

Causal Relationship between Current Account Deficit and Foreign Direct Investment: An Empirical Analysis of Bangladesh

Bushra Humaira Sadaf¹ and Sakib B. Amin²

The causal association between foreign direct investment and current account deficit has gained interest of researchers and policy makers all around the world due to its consequences. While this paper examines the co integration and causal relationship between current account deficit and foreign direct investment in Bangladesh economy. For this research we have taken into account annual data starting from 1980 to 2015. Our results reveal that there is a unidirectional causality running from foreign direct investment to current account deficit in context of Bangladesh. That is there is causality between foreign direct investment and current account deficit running from foreign direct investment to current account deficit.

Keywords: foreign direct investment, current account deficit, economic growth, causality, cointegration

1. Introduction

Economic growth is one of the prime concerns of any country. Developing countries specifically has to work towards development and economic growth and in many cases seeks help from developed country through aid or investment. Foreign direct investment has become increasingly attractive to developing countries because investment at home has decreased and host countries also invest outside their country to avoid inflation. But most importantly it is perceived as an intense motor for financial development. It empowers nations which are capital low to develop physical capital, make business openings, create beneficial limit, upgrade abilities of nearby work through exchange of innovation and administrative know-how, and incorporate the economy with the worldwide economy.

Foreign direct investment has increased at an exponential rate in late decades because of the financial liberation all over the world, it has become a tool for globalization. Technological advancement which made working together less demanding abroad, the attraction of benefits and nations progressively grasping free market economies show likewise added to these increments in the streams of foreign investment in the period of globalization. Defenders say FDI importantly affects financial development of the underdeveloped nations by filling the gap between local investment and savings and using it more efficiently through the skills of foreign latest

¹ BSS in Economics, Department of Economics, North South University, Dhaka, Bangladesh, Email: bushra.h.sadaf@gmail.com

² Assistant Professor, Department of Economics, North South University, Dhaka, Bangladesh, Email: sakib.amin@northsouth.edu

Sadaf & Amin

technology. FDI can likewise produce household investment in coordinating assets, encourage exchange of administrative aptitudes and knowledge spillover, increase local competition, make cutting edge openings for work and increment worldwide market access for fare products. Internal FDI not just serves the long haul money related premiums of outside financial specialists; it can likewise assume a huge part in the development flow of host nations.

Even though FDI is regarded as a boon to an economy and most studies is conducted to record the positive aspects as it causes knowledge spillover, bringing in technological knowhow, contributes to building of new companies with innovative ideas and integrates home economy to world economy. This also makes home companies much efficient due to competition and overall creates new job. However, one of the negative effects of capital inflow is the current account deficit. Studies have shown, less developed counties with an inflow of foreign direct investment often suffer from widening current account deficits. There are a lot of other reasons of current account deficit. But the motivation of this paper is to determine the causality between current account deficit and the foreign direct investment.

Very few studies have been conducted taking Bangladesh into consideration. It is also worth noting that, there have not been many studies regarding the causal and directional relationship between current account and FDI. Most of the studies are about cross countries and analysis and none of it has been done on Bangladesh and there has been no study conducted on Bangladesh using updated econometric analysis. Our main idea behind this research was the idea that since Bangladesh has gone through trade liberalization and foreign direct investment is increasing with time to fill in the unmet home demand, there is a downside of such unchecked free flow of FDI. Hence, to fill this gap in research we decided to inspect the causality of current account deficit and foreign direct investment. To the best of our knowledge, there had not been much work regarding this topic exclusively in context of Bangladesh. Thus, our paper fills that gap. The following questions are addressed in our paper.

Is there any causality between foreign direct investment and current account deficit in Bangladesh? If so in what direction?

The remainder of the paper is organized as follows. Starting with an overview to foreign direct investment and current account deficit, then we review literature and then discuss methodology and results obtain. Ending the paper with an appropriate conclusion

2. Literature Review

Since globalization of late, there has been an immense foreign investment from developed countries to developing countries. Even though it has been strong empirical evidence that FDI does eventually contribute to economic growth, its undesirable side effects have raised. One of this is causality between current account deficits. And lately, it has gotten into attention of researchers. Researchers have relentlessly worked on

Sadaf & Amin

finding the causality between FDI and current account deficit and have concluded with mixed results among countries and amongst different times. Yet, no previous study have been done to find the causality relationship between FDI and current account deficit in context of Bangladesh, this section reviews the previous research on this topic.

Akbas et al. have tested for causality among G7 countries, taking data only from 1990 to 2011. While they used variables like FDI, CA and GDP, their choice of econometric tool was causality test developed by Dumitrescu and Hurlin (2012). Even though their time frame was not significant, they conducted study across different geographical areas. They concluded that there is a unidirectional relationship between current account deficit and FDI to GDP. Even Kaur et al (2012) assessed the causality case for India has taken more significant timeframe from 1975 to 2009 but their variables were import, export, CA, FDI. Their result was also unidirectional causality from FDI and current account and the cointegration test showed that there is a long term relationship between the concerned variables. They used Toda-Yamamoto Granger Causality technique.

Siddiqui et al analyzed Pakistan economy from 1976 to 2005 but they used ADF unit root test to determine the stationarity of the data. They also used cointegration analysis, VECM and Johansen Juselius cointegration technique to determine the long term relationship while they used Granger causality test to determine causality. Even though they do find a unidirectional relationship between FDI and CA, from FDI to CA, they do not find any long run causality. Arabi (2014) has tried to determine the impact of foreign direct investment FDI and real GDP on current account the relationship between foreign direct investment and current account of Sudan during the period 1972-2011 using the Johansen-Juselius co integration technique. The study used an econometric time series Vector Error Correction Model (VECM) method in order to calculate the short-run and long run impact of FDI and RGDP on current account. Impulse Response Function (IRF) has also been made to describe the response to shock amid the variables. The result was that foreign direct investment has a weak negative effect on the current account. Furthermore the results indicate that FDI and CA are co integrated and thus exhibits a reliable long run relationship.

Yalta (2015) attempts to evaluate the causality between the current account and foreign capital flows for the emerging markets over the period of 1980–2012, by applying the heterogeneous panel Granger causality framework. It relates heterogeneous panel causality tests to explain the linkages between current account and the foreign capital flows. In addition to inspecting the effect of overall capital flows on the current account, they focus on the effects of different types of capital flows (foreign direct investment and portfolio investment) on the current account and investigates how the different types of capital flows affect gross domestic saving and gross domestic investment and conclude that the causality relationship between foreign capital flows and current account is highly heterogeneous. According to Yalta (2011), FDI can influence on current account through three way channels, exports, imports as well as profit remittances; the paper identify the response differentials of these variables to a change in FDI flows by applying a VAR model. Findings provide evidence for the current-account disturbing effects of FDI.

Sadaf & Amin

Bedir & Soydan (2016) has stated in their paper, that FDI usually have more or less influence on current account deficit and it does aggravate it further. This current account deficit is expanding through profit transfer to the financing country. FDI might influence current account balances adversely through both direct and indirect channels i.e Fiscal transfers, for example, benefit remittances, interests, intercompany loans, export and import. Though evidently, profit transfer is one of the direct channels. Indirect channels include, export and import- which may vary from country to country. This needs to be empirically varied from case to case basis. Sarode (2012) has studied effects of FDI on current account and GDP has concluded FDI has a negative influence on current account.

Yalta (2015) assessed current account imbalances and capital flows for emerging markets(Argentina Brazil Chile China India Indonesia Malaysia Mexico Pakistan Peru Philippines South Africa Thailand Turkey Venezuela) from 1980-2012 using Panel Root test; HENC HNC. Variables used were GDP, FDI ,CA. It was found that causality is detected for six out of 15 countries (Argentina, Brazil, India, Pakistan, the Philippines, and Turkey). In the remaining countries, no causal relation is observed. When we consider the reverse causality between current account and FDI, we find that for five countries (Mexico, Pakistan, South Africa, Turkey, and Venezuela), there is heterogeneous causality. Bidirectional causality is found in Pakistan and Turkey.

The above mentioned papers are fairly recent as of most of them are after 2000, some of them have assessed causality between current account imbalance and FDI but from different perspective, some paper have analyzed region specific, comparing different regions from a fixed amount of time where as some other paper have analysed a specific country in a time frame yet none of the paper have investigated the case of Bangladesh and that is my research gap.

3. Methodology

At first, data of all the variables were tested for unit root in order to determine the stationarity of the variables that were considered in our study. We used the ADF and PP unit root tests to detect possible existence of unit roots, if any, in our data set. Once the variables were found to be stationary, cointegration test was run to find possible linear combinations of the variables which could be considered stationary. Moreover, following confirmation of cointegration between the concerned variables we finally used the Granger Causality tools for determining the direction of causalities between the variables. It is important to test data, especially time series data, for stationarity since non stationarity of time series data leads to spurious regression unless there is the existence of at least one cointegrating relationship. It is important to mention that unit root tests tend to have non-standard and non-normal asymptotic distributions, which are highly affected as the deterministic terms such as constant, time trend etc. are included. A time trend is considered as an extraneous regressor and the power of the test could be reduced by its inclusion (Amin, 2011).

Sadaf & Amin

However, if the true data generating process were trend stationary, then failing to include a time trend could also result in a reduction in power of the test. Moreover, this loss of power due to the exclusion of a time trend when it should be present is more severe than the reduction in power associated with the inclusion of a time trend when it is extraneous (Lopez et al., 2005). While conducting the unit root test, it is important to choose the optimum lag length. The software EViews 7.1 used in our paper automatically chooses the appropriate lag length based on the Schwartz Information Criterion (SIC). Furthermore, the Johansen procedure was applied to test for cointegration, which is known to provide a unified framework for estimation and testing of cointegration relations in the context of VAR error correction models.

According to cointegration analysis, when two variables are cointegrated then there exist at least one direction of causality. Granger-causality, introduced by Granger (1969, 1980, 1988), is one of the important matters that has been much studied in empirical macroeconomics and empirical finance. The presence of non stationarity can lead to ambiguous or misleading conclusions in the Granger causality tests (Engel and Granger, 1987). Only when the variables are cointegrated, it is possible to deduce that a long run relationship exists between the non-stationary time series.

When we take y and x as our variables of interest, then the Granger causality test (Granger, 1969) determines whether past values of y add to the explanation of current values of x as provided by information in past values of x itself. If previous changes in y do not help explain current changes in x , then y does not Granger cause x . In a similar way, we can examine if x Granger causes y just by interchanging them and carrying out this process again. There could be four probable outcomes: (i) x Granger causes y (ii) y Granger causes (iii) Both x and y granger causes the other and (iv) neither of the variables Granger causes the other.

In this paper, the causality tests among all the concerned variables are conducted. This paper examines the causality between current account deficit and FDI taking last 30 years data as Bangladesh is a young country we could not take much longer time and the method to reach the conclusion using econometric analysis.

4. Results

Firstly, to find the stationarity of the data, we run ADF and PP test unit root test, this test is particularly important to determine the stationarity of our given data. In figure 1, we can see FDI and GDP is stationary while OPEN and CA is non stationary.

Sadaf & Amin

Table 1: Augmented Dickey Fuller Test, Levels

Variables	Adf Statistic Constant	Adf Statistic Constant And Trend	Decision
FDI	5.005932	2.123322	Stationary considering constant and non stationary considering constant and trend
GDP	0.719695	2.477096	Non stationary in both cases

Table 2: Augmented Dickey Fuller Test, 1st Difference

Variables	Adf Statistic Constant	Adf Statistic Constant And Trend	Decision On Constant And Constant And Trend
FDI	4.068677	5.649674	Stationary on both
GDP	10.34318	3.159917	Non stationary on both
OPEN	1.686326	3.159917	Non stationary considering both
CA	0.130551	-1.546715	Non stationary considering both

Table 3: PP Test, Levels

OPEN	2.330401	4.773883	Non-stationary considering constant and stationary considering constant and trend
CA	-10.97449	-10.93981	Stationary considering constant and constant and trend
OPEN	-6.241088	-6.420306	Stationary considering constant and constant and trend

Table 4: Granger Causality Test

Hypothesis	F-Statistic	P Value	Granger Causality
CA does not Granger cause FDI	0.47634	0.6258	There is unidirectional relation between CA and FDI FDI->CA
FDI does not Granger cause CA	9.36617	0.0007	
GDP does not Granger cause FDI	2.63177	0.0891	Bidirectional direction between FDI and GDP FDI->GDP FDI<-GDP
FDI does not Granger cause GDP	2.64519	0.0881	
GDP does not Granger cause CA	11.1362	0.0003	Bidirectional causality GDP->CA
CA does not Granger cause GDP	4.06083	0.0279	
OPEN does not Granger cause CA	12.1165	0.0001	Bidirectional causality OPEN->CA
CA does not Granger cause OPEN	3.00145	0.0654	
OPEN does not Granger cause GDP	3.58431	0.0404	Unidirectional causality between OPEN and GDP
GDP does not Granger cause OPEN	0.38367	0.6848	

Then, after determining that all data are stationary, we cointegrate using Johansen Conintegration Test, and we see that there are atleast 3 cointegrating relation between the variable in our model. Finally, after checking all our variables for stationarity and cointegrity, we then went on to run Granger Causality Test to understand the direction of causalities between our variables.

Granger causality shows use the direction of causality, FDI and CA has unidirectional relationship, from FDI to CA which means foreign direct investment may cause current account deficit in the long run. We have also found other relations like bidirectional causality between GDP and FDI, GDP and CA and unidirectional causality between OPEN and GDP.

The hypotheses accepted are: FDI does not Granger cause CA, GDP does not granger cause FDI, FDI does not granger cause GDP, GDP does not granger cause CA, CA

does not granger cause GDP, Openness does not granger cause CA, CA does not granger cause openness and openness does not granger cause GDP.

Rejected hypotheses are: GDP does not granger cause openness, CA does not granger cause FDI.

The results obtained from this analysis concludes that Bangladesh has an unidirectional relation between current account deficit and FDI as mentioned in the introduction part of this paper and this analysis has not never been done yet in previous studies in context of Bangladesh.

5. Conclusion

Even though FDI is regarded as a blessing to an economy and most studies is conducted to record the positive aspects such as economic growth. However, one of the negative effects of capital inflow is the current account deficit. Studies have shown, less developed counties with an inflow of foreign direct investment often suffer from widening current account deficits. There are a lot of other reasons of current account deficit. But the aim of this paper is determine the causality between foreign direct investment of Bangladesh and current account deficit.

The empirical investigation consists of: (1) the application of cointegration analysis to determine the long run relationship between FDI and CA (2) the determination of the direction of causality among the variables. We can conclude that FDI and CA are cointegrated and thus exhibit a reliable long run relationship. The results indicate that the causality between FDI and CA is uni-directional: There is only one-way long run causality from FDI to CA, the unidirectional causality going from foreign direct investment to current account deficit in context for Bangladesh and such study has been carried out by researchers in neighboring country. (Kaur et al, 2012) has done a similar study in context of India and has concluded with the same result.

The main limitation of this paper was absence of pertinent data also our sample size was relatively small compared to other time series studies in other countries. Hence, in order to check the robustness of our findings, we would like to expand our time series data and also disaggregate our variables to discover new causal dimensions in future. So we can conclude from running Granger causality test that FDI has a causal relationship with current account deficit and the nature is unidirectional that is FDI causes current account deficit, not the other way around. Our data was cointegrated.

Even though Bangladesh being fairly small and young country is quite new to foreign direct investment, current account deficit is not that concerning but in future our policy maker must take this causality into account while making policy regarding FDI. As FDI is crucial to economic growth and must be dealt with care. The research question as mentioned in introduction is answered in the paper that is there is a causality between foreign direct investment and current account deficit and it is unidirectional from FDI to CA. Even though there has been a lot of time series and region specific study on

causality between FDI and current account deficit but none on Bangladesh context so this paper moves the body of knowledge in terms of Bangladeshi context.

As for further research, other factor affecting the FDI and CA can be investigated and the extent of their impact. Therefore, as a policy implication that FDI inflows may cause to the deterioration of the balance of payments in the long run should be taken into account when policy makers decide to implement policies to attract foreign investors.

References

- Amin, SB, 2011, 'Quantity Theory of Money and its Applicability: The Case of Bangladesh', *World Review of Business Research*, Vol.1, No. 4, Pp.33-43.
- Akbas, Y., Sancar C Mehmet. S, 2013. Testing for causality between the foreign direct investment, current account deficit, GDP and total credit: Evidence from G7. *Panoeconomicus*, Vol. 60, No. 6, Pp.791-812.
- Bedir, S. & Soydan, A.2016. Implications of FDI for Current Account Balance: A Panel Causality Analysis. *Eurasian Journal of Economics and Finance*, Vol. 4, No. 2, Pp. 58-71
- Debelle, G., & Faruqee, H. 1996. What determines the current account? A cross-sectional and panel approach, IMF Working Paper, No. 58.Washington: International Monetary Fund.
- Guerin, S. 2012 The Relationship between Capital Flows and Current Account: Volatility and Causality, *SSRN Electronic Journal*, Accessible on 10 February, 2017 at: <<https://ssrn.com/abstract=2018195> or <http://dx.doi.org/10.2139/ssrn.2018195>>
- Jaffri, A., Asghar, N.,Alo, M. 2012, Foreign direct investment and current account balance of Pakistan, *Pakistan Economic and Social Review*, Vol. 50, No.2, Pp. 207-222
- Sahoo, M., Babu, S., Dash, U., 2013, Effects of FDI flows on Current Account Balances: Do Globalisation and Institutional Quality Matter?, Working Paper Series, , Indian Institute of Technology Madras, Chennai, India, Accessible on 10 February, 2017 at<<http://www.freit.org/WorkingPapers/Papers/Other/FREIT1000.pdf>>
- Sarode, S. 2012, 'Effects of FDI on Capital Account and GDP: Empirical Evidence from India', *International Journal of Business And Management*, Vol. 7, No. 8, Pp. 102-107
- Shankar, R. & Yadav, S. 2014, Foreign direct investment and current account deficit. *Journal of Advances in Management Research*, Vol. 11, No. 2, Accessible on 10 February, 2017 at<<https://doi.org/10.1108/JAMR-05-2014-0028>>
- Yalta, A. 2012, 'Uncovering the channels through which FDI affects current account: the case of Turkey', *Working Papers 1108*, TOBB University of Economics and Technology, Department of Economics.