An Analysis of Trade and Investment Relationship in SAARC Region

4.1 Introduction

The surge in the volume of world trade and FDI in the last two decades have attracted a debate amongst the researchers and policy makers on the issue of the relationship between these two. The major questions that arise are; how they are related? If related, is the relationship supplementary or complementary to each other? i.e. whether FDI enhances trade or contracts trade? Any relationship between trade and FDI can impact at least three sets of countries. First the investing or source country, second the host or recipient country and finally a third country. From the investing country’s point of view FDI outflow may substitute trade as exports of the country will be replaced by the domestic sales in the host country by the foreign company. At the initial stage, this investment could negatively impact the investing country as the capital, production, employment generated by the investing firm will be shifted to the host country. In addition, the capital flight will also reduce the foreign exchange earnings of the investing country which was earlier coming through export. As against this, FDI outflow can be complementary for the investing country as it will also bring competitiveness in foreign market and also increase export in the form of intermediate goods. In this case final good is produced in the host country and raw materials are supplied by the investing country. Further, the repatriation of the profit to the parent company by its subsidiary in the host country will also enhance the scope for earning foreign exchange.

From the host country’s point of view the relationship between FDI and trade can also have similar impact. When a foreign firm starts its operation in host country it increases the GNP of the nation through domestic production. It procures raw materials from the domestic market and increase competitiveness. The foreign firms also create huge employment and skilled labour in the domestic market. Moreover; it
replaces the import of the host country which in turn reduces its trade deficit and current account deficit. In addition to that, host countries are benefitted from the long run spill over in the form of technology transfer, R & D, job training and advance management skills. However, there are also possibilities of crowding out domestic investment.

The nature of investment and trade also impacts the third county. If a subsidiary of the parent company is located in the third country then it will supply intermediate goods to the host country which in turn increases its export and finally foreign exchange earnings. In other case (in the absence of affiliate of the parent company) it may also import from the host country which it was importing from the parent company earlier and reduce its transportation cost and finally the total import cost. This is applicable if the host country is nearer than source country of investment. This particularly hold true in case of regional market arrangements.

Here it is to be noted that export trade like FDI, is also a form of catering to foreign market. In the initial stage generally a firm caters to the foreign market by exporting into it and when the demand grows there, the firm finds it profitable to expand its operation in the host country instead of producing in one country and selling it in another. ¹ This typically happens in case of horizontal FDI. The major factors that play an important role in this regard are transportation cost, tariff, and non-tariff barriers. The proximity-concentration hypothesis proposes that higher transaction costs resulting from various trade barriers and transportation cost encourage cross-border production expansion and thus, stimulate international investment. ² In this way FDI substitutes exports.

But at the same time the growing fragmentation of production process combined with the development of distribution networks spanning across countries has led to a complementary relationship between trade and FDI. The revolution in the information technology and in the medium of communication has started a new era. This has enabled firms from less developed and transition countries to access foreign markets without making huge investment on advertising and market research. This kind of FDI is generally referred to as vertical FDI. In this case the source counties export the

¹ Vernon (1966) has examined this issue in terms of product life cycle theory
² See Krugman (1983), Brainard (1993)
intermediate goods to the host country which results in increasing trade between them. As the production process of same firm or industry is spanned over more than one country these also increases intra-industry trade.

Even though a large body of literature is available that explains the relationship between trade and FDI, they are inconclusive regarding the relationship. Some studies have reported complementary relationship between these two, while some have advocated supplementary relationship between them. Further some studies were limited to bilateral trade and FDI relation, while others have tried to capture the regional trade and FDI relationship.

It is also pertinent to note that, researchers have paid very little attention to address this issue in case of SAARC region. It is in this context that the main objective of this chapter is to investigate the nature of relationship between international trade and FDI with the countries in SAARC region. The relationship will be analysed intra-regional as well as for each of the individual countries.

The rest of the chapter is organised as follows. The section 4.1 provides the review of the existing empirical literature on the subject. In section 4.2, the trade and investment flows in SAARC countries are presented. In section 4.3, the sources of data are presented. This section also outlines the empirical model for examining the relationship between trade and FDI. The final section 4.5 concludes the chapter.

4.2 Review of Literature

One of the first such studies which have examined the trade and FDI linkages was conducted by Lin (1995). He studied the trade effect of the FDI on Taiwan and four ASEAN (i.e. Indonesia, Malaysia, Philippines, and Thailand) countries. Lin estimated the effect of Taiwan's outward FDI in a host country on export to and imports from the host country and the trade effect of inward FDI from that country. The analysis was based on time series data for the period 1972-1992. The study

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5 ASEAN countries consist of Indonesia, Malaysia, Philippines, Thailand, Cambodia, Singapore, Laos, Vietnam Brunei and Myanmar
argued that inward FDI from all the four ASEAN countries to Taiwan was market seeking and not export oriented. The study finds a significant positive effect of outward FDI on export while inward FDI has no such effect on Taiwan's import from the home country.

In another study Pfaffermayr (1996) explored the relationship between outward FDI and export of manufacturing sector in Austrian economy. The study used time series cross section data for 7 industries of Austrian manufacturing sector. The time period covered by the study was from 1981 to 1991. The results of the study provided evidence of a significant and stable complementary relationship between foreign direct investments in case of Austrian economy. The causal relationships between the indicators at both the directions were also established in the study. The study argued that R&D intensity affects both foreign direct investment and exports positively. The study also argued that labour intensity determines FDI positively, whereas exports depend positively on capital intensity.

Stone and Jeon (2000) analysed the relationship between FDI and trade in the Asia Pacific region during the time period starting from 1970 to 1994. The study used gravity model analysis for the estimation of the result. The study found a positive and complementary relationship between trade and FDI. The study argued that FDI enhances the bilateral trade flows. The study established that higher income countries are more prone to specialize in trade compared to lower per capita income countries.

Clausing (2000) studied the relationship between trade and FDI for US MNEs. The study was based on two groups of panel data for the period 1977-1994. The first data set covered information about the operations of American MNEs in 29 different host countries and data about American exports to them. The main aim of this data set was to find out relationship between FDI and export. The second data set replaced the export by import of the first data set with the aim to analyze the import and FDI relation. The study found that FDI positively influences trade. A robust complementary relation also exists between intra-firm trade and FDI and a weaker complementary relationship exists between inter-firm trade and FDI.

Marchant et al. (2002) studied the trade and investment relationship in case of US processed food exports to East Asian countries. The study used data from 1989 to 1998 and followed SIC code 20. The study finds a bidirectional complementary
relationship between FDI inflows and exports from US to the East Asian countries. The estimation of the study finds that interest rates were negatively influenced by US FDI inflows in East Asian Countries.

Chaisrisawatsuk and Chaisrisawatsuk (2007) investigated the bi-directional effects between international trade and investment. The study covered 29 OECD countries and 6 ASEAN nations. The time period considered in the study was from 1980 to 2004. The study also employed gravity model approach to investigate the relationship between international trade and foreign investment. The study argued that greater the international trade between countries, the higher level of FDI it generates and vice versa. The estimation results of the study finds that with one percentage increase in trade can lead to 1.21% increase in FDI inflows. The study argued since trade liberalization is welfare improving, FDI induced by trade expansion would also improve social welfare.

Hailu (2010) analyzed the relationship between FDI and trade balance of 16 African countries. The time period covered in the study was from 1980 to 2007. The study applied Random Effect technique and the Least Square Dummy Variable (LSDV) regression method on the panel form of data for the analysis. The study finds Multi-National Enterprises (MNEs) in Sub Saharan Africa are not just export-oriented but also import dependent. The study established positive relation for both export and import with FDI in the African region.

The above studies have established a close positive link between international trade and investment. As opposed to this, other studies have come to the conclusion that FDI and trade are substitute for one another.

Gopinath, Pick and Vasavada (1997) studied the trade and FDI relationship for ten developed countries with the time period covering 1982 -1994. The study found supplementary relationship between foreign sale and FDI. The study found most of the FDI are tariff jumping in nature.

In a similar study Belderbos and Sleuwaegen (1998) also found that Japanese FDI in European countries were tariff jumping in nature and thus substitutes the export. The study covered the electronic industry of Japan for the time period from 1980 to 1995.
National Board of Trade (2008) conducted firm level analysis for the Swedish multinational firms and their trade and FDI activities. The reference period for the study was from 1980 to 2005. The study used three-country model of FDI with heterogeneous firms, built on Norbäck, Urban and Westerberg (2007). The study showed that with the growing world economy both the Swedish exports as well as the foreign direct investments have increased. The study found that, world income growth promote platform for FDI, in terms of affiliate exports to third countries, more than the Swedish firm exports, in relative terms. That is, as the world economy grows firms may opt to supply foreign markets through FDI instead of exports in relative terms and thus it substitute the trade.

Some studies have also found both the relationship at the same time. For instance, Connor and Salin (1997) studied trade and FDI behaviour of food processing firms in USA. The study covered five major firms of the food processing industry. The time period covered by the study was from 1978- 1993. The study categorised the export and FDI of these firms into three distinct phases. In the first phase the firms caters to overseas market by export. In the second phase, they adopt FDI but at a relatively low level. In the final stage the firms adopt substitution strategy at higher level of FDI. In other words more intense FDI activities are undertaken. The study found both complementary and supplementary relationship between trade and FDI.

Similarly, Amiti et. al. (2000) studied the trade and FDI relationship in US with its 25 major trading partners. The study was conducted covering the time period of 1983 - 1994. The study established both complementary and supplementary relationship between trade and FDI. The results of the study indicate that horizontal FDI is more likely to dominate when two countries are similar in terms of relative skill endowments and size, and trade costs between them are moderate to high and hence FDI and trade are substitutes. Whereas vertical FDI is likely to dominate when countries differ in terms of relative skill endowments and size, and trade costs are low and hence FDI and trade are complements. Thus, it is clear from the studies reviewed above that the relationship between trade and FDI are inconclusive. Further, very few studies have been conducted for the SAARC countries as a whole or even for any member country. It is this lacuna the current chapter is has attempted to bridge. In the next section, the trade and investment flows in SAARC region are presented.
4.3 Trade and Investment Flows in SAARC Region

South Asian countries have been immensely benefitted from their trade and investment policy liberalisation process. The vast and advance global production network of the MNCs investing in the region has helped them to expand their exports.\(^6\) Foreign affiliates establishing export-oriented production bases in the region have also helped them to earn huge amount of foreign exchange. Garment sector in Bangladesh, Rubber goods in Sri Lanka and automobile sector in India have attracted huge amount of FDI in this regard. However, bulk FDI inflow in the region has been market seeking due to its large consumer base. Another main objective of the foreign investors in the region was to tap the abundant amount of natural resources and skilled labour at low wages. The domestic production of the MNCs has also helped the region to curb their import to a large extent. The value of both trade and investment has increased in the region during the last few years. This is evident from Table 4.1.

Table 4.1 Trade and Investment in SAARC Region
(In Bill US$)

<table>
<thead>
<tr>
<th>Year</th>
<th>FDI Inflow</th>
<th>Trade (X+M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>4.7</td>
<td>145.2</td>
</tr>
<tr>
<td>2001</td>
<td>6.4</td>
<td>142.2</td>
</tr>
<tr>
<td>2002</td>
<td>7.0</td>
<td>153.0</td>
</tr>
<tr>
<td>2003</td>
<td>5.5</td>
<td>183.7</td>
</tr>
<tr>
<td>2004</td>
<td>7.8</td>
<td>239.6</td>
</tr>
<tr>
<td>2005</td>
<td>11.3</td>
<td>314.8</td>
</tr>
<tr>
<td>2006</td>
<td>26.3</td>
<td>381.3</td>
</tr>
<tr>
<td>2007</td>
<td>32.5</td>
<td>462.5</td>
</tr>
<tr>
<td>2008</td>
<td>54.7</td>
<td>626.3</td>
</tr>
<tr>
<td>2009</td>
<td>39.4</td>
<td>533.0</td>
</tr>
<tr>
<td>2010</td>
<td>25.1</td>
<td>688.2</td>
</tr>
<tr>
<td>2011</td>
<td>40.1</td>
<td>888.7</td>
</tr>
<tr>
<td>2012</td>
<td>28.6</td>
<td>866.5</td>
</tr>
</tbody>
</table>

Source: Authors calculation based on UNCTAD data

Table 4.1 reveals the both trade and FDI have increased tremendously during the 2000-2012 period in the South Asian region. The data reveals a constant growth in both the indicators up to 2008 while a fluctuating trend was noticed after that. The amounts of the FDI inflows were very low as compare to the total trade value. However, the value of the FDI inflows which was only $4.7 billion in the year 2000

has increased to more than $28 billion in 2012. It is important to note that highest amount of foreign investment inflow in the region was in the year 2008. But after that a fluctuating trend was noticed in this regard as noted earlier. The global economic meltdown was one of the main reasons behind it, and it was reflected not only in the South Asian economy but also on other regions.

The intraregional flows of FDI are very limited in the SAARC region. Different policy measures have taken place to encourage the trade and investment in the region. Creation of SAPTA and then superseding it by SAFTA is a major step in this process. But it has made a very little impact in the performance of the trade and investment flows. From the available data, India emerges as the major investing country in the region. It is the only country in the region which has invested in all other countries in the region. Table 4.2 details about the intraregional FDI flows in South Asia.

<table>
<thead>
<tr>
<th>Table 4.2 Intra-Regional FDI Inflows in SAARC Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>India</strong></td>
</tr>
<tr>
<td><strong>2007-08</strong></td>
</tr>
<tr>
<td>India</td>
</tr>
<tr>
<td>Bangladesh</td>
</tr>
<tr>
<td>Nepal</td>
</tr>
<tr>
<td>Sri Lanka</td>
</tr>
<tr>
<td>Maldives</td>
</tr>
<tr>
<td>Pakistan</td>
</tr>
<tr>
<td>Bhutan</td>
</tr>
<tr>
<td><strong>Total World Inflows to Individual country</strong></td>
</tr>
</tbody>
</table>

**Sources:** Authors calculation based on data collected from Board of Investment (BOI): Bangladesh, Sri Lanka, Pakistan, SIA: India; Department of Industries (DOI) Nepal, Note – Nepal data are in Mil Nepali Rs

The Table 4.2 reflects the intra-regional FDI inflows in SAARC countries from 2007 to 2012. The data for outward FDI from Maldives, Pakistan, and Bhutan were not available so we had to restrict our analysis for the remaining countries only. As the available data were not in common currency units we were unable to compare them.

Table 4.2 suggests that intra-regional FDI inflows with SAARC countries haven’t witnessed any significant movement or rise. Major economies like India, Sri Lanka, and Nepal have received some amount of inflows though in absolute value they are quite meagre. India has received substantial amount of investment from Sri Lanka and Bhutan during 2007-08. Nepal received maximum amount of 2341 million Nepali Rs of inflows during 2008-09 which further increased to Nepali Rs 3993 million during
2009-10 and subsequently in 2010-2011. FDI inflows into Nepal were predominantly driven by Indian investments. Sri Lanka also received FDI inflows from India during this period which was to the tune of $ 78 million. Bangladesh has also invested in Nepal during 2009-10 to the tune of $100 million. Among the SAARC countries India has received maximum FDI inflows from the world during 2007-08 which has declined during 2009-10 to $19, 427 million from $ 24,575 during 2007-08.

During the last four to five years Nepal, Sri Lanka and Bangladesh have received the maximum FDI inflows from SAARC countries. Nepal has registered around 44 per cent of India’s investment and about 45 per cent of South Asian share during 2008-09 and 2009-10. Similarly Sri Lanka has increased its South Asian share from 19.4 to 29.13 from 2009 to 2010. Bangladesh has witnessed a dramatic increase in its South Asian share from 0.70 in 2006 to 15.41 in 2010. Whereas India is a major investor in the region has occupied a much smaller share of 1.12 in 2007-08 which has further declined to 0.5 in 2009-10. Being an important economy, its share has fallen so dramatically explain possibly the reason that India has invested elsewhere during this period than South Asia. In Table 4.3 the intra-regional trade among SAARC countries has been presented.

| Table 4.3 Intra regional Trade among SAARC countries in 2012 (Mil US$) |
|--------------------|----------------|----------------|-------------|----------------|----------------|----------------|----------------|
| India              | 0.00           | 340.03         | 129.32      | 2894.45       | 2133.68        | 4478.57        | 555.37         | 5503.98        |
| Bhutan             | 915.58         | 0.00           | 0.00        | 3.76           | 0.00           | 0.04           | 13.19          |
| Maldives           | 144.33         | 0.00           | 0.00        | 0.01           | 5.47           | 88.68          | 0.93           |
| Nepal              | 4366.06        | 5.87           | 0.03        | 0.00           | 6.74           | 1.21           | 0.12           | 45.42          |
| Pakistan           | 1879.83        | 0.13           | 5.48        | 3.26           | 0.00           | 408.84         | 2855.92        | 1029.43        |
| Sri Lanka          | 4870.49        | 0.11           | 75.70       | 0.95           | 410.43         | 0.00           | 3.08           | 70.66          |

*Source:* Authors calculation based on UN COMTRADE (WITS) data

Even after the creation of SAPTA in 1995 and superseding it by SAFTA in 2006 the intraregional trade flow among the South Asian countries are still very low or negligible. As per estimation, only 4 per cent of the total trade of South Asia is directed towards the region (Moazzem 2013). This may be because of the disparities in the market size, different consumption basket among the countries. The similarities in the goods produced in the region also may be a reason behind it. For example both  

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7 Moazzem Khondaker, G (2013) *Regional Investment Cooperation in South Asia: Policy Issues* Commonwealth Secretariat
India and Bangladesh are major producers of rice; both India and Sri Lanka are major producers of tea. India, Sri Lanka, Bangladesh, Pakistan all produce substantial amount of garment products. However, the total production process is fragmented among these countries. Thus, we cannot expect to go beyond certain potential and create higher intra-regional trade. The trade pattern among the SAARC nations is also much skewed. For instance Nepal and Sri Lanka import around 46 per cent and 16 of their imports from India respectively in the year 2010.8 Huge amount of informal trade among the member countries is a major hindrance to increase intraregional trade in the region. According to Chaudhari (1995), India’s total informal exports and imports in 1992-93 were about $299 million and $14 million respectively. In the same year, official exports and imports were about $349 million and $8 million respectively. The total value of the unrecorded import from India by Bangladesh in 2002-03, estimated by World Bank was more than $500 million. This was around 42 per cent of Bangladesh’s recorded imports from India, or about 30 per cent of total imports (recorded plus smuggled) in the same year (World Bank, 2006).9 Paper products, Sanitary wares, rice are some the major imported (illegally) goods from India.

As per Khan et.al. (2007) the total value of the informal trade between India and Pakistan in 2005 was around $545 million. Of which Pakistan’s imports from India was estimated to be around $535 million and exports to India $10.4 million.10 Cloth, tyres, pharmaceuticals, textile machinery, cosmetics, livestock are majorly traded goods between these two countries. The political difference between India and Pakistan also poses a major threat in encouraging trade in the region. In case of Nepal the amount of India’s informal trade was around 10 times of the legal trade.11

The data shows in the Table 4.3 reveals that India is the biggest trading country in the region and it is followed by Pakistan. Among all the countries in the region India’s biggest trading partner is Bangladesh with more than $5503 million in 2012, while Sri

11 See Muni S.D. (1992)
Lanka is second with more than $4478 million in the same year. The least amount of trade value in case of India was captured for Maldives and Bhutan. In case of Bhutan also India is found to be the biggest trading partner in the region. Interestingly, same is also true for all other SAARC member countries except Pakistan. For Pakistan, Afghanistan stood top in the list of major trading partner in the region and India stood second.

Having discussed intra-regional trade and investment flows among SAARC group of countries, in the next section the sources of data and the methodology used to examine the relationship has been elaborated upon.

4.4 The Econometric Methodology

4.4.1 Data Sources

We have used various sources for the collection of the data. The study used both country specific and international sources for the data requirements. The details of the sources for different variables for different countries are as below.

In case of Bangladesh, FDI inflow data was collected from Board of Investment publication “Foreign Direct Investment in Bangladesh (1971-2010)” up to 2010. And for 2011 and 2012 data was extracted from another research publication Fluctuation of FDI Inflow in Bangladesh-Obstacles and Potentials: An Issue of Policy Failure. We use the online website of State Bank of Pakistan (Central Bank) for the collection of FDI inflow data for Pakistan. The Board of Investment, Sri Lanka provided the same data in case of Sri Lanka. We also use the Annual Reports of Sri Lankan Central Bank. Secretariat for Industrial Assistance (SIA) News Letter of Department of Industrial Policy and Promotion, Ministry of Commerce, Government of India, was referred for collection of FDI inflow data in case of India. Various issues of Industrial Statistics, of Department of Industry, Government of Nepal were referred in case of collecting data for FDI inflows in Nepal. UNCTAD publication Foreign Direct investment in LDCs was also used for filling up the missing data in case of Nepal.

GDP and Exchange rate data for all the selected countries were extracted from UN Statistics website. For border and language data, the websites of the concerned
countries were used. The data on distance was collected from Macalester college website. Export and import data for all the selected countries were collected from UN COMTRADE, accessed from the World Integrated Trade Solution (WITS) online database.

4.4.2 The Model

As mentioned earlier in the chapter, the objective of the study is to estimate the relationship between FDI and trade in SAARC countries. In order to estimate the relationship, the gravity model has been applied. It was Carey in 1860, who first used the Newton's law of universal gravitation in the field of social sciences. Subsequently, the gravity equation or model got wide acceptance in the social and behaviour sciences research. The model envisages that trade between two nations depends positively on the size of their economies while negatively on their distance. The size of the economy is measured in terms of GDP and population of the trading nations. The distinctive feature of the gravity model is its distance variable, which measures geographical or cultural proximity between the two trading nations. The other distinctive parameters of the model are dummy variables, such as common official language, border, common colonial ties, country's sea access etc.

Following Carey, wide range of research studies was conducted in the area international trade. Tinbergen (1962) used a simple form of gravity model of bilateral trade in estimating bilateral trade flows. The gravity model has also been applied to flows of people and capital (direct and indirect). Anderson (1979) explored the gravity equation model assuming product differentiation. Bergstrand (1985) analysed the theoretical determination of bilateral trade associates in gravity equations with simple monopolistic competition models. In the last two decades the model has also been used to analyse various aspects of FDI (Brainard, 1997; Deardorff 1997, Braconier, Norbäck, & Urban, 2005; Bergstrand et al., 2008).

In our analysis, we have used panel data of SAARC countries during 2000-2012. The panel data generally addresses the presence of heterogeneity in individual firms, sectors or countries. The panel data detect and measure effects that may not be observed in time series or cross section data. The panel data can be analysed using
two regression technique i.e., Fixed Effect model and Random Effect model. In the fixed effect estimation, we assume that the individual specific effect is correlated with the independent variables while in the random effect estimator; the individual specific effects are uncorrelated with the independent variables. In the current analysis, we apply both fixed and random effect estimator. However, we find that in our method of enquiry, the appropriate technique would be random effect model. The Random effects model allows us to estimate the shrunken residuals; and provides us the possibility of accounting for differentia effectiveness through the use of random coefficients models.

In the empirical estimation, two distinct modified gravity equation for exports and imports variable are used. We have developed a two-way (s) model in order to capture the time period and specific country effect. Three countries Bhutan, Afghanistan, and Maldives have not been considered for analysis due to lack of data. The analysis is carried out for the top 5 investing and trading partners of the selected SAARC countries.

The modified gravity equation for SAARC countries is given in equation (1). The model explicitly incorporate the determinant of trade (exports/imports) by FDI and other characteristics such as GDP, exchange rate, border and distance factors.

\[
EX_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GDP_{it} + \beta_3 ER_{it} + \beta_4 Border_{it} + \beta_5 dist_{it} + \mu_i + \epsilon_{it} - - - - - - (1)
\]

\[
IM_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GDP_{it} + \beta_3 ER_{it} + \beta_4 Border_{it} + \beta_5 dist_{it} + \mu_i + \epsilon_{it} - - - - - - (2)
\]

Here,
- \( t \) = time period from 1....T(i.e., 2000-2012)
- \( i \) = countries from \( i,..., N \)
- \( EX_i \) = the export of the country \( i \) to SAARC member countries.
- \( IM_i \) = the import of the country \( i \) from SAARC member countries.
- \( FDI_i \) = the FDI inflow from the country \( i \) to SAARC member countries
- \( GDP_i \) = the GDP of country \( i \)
- \( ER_i \) = the Exchange rate of country \( i \)
- \( Border_i \) = dummy variable for the common border between country \( i \) and SAARC member countries
- \( dist_i \) = Distance between country \( i \) and SAARC member countries
\[ \mu_t = \text{unobservable individual effects} \]
\[ \varepsilon_{it} = \text{Error term} \]

The current study assumes export and import of the SAARC member countries as dependent variables. FDI inflows from selected countries, GDP and exchange rate of the investing countries are chosen as the independent variables. Common border with investing countries, common language with investing countries are also considered as independent dummy variable in the model. The variables that are expected to determine FDI flows are carefully chosen based on previous literature and availability of dataset for the selected period. The model converted the values of all the variables into log, with the exception of distance, exchange rate and dummy variables. The details regarding the data sources and the construction of variable are explained briefly in the following section.

### 4.4.3 Variable Construction Approach

The present study conducted a rigorous exercise to select the top investing countries in the SAARC region. First, we collected data on FDI inflows in all the SAARC countries from different source countries for the period from 2000 to 2012. Then we calculate the average of the inflows for each member country from various source countries. Finally, the average values were sorted on descending order and top five investing countries were selected for each of the SAARC member nations for further analysis. Here it is to be noted that the share of these top five countries in the total investment of the host country was more than 70 per cent in all the cases. However, due to lack of availability of the proper data (continuous and source country wise) the study dropped three countries of the SAARC region.

In case of dependent variable data were not directly available on COMTRADE i.e. reporter countries had not reported export figures (FOB), so we had to rely on the import figures (CIF) of the partner countries. The CIF values were adjusted into FOB values by subtracting 10 per cent, as the standard difference between FOB and CIF are 10 per cent.\(^\text{12}\) The Harmonised System (HS) nomenclature of 1996 was used for the trade data. The exercise was carried out in case of Bangladesh's export figures

\(^{12}\) See IIFT (2009)
from 2007 to 2012, for Pakistan’s and Sri Lanka’s export it was for 2009 and 2012. For Nepal export it was for 2008 and 2012.

The FDI inflow data for all countries was available in US$ terms except for Nepal. Thus, the data of Nepal was converted into US $ using the Nepalese exchange rate with US $ for the relevant year. FDI data of Bangladesh was divided into Joint venture and 100 per cent equity. Therefore, to obtain the total FDI flows to Bangladesh these two sources were added. We assume the value one (1) for positive common border and common language and zero (0) for negative common border and common language.

### 4.4.4 Estimation Results

**Bangladesh Export**  
Dependent Variable: LNEX  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 5  
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNDST</td>
<td>1.281481</td>
<td>0.291898</td>
<td>4.390168</td>
<td>0.0000</td>
</tr>
<tr>
<td>ER</td>
<td>-2.225792</td>
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<td>LNGDP</td>
<td>0.864410</td>
<td>0.134087</td>
<td>6.446632</td>
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<td>BORDER</td>
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<td>0.366079</td>
<td>5.332405</td>
<td>0.0000</td>
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<tr>
<td>C</td>
<td>-16.49260</td>
<td>2.468804</td>
<td>-6.680400</td>
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</table>

| R-squared | 0.834488 Mean dependent var | 5.757428 |
| Adjusted R-squared | 0.820461 S.D. dependent var | 1.766142 |
| S.E. of regression | 0.748350 Akaike info criterion | 2.345873 |
| Sum squared resid | 33.04162 Schwarz criterion | 2.546586 |
| Log likelihood | -70.24088 Hannan-Quinn criter. | 2.425067 |
| F-statistic | 59.49385 Durbin-Watson stat | 0.698338 |
| Prob(F-statistic) | 0.000000 |

The empirical results obtained from panel OLS regression pertaining to export of Bangladesh explain 83% ($R^2$) variation in the model. Thus, the explanatory variables included in the equation explain 83% of variation in the dependent variable. The F statistics is 59.49, and the probability of F statistics is 0.0000 which shows that the
results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, FDI, GDP, Exchange Rate, and Border are statistically significant and have expected sign except distance. Distance is positively related to export in Bangladesh. This means greater the distance, higher was the export from Bangladesh. From this it may be concluded that in case of Bangladesh, the proposition of the gravity model that closer the countries, higher are the trade between them does not apply. It is possible that the distance and export are directly related because 80 per cent of Bangladesh export consists of garments and a large part of these exports goes to USA and EU. For instance in the year 2009-2010, Bangladesh exported $4888 million of garments to these two destinations which were 30 per cent of their total export. As expected, Exchange Rate is negatively related to export. GDP is positively related to export which means higher production of goods and services increases the export from Bangladesh. Border is positively related Bangladesh exports. The total export of Bangladesh to SAARC countries was $421 million, which was almost 72 per cent is to India. The possible reason for this may be the cultural similarities, same consumption pattern, common language etc.

Bangladesh’s Import

Dependent Variable: LNIM
Method: Panel Least Squares
Sample: 2000 2012
Periods included: 13
Cross-sections included: 5
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNDST</td>
<td>-2.504300</td>
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<td>ER</td>
<td>-0.227773</td>
<td>0.593826</td>
<td>-0.383569</td>
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<td>LNFDI</td>
<td>0.048163</td>
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<td>1.243541</td>
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<td>LNGDP</td>
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<td>0.0000</td>
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</tbody>
</table>

R-squared 0.890719 Mean dependent var 6.595698
Adjusted R-squared 0.881458 S.D. dependent var 1.164217
S.E. of regression 0.400840 Akaike info criterion 1.097256
Sum squared resid 9.479679 Schwarz criterion 1.297968
The result also shows that FDI has positively impacted the export from Bangladesh. Relating the theory of Investment with the above results it can be concluded that most of the FDI flows in the Bangladesh economy were in vertical nature. The theory of investment suggests that vertical FDI leads to higher export if the raw material is produced in the host country. Against this, if finished goods are produced in the host country than the import of the host country increases. In either case vertical FDI leads to enhancement in the total trade. Being a small and less developed economy, Bangladesh has been able to attract more vertical form of FDI than horizontal. And higher amount of vertical FDI has thus complemented the Export from Bangladesh.

The empirical results obtained from panel OLS regression for import of Bangladesh shows that regression explains 89% ($R^2$) variation in the model. Thus, the explanatory variables included in the equation explain 89% of variation in the dependent variable. The F statistics is 96.17, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on Import is rejected. The results explain that distance, GDP, FDI, exchange rate are statistically significant and has expected sign except border. Distance is negatively related to import from Bangladesh means greater distance decreases import from Bangladesh. GDP is positively related to import means higher production of goods and services increases import from Bangladesh. FDI is positively related which means it has increased import of Bangladesh. Exchange Rate is negatively related to import means higher exchange rate decreases import from Bangladesh. In case of Bangladesh FDI has flown mostly to industries which cater to foreign market e.g. garment industry. In the year 2012 around 70 per cent of the raw materials used in this sector were imported. This sector gets most of its raw materials from abroad. Border is negatively related in case of import from Bangladesh. Bangladesh has imported more from the distant countries than the neighbouring ones like India or China. In the year 2012, USA and EU were the top importing partners of Bangladesh.

**India’s Export**
Dependent Variable: LNEX  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 5  
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNDST</td>
<td>0.689372</td>
<td>0.293943</td>
<td>2.345260</td>
<td>0.0223</td>
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<tr>
<td>ER</td>
<td>0.452450</td>
<td>0.676974</td>
<td>0.668341</td>
<td>0.5065</td>
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<tr>
<td>LNFDI</td>
<td>0.210272</td>
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<td>LNGDP</td>
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<td>C</td>
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</table>

R-squared 0.862984  Mean dependent var 7.934712  
Adjusted R-squared 0.853850  S.D. dependent var 1.387977  
S.E. of regression 0.530618  Akaike info criterion 1.644255  
Sum squared resid 16.89334  Schwarz criterion 1.811516  
Log likelihood -48.43830  Hannan-Quinn criterion 1.710250  
F-statistic 94.47636  Durbin-Watson stat 0.456411  
Prob(F-statistic) 0.000000

The regression model for export of India explains 86 per cent variation. The results of the regression indicate that dependent variables included in the model explain 86 per cent of variation in the dependent variable. The F statistics is 94.47, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, GDP, FDI, and Border are statistically significant and have expected sign except border, distance and exchange rate. Distance is negatively related to export from India means greater the distance higher the export from India. Here, the results shows positive relationship between export and distance i.e. greater the distance higher is the trade. Most of the FDI inflows in India were from distant countries like USA, UK, and Netherlands etc. The countries like USA, UAE, UK were also the major trading partners of India in the year 2012. GDP is positively related to export means higher production of goods and services increases export from India. FDI is positively related which confirms that higher inflow of FDI has helped India to increase its export. The common border or nearer destinations have not played any important role in India’s trade and FDI.
Exchange Rate is positively related to export means higher exchange rate increases export from India. It is possible that most of the export items of India are not sensitive to the fluctuation in the exchange rate.

Thus, from the above it can be asserted that in case of India the gravity model is not applicable. Complementary relationship was also found between of export and FDI.

**India’s Import**

Dependent Variable: LNIM
Method: Panel Least Squares
Sample: 2000 2012
Periods included: 13
Cross-sections included: 5
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
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<tbody>
<tr>
<td>LNDST</td>
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<td>14.26942</td>
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<td>4.173606</td>
<td>0.0001</td>
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</table>

R-squared 0.901770 Mean dependent var 7.272004
Adjusted R-squared 0.895221 S.D. dependent var 2.585724
S.E. of regression 0.836988 Akaike info criterion 2.555791
Sum squared resid 42.03298 Schwarz criterion 2.723051
Log likelihood -78.06319 Hannan-Quinn criter. 2.621786
F-statistic 137.7023 Durbin-Watson stat 0.186372
Prob(F-statistic) 0.000000 7.272004

The empirical results obtained from panel OLS regression in case of import from India shows that regression explains 90% ($R^2$) variation in the model. Thus, the explanatory variables included in the equation explain 90% of variation in the dependent variable. The F statistics is 137.70 and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on Import is rejected. The results explain that distance, Border, GDP, and FDI are statistically significant and have
expected sign. Distance is positively related to import from India means greater distance reduces import from India. Here the proposition of the gravity model was verified. GDP is positively related to import means higher production of goods and services increases import from India. The relationship between import and FDI in India was found to be complementary. Exchange Rate is negatively related to import means higher exchange rate decreases import from India.

**Nepal’s Export**

Dependent Variable: LNEX  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 6  
Total panel (balanced) observations: 78

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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</thead>
<tbody>
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<tr>
<td>LNGDP</td>
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<td>8.465617</td>
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R-squared   0.788584 Mean dependent var 2.931906  
Adjusted R-squared 0.773903 S.D. dependent var 2.141235  
S.E. of regression 1.018150 Akaike info criterion 2.947656  
Sum squared resid 74.63736 Schwarz criterion 3.128941  
Log likelihood -108.9586 Hannan-Quinn criter. 3.020227  
F-statistic 53.71229 Durbin-Watson stat 0.772838  
Prob(F-statistic) 0.000000

The result of the estimation for export of Nepal shows 78 per cent variation in the model. This means that the independent variables included in the model explain 78 per cent of variation in the dependent variable. Here the F statistics found 53.71, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, exchange rate, GDP, Border are statistically significant and has expected sign except border. Distance is negatively related to export from Nepal means greater distance reduces export from Nepal. The result of Nepal has also verified the assumption of the gravity model. Most of the
exporting goods of Nepal like handicrafts, processed foods are demanded in countries like UAE Japan etc. Exchange Rate is negatively related to export means higher exchange rate decreases export from Nepal. GDP is positively related to export means higher production of goods and services increases export from Nepal. The relationship between export and FDI in Nepal was found to be complementary. Following the theory it can be mentioned that being a less developed and very small economy in size Nepal has attracted more vertical FDI which has complemented the export from Nepal.

### Nepal’s Import

Dependent Variable: LNIM  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 6  
Total panel (balanced) observations: 78

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNDST</td>
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<td>LNFDI</td>
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<td>0.2214</td>
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<tr>
<td>LNGDP</td>
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<td>4.498470</td>
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<td>2.129667</td>
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<td>C</td>
<td>-1.559179</td>
<td>2.200150</td>
<td>-0.708669</td>
<td>0.4808</td>
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</tbody>
</table>

R-squared: 0.801208  
Mean dependent var: 3.804187  
Adjusted R-squared: 0.787403  
S.D. dependent var: 2.555859  
Akaike info criterion: 3.240098  
Schwarz criterion: 3.421383  
Log likelihood: -120.3638  
Durbin-Watson stat: 0.872582

The empirical results in case of import from Nepal show 80% variation in the model. This result indicates that the explanatory variables included in the equation explain 80% of variation in the dependent variable. The F statistics is 58.03 and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on Import is rejected. The results explain that distance, GDP, are statistically significant and have expected sign except exchange rate. Distance is negatively related to import
from Nepal means greater distance reduces import from Nepal. GDP is positively related to import means higher production of goods and services increases import from Nepal. Closer border increases import from Nepal. Exchange Rate is positively related to import means higher exchange rate increases import to Nepal. This reflects that Nepal import those goods which are less sensitive to changes in the exchange rate.

Similar to export, import from Nepal has also found in accordance to the assumption of gravity model. Nepal has received more FDI the nearer destinations. Higher level of vertical FDI inflows in Nepal has complemented import from Nepal. Various incentives given to the export oriented FDI in the form of tax holidays, subsidised land etc. have also played positive role in attracting vertical FDI in Nepal.

**Pakistan’s Export**

Dependent Variable: LNEX  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 6  
Total panel (balanced) observations: 78

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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</thead>
<tbody>
<tr>
<td>LNDST</td>
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<td>LNFDI</td>
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<td>LNGDP</td>
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<td>C</td>
<td>-6.189967</td>
<td>1.785131</td>
<td>-3.467514</td>
<td>0.0009</td>
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</tbody>
</table>

R-squared: 0.809928  
Adjusted R-squared: 0.799513  
S.E. of regression: 0.725493  
Sum squared resid: 38.42278  
Log likelihood: -83.06294  
F-statistic: 77.76625  
Prob(F-statistic): 0.000000

The result of the estimation for export of Pakistan shows 80 per cent variation in the model. This means that the independent variables included in the model explain 80 per cent of variation in the dependent variable. Here the F statistics found 77.77, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, exchange rate, GDP, Border are statistically significant all the variables have showed unexpected signs except GDP.
and FDI. Distance is positively related to export from Pakistan means greater distance increases export from Pakistan. Here it is opposed to the assumption of Gravity model. As the export basket of Pakistan is similar to the other neighbouring countries in the region it has to find market for its produce in the distant location. For example India, Bangladesh both produce huge amount of garments to supply in the foreign market. Exchange Rate is positively related to export means higher exchange rate increases export from Pakistan. This suggests that exporting items of Pakistan are not very sensitive to the changes in the exchange rate. The major exports of Pakistan are raw cotton, yarn, garments etc. GDP is positively related to export means higher production of goods and services increases export from Pakistan. The positive sign of FDI has confirmed the complementary relationship between export and FDI. Higher FDI inflow has enabled Pakistan to export more.

**Pakistan’s Import**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
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<td>LNFDI</td>
<td>0.092462</td>
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<td>LNGDP</td>
<td>1.125126</td>
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<td>15.54534</td>
<td>1.609693</td>
<td>9.657330</td>
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R-squared 0.944905 Mean dependent var 4.941502
Adjusted R-squared 0.941866 S.D. dependent var 2.713719
S.E. of regression 0.654193 Akaike info criterion 2.051127
Sum squared resid 31.24171 Schwarz criterion 2.202198
Log likelihood -74.99397 Hannan-Quinn criter. 2.111604
F-statistic 312.9943 Durbin-Watson stat 1.283016
Prob (F-statistic) 0.000000

23
The empirical results obtained from panel OLS regression regarding import from Pakistan shows that regression model explain 94% variation in the model. This result indicates that the explanatory variables included in the equation explain 94% of variation in the dependent variable. The F statistics is 312.99, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, GDP, Border are not statistically significant and have expected sign except exchange rate. Distance is negatively related to import from Pakistan means greater distance reduces import from Pakistan. The assumption of the gravity model holds true in this case. GDP is positively related to import means higher production of goods and services increases import from Pakistan. Closer border increases import to Pakistan. Exchange Rate is positively related to import means higher exchange rate increases import from Pakistan. Like export importing goods of Pakistan are also not sensitive to fluctuation in the exchange rate. The import items are crude oil, machinery, chemicals etc. The relationship between import and FDI are found complementary in this case.

**Sri Lanka’s Export**

Dependent Variable: LNEX  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 5  
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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<td>6.271041</td>
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</table>

R-squared 0.902024 Mean dependent var 3.313846  
Adjusted R-squared 0.893721 S.D. dependent var 3.474738  
S.E. of regression 1.132779 Akaike info criterion 3.174990  
Sum squared resid 75.70810 Schwarz criterion 3.375703
The result of the estimation for export of Sri Lanka depicts 90 per cent variation in the model. This means that the independent variables included in the model explain 90 per cent of variation in the dependent variable. Here the F statistics found 108.63, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on export is rejected. The results explain that distance, GDP, Border are statistically significant and has expected sign except border and FDI. Distance is negatively related to export from Sri Lanka means greater distance reduces export from Sri Lanka. The result has confirmed the assumption of gravity model. The major exporting item of Sri Lanka e.g. tea, garments are mainly sold in Russia, EU, UAE. In 2010 these three destinations accounted for about 62 per cent of the total export of Sri Lanka. GDP is positively related to export means higher production of goods and services increases export from Sri Lanka. Exchange Rate is negatively related to export means higher exchange rate decreases import from Sri Lanka.

Sri Lanka was one of the early liberalised countries in terms of FDI and trade policy. The results of the model also suggest the verification of the gravity model. With the developed infrastructure and moderately cheaper labour force, the island country has been able to attract huge amount of horizontal FDI which in turn supplemented its export.

**Sri Lanka’s Import**
Dependent Variable: LNIM  
Method: Panel Least Squares  
Sample: 2000 2012  
Periods included: 13  
Cross-sections included: 5  
Total panel (balanced) observations: 65

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNDST</td>
<td>-2.924462</td>
<td>0.253162</td>
<td>-11.55176</td>
<td>0.0000</td>
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<tr>
<td>ER</td>
<td>0.005625</td>
<td>2.448458</td>
<td>0.002297</td>
<td>0.9982</td>
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<tr>
<td>LNFDI</td>
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<td>0.165358</td>
<td>0.015060</td>
<td>0.9880</td>
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<tr>
<td>LNGDP</td>
<td>1.806651</td>
<td>0.155389</td>
<td>11.62664</td>
<td>0.0000</td>
</tr>
<tr>
<td>BORDER</td>
<td>-0.775891</td>
<td>0.686267</td>
<td>-1.130597</td>
<td>0.2628</td>
</tr>
<tr>
<td>C</td>
<td>6.088906</td>
<td>2.610504</td>
<td>2.332464</td>
<td>0.0231</td>
</tr>
</tbody>
</table>

R-squared 0.827431 Mean dependent var 4.065226  
Adjusted R-squared 0.812806 S.D. dependent var 3.363036  
S.E. of regression 1.455047 Akaike info criterion 3.675720  
Sum squared resid 124.9126 Schwarz criterion 3.876432  
Log likelihood -113.4609 Hannan-Quinn criter. 3.754914  
F-statistic 56.57836 Durbin-Watson stat 1.141898  
Prob(F-statistic) 0.000000

The empirical results obtained from panel OLS regression pertaining to import from Sri Lanka shows that regression explain 82% variation in the model. Thus, the explanatory variables included in the equation explain 82% of variation in the dependent variable. The F statistics is 56.56, and the probability of F statistics is 0.0000 which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on import is rejected. The results explain that distance, GDP, are statistically significant and have expected sign except border and exchange rate. Distance is negatively related to import from Sri Lanka means greater distance reduces import to Sri Lanka. The assumption of gravity model is applicable here. Sri Lanka imported mostly from the distant countries like USA, Germany, and UAE etc. Exchange Rate is positively related to import means higher exchange rate increases import from Sri Lanka. The import items are insensitive to the changes in the exchange rate. GDP is positively related to import means higher production of goods and services increases import from Sri Lanka. In case of FDI the
relationship was found to be positive which reflects its complementary relationship with import. Closer border decreases import from Sri Lanka.

4.5 Conclusion

The current chapter addressed the objective of exploring the relationship between trade and FDI in SAARC region. The gravity model was used to test the complementary or substitution relationship between trade and FDI in SAARC. The analysis was carried out for the top 5 investing countries in the SAARC nations excluding Afghanistan, Maldives and Bhutan. The lack of relevant data pertaining to these three countries bared us from considering them from analysis.

The estimation result of OLS panel regression the study found both complementary and supplementary relationship between trade and FDI in all the SAARC group of countries. The result shows complementary relationship for all the selected countries with exception of Sri Lanka. The study finds that during 2000-2012, inflow of FDI in the region through various MNC’s have helped to increase the trade i.e. both export and import from the region. For all the selected countries both the trade values and FDI inflows have increased substantially. India being a bigger market in size, with developed infrastructure and low wage rate has been able to attract highest amount of FDI in the region. Other economies in the region are comparatively smaller in size and poor infrastructure has attracted lower amount of FDI. Following the theory it can be assumed that most of the FDI flowed in these smaller economies were vertical in nature which have positively impacted their trade. The implications of the distance and existence of border between two trading nations were found to be different. The impacts of exchange rate impacting the trade and FDI between two countries were also found to be different for different countries.

For export of Bangladesh the proposition of gravity model was not found to be applicable while it was true in case of import. Similarly, Indian import rejected gravity model while accepted in case of export. Same result was also found in case of Pakistan where export rejected the gravity model but it was accepted by import. Both export and import of Nepal and Sri Lanka confirmed the assumption of longer distance reduces trade.
Thus, it can be concluded from the results that for SAARC group of countries both complementary and supplementary relationship exist between trade and FDI. In case of some countries the relationship was found to be complementary while for some others the relationship was supplementary.

After having analysed the complementary or substitution relationship between trade and FDI in SAARC region, a major question still remains regarding the causality between them, i.e. whether trade follows the FDI or it is FDI which is following trade in this region. This issue is taken up in our next chapter.
References:


