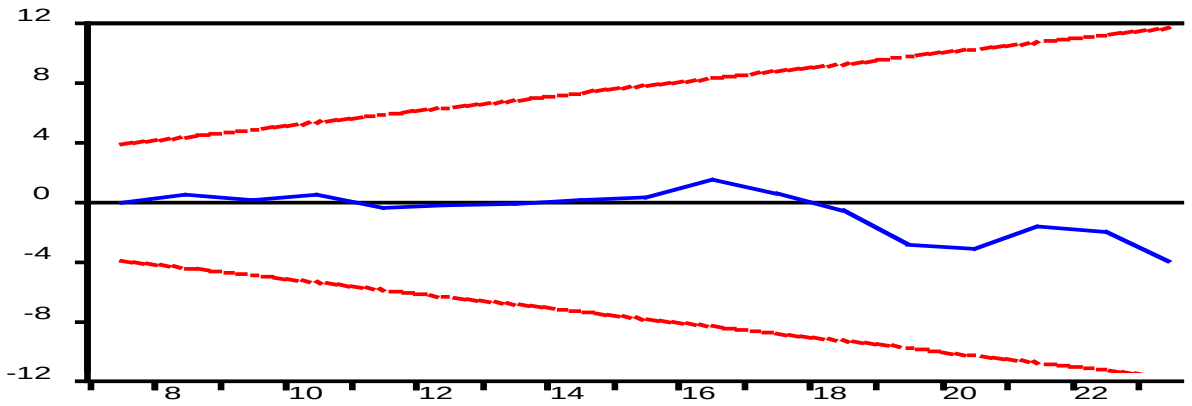
inverse relationship between net export and gross investment as well as gross consumption expenditure. The coefficient of GDP is 0.32. This implies that one million increases in GDP led to Rs. 0.32 million rises in net export from Nepal. The coefficient of GDP is positive and statistically significant at 5 percent level. Net export from any countries have determined by their National income (Keynes, 1936). Thus, this study also found consistent result with Keynesian result. Furthermore, coefficient of LE is 12157.88 that indicate the positive and statistically significant relationship between trade balance and LE.

The coefficient of determination i.e., the value of adjusted R^2 was 0.99. This implies that 99 percent of trade balance in Nepal is explained by FDI, GDP, GCF, GCE, and LE. The F statistics value is 4417.79 that shows the significant impact on TB by FDI, GDP, GCF, GCE, and LE in Nepal. DW statistic value was found 1.72, which confirms that there is no autocorrelation problem in the analysis. Thus, the finding of the impact of FDI on trade balance has been vital and significant factor.

Stability Test of the Model

It has been important to investigate whether the estimated relationship is stable or not during the study period.

Figure 1



Plot of Recursive Residual (CUSUM)

To test the stability of the model Recursive CUSUM test at 5 percent level of significance is used. If the plots of CUSUM statistics study with in the critical bounds at 5% level of significance all co-efficient in the given regression are stable. In Figure 1, straight lines represent critical bounds at 5% significance level. It shows that the CUSUM

plots lie within the bound (red line). Thus, it has provided the evidence that all the parameters include in the Model was stable over the study period.

Diagnostic Test Result of the Variables

To ensure that Models have not been misspecified, Table 2% result of test for serial correlation, and heteroscedasticity. The results of the diagnostic test reveal that all the models have well specified indicating that the estimated regression model performs well. There was no serial correlation problem in the model because Breusch-Godfrey serial correlation LM test confirms that there was no evidence of serial correlation in the model. Similarly, Breusch-Pagan-Godfrey of heteroscedasticity test also confirms that model has no problem of heteroscedasticity. The diagnostic test of estimated regression model suggests that the model has no problem of serial correlation and heteroscedasticity because the F-statistic and obs* R-squared values were greater than 0.05. Hence, it rejects the hypothesis serial correlation as well as heteroscedasticity prevails in the model.

Table 2

Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.1260	Prob. F (2,15)	0.88
Obs*R-squared	0.3801	Prob. Chi-Square (2)	0.82

Heteroscedasticity Test: Breusch-Pagan-Godfrey

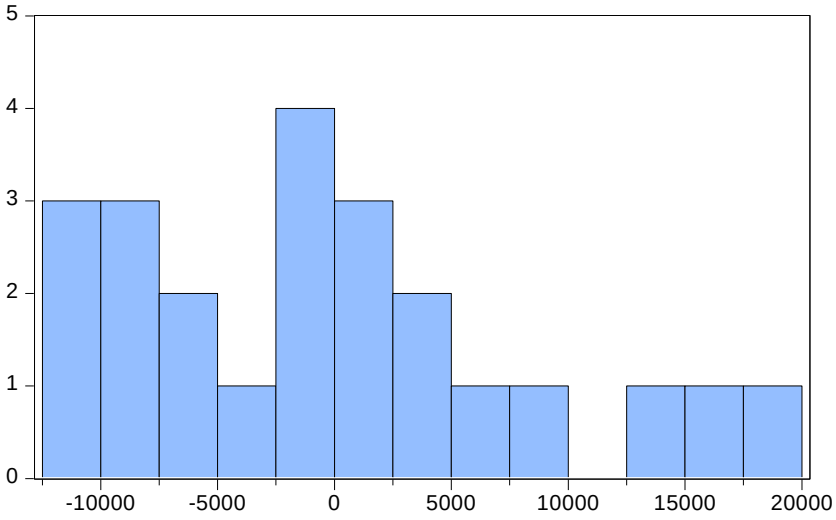
F-statistic	0.7914	Prob. F (5,17)	0.57
Obs*R-squared	4.3428	Prob. Chi-Square (5)	0.50
Scaled explained SS	1.8941	Prob. Chi-Square (5)	0.86

Note. Calculation based on Model1.

Similarly, the residual terms included in the model were normally distributed. The normality of residual terms has tested below;

Figure 2

Plot of Residual Terms (Normality test)



The Jarque-Bera test statistics was 1.71, this implies that it accepts the hypotheses that residual series were normally distributed from the model. Hence, in the regression model residual terms were normally distributed. The model consists of all assumptions of ordinary least squares regression model therefore, findings were appropriate for policy implication.

Conclusion and Policy Recommendations

This study analysed the effects of FDI inflows on trade balance of Nepalese economy. Trade balance is a main component of the current account of balance of payment. Therefore, to make the favorable balance of payment, it is necessary to raise the export of goods and services. It is only possible, if the country raises the investment in exportable goods and services. But Nepal's government has no sufficient money to make the large amount of investment. In this situation, FDI is a prominent source of investment to produce the exportable goods and services. Nepal has been facing high trade deficit due to inappropriate use of foreign investment and Nepalese current account is negative. Therefore, as a policy implication increase in FDI inflows might cause to increase in export that makes trade balance and it direct the current account towards surplus. Thus, the policy makers should make a favorable environment to raise the inflows of foreign investment into the Nepal.

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