

DETERMINANTS OF INTRA REGIONAL TRADE AND INTRA
REGIONAL FOREIGN DIRECT INVESTMENT (FDI) IN SOUTH ASIA: A
GRAVITY MODEL APPROACH

By

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Abstract

This thesis investigates and analyzes various aspects of intra regional trade and intra regional FDI flows of South Asia. It also focuses on economic integration in South Asia region in an attempt to assess the impact of various bilateral and multi-lateral treaties on regional trade and FDI. Moreover, this thesis tests the impact of economic liberalization reforms on South Asia's foreign trade and direct investment (FDI). The ultimate objective of this study is to investigate the major determinants of intra regional trade and intra regional FDI in South Asia by applying the gravity model of trade. The present study focuses multiple questions and highlights various aspects both theoretically and empirically.

This thesis first examines various trends of foreign trade and FDI inflow to these countries using recent data. Findings of an empirical estimation of the impact of economic liberalization reforms suggest that reform measures such as trade liberalization, capital market liberalization and fiscal reforms are positively correlated with foreign trade and inward FDI flow of these countries.

Next, this thesis empirically examines the determinants of intra regional trade and intra regional FDI in South Asia by the gravity trade model using different sets of panel data from 1990 until 2012. Our empirical findings suggest that GDP, population, infrastructure, economic openness, real exchange rate and distance are some of the important trade determinants for the region. The study also indicated a very weak trade creation effect in South Asia as only a few of the regional dummy variables became positively associated with intra regional trade. Most of the regional dummy variables became statistically not significant and there was a clear country effect as the countries with large GDP and population dominate intra regional trade. We have also found that the major factors that matter regional FDI in

South Asia are GDP, labor force, infrastructure, natural resources, real exchange rate, FDI in the past years, level of corruption and degree of business freedom etc.

Then, this thesis focuses on various aspects of intra regional trade and FDI in the South Asia region. In order to measure the impact of economic integration on intra regional trade and intra regional FDI, our empirical study (with multilateral trade agreements and bilateral investment treaties as proxy for economic integration) suggests that South Asian Free Trade Area (SAFTA) is positively associated with both intra regional trade and intra regional FDI while the Asia Pacific Trade Agreement (APTA) dummy is positively associated with intra regional trade only. However, none of the bilateral investment treaties (BIT) has appeared to be a significant factor of intra regional FDI flow in South Asia.

At the end of this thesis, an analysis for simulation of intra regional trade and FDI has been performed. Results show that the initiatives taken so far toward an expansion of intra regional trade and FDI in South Asia have not been effective. Weak institutional framework, interstate hostility and ineffective regional agreements have been accused for not to push regional integration forward to a level commensurate with the potential. Major regional arrangements like SAARC, SAPTA and SAFTA are beset with problems and show no hope of changing the ground quite rapidly. It is true that some progress was achieved but this is not enough to create proper institutions among the countries for pushing regional integration forward through trust-based relationships.

Finally in the policy conclusion, it is recommended that if the countries in the region want to create significant benefits from regional integration through exploring the potential of trade and FDI, some conditions need to be fulfilled. First of all, goal-oriented policies and strong political commitment towards economic integration are needed. Second, it is an important obligation that the countries in South Asia overcome the major barriers to regional

trade and FDI flow. Third, the role of regional trade agreements needs to be reconsidered because the presence of bilateral preferential trade agreements in the region affects the contribution of multilateral trade treaties negatively. Fourth, promoting the role of bilateral investment treaties (BITs) is also equally important. And the role of India on South Asia's regional integration should be recognized and acknowledged by all the countries of the region including India itself.

CHAPTER ONE

INTRODUCTION AND OVERVIEW OF THE ECONOMIES IN SOUTH ASIA

1.1 Motivation and Significance of the Study

In the new era of globalization, the Asia Pacific region has witnessed unprecedented economic momentum. However, South Asia—comprising the eight member countries of the South Asian Association for Regional Cooperation (SAARC) namely India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Afghanistan and the Maldives—has not been able to keep pace with this changing trend. This is evident from the manner in which the international community has given preference to Japan, China and South Korea first and then to the member States of the Association of Southeast Asian Nations (ASEAN) where South Asia has rarely been a priority. Apart from a few business houses that have recently shown interest in the region especially to India, neither the East nor the West has demonstrated any great interest for these countries (Jain, 1996).

Accordingly, the only backward sub-region that has not yet kept pace with Asia's evolving catalytic role is South Asia. Especially, the region's share in global trade and investment (FDI) is too small to merit much attention (Jain, 1997). In this connection and to explore South Asia's enormous alluring prospects, which might be reconsidered when boosting other nations' partnership with this region in today's most severely challenging era of globalization, more and more economic cooperation is needed. Greater economic integration of the region may offer more scopes of cooperation in regional trade and FDI for all of the member countries.

South Asia belongs to the same land mass of Europe but has a population that is twice as large. The region's geopolitical location is very important for its many land and sea

links with the Middle East, Central Asia and East Asia. Such a locational advantage made it very much influential in international politics and economic activity. On the other hand, people of many religions, ethnic groups, cultures and languages inhabit in the region making it prone to political instability and religious conflicts. Therefore, the region's economic and social stability needs to be ensured as a first priority to achieve stability and advancement of the entire Asia continent.

South Asia is the home to 1.28 billion or almost 22 per cent of world population but its share to total world GDP and trade is very negligible (only 1.8 per cent and 1 per cent respectively). The region has been featured with low level in growth and high level in poverty. Inward looking policies and overt State control in all spheres of the economic activities have been advanced by the governments in almost all of the member countries. However, since 1990s all of the countries in the region started to embark on comprehensive programs of stabilization and structural reforms with the aim of achieving liberalization of their trade and FDI regimes.

As a result, since the beginning of the 1990s, the world has started to pay more attention to this region. With the adoption of economic liberalization policies in these countries, South Asia's cooperation with the rest of the world appeared as a 'promising horizon'. In the post-September 11 phase, the US seems to be willing to further assist the South Asian nations in the greater interest of regional solidarity so that they could contribute collectively to the global partnership by enhancing dialogues and understanding of each other's national interests (Moni, 2004).

During the last thirty to forty years, as the world economy has undergone various changes, so too have the nations of South Asia. Inspired by market economy thinking since 1980s, all South Asian nations have pursued economic liberalization and deregulation and

have undertaken a series of economic reforms (Haque, 2003). After that and during the last few decades, all these nations have registered a steady rate of economic growth (Devarajan & Nabi, 2006). The region's per capita income has been raised, poverty has been reduced and as a result of recent moves to liberalized economic environments; foreign direct investment has been flowing at a steady, if not rapid, pace. To be sure, still a number of political and administrative difficulties coupled with a noticeable lack of infrastructure try to slow down the process of economic development in the region; but by any standard, South Asia's economic performance has improved markedly.

Economic growth of South Asia in the last few years has been impressive. Bangladesh, Bhutan, India, Maldives and Pakistan have all grown at more than 5 per cent per year on an average while Sri Lanka and Nepal achieved a growth rate of 4.7 per cent and 2.5 per cent respectively. The region's high economic growth has contributed to an impressive reduction of poverty during the last few decades. Poverty reduction in Sri Lanka, Bangladesh, India and Nepal has been recorded as 6, 9, 10 and 11 percentage points respectively. Only Pakistan saw an increase of poverty due to its economic stagnation throughout the whole 1990s (Devarajan & Nabi, 2006)

The economic growth and social development record of South Asia is especially remarkable due to the fact that the region has faced many of the development obstacles that countries in Africa had faced. India, Pakistan and Sri Lanka suffered from large fiscal deficits; all of the South Asian countries but especially Bangladesh faced very high level of corruption; civil conflict and macroeconomic instability retarded growth in much of South Asia especially in Sri Lanka and Nepal; Maldives and Bhutan got syndromes of enclave economies; and political bitterness and lack of trust between the two major economies of the region—India and Pakistan—hindered economic cooperation greatly. However, most of the countries could manage to overcome these challenges successfully. Bangladesh achieved

exemplary improvement in social services; Sri Lanka could promote economic liberalization continuously; Bangladesh and Nepal enjoyed large income earnings from foreign remittances; India was able to keep inflation and interest rates under control despite high deficits in the economy; and Pakistan started to grow very fast as soon as the credit crunch was relaxed in 2002 (Nabi et al, 2010)

It is obvious that much of South Asia's recent growth is attributed to sustained policy reforms undertaken by the successive governments. Sri Lanka was the first country to initiate liberalization of its trade and industrial policies starting from the end of 1970s through the early 1980s; India and Bangladesh started to adopt trade reform measures since the early 1980s; and Nepal and Pakistan also started to liberalize their trade regimes in the late 1990s. In the case of financial sector liberalization, India and Sri Lanka showed the path by deregulating interest rates and permitting private banking since the 1990s followed by Pakistan and Bangladesh. Most of the countries in the region maintained prudent fiscal policies along with sound monetary policies. And for much of the time, they could keep inflation below the world average.

South Asia is one of the most dynamic but least economically integrated regions in the world. Its intra-regional trade share is less than 5 per cent of total trade while the same ratio is almost 25 per cent in the Association of Southeast Asian Nations (ASEAN). Issues on national identity and internal consolidation have created long lasting political tensions and mistrust between the countries which ultimately caused limited integration in the region. However, South Asia has very good potential to emerge as a strong, efficient and dynamic economic bloc due to its unique advantages in geographical contiguity, social likeness and common historical ties. Intra-regional economic cooperation in the region, now-a-days, is getting more and more attention and the South Asia Free Trade Area (SAFTA) has been an important policy initiative in this respect. Nevertheless, regional cooperation among the

countries has been still very low due to less awareness of potential for such cooperation and high costs of non-cooperation.

Recent trend of international trade shows that trade in preferential basis in a bilateral or regional grouping rather than the traditional most favored nation (MFN) basis plays an important role on global flow of goods and services. Realizing the importance of intra-regional trade, the countries of South Asia have adopted various trade-friendly policies and processes to achieve greater regional economic integration. Their tendency to participate in increased economic engagements bilaterally and regionally both with countries within the region and outside prove this phenomenon. However, the regional integration process of South Asia faces some difficulties. First of all, the member countries suffer from a lack of clarity at the conceptual level regarding the well-being and future prospects of economic integration. Next, some of the difficulties arise from policy-induced constraints including tariff related issues that limit the realization of fuller benefits of economic integration. Finally, various structural and economic weaknesses within the region further worsen the situation.

South Asia's potential for regional trade gains through economic integration is awesome. The potential of the South Asia Free Trade Agreement (SAFTA) in terms of trade creation and trade diversion effects suggests that total gains from trade in manufacturing goods are about US\$ 8 billion under a full tariff liberalization scenario in a static setting (Kumar, 2005). If the unofficial flow of trade is considered then Kumar (2005) estimated that intra-regional trade in the region would be three times larger than the current level. According to RIS (2009), the formal trade can grow in the range of US\$ 36 billion by 2020. It was also suggested that trade diversion effects of SAFTA may facilitate better access to bigger markets for smaller and least developed economies like Bangladesh, Nepal, Maldives, Bhutan and Sri Lanka. This would ultimately lead these smaller economies to gain more trade benefits than relatively larger economies like India and Pakistan. UNCTAD & ADB (2008)

also reported almost similar results while Pitigala (2005) estimated that South Asian countries would be able to diversify their export bases through a successful implementation of regional trade treaties if they continue the process of unilateral liberalization in parallel with regional integration.

The reality is, compared to other regions, South Asian countries have performed poorly in international trade over the past two decades. Exports from the region grew only twofold over the past 20 years to reach approximately US\$ 100 billion while East Asia achieved an increase of 10 times in its exports within the same period (Newfarmer & Pierola, 2006). Moreover, the region experienced a decline in its share of total exports to developing countries. This is, at the same time, an indicator of its limited trade integration with the rest of the world and a status of very low level in intra-regional trade cooperation. It was noted by Newfarmer & Pierola (2006) that intra-regional trade share of South Asia has been fixed to a mere 2 to 3 per cent since 1980 and this is a very low figure compared to other similar regions such as the ASEAN and the NAFTA frameworks. Similarly, intra-regional trade constitutes about 33 per cent of South Asia's GDP while it accounts for as much as 71 per cent for the nations in East Asia (Wilson & Otsuki, 2007)

Inspiringly, momentum of intra-regional economic cooperation has started in recent years. India and Pakistan are negotiating in the ministerial level to expand bilateral trade through Pakistan's granting of a Non-Discriminatory Access (NDA) of Indian products. Non-Discriminatory Access is a similar status to Most Favored Nation (MFN) and India has granted Pakistan as MNF country a decade ago. India-Pakistan relation has reached to a new land mark as recently India has modernized its *Attari* border post with Pakistan and has offered to export electricity in the future. India and Bangladesh have enhanced their bilateral ties and signed several treaties including 'Exchange of Instruments of Ratification of 1974 Land Boundary Agreement and Its 2011 Protocol' that had been regarded as one of the

longest lasting obstacles to bilateral cooperation between these two neighboring countries. They have also finalized a Bilateral Trade Agreement (renewal) and an Agreement on Coastal Shipping (Daily Star, 2015). India has granted tariff-free access to all Least Developed Countries (LDCs) in the region including Bhutan, Nepal and Maldives. Afghanistan and Pakistan have already signed and started to implement a transit and trade treaty. India and Sri Lanka are trying to raise volume of bilateral trade and investment by following a Free Trade Agreement (FTA) which they signed in 2001 (World Bank, 2014)

With the above background, the present study offers a new horizon of research in the backdrop of lack of proper empirical studies in the field of intra-regional trade and intra-regional FDI determinants in South Asia. About intra-regional trade determinants, several studies have been done so far. However, about determinants of intra-regional FDI of South Asia, very limited number of literary works was conducted. Hirantha (2003) in the study 'From SAPTA to SAFTA: Gravity Analysis of South Asian Free Trade' applied a gravity model for a set of annual data of bilateral trade flows from 1996 to 2002 for SAARC countries and their major trading partners. Coulibaly (2004) tested an extended gravity model that included some of the major regional trade arrangements such as the South Asia Free Trade Agreement (SAFTA) and the SAARC Preferential Trading Arrangement (SAPTA) to see their trade creation/diversion effects. Similar studies by Hirantha (2004) and Tumbarello (2006) were also done. Rahman & Das (2006) estimated an augmented gravity model that hired SAPTA with nine other regional trading agreements to examine empirically their trade creation/diversion effects for South Asia. Banik & Gilbert (2008) followed Frankel & Wei (1993) and utilized a gravity equation for a set of trade data covering the period from 1995 to 2006. Weerahewa (2009) examined the extent to which trade facilitation helps to improve trade flows in South Asian countries and their trading partners by estimating an augmented gravity model. Moinuddin (2013) estimated a log-linear form of the gravity equation of

international trade in South Asia using a panel data set of 43 countries and an FTA (i.e. the SAFTA). Dembatapitiya & Weerahewa (2014) utilized a gravity model of international trade as the analytical tool to assess the effects of various regional trading arrangements such as the World Trade Organization (WTO), SAFTA, the EU, ASEAN, the Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC) and some bilateral trade agreements (BTAs) on bilateral trade of South Asia. About intra-regional FDI in South Asia, Sahoo (2006) in the study ‘Foreign Direct Investment in South Asia: Policy, Trends, Impact and Determinants’ applied a gravity model covering a period from 1975 to 2003. Aggarwal (2008) has examined whether regional initiatives undertaken in South Asia have had a favorable impact on foreign direct investment (FDI) by examining qualitatively the trends and patterns of intra-regional investment flows within the countries of South Asian Association for Regional Cooperation (SAARC). On the other hand, Athukorala (2013) has examined emerging trends and patterns of intra-regional FDI in South Asia to inform the debate of whether there is potential among countries of South Asia for integration of production processes by promoting more and more foreign direct investment (FDI).

This thesis contributes to the literature by offering a thorough analysis of intra-regional trade and intra-regional FDI determinants from a ‘within-the-region’ perspective of South Asia rather than a straight-forward analysis of bilateral trade and bilateral FDI determinants. The uniqueness of this thesis is that it considers the regional partners of South Asia only rather including all other partner countries from all over the world, although amount of intra-regional trade and FDI represents only a tiny portion of the total volume of trade and FDI inflows in the region. Another important unique aspect with this thesis is that it considers both aggregate and disaggregate data for the empirical estimation of South Asia’s intra-regional trade and intra-regional FDI determinants. In this regard, Athukorala (2013) has stated that intra-regional FDI and the FDI-trade nexus have not

so far been studied from a comparative region-wide perspective in South Asia although there is a sizeable literature on regional economic integration initiatives on intra-regional trade. This study makes an effort to contribute in this literature gap. This study broadens and deepens intra-regional cooperation and integration in trade and investment among South Asian countries. It showcases the benefits of regional integration and presents an array of policy recommendations to maximize and realize such gains. The study invigorates the debate and focuses on South Asia's economic integration as an alternative path to further growth and development. Without any doubt, more and more scholarly works need to be conducted about South Asia's economic cooperation and integration. Hopefully the proposed study, after it has been completed, will contribute fill the gap in the existing literature and open the door for future research.

1.2 Objectives and Research Questions

This thesis investigates and analyzes the determinants of intra-regional trade and intra-regional FDI flows of South Asia. It also focuses on economic integration in the region in an attempt to assess the impact of South Asia Free Trade Agreement (SAFTA), SAARC Preferential Trading Agreement (SAPTA) and other similar multilateral as well as bilateral treaties on regional trade and FDI flows. We also test the impact of economic liberalization reforms on foreign trade and direct investment (FDI) of the countries in South Asia.

This thesis can be divided into three major parts: economic reforms and their impact on foreign trade and FDI; regional economic integration and their impact on intra-regional trade and intra-regional FDI; and the determinants of intra-regional trade and intra-regional FDI in South Asia. The thesis is based upon a gravity model. For the purpose of its theoretical foundation, the basic model is derived and the general conditions of gravity are

formulated. Of course, for a better understanding of this study and its findings, an overall picture of the economies under consideration is outlined in the beginning part.

We will focus on a gravity model with ‘geographical distance between trading partners’ to find out the determinants of bilateral and intra-regional trade flows. The gravity model will be estimated for both aggregate and disaggregate levels. In the aggregate level the estimation will be performed for one to one bilateral trade flows of all the member countries in the region. On the other hand, the disaggregate model will be estimated for bilateral trade flows between an individual country and its all other trading partners within the region. The purpose of the disaggregate model is to see the differences of effects of each determinants on intra-regional trade in the member countries.

On the other hand, in the case of intra-regional FDI determinants, a gravity model without a distance parameter will be applied. The reasons of employing such a model is twofold: first, lack of bilateral intra-regional FDI data for most of the member countries in South Asia makes it difficult to apply an ordinary gravity equation and second, this study focuses on regional total FDI flow to an individual member country from the rest of South Asia; where a distance variable is needed in the case of bilateral FDI flow between two partners only. Another important issue is that theoretical foundations of the gravity model mostly refer to trade flows and its application to bilateral FDI flow is much less clearly established yet. In the gravity model estimation, distance variable acts as a proxy of transaction cost. In the case of bilateral basis, horizontal FDI is positively associated with distance and a greater amount of FDI flow is expected to a distant country. However, due to its function as an impediment there is a negative relationship between its another form, the vertical FDI and geographical distance. The literature suggests ample of evidences which applied the ordinary gravity model with distance parameter in analyzing FDI flow in a bilateral basis; however, no such studies have been conducted so far for total amount of FDI

flow to a country in a regional basis. One of the purposes of this study is to contribute in this literature gap.

The approach used by this study involves collecting and analyzing of data on merchandise exports and imports from various sources such as the United Nations COMTRADE database, the World Bank, the Asian Development Bank (ADB) and from the Bureau of Statistics (BS) of a country concerned. We also draw our attention to collect inward and outward foreign direct investment (FDI) data from the United Nations Conference on Trade and Development, ADB regional integration data base and statistical agencies of the countries considered in the empirical estimation.

This study focuses multiple questions and highlights various aspects related to intra-regional trade and FDI in South Asia both theoretically and empirically. The presented theories demonstrate the validity of our empirical applications. In summary, the ultimate objective of this study is to apply the gravity model in an attempt to investigate the major determinants of intra-regional trade and intra-regional FDI in South Asia. The objectives and major research questions of the present study are summarized below.

The objectives are:

- To study in detail about economic structure and recent macroeconomic performances of the countries in South Asia (1980-2012)
- To study empirically the impact of economic reforms on foreign trade and FDI inflow of the countries in South Asia
- To study the history of evolution of economic integration and to investigate the level of economic integration in South Asia
- To perform an empirical estimation of the impact of integration on intra-regional trade and FDI in in South Asia

- To perform econometric analyses with the help of a gravity model in order to indicate the determinants of both intra-regional trade and intra-regional FDI in South Asia

The main research questions are:

- What is the current state of intra-regional trade and intra-regional FDI in South Asia?
- What are the determinants of intra-regional trade in South Asia?
- What are the determinants of intra-regional FDI in South Asia?
- What is the impact of economic liberalization reforms on foreign trade and FDI in the countries of South Asia?
- What is the impact of economic integration on intra-regional trade and FDI in South Asia? And
- What is the minimum policy steps needed to facilitate more and more trade and FDI within the South Asia region?

1.3 Organization of the Thesis

The rest of the thesis is planned as it follows. The immediate next section of this present chapter one highlights economic structure and macroeconomic overviews of the major economies in South Asia. Macroeconomic performances achieved by these countries since 1980s are presented. Among the countries of the region Bangladesh, India, Pakistan and Sri Lanka are discussed broadly because these major economies account for more than 98 per cent of total GDP of the whole region.

Then is chapter two where the purpose is to discuss major trends and patterns of foreign trade and FDI inflow in the countries of South Asia. Adopted economic liberalization reforms such as financial reforms, trade reforms, capital market reforms and fiscal reforms are also reviewed in this chapter. Later the impact of major liberalization reforms on foreign

trade and FDI inflow in these countries has been estimated. For this purpose, an econometric analysis of panel data from 1991 to 2012 is conducted.

Chapter three gives a theoretical foundation for this study. This chapter discusses about basic trade theories like the Classical Trade Theory, the Modern Trade Theory and the New Trade Theory. In the case of Classical Trade Theory various classical models of trade such as the Mercantilism Model and the Absolute and Comparative Advantage Theory are discussed. Then modern trade theories such as the Eli Hecksher and Bertil Ohlin Model, Specific Factors and Income Distribution Model and the Standard Model of Trade etc. have been reviewed. Finally, the essences of New Trade Theory and the Gravity Theory of Trade are presented. The Gravity Model is derived for both aggregate and disaggregate versions. At last, the general conditions of gravity in the case of international trade are also discussed in this chapter before turning a formal conclusion.

Next is chapter four. This chapter empirically examines the determinants of intra-regional trade within the countries of South Asia. For this purpose, it employs a statistical estimation of the gravity model of trade using a set of panel data by the random effects GLS estimate. The estimation is performed for both aggregate and disaggregate data and the time horizon is considered from 1990 until 2012. Before going to the econometric estimation, a thorough review of literature is done. Both theoretical and empirical literatures of international trade determinants are discussed. Significant empirical studies that have applied the gravity model in the contexts of both South Asia and other regions have been focused. Then the adopted econometric model for this chapter is built. In the last section, the findings of the chapter are presented and analyzed.

Then chapter five examines the determinants of intra-regional foreign direct investment (FDI) in South Asia by applying an augmented gravity model. The chapter begins

with a discussion of theoretical foundation of FDI determinants. Then some previous empirical studies performed by various authors have been reviewed thoroughly. Empirical findings in the contexts of both South Asia and other regions are summarized. Next the methodology and econometric model employed for the empirical analysis of intra-regional FDI determinants are presented in a later part. For the purpose of econometric estimation in this chapter, issues related to data and adopted regression methods are documented next. Finally, the empirical results for determinants of FDI in South Asia are presented and analyzed before concluding the chapter.

Chapter six is all about intra-regional trade, intra-regional FDI and economic integration in South Asia. Here the theoretical framework of globalism and regionalism is described first. Then the history of evolution of integration in the context of South Asia is discussed before examining the region's intra-regional trade and intra-regional FDI profiles. A very brief comparison of intra-regional trade flows in South Asia and the ASEAN has been performed in this chapter. In the final section, empirical estimations are done using panel data in order to measure the impact of integration on intra-regional trade and intra-regional FDI. In the econometric analysis, the roles of regional multilateral and bilateral trade agreements as well as bilateral investment treaties (BITs) are also tested in this chapter. At the end of this chapter, simulation of intra regional bilateral trade and intra-regional FDI within the countries of South Asia is evaluated.

The last part of the thesis is chapter seven where summary of the entire study and the policy conclusion have been turned. Several policy proposals for an enhanced regional integration of trade and direct investment (FDI) are presented on the basis of the study's findings. Finally, some limitations and few guidelines for future research in this field are noted in a last section of the chapter.

1.4 ECONOMIC STRUCTURE AND BRIEF OVERVIEW OF THE ECONOMIES IN SOUTH ASIA

South Asia refers to one of the oldest civilizations in the world where people from all races and religions have gathered and coexisted over a long period of time. It contains seven independent countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka with India has been the central core of this region both physically and culturally. The rest of the countries has created the periphery of South Asia and has been influenced historically and politically by the core for a long period of time. These countries maintain a unique identity which is originated from the layering of different cultures. The term ‘South Asia’ is closely synonymous to ‘Indian Subcontinent’ and due to its separation from the rest of the Asia by a continuous mountainous barrier in the north side of the region, geographers called it as the Indian Subcontinent. Prior to 1947, South Asia was a colony of England and was familiar as the Indian Empire or ‘Raj’ of Great Britain.

South Asia today has evolved as a very important strategic partner of international geo-politics and has significant implications for the world economy. Long lasting conflicts upon the Kashmir issue between two nuclear weapon owned countries in the region has made it a hot topic of tremendous media attention. However, genuine prospects of economic wellbeing, peace, democracy and cooperative development offer another dimension for the region. Since the early 1990s, individual South Asian countries especially India, Bangladesh, Sri Lanka and Pakistan witnessed enormous shifts in their economic policy. Consequently, these countries have started to adopt outward looking strategies and opened their economies to the rest of the world.

Such policy shift in South Asia has made it important to evaluate the effectiveness of these initiatives through testing the practices and performances of individual economies in various macroeconomic fronts. In this regard, performing a thorough examination of the

region's linkages to the global economy through international trade and FDI along with an assessment of its persistent problems from various dimensions is also similarly important.

With this backdrop, in this chapter we are going to present a brief overview of the economic structure and macroeconomic outlook of the major economies in South Asia. Macroeconomic performances achieved by these countries since 1980s are presented and discussed. We focus our discussion on major economic fronts such as economic structure, Gross Domestic Product (GDP), growth prospect, savings and investment performances, inflation and consumer price, and remittances and overseas employment etc.

1.4.1 The Bangladesh Economy

In the early years following the War of Liberation (in 1971), economic management in Bangladesh was primarily aimed at reviving a war-ravaged economy in an overall framework of extensive State control and with an avowed ideology of socialism (Ahmed, 2001 and Mahmud 2008a). For the time being, the government started to follow a socialist path of recovery by nationalizing most of the large manufacturing units. But recovery from the economic predicaments was far away from reality. At the first phase of development in the 1970s, many impediments including desperate initial conditions, political instability, widespread corruption and a record of systemic governance failure hindered substantially the country's growth performance (Mahmud, Ahmed & Mahajan, 2008). Extensively State controlled economic policies until 1980 resulted in little savings and investment, low level in export earnings, an underdeveloped financial sector, high inflation rates and very low level in growth of both national GDP and per capita income. Therefore, at one hand, during the late 70s and the early 80s the newly elected government started to reform the economy by embarking denationalization programs. They reduced agricultural subsidy and adjusted

monetary policy in order to reduce inflation. They also included deregulatory measures to enhance the role of private enterprises (Islam, 1977).

Economic Structure

Bangladesh is a developing country where agriculture is the main sector of employment. Among the several production sectors agriculture, industry and services are the main contributors of GDP to the economy. Agriculture includes farming crops, animals, fishery and forestry. Industry comprises garments and knitting sectors, leather industry, food and beverage etc. And service is the largest sector in the Bangladesh economy in terms of percentage contribution to GDP. This sector includes trade service, construction, transport, storage and communication, housing, public administration and defense, education, health, financial intermediates, and other social and personal services.

The structure of the Bangladesh economy has changed gradually since the independence and the pattern of changes in various GDP contributors indicates this phenomenon clearly. In the past, agriculture had a great contribution to GDP. In 1973/74 agriculture sector's contribution to total GDP was 48.3 per cent where in 2011/12 it has fallen to 19.29 per cent. On the other hand, contribution of both industry and services sectors has risen greatly. At present, these two sectors form the major portion of GDP.

Table 1. 1 : Contribution of Agriculture, Industry and Services Sectors to GDP of Bangladesh

Year	Agriculture (%)	Industry (%)	Service (%)	Total (%)
1941-1950	70	4	26	100
1951-1960	62	5	33	100
1961-1970	55	10	35	100
1971-1980	44	11	45	100
1981-1990	32	12	56	100
1991-2000	25	15	60	100
2001-2010	18	30	52	100

Source: www.worldbank.org

GDP and Economic Growth in Bangladesh

Despite many economic and political impediments—some manmade and some natural—the economy of Bangladesh has gone through a moderately accelerated growth environment in the last two decades. It was grown at an average rate of only 3.73 per cent per annum during the 1980s. In the 1990s, average annual growth rate has grown to reach a level of 4.81 per cent. The average growth rates were 4.4 per cent during FY91-95 and 5.2 per cent between FY96 and FY2000 (Bhattacharaya, 2006). Later GDP growth has increased to report an average rate of around 5.80 per cent during the whole 2000s. This is a significant acceleration in the Bangladesh economy if seen with the prism of desperate initial conditions and signs of huge pessimisms in the beginning phase after independence (Mahmud, 2008).

GDP growth in Bangladesh is contributed by corresponding growths of some basic sectors like agriculture, industry and services. The most recent growth figures for these three key sectors are 4.67 per cent, 6.01 per cent and 6.38 per cent respectively in 2012. The next tables indicate some aspects regarding GDP growth and average growth rates of contribution trends of various sectors to national GDP of Bangladesh.

Table 1. 2 : Bangladesh's Trend of Structural Transformation of Broad Sectoral Shares in GDP and Growth Rate at Constant Prices (Base year: 1995-96)

Share (in per cent)									
Sector	1980 -81	1985 -86	1990 -91	1995 -96	2000 -01	2005 -06	2009 -10	2010 -11	2011 -12
Agriculture	33.07	31.15	29.23	25.68	25.03	21.84	20.29	20.01	19.29
Industry	17.31	19.13	21.04	24.87	26.20	29.03	29.93	30.38	31.26
Service	49.62	49.73	49.73	49.45	48.77	49.14	49.78	49.60	49.45
Total	100	100	100	100	100	100	100	100	100
Average growth rate (in per cent)									
Agriculture	3.31	3.31	2.23	3.10	3.14	4.94	5.24	5.13	2.53
Industry	5.13	6.72	4.57	6.98	7.45	9.74	6.49	8.20	9.47
Service	3.55	4.10	3.28	3.96	5.53	6.40	6.47	6.22	6.06
GDP	3.74	3.34	3.24	4.47	5.41	7.02	6.22	6.59	6.39

Source: Bangladesh Bureau of Statistics, BBS (2012)

Table 1. 3 : Growth Trend of Real Gross Domestic Product (GDP) in Bangladesh during 1975- 2012 (at 1984/85 prices)

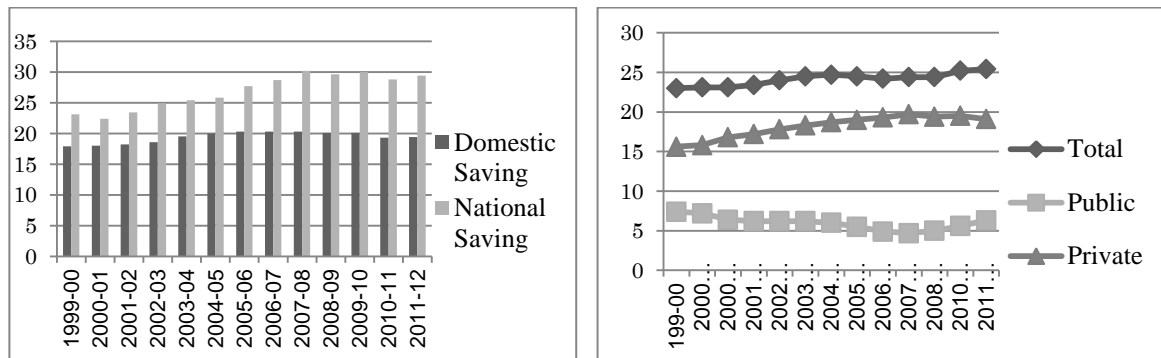
Year	Growth Rate (%)	Year	Growth Rate (%)
1975-76	5.7	1994-95	4.4
1976-77	2.7	1995-96	5.3
1977-78	7.1	1996-97	5.9
1978-79	4.8	1997-98	5.7
1979-80	0.8	1998-99	5.2
1980-81	3.4	1999-2000	6.0
1981-82	1.2	2000-01	5.3
1982-83	4.9	2001-02	4.4
1983-84	5.4	2002-03	5.3
1984-85	3.0	2003-04	6.3
1985-86	4.3	2004-05	6.0
1986-87	4.2	2005-06	6.6
1987-88	2.9	2006-07	6.4
1988-89	2.5	2007-08	6.2
1989-90	6.6	2008-09	5.7
1990-91	3.4	2009-10	6.1
1991-92	4.2	2010-11	6.7
1992-93	4.5	2011-12	6.3
1993-94	4.2		

Source: Government of Bangladesh (2012)

Savings and Investment

Bangladesh has gradually increased its level of savings in monetary value and also saving rate as percentage of GDP (Agrawal & Das, 2007). However, in both national and domestic savings categories the nation still lags behind many developing countries in Asia. Bangladesh's saving rate has been comparatively lower than that of other countries in South Asia. The rates of saving and investment have not increased consistently since the year of independence. According to recent data, the national saving rate of the nation has been higher than the domestic saving rate. The national savings rate is the percentage of gross domestic product that households, governments and businesses save rather than spend. On the other hand, gross domestic saving is GDP minus final consumption expenditure. It is expressed as a percentage of GDP. Figure bellow in left side shows recent saving rate data in Bangladesh since fiscal year FY1999-2000 until FY2011-12.

Figure 1. 1: Saving and Investment as a percentage of GDP in Bangladesh



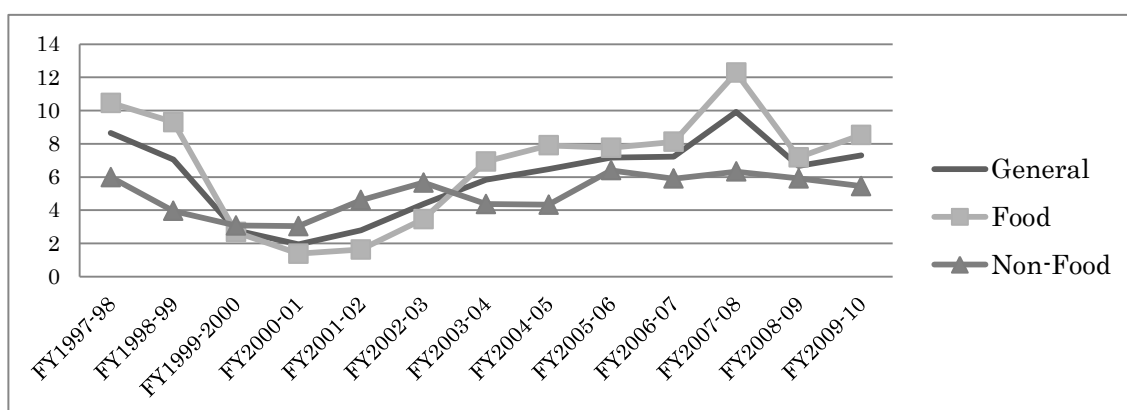
Source: Government of Bangladesh (2012)

In the case of investment, Bangladesh has performed poorly since independence. In the 1980s, the public and private investment rates were about 7 per cent and 10.27 per cent respectively. In the figure right side above, various rates of investment as a percentage of GDP in Bangladesh is shown. The country has got an increase in these rates since the 1990s. Recent data shows that total investment rate has touched a peak of 25.4 per cent of GDP in 2012. On the other hand, the saving-investment gap in Bangladesh was very large since 1960s until the late 1980s. However, because of the upward trend in savings especially since the 1990s, the gap became reduced substantially.

Inflation and Consumer Price

The figure 1.2 below highlights inflation in Bangladesh since FY1997-98 until FY 2009-10. Similar to most other developing countries in Asia, majority of the people in Bangladesh are vulnerable to price hike in basic commodities especially food items. The recent spike in commodity price has threatened to push large number of people back below the poverty line due to high inflation (ADB, 2009). Average inflation in the economy was on an upward trajectory since 2000. In general, food inflation largely contributed to the rise of the overall inflation in the country (Hossain et al, 2013 and GOB, 2010).

Figure 1. 2: Inflation (National) Trends in Bangladesh, Base Year 1995-96=100



Source: Bangladesh Bureau of Statistics (various issues)

Remittances and Overseas Employment

Table 1. 4 : Bangladesh's Overseas Employment and Remittances

FY	Number of expatriates ('0000)	Million US\$	% of GDP
1980-81	380000	381	1.93
1985-86	780000	649	2.72
1990-91	970000	764	2.49
1991-92	1850000	848	2.88
1992-93	2380000	947	3.04
1993-94	1920000	1089	3.41
1994-95	2000000	1198	3.17
1995-96	1810000	1217	3.31
1996-97	2280000	1475	3.61
1997-98	2430000	1525	3.64
1998-99	2700000	1706	3.95
1999-2000	2480000	1949	4.18
2000-01	2130000	1882	4.48
2001-02	1950000	2501	6.01
2002-03	2510000	3062	6.15
2003-04	2770000	3372	6.34
2004-05	2500000	3848	7.16
2005-06	2910000	4802	8.77
2006-07	5640000	5978	9.58
2007-08	9810000	7915	11.22
2008-09	6500000	9689	11.77
2009-10	4270000	10987	10.81
2010-11	4390000	11650	10.79
2011-12	6910000	12843	n.a

Source: Bangladesh Bank (2013)

The above table shows the data about remittances income in Bangladesh since 1980 until 2012. Remittances earned by overseas employees became a very important part of national income in Bangladesh. The country has a work force of more than 6.9 million people working in foreign countries. The contribution of these people to the national GDP is very significant. In 2012 fiscal year, they have sent more than US\$12 billion which is about 13 per cent of the total national income of the country.

1.4.2 The Indian Economy

At the first phase of development, India emphasized centrally planned economic policies for a long period. Soon after independence, the government strictly followed policies with an aim of achieving self-sufficiency rather than promoting international trade. Foreign exchange, export and import were strictly controlled. But such policies resulted to a development failure. As a recovery, successive Indian governments started to adopt various economic reforms. According to DeLong (2001), starting from 1991 India launched a series of reforms to overcome the situation of a foreign exchange crisis and slow economic growth. Consequently, the reform and restructuring programs included liberalization of the financial market, exchange rate policies and promotion of foreign direct investment (FDI). Policy reform programs also focused on measures such as reduced tariff rates, less trade barriers and liberal monetary and fiscal policies etc.

Economic Structure

In the beginning phase after independence, the economy of India was dominated by the agriculture sector and agriculture value added had contributed the major portion of the GDP. In the 1960s Indian GDP was contributed 47 per cent by the agriculture sector, 19 per cent by the industrial sector and the rest of 34 per cent by the services sector. However, starting in the 1980s, as a result of government-led reform programs in various sectors,

Indian GDP started to grow rapidly and contribution pattern by the three main sectors shifted. In the 2009-10 fiscal year, the agriculture sector's contribution to GDP was only a mere 14.62 per cent where services and industry sectors appeared as the major sources of GDP and contributed 65.22 per cent and 20.16 per cent respectively.

Gross Domestic Product (GDP) and Growth Performance

Since independence, India has been facing a lot of problems such as war and hostilities with Pakistan, lack of human capital, and rampant poverty. In the 1950s, India's GDP has grown slowly at a rate of 3.59 per cent. Later in the 1960s, decadal average growth rate was raised to 3.96 per cent. However, in the 1970s India was shaken by the crisis of oil price rise and GDP growth recorded its lowest decadal average at 2.94 per cent per annum. Many factors including structural deficiencies, lack of institutional changes in agriculture sector and inefficiency of the industrial sector contributed greatly to the slow rate of economic growth. Wars with Pakistan and China in the 1960s, currency problems in 1966, and adverse weather condition also affected the economy to be stagnated.

GDP growth rate got an acceleration in the 1980s and decadal growth rate recorded to be 5.58 per cent. In this period, Indian industry grew at a rate of 6.6 per cent per annum. After that India's GDP grew rapidly and high rate of investment, among other factors, contributed greatly for such a high growth performance (DeLong, 2001). In the starting part of the 1980s, balance of trade crisis and some radical changes of economic policies hindered the economy to fell from 6.9 per cent growth in 1989 to 4.9 per cent in 1990 and to only 1.1 per cent in 1991. However, India recovered its stagnated economy soon and since the 1990s, the nation's GDP has been growing rapidly. Now India is considered widely to be one of the fastest growing economies in Asia. The following table shows some aspects of the Indian economy since 1950s.

Table 1. 5 : Some of the Macroeconomic Indicators of India (Per cent growth)

	1950s	1960s	1970s	1980s	1990 -91	1991/92- 96/97	1997/98- 02/03	2003/04 -06/07	2007/08 -12/13
Real GDP Growth	3.6	4.0	2.9	5.6	5.3	5.7	5.2	8.7	8.7
Agriculture and Allied	2.7	2.5	1.3	4.4	4.0	3.7	0.9	4.9	2.6
Industry	5.8	6.2	4.4	6.4	5.7	7.0	4.1	8.3	8.6
<i>Manufacturing</i>	5.8	5.9	4.3	5.8	4.8	7.5	3.9	9.1	9.4
Services	4.2	5.2	4.0	6.3	5.9	6.4	7.8	10.2	10.6
Real GDCF/GDP	12.5	16.9	19.4	20.2	24.4	22.5	24.1	31.4	n.a
Nominal GDCF/GDP	10.8	14.3	17.3	20.8	26.0	23.9	24.5	33.0	n.a
GDS/GDP	9.6	12.3	17.2	19.0	22.8	22.7	24.1	32.7	n.a
Saving-Investment Gap/GDP	-1.2	-2.0	-0.1	-1.8	-3.2	-1.2	-0.4	-0.3	n.a.
WPI Inflation (Average)	1.2	6.4	9.0	8.0	10.3	9.6	4.6	5.5	4.1

(Note: GDCF and GDS imply Gross Domestic Capital Formation and Gross Domestic Savings respectively)

Source: Rakesh (2008)

Performance in Savings and Investment

Among the countries in South Asia India has the highest saving rate. Indian saving rate has been increasing since 1960 although there are considerable year to year fluctuations. The average rate of saving was 10 per cent of GDP in the 1950s, 17 per cent in the 1970s and 25 per cent in the 1980s. Foreign remittances earned and sent by Indian people working in overseas have been contributing greatly to the higher rate of saving since the late 1990s (Reserve Bank of India, 2005 & 2006). Authors like Wolf (2005), on the other hand, gave the credit to economic reforms in India that started in the 1990s for a high rate in savings in the country. The current rate in 2013/14 is estimated to be 30.6 per cent of GDP.

The rate of investment also got an upward shift from 22.9 per cent in 2001-02 to 35.9 per cent of GDP in 2006-07. India's average investment rate was recorded around 12 per cent of GDP in 1960s, 15 per cent in 1970s and 25 per cent in the 1990s. In 2000s the rate was around 23 per cent of GDP. In 2010, investment rate as a percentage of GDP in India

was estimated as 36.79 per cent which is a 0.81 per cent reduction of the previous year. Later investment rate has further declined by 18.72 percentage points in 2012 and the rate was estimated to be 29.9 per cent. The following data tables (table 1.6 and table 1.7) show trends of savings and investment in India. It is also indicative from the data that the Indian economy has a narrow Saving Investment (S-I) gap since independence.

Table 1. 6 : Public Sector Saving and Investment Rates (Percent of GDP)

	1970s	1980s	1990-91	1991/92 -1996/97	1997/98 -2002/03	2003/04 -2006/07	2007/08-2 012/13
Savings							
Government Administration	2.5	0.8	-1.8	-1.6	-4.8	-2.4	-2.01
Department Enterprises	0.6	0.4	0.6	0.8	0.7	0.5	...
Non-Department Enterprises	1.2	2.5	2.9	3.0	3.4	4.1	3.34
Total Public Sector Savings Rate	4.2	3.7	1.8	2.2	-0.7	2.3	1.30
Public Sector Investment Rate	8.6	10.6	10.0	8.7	6.9	7.1	10.57
Saving-Investment Gap	-4.4	-6.9	-8.2	-6.5	-7.5	-4.9	-4.19

Source: Rakesh (2008)

Table 1. 7 : Savings and Investment Rates of India in the Private Sector (Per cent of GDP)

	1960s	1970s	1980s	1990 -91	1991/92 -1996/97	1997/98 -2002/03	2003/04 -2006/07	2007/08 -2013/14
Household Savings	7.6	11.4	13.5	18.4	16.8	20.8	23.8	22.8
Financial Savings	2.7	4.5	6.7	8.7	10.0	10.3	11.1	12.7
Physical Savings	4.9	6.9	6.8	9.7	6.8	10.5	12.7	...
Private Corporate Savings	1.5	1.5	1.7	2.7	3.7	4.0	6.6	7.8
Private Corporate Investment	2.9	2.6	4.5	4.5	7.7	6.6	11.2	11.50
Saving-Investment Gap								
Household Sector	2.7	4.5	6.7	8.7	10.0	10.3	11.1	...
Private Corporate Sector	-1.5	-1.0	-2.8	-1.8	-4.0	-2.6	-4.7	...
Public Sector	-4.1	-4.4	-6.9	-8.2	-6.5	-7.5	-4.9	...

Source: Rakesh (2008)

Inflation and Consumer Price

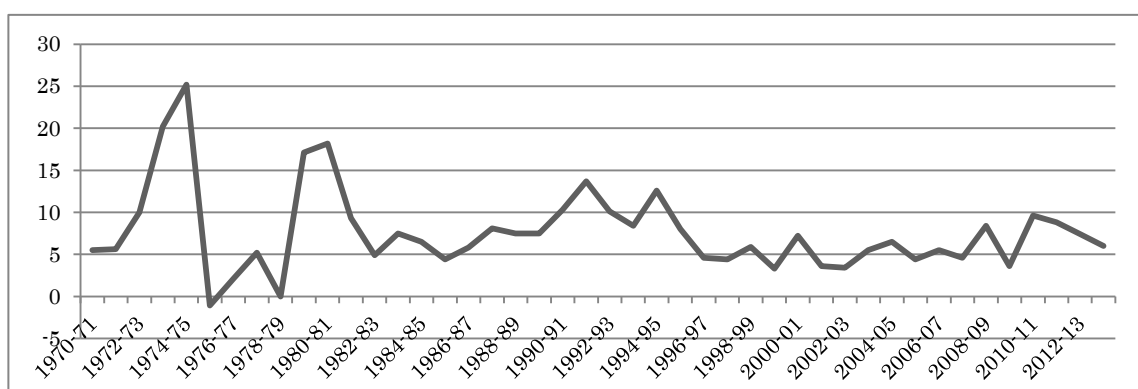
The table below gives a perspective on historical trend of inflation in India. The data presented here covers a time period of last 70 years starting from FY1939-40. Inflation based on different wholesale price index series in decadal average rate since 1940-50 until 1990-2000 is presented at the beginning and later in annual basis from 2000-01 until 2013-14. It appears from the table that inflation in India has varied widely from -12.5 per cent to 38.3 per cent. The average inflation of India for the entire period was estimated to be 7.6 per cent. A careful analysis of the following table indicates that inflation rate of India based on all three price indices is volatile and have been fluctuated widely. The following figure next to the table shows trend of inflation (%) in India in an annual basis.

Table 1. 8 : Decadal and Annual Rate of Inflation in India since 1940 (%)

Period	WPI Index	CPI Index	GDP deflator
1940-50	12.6	n.a	n.a
1950-60	1.7	2.3	1.5
1960-70	6.35	5.9	6.31
1970-80	9.0	7.7	8.1
1980-90	8.0	9.0	8.7
1990-2000	8.1	9.5	8.8
2000-01	7.2	3.8	3.8
2001-02	3.6	4.3	3.0
2002-03	3.4	4.0	3.8
2003-04	5.5	3.9	3.6
2004-05	6.5	3.8	5.6
2005-06	4.4	3.5	4.2
2006-07	5.4	6.7	5.0
2007-08	4.7	6.2	4.9
2008-09	8.3	9.1	6.2
2009-10	3.6	12.3	n.a
2010-11	9.6	10.5	n.a
2011-12	8.8	8.4	n.a
2012-13	7.4	10.2	n.a
2013-14	6.0	9.6	n.a
1939-2009	7.6	6.7	6.4

Source :Vakil (1978) and Reserve Bank of India (2012)

Figure 1. 3 : Inflation Trend in India (%)



Source: Vakil (1978) and Reserve Bank of India (2012)

Remittances

According to OIFC (2009), around 30 million Indian nationals live and work outside the country and every year a big amount of remittances is sent back by these people. It was estimated that India's remittance receipt is equal to nearly 10 per cent of global remittances and around 40 per cent of total remittances sent by people from the whole South Asia region. India's half-decadal and yearly remittances inflow shown below indicate that earning from this sector has been steadily increasing since 19970s.

Table 1. 9 : Half Decadal Average and Annual Remittances Inflows of India (in Million US\$)

Years	Half Decadal Average	Annual
1981-85	2469	
1986-90	2444	
1991-95	4358	
1996-2000	10517	
2001		14273
2002		15736
2003		20999
2004		18750
2005		22125
2006		28334
2007		37217
2008		49941
2009		49256
2010		53479
2011		62499
2012		68820
2013		74680

Sources: Irfan (2009) and Afram (2012)

1.4.3 The Pakistan Economy

Like India Pakistan also has faced a lot of challenges on its economic and political fronts since independence. The country's politics is tremendously unstable. Both internal political disputes and confrontations with neighboring India caused a lot of harms to the economy of Pakistan since the time the country was separated as an independent nation in 1947. Most of the history of independent Pakistan is characterized by military rules and according to Monshipouri & Samuel (1995), the three military leaders who governed the nation implemented and used martial law. Under these military rulers, socio-economic development in Pakistan has not got progressed well. Under these regimes, the majority of the people have been suffered by problems like poverty, malnutrition, unemployment, high inflation and income inequality. At present Pakistan is one of the poorest and least developed countries in Asia. The country has a growing semi-industrialized economy that relies on manufacturing, agriculture and remittances.

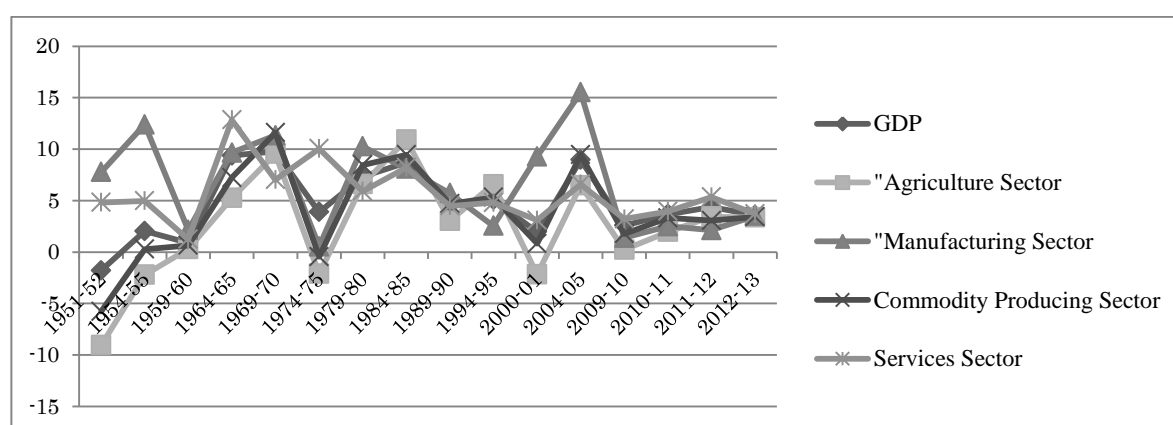
Pakistan's GDP and Its Growth Potential

About GDP growth in Pakistan, the country has achieved a 5 per cent growth rate in the third quarter of 2013 over the same quarter of the previous year. According to the Pakistan Bureau of Statistics (2014), GDP annual growth rate in Pakistan was recorded as an average of 4.95 per cent from 1952 until 2013. Accordingly, the highest growth rate of 10.22 per cent and the lowest rate of -1.80 per cent were seen in the second quarter of 1954 and in the second quarter of 1952 respectively. The GDP of Pakistan grew by 3.59 per cent in the 2013 fiscal year and since 2005, Pakistan's GDP has been growing at an average rate of 5 per cent per annum (Trading Economics, 2014).

As soon as the country introduced the open economy policy, its GDP growth rate got acceleration in the recent past. The contribution by various sectors also changed greatly.

Accordingly, industry and services sectors are changing rapidly and their contribution trends also have got much improved. At present, the main export earning sector in Pakistan is the textile industry. Today services became the largest sector of the economy of Pakistan. On an average, services sector alone account for 58 per cent of GDP. On the other hand, the total contribution of the industry sector in 2012-13 was 21 per cent. The most notable parts of the industrial sector are manufacturing, mining and construction etc. At present, agriculture represents less than 21 per cent of Pakistan's GDP. The figure below shows major contributing sectors to the economy of Pakistan.

Figure 1. 4 : Annual Growth Rate of GDP and Major GDP Sectors in Pakistan (Annual, %)



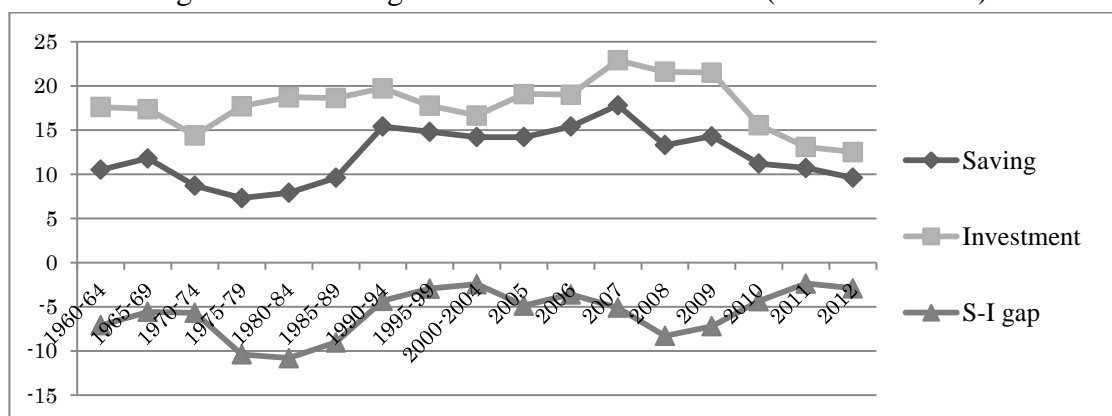
Source: Federal Bureau of Statistics, Pakistan

Savings and Investment

Pakistan's saving rate has been one of the lowest in Asia. Since 1967 until 1986, saving rate of Pakistan showed a downward trend while during 1987 to early 1990s there was an upward trend. The later half of the 1990s and the whole period of 2000-2010, saving rate was showing a declining trend. Reflecting the negative balance in the country's current account, the national saving rate of Pakistan has been lower than the domestic rate for most of the years after independence (Ismail & Rashid, 2013). Since 1960, private saving rate of the country has been in an upward trend while the public saving rate has been declining. The rate of investment in Pakistan, on the other hand, maintained a moderate trend. Starting from

1960s until the early 1990s, there has been a declining trend with huge fluctuations. From the late 1990s, investment rate has been rising but there has been a lack of consistence increase of investment in Pakistan. The saving-investment gap, on the other end, has been small in the country and getting reduced substantially since 1967 (Nasir & Khalid, 2004).

Figure 1. 5 : Saving and Investment in Pakistan (Percent of GDP)



Source: World Bank, 2012

Inflation and Consumer Price

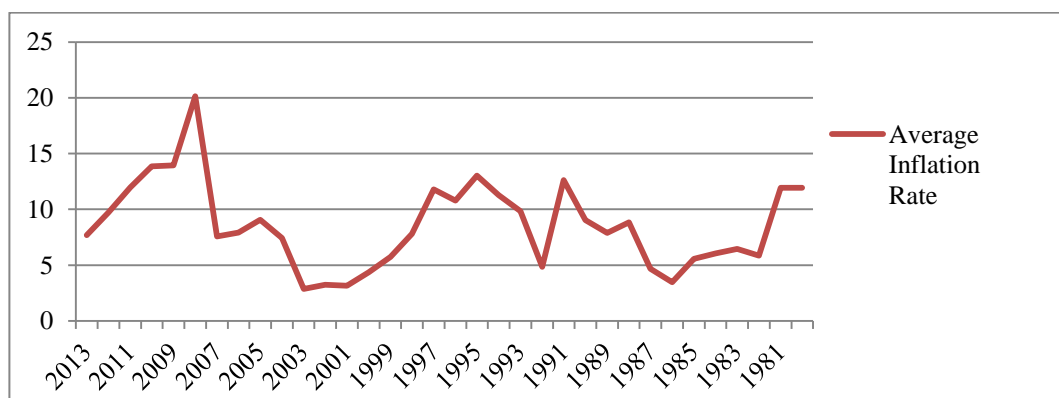
In Pakistan there has been an average Consumer Price Index (CPI) of 110.60 points in the period 2001 to 2014. The highest CPI index was recorded at 191.21 points in 2013 and the lowest among them was 62.82 index points in 2001. Consumer Price Index (CPI) in Pakistan averaged 110.60 points from 2001 until 2014, reaching an all-time high of 191.21 in November of 2013 and a record low of 62.82 in July of 2001. Inflation rate in Pakistan, on the other hand, has an average figure of 8.03 per cent within the period starting from 1957 until 2014. The next table 1.10 indicates inflation in terms of Consumer Price Index (CPI), Wholesale Price Index (WPI), Sensitive Price Index (SPI) and Annual GDP Deflator in Pakistan. Then the other table gleans the overview of Pakistan's monthly and annual inflation data. Monthly data covers starting from 2000 until December of 2013 and the annual data represents inflation rate since 1980 until 2013.

Table 1. 10 : Annual Changes in Price Indices and GDP Deflator in Pakistan

Fiscal Year	Consumer Price Index	Wholesale Price Index	Sensitive Price Index	Annual GDP Deflator
Base Year: 2000-01=100				
1990-91	12.66	11.73	12.59	---
1991-92	10.58	9.84	10.54	10.07
1992-93	9.83	7.36	10.71	8.89
1993-94	11.27	16.40	11.79	12.47
1994-95	13.02	16.00	15.01	13.78
1995-96	10.79	11.10	10.71	8.28
1996-97	11.80	13.01	12.45	14.63
1997-98	7.81	6.58	7.35	6.55
1998-99	5.74	6.35	6.44	5.85
1999-00	3.58	1.77	1.83	2.78
2000-01	4.41	6.21	4.84	6.72
2001-02	3.54	2.08	3.37	2.49
2002-03	3.10	5.57	3.58	4.42
2003-04	4.57	7.91	6.83	7.74
2004-05	9.28	6.75	11.55	7.02
2005-06	7.92	10.10	7.02	10.49
2006-07	7.77	6.94	10.82	7.28*
2007-08	12.00	16.64	16.81	12.91
2008-09	20.77	18.19	23.41	20.68
2009-10	11.73	12.63	13.32	10.75
2010-11	13.92	23.32	18.18	19.54
Base Year: 2007-08=100				
2008-09	17.0	18.9	21.1	20.7
2009-10	10.1	13.8	12.9	10.8
2010-11	13.7	21.2	16.6	19.5
2011-12	11.0	10.4	7.1	5.3

Source: Federal Bureau of Statistics, Pakistan and Government of Pakistan (2013)

Figure 1. 6: Inflation Trend in Pakistan (% , Annual Average from 1980-2013)



Sources: Inflation Rate in Pakistan (2014) and Index Mundi (2014)

Remittances

Table 1. 11 : Annual Remittances Inflows to Pakistan (In million US\$)

Year	Value (current million USD)	% of GDP
1976	411.74	3.09
1977	872.09	5.77
1978	1309.29	7.35
1979	1501.52	7.62
1980	2037.62	8.64
1981	2067.11	7.36
1982	2588.12	8.42
1983	2940.24	10.25
1984	2580.81	8.28
1985	2537.09	8.15
1986	2446.39	7.67
1987	2180.53	6.54
1988	1971.96	4.87
1989	2017.31	5.02
1990	2006.27	5.01
1991	1548.70	3.41
1992	1573.62	3.24
1993	1446.28	2.81
1994	1749.27	3.37
1995	1712.22	2.82
1996	1284.05	2.03
1997	1707.28	2.73
1998	1772.00	1.88
1999	996.00	1.58
2000	1075.00	1.45
2001	1461.00	2.02
2002	3554.00	4.92
2003	3964.00	4.76
2004	3945.00	4.03
2005	4280.00	3.91
2006	5121.00	4.02
2007	5998.00	4.19
2008	7039.00	4.29
2009	8717.00	5.39
2010	9690.00	5.49
2011	12263.00	5.83
2012	13186.56	---
2013 (July to April)	11569.82	---

Source: World Bank staff estimates based on IMF balance of payments data in Index Mundi (2014) and Government of Pakistan (2013)

Worker remittances received by Pakistan have been performing a very important role to the country's growth and development endeavor. An overview of yearly data of remittances inflow to Pakistan in current value as well as a percentage of GDP is presented in table 1.2 above. Evidence suggests that Pakistan has been receiving a continuously growing amount of foreign remittances since the 1970s and during the last few decades, except some years in the 1990s, there has been an increasing trend. For instance, in 1976 there was estimated an amount of US\$ 411.74 million of remittance earnings while in 2012 it has grown to reach its highest value of US\$ 13186.56 million. On the other hand, remittances as a percentage of GDP have been fluctuating in Pakistan. Starting from 1976, remittance-GDP ratio increased until 1983 and later decreased. From 2000 the ratio once again got rise. In 2012, Pakistan's remittances income was estimated as 5.83 per cent of its total GDP.

1.4.4 The Sri Lankan Economy

Sri Lanka is a small island country that has an area of 65,525 sq. km and a population of about 20.33 million (World Bank, 2012). Sri Lanka gets independence in 1948 and before that the nation had been colonized for more than 500 years. The country followed a planned economy path until the late 1970s but later it started to liberalize its economy by abolishing import substitution policy and introducing export-oriented economic measures.

Sri Lanka is one of the comparatively richer countries in the South Asia region and the economy of Sri Lanka has suffered for a long history of ethnic conflict. In order to tackle minority ethnic groups, the government had to spend vast resources and had experienced huge deficit. Economic progress of the country had been severely affected by wars between the Sri Lankan Army and the Tamil Militants. Lakshman (1997) predicted wisely that if the nation could have no civil war, Sri Lanka would likely be one of the top developed economies in Asia (Abeyratne, 2004). Macroeconomic indicators such as revenue of the

central government, expenditure, deficit, investment and savings, and various debt positions of Sri Lanka show a comparatively better position than other South Asian countries. Table below shows some basic macroeconomic indicators of Sri Lanka since 1950.

Table 1. 12 : Some Macroeconomic Indicators of the Sri Lankan Economy (from 1950 to 2010, in % of GDP)

Period	Revenue	Expenditure	Overall Deficit	Investment	Savings	I & S Gap	Domestic Debt	Foreign Debt	Total Debt
1950-59	21.7	24.6	-2.9	12.1	13.4	-1.3	19.4	4.4	23.8
1960-69	22.1	28.1	-6.0	15.3	12.0	3.3	42.9	9.8	52.6
1970-79	22.1	29.3	-7.1	17.5	13.2	4.3	43.3	21.3	64.5
1980-89	22.7	34.0	-11.3	26.2	15.5	10.7	41.6	44.2	85.8
1990-99	20.7	28.6	-7.9	24.9	19.6	5.3	43.6	50.6	94.3
2000-09	16.3	24.4	-8.1	25.3	21.6	3.8	53.1	41.1	94.2
1950-10	20.8	28.1	-7.2	20.3	16.5	3.8	40.7	28.7	69.4
2000	17.2	26.7	-9.5	28.0	21.5	6.5	53.8	43.1	96.9
2001	17.0	27.5	-10.4	22.0	20.3	1.7	58.0	45.3	103.3
2002	17.0	25.4	-8.5	21.2	19.5	1.7	60.0	45.6	105.6
2003	15.6	22.9	-7.3	22.0	21.5	0.5	56.0	46.3	102.3
2004	15.3	22.8	-7.5	25.3	22.0	3.3	54.7	47.6	102.3
2005	16.8	23.8	-7.0	26.8	23.8	3.0	51.6	39.0	90.6
2006	17.3	24.3	-7.0	28.0	22.3	5.7	50.4	37.5	87.9
2007	16.6	23.5	-6.9	28.0	23.3	4.7	47.9	37.1	85.0
2008	15.6	22.6	-7.0	27.6	17.8	9.8	48.6	32.8	81.4
2009	15.0	24.9	-9.9	24.4	23.7	0.7	49.7	36.5	86.2
2010	14.9	22.9	-7.9	27.8	24.7	3.1	45.8	36.1	81.9

Sources: Cooray (2011) and Central Bank of Sri Lanka (2011)

Economic Structure, Gross Domestic Product (GDP) and Growth

The economy of Sri Lanka grew by 8.20 per cent in the fourth quarter of 2013 over the same quarter of 2012. In 2010, the economy recorded a growth rate of 8.0 per cent and it is expected that the economy will expand at a rate of 8.5-9.5 per cent in the years to come (Central Bank of Sri Lanka, 2011). According to the Department of Census and Statistics of Sri Lanka, average annual growth rate in the country from 2003 until 2013 was 6.51 per cent. The highest rate of 8.60 per cent was estimated in 2010 and the lowest rate of 1.50 per cent was recorded in 2009. The last decade reported an average growth rate of 5.0 per cent and the average of the 1990s was 5.3 per cent. In 1960s, 1970s and 1980s the economy of Sri Lanka

grew at a consistent rate of 4.0 per cent or more. The lowest average was seen in the 1950s with 3.4 per cent growth rate (Lakshman, 2010 and Sarvananthan, 2005).

The Sri Lankan economy was heavily dependent on agriculture in the first phase of development. Until the early 1980s, the agriculture sector accounted for about 50 per cent of the GDP (Lakshman, 1997). The principal agricultural products were tea, coffee, rubber and coconut. Among them, tea is the main export crop in Sri Lanka. In 1960, agriculture sector contributed 32 per cent of the total GDP. Industry and services sectors formed about 20 per cent and 48 per cent respectively. Then there has been a structural transformation in the economy over the last six decades as a consequence of measures taken by the government to diversify the economic structure. Sectoral contribution has shifted accordingly reflecting this structural change. In 2010 the shares of agriculture, industry and services sectors were recorded at 11.9 per cent, 28.7 per cent and 59.3 per cent of the total GDP respectively. The data of sectoral GDP contribution in Sri Lanka reveals that the services and the industry sectors have got an upward trend while the agriculture sector experienced a decline. However, such a decline does not mean that agriculture does not play a significant role in the economy rather still agriculture plays a vital role in the livelihood of the people of Sri Lanka.

Recently industry and services sectors became main contributors in the Sri Lankan economy. The industrial sector accounts for about 32 per cent where the services sector contributes about 57 per cent of GDP. Within industry, the main segments are manufacturing and mining and construction etc. Within the services sector, wholesale and retail trade represents 21 per cent, transport and communication represents 13 per cent and banking, insurance and real estate accounts for 11 per cent of GDP. The principal sub-sectors of the agriculture sector are livestock, forestry and fishery etc. In Sri Lanka, the most dynamic sectors are textile and apparel, food and beverage, telecommunication, insurance and banking and food processing etc. (Central Bank of Sri Lanka, 2012).

Table 1. 13 : Sri Lanka's Annual Average GDP Growth and Their Sectoral Shares
(1950-2010)

Period	GDP (Million Sri Lankan Rupee)	GDP Growth (annual, %)	Sectoral Share (growth, annual %)		
			Agriculture	Industry	Services
1950-1959	-	3.1	38.8 (-)	17.3 (-)	43.8 (-)
1960-1969	319020	4.7	36.17 (4)	17.24 (6)	46.61 (4)
1970-1979	487304	3.9	28.97 (3)	26.08 (4)	44.95 (5)
1980-1989	782999	4.3	27.24 (2)	27.02 (4)	45.74 (5)
1990-1999	1220602	5.2	23.65 (3)	26.36 (7)	50.0 (6)
2000-2009	1944844	5.0	14.71 (3)	28.72 (5)	56.54 (6)
2000	1598348	6.0	19.9 (2)	27.3 (8)	52.8 (7)
2001	1573647	-1.5	20.1 (-3)	26.8 (-2)	53.1 (-1)
2002	1636037	4.0	20.5 (3)	26.3 (1)	53.2 (6)
2003	1733222	5.9	13.2 (2)	28.4 (5)	58.3 (8)
2004	1827597	5.4	12.5 (0)	28.6 (5)	58.8 (7)
2005	1941671	6.2	11.8 (2)	30.2 (8)	58.0 (6)
2006	2090548	7.7	11.3 (6)	30.6 (8)	58.0 (8)
2007	2232656	6.8	11.7 (3)	29.9 (8)	58.4 (7)
2008	2365500	6.0	13.4 (8)	29.4 (6)	57.2 (6)
2009	2449214	3.5	12.7 (3)	29.7 (4)	57.6 (3)
2010	2645432	8.0	12.8 (5)	29.4 (0)	57.8 (12)

Sources: Central Bank of Sri Lanka (2011) and World Bank (2015)

Savings and Investment

Table below shows investment rate, saving rate and investment-saving gap in Sri Lanka. Saving rate for the period from 1965 to 2012 had been around 14 per cent of GDP. Sri Lanka has a low rate of saving compared with other South Asian countries except Pakistan and Bangladesh. Domestic saving rate, in particular, had been very low and almost zero or negative during the same period. But Sri Lanka has gained a remarkable improvement in its saving rate since the last six decades mainly for its low consumption rate.

The average investment rate in Sri Lanka increased to 25.3 per cent of GDP in the last decade from a rate of 24.9 per cent in the 1990s. In 2010, investment as a percentage of GDP was 27.8 per cent and in 2009 it was 24.4 per cent. The average investment rate of Sri Lanka during the period of 1965 to 1975 was only 14 per cent and later various State sponsored activities in some sectors have contributed to get an upward trend.

Table 1. 14 : Sri Lanka's Savings and Investment

Period	Investment (I)	Savings (S)	Investment-Saving Gap
1950-59	12.1	13.4	-1.3
1960-69	15.3	12.0	3.3
1970-79	17.5	13.2	4.3
1980-89	26.2	15.5	10.7
1990-99	24.9	19.6	5.3
2000-09	25.3	21.6	3.8
1950-2010	20.3	16.5	3.8
2000	28.0	21.5	6.5
2001	22.0	20.3	1.7
2002	21.2	19.5	1.7
2003	22.0	21.5	0.5
2004	25.3	22.0	3.3
2005	26.8	23.8	3.0
2006	28.0	22.3	5.7
2007	28.0	23.3	4.7
2008	27.6	17.8	9.8
2009	24.4	23.7	0.7
2010	27.8	24.7	3.1
2011	30.0	22.0	7.9
2012	30.6	24.0	6.6

Source: Cooray (2011), Central Bank of Sri Lanka (2011)

Inflation and Consumer Price

Price stability in Sri Lanka is measured by four indicators: Colombo Consumer Price Index (CCPI), Greater Colombo Consumer Price Index (GCPI), Wholesale Price Index (WPI) and the Implicit Gross Domestic Product Deflator (GDPD). Among them, the CCPI is used officially to measure inflation and GDPD is as an alternative indicator. The other indicator of WPI is used to measure the price movements in the primary market. Data from the Central Bank of Sri Lanka (2013) indicates that the price indicators of the CCPI, the WPI and the GDPD were recorded at 7.5 per cent, 3.5 per cent and 8.9 per cent respectively in 2013. The following table summarizes the decadal and annual inflation rates in Sri Lanka.

Table 1. 15 : Inflation and Price Behavior in Sri Lanka

Period	Annual Average Price Change			
	CCPI (1952=100)	CCPI (2002=100)	WPI (1974=100)	GDPD (1996=100)
1950-59	0.7			
1960-69	2.2			
1970-79	6.9		11.6	11.9
1980-89	12.8		12.9	11.5
1990-99	11.3		9.5	10.2
2000-09	10.8		10.8	9.9
2000	6.2		1.7	6.7
2001	14.2		11.7	12.4
2002	9.6		10.7	8.4
2003	6.3		3.1	5.1
2004	7.6	9.0	12.5	8.8
2005	11.6	11.0	11.5	10.4
2006	13.7	10.0	11.7	11.3
2007	17.5	15.8	24.4	14.0
2008		29.2	24.9	16.3
2009		3.5	-4.2	5.9
2010		6.2	2.6	7.3
		2006/07=100		
2011		6.7	19.9	7.8
2012		7.5	3.5	8.9

Source: Central Bank of Sri Lanka (2011)

Remittances

Sri Lanka is featured by an open economy with comparatively smaller market. The country is blessed by a large number of expatriate people working outside who send substantial amount of remittances every year. In 2012, the country estimated remittances income as around 8.71 per cent of the GDP. Similar to other developing countries, annual data of remittances inflow of Sri Lanka shows that income in this sector has increased very fast during the past decades. In the following table remittances data of Sri Lanka since 1975 until 2012 has been listed.

Table 1. 16 : Remittances Inflows of Sri Lanka

Year	Remittances (% of GDP)	Remittances (in Million US\$)
1975	0.23	8.56
1976	0.36	12.95
1977	0.45	18.48
1978	1.43	39.03
1979	1.79	60.07
1980	3.77	151.7
1981	5.2	229.56
1982	6.07	289.31
1983	5.7	294.48
1984	4.98	300.94
1985	4.88	291.65
1986	5.09	325.97
1987	5.24	350.06
1988	5.13	357.67
1989	5.12	358.01
1990	4.99	400.78
1991	4.91	442.09
1992	5.65	547.81
1993	6.12	632.38
1994	6.1	715.19
1995	6.21	808.95
1996	6.13	851.58
1997	6.24	942.39
1998	6.48	1023.46
1999	6.85	1072.39
2000	7.14	1165.83
2001	7.53	1185.99
2002	7.65	1309.08
2003	7.61	1437.75
2004	7.69	1589.57
2005	8.09	1975.54
2006	7.67	2166.77
2007	7.75	2507.3
2008	7.18	2924.5
2009	7.93	3336.7
2010	8.32	4123.13
2011	8.71	5153.01
2012	n.a	5999.00

Source: World Bank staff estimates based on IMF BOP data in Index Mundi (2014)

1.5 Conclusion

South Asian economies have achieved impressive records of economic growth since the 1980s. Output for India, Pakistan, Bangladesh and Sri Lanka has grown more rapidly

since 1980 than for any other region except East Asia. However, unlike East Asia, these countries have not been characterized by particularly high rates of savings and investment. Indeed, as a share of output, investment has averaged just one-half to two-thirds of the levels typical in East Asia during its sustained periods of high growth.

Our results in this chapter indicate that reform programs introduced in individual South Asian countries contributed positively in the upward trends of the respective economies. Various liberalization programs such as trade liberalization, financial reforms, fiscal reforms and capital market reforms have opened a new horizon of further growth and development in the countries of South Asia. In the next chapter, we perform a broad discussion of these reform measures and their impact on foreign trade and FDI in major South Asian countries.

CHAPTER 2

FOREIGN TRADE, FDI AND ECONOMIC REFORMS IN SOUTH ASIA

2.1 Introduction

UNCTAD and ADB (2009) reported that the share of South Asia in global total income is only a mere 3 per cent while it is a home to 25 per cent of the total world population. The region has a negligible share in total world exports too. In 2007, South Asia accounted for only 1.9 per cent in total exports of the world where that of East Asia was 15.8 per cent. Hence, data shows that much work needs to be done in order to explore the untapped trade opportunities of the region.

After suffering from long lasting economic stagnation until the end of 1980s, individual South Asian countries started to embrace new growth-stimulating policy reforms through gradual opening up of their economies to the world. Following the already advanced East Asian example, these countries have adopted an export-led growth model that focuses on selling various final goods in the overseas markets especially in the US and Europe. Through these initiatives, they have been trying to bring dynamism to their economies. After a long period of struggling with economic stagnation, these countries got an access to large markets of the developed world and very recently started to exploit their economies of scale. Furthermore, now-a-days, liberalization of trade started to boost growth of the productive sectors of the countries in the region.

In this connection, the purpose of this chapter is to trace the trends and patterns of international trade and foreign direct investment (FDI) inflow in the perspective of South Asian countries. The impact of major economic liberalization reforms on foreign trade (i.e. export and import) and inward FDI will also be analyzed at the end. In this chapter, panel data estimations are conducted in the empirical analyses of impact of economic reforms on

foreign trade and FDI in South Asia. The chapter is organized as it follows: in the first part, major initiatives of economic liberalization reforms in South Asian countries will be examined. In the second section, basic trends and patterns of foreign trade and inward FDI for Bangladesh, India, Pakistan and Sri Lanka will be discussed. Then the impact of the reform policies on foreign trade and inward FDI of the above South Asian nations will be measured using panel data estimation. The final section concludes the chapter.

2.2 Economic Reforms in South Asia

Economic reform initiatives in South Asia in the 1980s and early 1990s came out as implementation of a package of Structural Adjustment Policies (SAP) under the support of the World Bank and the International Monetary Fund (IMF). Example includes World Bank's Structural and Sectoral Adjustment Loans (SAL and SECLs) in 1980s. The reform programs include trade liberalization, agricultural reforms, privatization, financial sector reforms and fiscal reforms etc. The major reform programs are discussed below.

2.2.1 External Sector Liberalization

South Asian countries exercised a logical sequence in reform activities towards trade liberalization by initiating the relaxation and withdrawal of import quota restrictions along with the unification of the exchange rate and devaluation of the domestic currency. Starting from the mid-1980s, tariff and non-tariff barriers were reduced substantially and the un-weighted average import duty rate declined enormously. However, cuts in custom duties were offset by other protective measures like Para-tariffs (World Bank, 2004). The nations of the region reduced protection to make import less costly and helped the export sector to demonstrate stellar performance. As a result, economies in South Asia have achieved a great expansion in international trade as they opened up and liberalized their economies gradually. Therefore, total volume of export and import as a share of GDP has grown significantly and

both export and import shares have been increased notably thereafter.

2.2.2 Financial Sector Reform

Removing distortions from the economy imposed by regulatory authorities was the background of the financial sector reform programs in South Asia. For example, some of the governments created the comprehensive ‘Financial Sector Reform Programme (FSRP)’ in early 1990s and mandated the authority to design policy that is aimed at liberalizing the economy through bringing indirect control in monetary policy, reducing lending interest rates, enhancing efficiency of financial institutions especially the banking sector and restoring order in the country’s entire financial sector. Financial reform appeared to be very important in South Asia because capital markets are yet to be expanded and flourished in almost all of the member countries. Like other developing countries, banks and other financial institutions act as key intermediaries to provide necessary funds for businesses. Thus the contribution of financial liberalization reform towards improvement of the productivity of domestic capital in these economies has been acting as a crucial factor of greater trade and development (King & Levine 1993; Hallwood & MacDonald, 2008).

2.2.3 Reform of the Capital Market

Most of the countries in South Asia including Bangladesh, India and Pakistan opened their doors for foreign entrepreneurs during the 1980s and the early 1990s in order to reap the benefit of overseas capital and investment. The countries built up Board of Investment (BOI), lifted restriction on capital and profit repatriation and at the same time opened the industrial sector for FDI. Other measures that were also added were tax exemptions for investors in some key industries such as power generation, withdrawal of import duties from export oriented machineries, offering tax holiday schemes for investment in priority and less developed sectors, reducing restriction on entry and exit, and lowering

bureaucratic barriers in getting approvals of foreign projects.

2.2.4 Fiscal Reform

Fiscal policy in various South Asian countries includes activities of earning and spending carried out by the State to allocate resources in various sectors in order to provide services while ensuring optimum efficiency of the economic units. In the early stage of independence of these countries, majority of the government expenditure was put in reconstruction and rehabilitation works. Notwithstanding, the situation changed gradually to improve the fiscal front—a number of fiscal reforms were undertaken in accordance with the ‘IMF’s Enhanced Structural Adjustment Facility (ESAF)’. For instance, the introduction of ‘Value Added Tax (VAT)’ that largely replaced the earlier version of differentiated sales tax in some countries was one of the most important measures among these fiscal reform policies. On the expenditure side, *vis-à-vis*, increased emphasis was given on human resource development and poverty alleviation programs in most of the South Asian economies. The governments of the individual countries have given top priority on the education sector to improve both quality and coverage. The provision of health and family planning services and social safety net programs to serve the vulnerable people were also emphasized in government fiscal policies (Bahar, 2009).

2.3 Performance in Foreign Trade and FDI by Major South Asian Countries

As a result of the above reform measures, most of the South Asian countries got acceleration in economic growth and greater amount of foreign trade and FDI flow started to happen in these economies. The current section highlights broadly about foreign trade and FDI performances by major South Asian countries.

2.3.1 The Case of Bangladesh

Since the last decade, Bangladesh has achieved substantial progress in its external sector. Major trade partners of the country for export are USA, UK, Germany, Belgium, Italy,

Netherlands, Canada and Japan. Now-a-days the country exports mainly woven garments, knitwear, leather and leather goods, frozen foods and chemical products etc. In the past, jute and products made from jute were the main export items but the tradition has been changed. Now the major share of export income comes from selling of ready-made garments (RMG). On the other side, Bangladesh imports mainly primary commodities such as rice, wheat, raw jute, crude petroleum etc.; intermediate goods like petroleum, fertilizer, edible oil, clinker etc.; and capital machinery. Export earnings performance of some of the major sectors including woven-RMG, knit-RMG, frozen foods and leather goods have become significantly important during the last two decades. The table below indicates amount of exports and the main export partners of Bangladesh.

Table 2. 1: Bangladesh's Exports to Major Countries (1975-76 to 2011-12, in million US\$)

FY	U.S.	U.K	Germany	France	Italy	Nether lands	Canada	Others	Total
1975-76	61.9	29.5	7.4	8.9	23.2	8.2	6.1	226.2	380.5
1980-81	83.5	24.8	9.7	5.4	27.4	11.4	6.1	522.3	709.9
1985-86	173.2	46.1	21.4	7.0	36.3	15.4	15.1	443.5	819.2
1990-91	507.3	136.9	164.9	86.4	115.9	61.9	30.3	572.8	1717.6
1995-96	1197.5	417.7	369.2	272.9	207.1	183.2	69.1	1044.9	3882.4
2000-01	2500.4	594.1	789.9	366.0	295.7	328.0	125.7	1359.9	6467.3
2005-06	3039.7	1053	1763.4	678.9	427.9	327.2	407.0	2589.8	10526.2
2006-07	3453.5	1176	1956.8	731.9	516.2	459.3	458.1	3277.6	12177.9
2007-08	3590.5	1374	2174.7	953.1	579.2	653.9	564.4	4079.7	14110.8
2008-09	4052.0	1501	2269.7	1031.1	651.5	970.8	663.2	4259.1	15565.2
2009-10	3950.4	1508	2187.3	1025.8	623.9	1016.9	666.8	4894.2	16204.7
2010-11	5107.5	2065	3438.7	1537.9	866.4	1107.1	944.7	7426.3	22928.2
2011-12	5100.9	2888.6	3689	1380.4	977.4	691.3	993.7	8409.9	24287.7

Source: Government of Bangladesh (2012)

Bangladesh's external sector has experienced robust growth in recent years, thanks to the Export Policy of 1997-2002, which has been designed in order to maximize export growth and narrow down the gap between import payments and export earnings. However, during the later part of 1990s, the export-oriented industry was featured by some fluctuating fortunes. Growth rates in FY1997 and FY1998 were a robust 13.8 per cent and 16.8 per cent,

only to subsequently come down to 2.9 per cent in FY1999. In FY2000 export sector was able to make some rebound and posted a growth record of 8.3 per cent. The rate was 12.43 per cent in the corresponding next year. During the FY2001-02, the sector was shaken by some domestic political turmoil to be recorded for a growth rate as low as -7.44 per cent. After that, export growth in Bangladesh was seen to be continuously positive and a double digit growth rate was posted thereafter until FY2010-11 except FY2009-10.

On the other hand, import composition of the Bangladesh economy shows that the import share of 'Principal Primary Commodities' had a declining trend in the later half of 1990s but started to rise again in recent years. The next table shows commodity-wise imports in Bangladesh. The combined shares of 'Major Industrial Goods and Capital Goods' reported a continuous increase during the same period. The import payment for Principal Primary Commodities in FY1998-99 was US\$ 1448 million representing 18.06 per cent of total import. These figures decreased to US\$ 980 million and US\$ 1098 million (11.66 per cent and 11.73 per cent) in FY1999-2000 and FY2000-01 respectively (Rahman and Yusuf, 2010). However, since FY2002-03 and after that, an overall increasing trend was observed in the nation's import sector. In the category of Major Intermediate Goods, import has been increasing continuously from US\$ 1037 million (12.95 per cent) in FY1998-99 to US\$ 5035 million (22.37 per cent) in FY2008-09 and US\$ 4957 million (20.88 per cent) in FY2009-10. Import of Capital Machinery also was in the rising trend. Bangladesh imports a large volume of other goods in addition to the above three mentioned categories and the category of 'Other Goods' comprises around slightly more than 50 per cent of total imports of the country. For instance, in FY2010-11 it was reported that total payment for Other Goods was US\$ 6427 million out of US\$ 9335 million of total imports in the country (GOB, 2008).

Table 2. 2: Bangladesh's Value of Imports by Major Commodities (In Million US\$)

Commodity	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Major Primary Goods	812	1133	1339	1676	1854	2069	3455	2916	2940	5626	4148
<i>Rice</i>	15	211	144	262	117	180	874	239	75	830	288
<i>Wheat</i>	171	198	287	312	301	401	537	643	761	1081	613
<i>Oilseeds</i>	72	64	73	86	90	106	136	159	130	103	177
<i>Crude petroleum</i>	242	267	252	350	604	524	695	584	535	923	987
<i>Raw cotton</i>	312	393	583	666	742	858	1213	1291	1439	2689	2083
Intermediate Goods	1311	1548	1910	2662	3001	3569	4844	5035	4957	7511	9263
<i>Edible oil</i>	251	364	471	440	473	583	1006	865	1050	1067	1644
<i>Petroleum products</i>	481	620	770	1252	1400	1709	2058	1997	2021	3186	3922
<i>Fertilizer</i>	107	109	150	332	342	357	632	955	717	1241	1381
<i>Clinker</i>	150	144	139	170	210	240	347	314	333	446	504
<i>Staple fiber</i>	39	41	57	75	76	97	110	112	118	180	428
<i>Yarn</i>	283	270	323	393	501	582	691	792	718	1391	1384
Capital Machinery	554	548	729	1115	1458	1929	1664	1420	1595	2325	2005
Other Goods	5863	6429	6925	7694	8434	9590	11666	13136	14246	18196	20100
Total Imports	8540	9658	10903	13147	14746	17157	21629	22507	23738	33658	35516
Annual Change (%)	-8.5	13.1	12.9	20.6	12.2	16.4	26.1	4.1	5.5	41.8	5.5

Source: Government of Bangladesh (2012)

About FDI Inflow, after independence Bangladesh got the first FDI inflow in 1973; however, during the whole 1970s, FDI inflow in the newly established country was very low. Starting from the early 1980s, Bangladesh adopted several policy measures to attract more foreign investment. During that time, FDI inflow to Bangladesh was very much expected to underwrite its savings-investment gap and to redress its export-import imbalances. As a result of various reforms, foreign investment has increased to some extent but not to a satisfactory level. According to data provided by the central bank of Bangladesh, the country has received around US\$ 12.06 billion of foreign direct investment during the period 1996-97 to 2012-13. Over this 17 years, the highest annual inflow of US\$ 1730.63 million was recorded in

2012-13 fiscal year and the lowest amount of US\$ 284 million in 2003-04. The next table shows time series FDI inflow data in Bangladesh since FY1996-97 until FY2012-13.

Table 2. 3: FDI Inflow in Bangladesh from 1996-97 to 2012-13 (In million US\$)

Period	FDI inflow					
	Equity Capital	Reinvested Earnings	Intra-company Loans	Within EPZ	Non-EPZ	Total Inflows
1996-97	136.71	151.27	78.87	46.12	320.23	366.85
1997-98	349.02	181.31	72.97	123.37	479.93	603.30
1998-99	195.54	120.71	77.85	45.72	348.38	394.10
1999-2000	152.98	80.71	149.53	181.91	201.31	383.22
2000-01	372.27	81.00	110.66	66.06	497.87	563.93
2001-02	230.11	84.66	86.16	59.28	341.65	400.93
2002-03	163.98	164.97	50.23	86.72	292.47	379.18
2003-04	111.23	161.38	11.55	38.92	245.23	284.16
2004-05	361.14	297.11	145.53	90.23	713.55	803.78
2005-06	447.22	198.64	98.75	74.51	670.10	744.61
2006-07	464.50	281.00	47.24	110.78	681.96	792.74
2007-08	545.69	197.71	25.29	88.14	680.55	768.69
2008-09	535.42	336.61	88.56	129.34	831.25	960.59
2009-10	515.14	331.10	66.78	151.11	761.91	913.02
2010-11	249.95	445.19	83.90	181.45	597.59	779.04
2011-12	454.10	542.35	198.43	185.26	1009.62	1194.88
2012-13	761.03	645.64	323.96	369.75	1360.88	1730.63

Sources: Government of Bangladesh (2013)

Bangladesh receives FDI from many developed and developing countries. Until today, 53 nations around the globe have invested in Bangladesh. The major investing countries are UK, USA, Japan, Hong Kong and South Korea. According to latest data by the Bangladesh Bank, inflows of FDI in 2013 were US\$ 337.97 million from Malaysia, US\$ 103.6 million from Singapore, US\$ 159.49 million from U.K, US\$ 86.34 million from Hong Kong, US\$ 71.07 million from U.S.A., US\$ 124.94 million from South Korea, US\$ 99.04 million from Japan and US\$ 84.96 million from the Netherlands (Bangladesh Bank, 2013). In the following table 2.4 the major countries that are investing in Bangladesh are presented. The data summarized here covers a range of 16 years starting from 1997 until 2013. The values are in million US dollars.

Table 2. 4: Bangladesh's Major Sources of FDI Inflows (1997–2013) (Million US\$)

Year/ Country	1997-2 003, <i>Total</i>	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Japan	271.52	29.33	49.68	22.62	28.79	26.69	58.53	22.03	35.05	31.36	99.04
U.K	1068.9	79.62	153.5	77.88	123.7	149.8	105.6	66.50	144.64	128.19	159.5
Nether lands	80.34	17.62	10.71	14.9	18.21	22.09	39.93	48.75	71.41	119.7	84.96
S. Korea	288.9	22.01	26.27	50.14	30.06	36.58	40.97	46.75	73.84	104.9	124.9
Taiwan	23.49	0.51	11.56	2.02	1.40	0.77	3.71	12.81	9.83	6.74	21.90
Australia	14.71	--	--	--	--	--	0.06	8.35	13.28	99.28	12.08
Singapore	563.2	3.16	97.55	26.32	11.78	37.32	14.75	311.9	22.77	15.59	103.6
USA	3271.5	35.15	105.9	187.6	161.5	54.48	36.24	34.79	94.18	95.07	71.07
UAE	7.24	5.81	12.81	100.5	62.02	134.3	70.29	33.29	22.00	7.34	50.48
Malaysia	372.5	1.58	63.86	25.69	45.73	1.51	79.15	40.17	2.00	7.72	338.0
India	268.8	10.23	0.95	5.79	2.51	8.67	5.67	38.95	20.71	27.88	42.09
Hong Kong	752.8	7.96	39.31	43.33	62.49	41.65	47.55	72.95	93.58	68.07	86.34
China	103.6	0.07	1.81	0.18	0.92	3.47	2.54	5.17	18.57	14.35	26.01
Germany	214.3	0.68	0.94	1.57	6.18	6.23	5.60	5.75	2.64	4.45	17.05
Norway	519.2	33.14	59.53	53.42	77.35	6.74	62.37	55.89	--	24.31	8.56
Others	2650.7	0.86	79.29	15.35	1.35	3.59	1.17	1.91	--	0.04	5.09
Total	10477.8	284.2	803.8	744.6	792.5	768.7	960.6	913.0	779.0	1194.9	1730.6

Source: Bangladesh Bank (2013)

FDI inflows into Bangladesh have been concentrated in two principal sectors: services and industry. In 2013, the shares of these two sectors were US\$ 887.32 million and US\$ 806.55 million respectively. Among the services sector, the transport and telecommunications sub-sector was accounted for US\$ 527.09 million while the trade and commerce sub-sector earned US\$ 295.05 million. The rest went to the 'other services' category. In the case of industry sector, the major share of US\$ 712.88 million was invested in the manufacturing sub-sector and a tiny part went to power, gas and petroleum sub-sector. Recently the textile and readymade garment (RMG) has emerged as the major manufacturing sector for Bangladesh and most of the manufacturing FDI actually came to this sector in 2013. On the other hand, agriculture and fishing received only a marginal share (US\$ 29.72 million) of the total FDI flow to the country.

Table 2. 5: Bangladesh's FDI Inflows by Sectors (In Million US\$)

Year	Sector1: Agriculture and Fishing	Sector 2: Industry		Sector 3: Services			Total
		Power, Gas and Petroleum	Manufacturing	Trade and Commerce	Transport and Telecommunications	Other Services	
1995	0.0	3.2	45.5	41.3	1.7	0.6	92.3
1997	0.26	109.09	135.08	118.39	1.46	2.57	366.59
1998	2.33	230.45	183.14	173.16	7.25	6.97	562.38
1999	0.46	180.87	76.45	105.32	24.05	6.94	393.63
2000	2.88	106.57	225.79	44.12	0.47	3.32	380.27
2001	15.72	313.78	183.95	35.25	5.40	9.83	548.28
2002	0.95	176.12	143.99	55.30	20.71	3.86	399.98
2003	2.41	58.07	196.22	49.24	61.74	11.50	376.77
2004	4.11	87.44	90.94	55.31	43.76	2.60	280.05
2005	2.07	198.40	235.51	101.80	261.89	2.04	799.64
2006	1.37	209.32	120.94	142.19	269.01	1.07	742.53
2007	4.57	229.93	147.46	103.84	305.12	1.82	788.17
2008	3.65	157.92	128.92	171.26	299.92	7.02	765.04
2009	19.14	46.89	183.96	122.53	579.62	7.77	940.77
2010	10.95	73.66	233.74	128.80	445.99	19.68	901.87
2011	11.53	127.19	330.25	234.82	54.50	20.39	767.15
2012	49.50	244.94	414.98	272.75	179.04	32.60	1144.31
2013	29.72	93.67	712.88	295.05	527.09	65.18	1693.87

Source: Bangladesh Bank (2013)

Now-a-days, the textile and wearing industry has emerged as one of the largest recipients of FDI in Bangladesh. Although the sector has better potential for foreign investment and its current share is higher than that of many other sectors in the country, the amount of FDI stock or share of FDI inflow is not big enough in absolute terms. Since 1997, the amount of FDI in this industry has been fluctuating enormously. Another important FDI receiving sector is gas and petroleum. This sector also experienced fluctuating fortunes of foreign investment. In its latest, this sector has received an amount of US\$ 22.35 million of FDI in 2013. The banking sector in Bangladesh acts as one of the most rising industries. Foreign investors have been injecting their capital in this sector since the 1990s when Bangladesh has started to adopt various financial reforms. The FDI share of the banking sector to total inflow is also larger than many other industries. Bangladesh's telecommunication industry has been flourishing very fast and now it is the largest FDI

recipient in the country. FDI in this sector also increased substantially since 2005. In the following table, major FDI receiving sectors in Bangladesh are shown.

Table 2. 6: FDI in Major Sectors in Bangladesh (In Million US\$)

Year	Gas & Petroleum	Textiles & Wearing	Banking Sector	Telecommunications
1997	109.09	44.77	115.88	1.37
1998	230.45	116.82	139.95	7.24
1999	180.87	37.16	94.39	23.97
2000	50.17	143.71	19.62	n.a
2001	139.16	112.76	29.22	5.40
2002	75.14	67.15	38.27	20.71
2003	22.71	76.66	40.93	61.74
2004	61.06	32.25	52.43	43.76
2005	168.75	74.99	94.88	261.89
2006	181.87	73.53	129.95	267.97
2007	204.98	105.44	91.83	304.71
2008	132.82	93.42	156.80	299.92
2009	23.49	130.35	110.20	579.62
2010	36.87	157.94	111.56	445.82
2011	74.60	225.17	208.78	52.41
2012	180.77	241.39	253.44	178.90
2013	22.35	412.43	268.53	525.29

Source: Compiled from FDI Survey Report 2013 of Bangladesh Bank Statistics Department

2.3.2 The Case of India

As indicated in the next table below, during 1950s through 1970s India had on an average a small share of GDP from foreign trade. Both export earnings and import expenses were comparatively smaller in amount. Since the 1980s, foreign trade has been increasing because of a series of reform measures in the economy. In 1980-81, exports of India were US\$8486 million while imports were US\$15869 million indicating a large trade deficit. Later both exports and imports had increased but the increase in exports was higher than that of imports. In 1990-91, India's exports and imports were recorded as US\$18143 million and US\$24075 million respectively while its exports and imports were counted as US\$304624 million and US\$489181 million respectively in FY2011-12. Till 2011-12, India never had a trade surplus in the past.

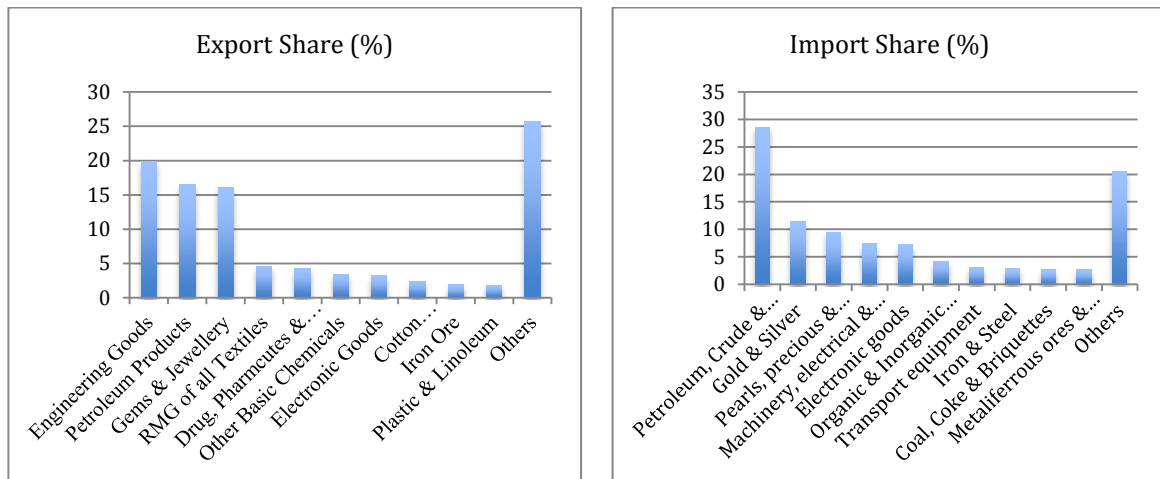
Table 2. 7: Export and Import Composition of India since 1960-61 (in million US\$)

	1960-61	1970-71	1980-81	1990-91	2000-01	2008-09	2009-10	2010-11	2011-12
Exports	1346	2031	8486	18143	44076	185295	178751	251136	304624
Imports	2353	2162	15869	24075	49975	303696	288373	369769	489181

Source: Government of India (2014)

India's major export destinations are the United Arab Emirates (UAE), United States, China, Hong Kong, Singapore, Netherland, UK, Germany, Belgium, Indonesia, France, Japan, Saudi Arabia, Italy, Brazil, South Africa, Malaysia, South Korea, Sri Lanka and Bangladesh. India exports mostly engineering goods, petroleum products, gems and jewelry, RMG of all textiles, drug/pharmaceutics and fine chemicals, other basic chemicals, electronic goods, cotton yarn/made-up handloom products, iron ore, plastic and linoleum, and a number of other goods like tea, coffee, leather and leather manufactures etc. On the other hand, India imports mainly petroleum; crude and related products; gold and silver; pearls, precious and semi-precious stones; machinery; electrical and non-electrical items; electronic goods; organic and inorganic chemicals; transport equipment; iron and steel; coal, coke and briquettes; metaliferrous ores and metal scrap; and a number of other goods. Major trading partners for imports are China, UAE, Switzerland, Saudi Arab, USA, Germany, Iran, Australia, Nigeria, South Korea, Kuwait, Indonesia, Hong Kong, Iraq, Japan, Belgium, Singapore, South Africa, Qatar and Malaysia. The next figures show country-wise and commodity-wise exports and imports of India.

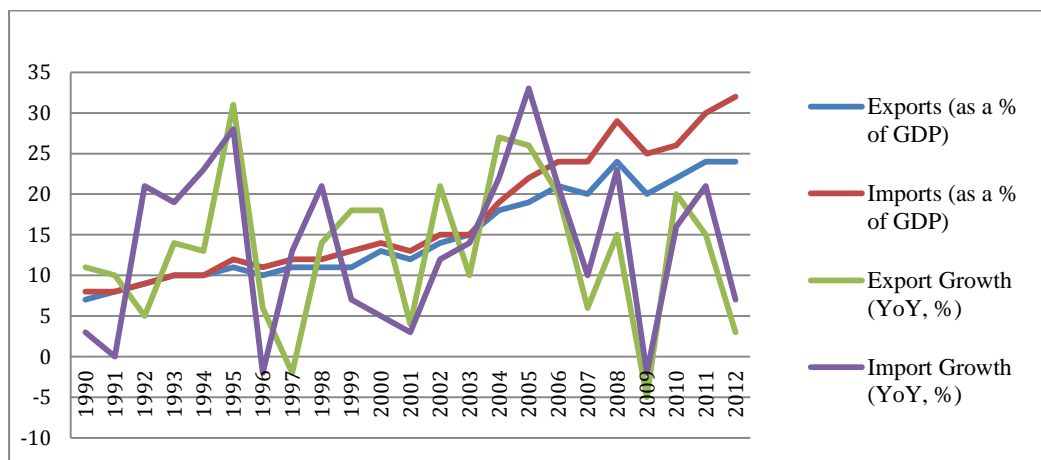
Figure 2. 1: Share of Major Export and Import Commodities in 2010-11 for India (% of total)



Source: Government of India (2013)

India's exports and imports as a percentage of GDP have been rising year after year since independence. The following figure indicates data of export and import shares in GDP since 1990. The graph shows that in 1990, exports as a share of GDP was only 7 per cent and that of imports was also as low as 8 per cent. In the ending year of 2012, the same shares were 24 per cent and 32 per cent respectively. Growth of exports and imports in a year on year basis also shifted since 1990. According to the following data, India's growth rates in shares of exports and imports were 11 per cent and 3 per cent respectively in 1990. However, in 2012, the growth rates were recorded as 3 per cent and 7 per cent.

Figure 2. 2: Exports and Imports as a share of GDP in India Since 1990



Source: World Bank (2013)

Regarding FDI inflow of India, the country had raised a policy since independence that discouraged FDI and India had followed this inward looking policy until 1991 when the country for the first time started to reform its economy. As a recovery, the country started to reform its FDI regime in 1991 in order to attract more funds from the overseas investors and after that FDI inflow to India got a rising trend.

For the sake of discussion, inflow of FDI is divided into two stages for India: before reform and after reform. FDI data from 1980 to 1990 is presented in the table below and it is indicative that Indian FDI inflow increased from US\$ 79 million in 1980 to US\$ 252 million in 1989. Later there was a declining trend in 1990 and the receipt was only US\$ 237 million. The major investing countries prior to reform were Germany, USA, UK, Japan and Switzerland. In 1981, these five countries invested together about 86 per cent of total FDI in India. On the contrary in 1990 USA, Switzerland, Germany, UK and Italy invested as the top countries and their combined share accounted for about 57 per cent of total FDI inflows.

Table 2. 8: Country-wise FDI inflows in India before Reform (In Million US\$)

Year/Country	USA	Germany	Japan	UK	Italy	Switzerland	Others	Total Inflow
1981	2.6	6.2	0.7	0.8	0.1	0.5	1.6	12.5
1982	5.3	3.7	26.5	1.7	4.2	1.5	23.6	66.2
1983	13.7	4.8	15.9	9.7	1.1	1.1	14.7	61.0
1984	7.9	2.5	5.4	1.6	0.7	0.4	80.9	99.4
1985	32.3	9.6	12.7	3.0	5.6	0.7	38.1	102.0
1986	23.3	16.0	4.6	6.1	1.9	2.6	30.4	84.9
1987	22.8	7.6	5.3	6.5	2.3	6.8	31.8	83.1
1988	69.8	22.3	12.5	10.0	22.0	1.2	34.5	172.3
1989	38.3	74.2	5.4	20.6	4.3	4.8	47.6	195.2
1990	19.7	5.4	2.9	5.2	3.9	7.7	28.5	73.3
Country Total	235.7	152.3	91.9	65.2	46.1	27.3	331.7	949.9

Source: Akter (2013)

It can be inferred that during the whole decade of 1980 to 1990, India saw a fluctuating trend in its overall FDI receipts. However, after the reform measures have taken place, FDI into India got an upward shift. During the post-reform period Mauritius, USA, UK,

Germany, Japan and the Netherlands invested heavily. These six countries accounted for about three-fourth (71.58 per cent) of the total FDI inflow during the period from 1992 to 2008. After that FDI from Japan and UK increased rapidly, on the contrary, FDI inflows from USA and Mauritius have declined. During the period of 2000 to 2014, the total FDI inflow to India was US\$ 214169.30 million. The next table indicates top 15 countries with their cumulative FDI in India starting from April 2000 until February 2014.

Table 2. 9: Country-wise FDI Inflow in India after Reform (In million US\$)

Country/ Year	Mauritius	USA	UK	Germany	Nether lands	Japan	France	Singa pore	Others	Total Flow
1992-93	n.a	22	7	21	21	26	9	3	171	280
1993-94	n.a	99	98	35	47	37	10	10	68	404
1994-95	197	203	144	35	45	95	14	25	102	872
1995-96	507	195	71	101	50	61	n.a	60	351	1419
1996-97	846	242	54	166	124	97	n.a	76	446	2057
1997-98	900	687	n.a	151	159	164	n.a	n.a	562	2956
1998-99	590	453	n.a	114	53	235	n.a	n.a	470	2000
1999-00	501	355	n.a	31	82	142	n.a	n.a	462	1581
2000-01	843	320	61	113	76	156	93	22	202	1910
2001-02	1863	364	45	74	68	143	88	54	286	2988
2002-03	534	268	224	103	94	66	53	39	262	1658
2003-04	381	297	157	69	197	67	34	15	223	1462
2004-05	820	469	84	143	196	122	44	64	364	2320
2005-06	1363	346	261	45	50	86	12	166	870	3220
2006-07	3780	706	1809	116	559	80	100	582	1071	8871
2007-08	9518	950	508	486	601	457	136	2827	2972	18541
2008-09	10165	1236	690	611	682	266	437	3360	2732	20179
1992-08, Total	32808	7212	4213	2413	3104	2300	1030	7303	1746	72718
1992-08, Share, %	45.12	9.9	5.79	3.32	4.27	3.16	1.41	10.04	15.9	100
2000-14, Total	78155	11899	20759	6481	11171	15969	3870	23373	41101	214169
2000-14 Share, %	36.51	5.6	9.70	3.03	5.22	7.46	1.81	10.92	19.12	100

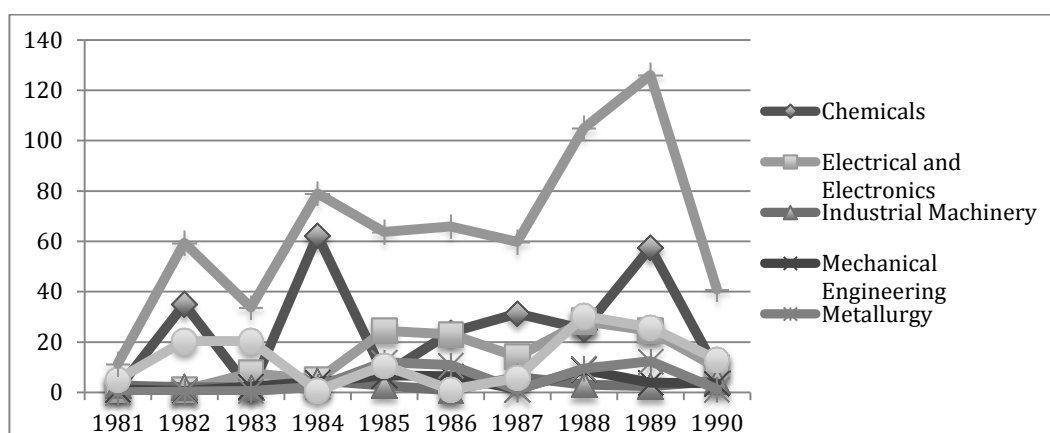
(Note: n.a implies not availability of data)

Source: Government of India (2014) and Akter (2013)

Sectoral distribution of FDI flows to India shows that services sector is one of the largest recipients. The sector includes Financial, Banking, Insurance, Non-Financial/Business, Outsourcing, R&D, Courier, and Testing and Analysis etc. Construction Development Sector

that includes townships, housing, built-up infrastructure and construction-development projects *viz.* housing, commercial premises, resorts, educational institutions, recreational facilities, and city and regional level infrastructure etc. also shows a steep rise in FDI inflows from the year 2005 and onwards. Telecommunications is another big sector of FDI in India. The sector includes public telephones, cellular mobile phone and basic telephone services etc. This sector ranks the third largest in terms of FDI inflow in the country and like other large sectors, FDI inflow in this sector also got a big push after 2005. The IT industry of India is regarded as one of the fastest growing sectors. Foreign investment in computer software and hardware related businesses has been growing very fast with more international companies and MNCs entering the IT industry. Drugs and Pharmaceuticals and Chemicals other than fertilizers are two promising FDI recipients in India. The Pharmaceuticals industry of India is growing fast due to varied functions such as contract research and manufacturing, clinical research, research and development pertaining to vaccines by many multinational pharmaceutical corporations. Automobile sector of India which comprises passenger cars and auto ancillaries etc. also is regarded as one of the booming industries. Major investing firms are from Japan, Italy, USA, Mauritius and Netherlands. Other sectors in India that get comparatively larger amount of FDI are Power sector, Metallurgical Industries sector, Hotel and Tourism, Petroleum and Natural Gas, Food Processing Industries, Trading, Information and Broadcasting sector, Electrical Equipment, Non-Conventional Energy sector, Cement and Gypsum Products, Industrial Machinery, Miscellaneous Mechanical and Engineering Industries, and Construction (Infrastructure). The figure below shows sector FDI before reform and the table represents some thrust sectors of the Indian economy that have got major shares of inward FDI flow in the post-reform period.

Figure 2. 3: India's Sector FDI Before Reform



Source: Akter (2013)

Table 2. 10: Top 20 Sectors and their FDI Equity Inflows in India after Reform

Serial No.	Sector	FDI Inflows (In Million US Dollar)	FDI Inflows (Percentage of Total Inflows)
1.	Services Sector (Services sector includes Financial, Banking, Insurance, Non-Financial/ Business, Outsourcing, R&D, Courier, Tech. Testing and Analysis)	39038.84	18.41
2.	Construction Development (Townships, housing, built-up infrastructure and construction-development projects)	23046.61	10.87
3.	Telecommunications	13028.23	6.14
4.	Computer Software and Hardware	12710.96	5.99
5.	Drugs and Pharmaceuticals	11587.28	5.46
6.	Chemicals (Other than Fertilizers)	9376.47	4.42
7.	Automobile Industry	9344.37	4.41
8.	Power	8538.00	4.03
9.	Metallurgical Industries	7938.95	3.74
10.	Hotel and Tourism	7013.29	3.31
11.	Petroleum and Natural Gas	5491.29	2.59
12.	Food Processing Industries	5360.89	2.53
13.	Trading	4475.10	2.11
14.	Information and Broadcasting	3708.13	1.75
15.	Electrical Equipments	3300.42	1.56
16.	Non-Conventional Energy	2922.31	1.38
17.	Cement and Gypsum Products	2880.43	1.36
18.	Industrial Machinery	2752.20	1.30
19.	Miscellaneous Mechanical and Engineering Industries	2593.26	1.22
20.	Construction (Infrastructure) Activities	2355.25	1.11

Source: Government of India (2014)

2.3.3 The Case of Pakistan

Pakistan's foreign trade has played a crucial role in its economic development. The nation is a member of the World Trade Organization (WTO) and it maintains various bilateral and multilateral agreements of trade (such as the South Asian Free Trade Area, SAFTA and the China-Pakistan Free Trade Agreement etc.) with many countries and international organizations. Total exports and imports of Pakistan in million US\$ are presented in the first table (table 2.11) below and exports of Pakistan by various economic categories have been presented in the next table (table 2.12).

Table 2. 11: Exports and Imports of Pakistan (Value in Million US\$)

FY	Exports	Imports
1985-86	3070	5634
1986-87	3686	5380
1987-88	4455	6391
1988-89	4661	7034
1989-90	4954	6935
1990-91	6131	7619
1991-92	6904	9252
1992-93	6813	9941
1993-94	6803	8564
1994-95	8137	10394
1995-96	8707	11805
1996-97	8320	11894
1997-98	8628	10118
1998-99	7779	9432
1999-2000	8569	10309
2000-01	9202	10729
2001-02	9135	10340
2002-03	11160	12220
2003-04	12313	15592
2004-05	14391	20598
2005-06	16451	28581
2006-07	16976	30540
2007-08	19052	39966
2008-09	17688	34822
2009-10	19290	34710
2010-11	24810	40414
2011-12	23624	44912
2012-13	24460	44950

Source: Federal Bureau of Statistics, Pakistan (2014)

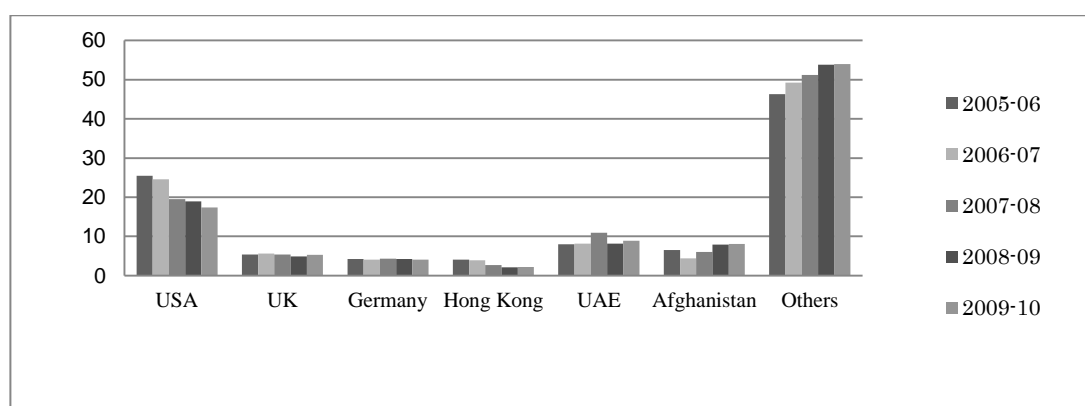
According to table 2.11, value of imports of the country has been greater than that of exports. As a result, Pakistan has been suffering from huge trade deficit since the 1980s. Table 2.12, on the other hand, indicates that although Pakistan's exports has continued to be dominated by cotton textiles and apparel only, its export earnings increased greatly. The country exports mainly rice, mangoes, furniture, cotton fiber, cement, tiles, marble, clothing, leather goods, sports goods, cutlery, surgical instruments, electrical appliances, software, carpets, rugs, ice cream, livestock meat, chicken, powdered milk, wheat, seafood, vegetables, processed food items, Pakistani-assembled Suzuki, defense equipment, salt and various engineering goods. Pakistan's main export partners are United States, United Arab Emirates, Afghanistan, China, United Kingdom and Germany. Figure 2.4 below explains country-wise export shares of Pakistan.

Table 2. 12: Pakistan's Exports by Economic Categories (In Million Pakistani Rupees)

Year	Month	Total	Primary Commodities	Semi-manufactured goods	Manufactured goods
2008-09		1383717.5	224873.2	130693.0	1028151.4
2009-10		1617457.6	287490.6	170608.5	1159358.5
2010-11		2120846.7	377535.8	274500.4	1468810.5
2011-12		2110605.5	362404.4	261831.4	1486369.7
2012-13		2366477.8	364127.0	391151.3	1611199.5
	2012 Oct.	192115.2	26123.0	27054.2	138938.0
	2012 Nov.	181960.3	25040.7	32153.6	124766.0
	2012 Dec.	191390.7	31467.3	32814.0	127109.4
	2013 Jan.	197186.6	43247.3	28670.4	125268.9
	2013 Feb.	179747.0	34191.4	29574.3	115981.3
	2013 Mar.	209240.8	39834.7	39414.0	129992.1
	2013 Apr.	209142.2	35727.3	40321.9	133093.0
	2013 May.	210829.2	31596.2	38581.9	140651.1
	2013 Jun.	214326.5	29186.0	38006.7	147133.8
	2013 Jul.	210465.3	29584.3	35086.5	145794.6
	2013 Aug.	204136.9	25828.4	31334.8	146973.7
	2013 Sep.	275482.9	33398.8	34272.0	207812.1
	2013 Oct*	197939.6	27225.9	29689.6	141024.1

Source: Federal Bureau of Statistics, Government of Pakistan (2014)

Figure 2. 4: Pakistan's Exports by Country in Percentage Share



Source: Federal Bureau of Statistics, Government of Pakistan

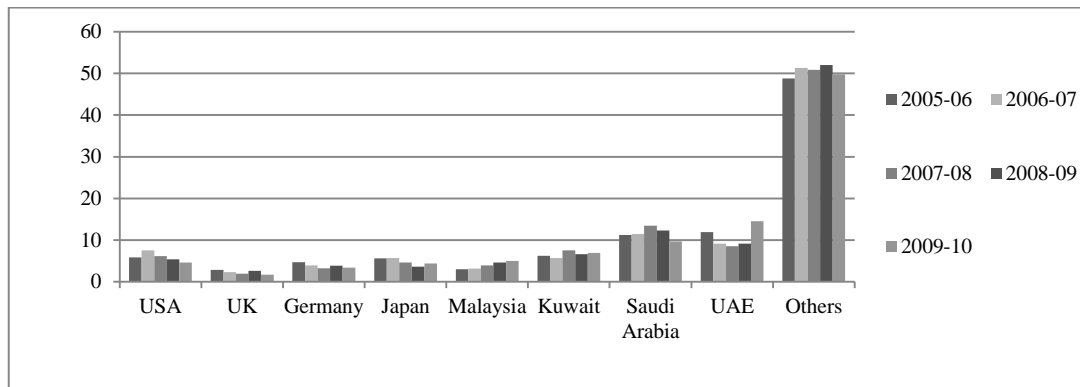
The country imports mainly fuel, machinery and transport equipment, chemicals, food and oils and manufactured goods. The principal import partners are United Arab Emirates, China, Saudi Arabia, Kuwait, Japan, USA, India, UK and Malaysia. Others countries include: Malaysia, Japan, India and United States. In the next table imports of Pakistan by various economic categories are shown. Then figure 2.5 explains country-wise import shares of Pakistan.

Table 2. 13: Pakistan's Imports by Economic Categories (In Million Pakistani Rupees)

Year	Month	Total	Total Consumer goods	Raw materials		Capital goods
				Consumer goods	Capital goods	
2008-09		2723569.9	348657.1	133986.1	246599.8	790326.9
2009-10		2910975.3	380826.6	1509081.1	209051.4	812016.2
2010-11		3455285.6	560512.2	1826243.4	239525.0	829005.0
2011-12		4009093.0	543010.8	2292309.1	262211.7	911561.4
2012-13		4349879.5	652553.3	2353818.1	293733.6	1049774.5
	2012 Oct.	361404.7	48490.8	197750.6	32819.3	82344.0
	Nov.	346228.9	49175.3	183929.7	24034.2	89089.7
	Dec.	356898.7	54619.8	189408.2	24323.2	88547.5
	2013 Jan.	366822.6	54515.4	206825.4	23898.2	81583.6
	Feb.	331464.7	51978.8	169258.5	20454.5	89772.9
	Mar.	361585.0	69119.3	189502.4	23227.1	79736.2
	Apr.	384227.2	59178.0	197496.2	24694.0	102909.0
	May	427530.9	65849.9	221666.5	27027.3	112987.2
	Jun.	388358.4	62762.5	198998.4	24267.1	102330.4
	Jul.	383244.9	53168.9	201953.0	26745.7	101377.3
	Aug.	367645.0	61538.9	208163.2	24123.1	73819.8
	Sep.	399041.6	64145.2	234234.5	21539.6	79122.3
	Oct*	348471.0	57420.3	190642.1	22097.5	78311.1

Source: Federal Bureau of Statistics, Government of Pakistan (2014)

Figure 2. 5: Pakistan's Imports by Country in Percentage Share



Source: Federal Bureau of Statistics, Government of Pakistan

About FDI inflow to Pakistan, the amount has increased substantially since the 1990s when the country had adopted market-oriented investment policies. Pakistan's inconsistent investment policies until 1991 have resulted in low level of FDI inflow in the country. Starting from the 1991, a lot of policy reforms were adopted to encourage more overseas investment and as a result of these measures, inflow of FDI increased gradually during the post liberalization period. For the sake of discussion, FDI inflow of Pakistan is categorized in its volume, percentage of GDP, sources and sectoral composition.

The next table (table 2.14) depicts FDI inflow to Pakistan since 1950 until 2011 and also decadal FDI data. It indicates that in the 1950-1959 decade, average FDI inflow was only US\$ 4.14 million. Later it reached to an average of US\$16.03 million in 1960-69. On the other hand, annual data shows that FDI inflow to Pakistan was recorded as only US\$ 35 million in 1980-81 and later it has reached to its highest value of US\$5410.2 million in 2007-08. Then FDI inflow has showed a declining trend and in 2012 the amount was estimated to be US\$1308.8 million. This major decline after 2008 could be a result of the slowdown of global economy since the 2007-08 due to the Asian Financial Crisis and other internal factors such as the threat of deteriorating security conditions in the domestic front.

FDI inflow as a percentage of GDP in Pakistan has been getting larger since 1950s in a steady but slow pace. Growth of FDI inflow also turned to be insignificant until the 1990,

the year when the liberalization was started to take place. However, as a result of reform activities of eliminating various regulatory regimes, the rate of growth accelerated thereafter.

Table 2. 14: FDI Inflows in Pakistan from 1950-2011

Year	FDI (in million USD)	FDI as % of GDP
1950-1959 avg.	4.14	0.099
1960-69 avg.	16.03	0.236
1970-76 avg.	28.74	0.163
1976-77	10.7	0.2
1977-78	35.5	0.19
1978-79	36	0.12
1979-80	28.2	0.13
1980-81	35	0.3
1981-82	98	0.15
1982-83	42.1	0.15
1983-84	48	0.23
1984-85	93.7	0.46
1985-86	161.2	0.32
1986-87	129	0.42
1987-88	172.7	0.53
1988-89	217.4	0.54
1989-90	216.2	0.54
1990-91	246	0.69
1991-92	335.1	0.6
1992-93	306.4	0.68
1993-94	354.1	0.73
1994-95	442.4	1.74
1995-96	1101.7	1.1
1996-97	682.1	0.97
1997-98	601.3	0.75
1998-99	472.3	0.77
1999-2000	469.9	0.55
2000-2001	322.5	0.82
2001-2002	484.7	1.17
2002-2003	798	0.98
2003-2004	949.4	0.99
2004-2005	1524	1.38
2005-2006	3521	2.77
2006-2007	5139.6	3.57
2007-2008	5410.2	3.41
2008-2009	3719.9	2.42
2009-2010	2205.7	1.33
2010-11	1308.8	0.62

Sources: Khan (1997) and Index Mundi (2014).

The major investing countries for Pakistan are the USA, UK, UAE, Hong Kong, Switzerland and Japan. FDI inflow from the USA and other countries such as Japan, Switzerland, Norway and Hong Kong has risen noticeably despite some considerable fluctuations. An overall glimpse of FDI shares by various countries in Pakistan is shown in the next table (tables 2.15 and 2.16). From 1980-81 to 2006-07 the data are in percentage of total receipts and from 2007-08 to 2012-13 in million US dollar.

Table 2. 15: Country-wise Shares of FDI Inflows in Pakistan (Percent of Total Inflow)

Years	USA	UK	UAE	Germany	France	Hong Kong	Japan	S. Arabia	Nether lands	Others
1980-81	14.8	15.7	15.0	3.9	0.2	0.06	0.68	0.16	1.71	47.9
1981-82	15.5	19.9	8.4	3.6	0.19	0.15	0.43	0.23	1.52	50.1.
1982-83	11.6	16.9	10.0	3.3	0.23	0.06	0.5	2.6	3.34	51.53
1983-84	8.8	16.3	8.2	4.8	0.1	0.51	0.45	2.5	1.35	57.01
1984-85	24.5	12.7	16.9	9.1	1.71	0.85	9.53	5.4	9.71	9.53
1985-86	24.2	8.6	47.9	2.9	0.55	1.9	4.33	-5.0	0.89	13.5
1986-87	39.7	4.7	23.7	5.0	1.39	6.2	8.7	0.92	0.55	8.74
1987-88	28.2	15.7	15.0	11.3	3.08	3.39	8.38	0.55	0.25	13.42
1988-89	45.1	10.8	6.2	4.8	3.68	3.01	8.0	0.24	0.81	16.73
1989-90	43.4	10.5	7.3	5.2	2.77	0.42	7.45	0.51	2.45	18.22
1990-91	52.8	13.7	3.7	5.1	2.88	1.34	10.65	0.36	0.93	7.37
1991-92	63.7	6.1	3.1	6.4	2.53	---	5.28	0.03	0.24	12.0
1992-93	44.7	8.4	3.1	11.8	1.98	4.05	7.18	2.67	1.83	14.19
1993-94	32.2	9.0	2.1	2.6	3.13	0.34	8.38	0.54	-0.03	41.64
1994-95	39.9	8.7	10.6	4.0	3.05	0.49	3.68	0.2	1.02	28.29
1995-96	29.0	30.1	4.8	2.4	1.28	3.11	7.52	2.46	1.09	18.87
1996-97	36.1	35.3	8.1	2.6	1.5	1.09	5.37	-2.5	1.13	10.15
1997-98	42.7	22.6	3.2	4.0	0.81	0.35	2.97	0.2	4.47	17.77
1998-99	4.4	21.8	1.9	5.1	1.86	0.27	15.27	0.29	1.51	7.27
1999-00	35.5	36.0	1.2	2.2	0.34	0.17	3.77	6.08	2.28	10.34
2000-01	28.8	28.0	1.61	4.8	0.22	1.1	2.82	17.56	1.49	12.0
2001-02	67.3	6.3	4.44	2.3	-1.4	0.6	1.34	0.268	-1.05	19.82
2002-03	26.5	27.0	15.0	0.5	0.33	0.7	1.77	5.451	0.38	21.86
2003-04	24.6	6.8	14.2	0.7	-0.6	0.7	1.59	0.758	1.47	48.92
2004-05	22.5	17.0	7.75	1.1	-0.3	2.1	4.31	1.514	3.65	40.33
2005-06	14.67	6.93	40.46	0.81	0.05	0.68	1.62	7.89	4.85	14.87
2006-07	17.77	16.73	12.87	1.54	0.03	0.63	1.25	2.01	3.40	43.27

Sources: Khan (1997) and Board of Investment, Government of Pakistan.

Table 2. 16: Country-wise FDI Inflows in Pakistan (In Million US\$)

Year	USA	UK	UAE	Hong Kong	Switzerland	Saudi Arabia	South Korea	Norway	China	Others
2007-08	1309.3	460.2	589.2	339.8	169.3	46.2	1.2	274.9	13.7	2005.2
2008-09	869.9	263.4	178.1	156.1	227.3	(92.3)	2.3	101.1	(101.4)	1964.2
2009-10	468.3	294.6	242.7	9.9	170.6	(133.8)	2.3	0.4	(3.6)	1019.6
2010-11	238.1	207.1	284.2	125.6	110.5	6.5	7.7	(48.0)	47.4	631.3
2011-12	227.7	205.8	36.6	80.3	127.1	(79.9)	25.4	(275.0)	126.1	289.7
2012-13	223.0	632.3	19.9	242.6	149.0	3.2	25.8	(258.4)	90.6	283.6
2013-14	212.1	157.0	(78.1)	228.5	209.8	(40.1)	24.4	(21.6)	695.8	255.4

Sources: Khan (1997) and Board of Investment, Government of Pakistan.

About sector distribution of FDI in Pakistan, the most attractive sectors for foreign investment are agriculture, IT and telecommunication, power, and services etc. The government of Pakistan offers 100 per cent equity investment in all of the commodity producing sectors (except arms and ammunitions, high explosive items, radioactive substances and security, and currency printing industry). Pakistan has adopted relaxed investment policies through offering various incentives such as tax exemptions, evading double taxation on income, permission to have 100 per cent ownership by foreign firms and equal investment opportunities for all investors from home and abroad etc. in all of these sectors. Data for sector wise FDI in Pakistan is presented in the next table. According to the data presented here, the commodity producing sectors such as oil and gas, financial businesses, and communication are the major recipients of FDI. Trends in all of the sectors indicate a fluctuating pattern of FDI inflow in the country.

The data presented in table 2.16 shows that FDI inflows over the last 14 years in Pakistan were increasing for most of the sectors but with big fluctuations. The services sector emerged as the largest sector to attract the major portion of FDI. Within the services sector the telecommunication industry receives major chunk of foreign capital in the form of FDI in Pakistan. Financial sector in Pakistan is the second major FDI contributor after telecommunication sector. The financial sector reforms in terms of liberalization and

privatization have acted as the driving force of massive inflows of FDI. The latest figure for financial sector's FDI amount was estimated as US\$ 156.8 million in 2013-14. Power generation presents immense potential for foreign investment and has attracted significant amount of FDI in Pakistan. In its latest, the sector has received US\$ 46.6 million of FDI in 2013-14. Another emerging sector for FDI is Oil and Gas Exploration. Foreign investors see significant potential in this sector to invest, hence, FDI inflow is continuously increasing. According to the Pakistan Board of Investment data, FDI in the Oil and Gas sector was US\$ 465.1 million in 2013-14. Other important sectors that get a good share of foreign capital in Pakistan are Trade, Automobiles, Transport, Textiles and Construction industry.

Table 2. 17: Sector Wise FDI Inflows in Pakistan (In million US\$)

Year	Oil & Gas	Financial Business	Textile	Construction	Power	Chemicals	IT & Telecom	Others	Total
2000-01	80.7	(34.9)	4.6	12.5	39.9	20.3	n.a	140.9	322.4
2001-02	268.2	3.6	18.5	12.8	36.4	10.6	12.8	66.2	484.7
2002-03	186.8	207.4	26.1	17.6	32.8	86.1	24.3	90.4	798.0
2003-04	202.4	242.1	35.4	32.0	(14.2)	15.3	221.9	170.1	949.4
2004-05	193.8	269.4	39.3	42.7	73.4	51.0	517.6	274.0	1523.9
2005-06	312.7	329.2	47.0	89.5	320.6	62.9	1937.7	285.0	3521.0
2006-07	545.1	930.3	59.4	157.1	193.4	46.1	1898.7	1107.20	5139.8
2007-08	634.8	1864.90	30.1	89.0	70.3	79.3	1626.8	764.5	5409.8
2008-09	775.0	707.4	36.9	93.4	130.6	74.3	879.1	763.4	3719.9
2009-10	n.a	163.0	27.8	101.6	(120.6)	112.1	291.0	586.3	2150.8
2010-11	n.a	310.1	25.3	61.1	155.8	30.5	(34.1)	416.3	1634.8
2011-12	n.a	64.4	29.8	72.1	(84.9)	96.3	(312.6)	282.6	820.7
2012-13	n.a	314.2	10.0	46.0	28.4	71.6	(385.7)	872.6	1447.3
2013-14	465.1	156.8	3.7	24.4	46.6	88.4	583.3	287.7	1631.3

(Note: The figures in brackets are negative and n.a indicates not availability of data)

Sources: Awan, Khan and Zaman (2011) and Board of Investment, Government of Pakistan.

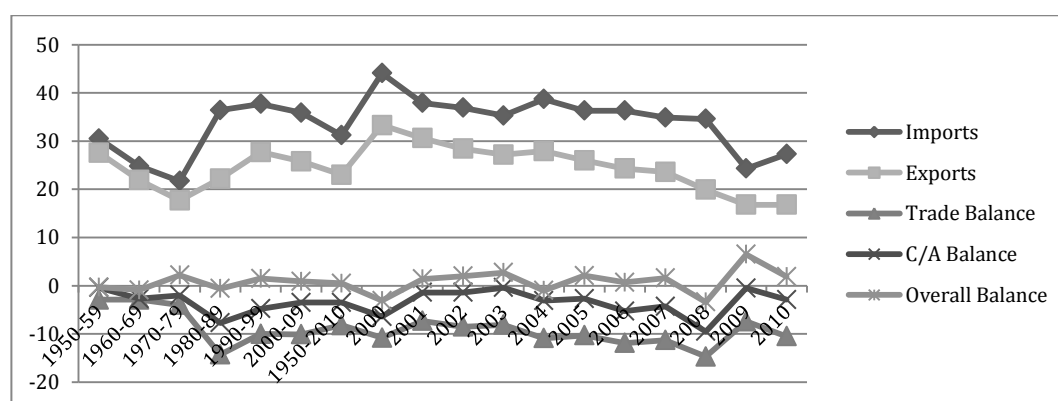
2.3.4 The Case of Sri Lanka

Understanding basic facts about Sri Lanka's foreign trade requires shading some lights on its balance of payments account. A comparison with the nineties, Sri Lanka got a decline in both exports and imports as a per cent of GDP in the last recent past. The shares were recorded at 25.8 and 35.9 per cent in the last decades while these were reported at 27.7 and 37.7 per cent respectively in the 1990s. The trade balance, however, was almost

unchanged because of the quite similar magnitude of the declines. It was estimated at about -10.0 per cent of GDP in both cases and Sri Lankan economy followed a double digit trade deficit for most of the years since 2004. Current account balance, however, improved from -4.8 per cent of GDP in the 1990s to -3.5 per cent in the last decade thanks to increased inflow of foreign remittances. The overall balance declined from 1.5 per cent of GDP to 0.9 per cent. The total share of exports and imports as a percentage of GDP also has fallen down to 61.7 per cent from 65.4 per cent in the 1990s.

In 1950, Sri Lanka's total trade was about 70.6 per cent of its GDP and it was 0.49 per cent of the world trade. This high ratio of trade to GDP indicates the high degree of openness of the trade regime in the 1950s. However, in the face of a deteriorating terms of trade in that period, the nation started to implement and emphasize import substitution industrialization policies in the later part of 1950s. Hence, Sri Lanka followed an inward looking trade policy regime from 1960 until 1977 except a tiny period of partial liberalization in the late 1960s. As a consequence of such policies, trade share declined sharply to touch 37.7 per cent of GDP in 1977. Later on, economic policy reforms which promoted export promotion industrialization strategies were started to implement in Sri Lanka from 1977. The figure below explains some of the important aspects of Sri Lanka's balance of payments.

Figure 2. 6: Sri Lanka's Balance of Payments Account from 1950-2010 (% of GDP)



Source: Ministry of Industry and Commerce, Government of Sri Lanka

Table 2. 18: Sri Lanka's Exports of Goods and Services

Year	Current US \$ (million)	Annual growth (%)	% of GDP
1970	584.54	4.29	25.45
1971	583.14	-3.19	24.61
1972	570.18	-2.04	22.33
1973	700.16	1.16	24.35
1974	944.81	-13.34	26.43
1975	1,042.23	20.04	27.49
1976	1,043.16	2.25	29.05
1977	1,387.94	-13.28	33.81
1978	950.35	9.47	34.77
1979	1134.23	13.8	33.71
1980	1296.67	3.6	32.22
1981	1345.04	10.01	30.46
1982	1304.57	4.53	27.36
1983	1360.65	n.a	26.33
1984	1740.76	n.a	28.8
1985	1555.12	5	26.01
1986	1,519.20	12.97	23.72
1987	1,683.39	0.52	25.19
1988	1819.71	7.15	26.08
1989	1904.74	6.69	27.26
1990	2424.29	6.7	30.18
1991	2586.80	6.7	28.74
1992	3082.68	6.7	31.77
1993	3494.58	13.2	33.8
1994	3962.06	13.1	33.81
1995	4638.26	2.9	35.6
1996	4860.50	3.9	34.97
1997	5514.31	11.69	36.54
1998	5724.70	0.97	36.24
1999	5555.45	3.99	35.48
2000	6371.58	17.99	39.02
2001	5878.26	-5.27	37.33
2002	5971.10	6.26	34.91
2003	6543.19	3.36	34.65
2004	7300.26	7.74	35.33
2005	7892.07	6.65	32.34
2006	8516.55	3.84	30.13
2007	9419.05	7.33	29.12
2008	10114.27	0.39	24.84
2009	8972.41	-12.31	21.33
2010	11091.64	8.76	22.38
2011	13643.53	11	23.06

(Note: n.a implies not availability of data)

Sources: World Bank and OECD National Accounts data files in Index Mundi (2014)

Sri Lanka's export of goods and services since 1970 until 2011 are shown in table 2.17 above. It is indicated that the nation's export as a percentage of GDP has been quite high

since the last few decades. Similarly, figures of annual growth rate show gradual increase except some years. On the other hand, Sri Lanka's imports of goods and services since 1970 are summarized in table 2.18. Total import value, annual growth rate and import as a share of GDP are shown in different columns. Similar to export, import as a share of GDP in Sri Lanka is also high. Annual growth of import has been fluctuating. The latest value of import of goods and services in Sri Lanka was estimated as US\$22,255.86 million while the growth rate was 20 per cent and import as a share of GDP was 37.61 per cent in 2011.

Table 2. 19: Sri Lanka's Imports of Goods and Services

Year	Current US \$ (million)	Annual growth (%)	% of GDP
1970	656.81	-5.91	28.6
1975	1325.39	-0.83	34.96
1980	2205.45	19.25	54.8
1981	2054.96	-6.97	46.54
1982	2205.91	14.65	46.26
1983	2141.14	n.a	41.43
1984	2099.73	n.a	34.74
1985	2269.74	-6.49	37.97
1986	2262.92	7.68	35.33
1987	2385.29	-0.27	35.7
1988	2570.61	-2	36.84
1989	2568.29	-2	36.76
1990	3057.44	7.9	38.06
1991	3497.08	7.9	38.85
1992	3981.47	7.9	41.03
1993	4481.46	14.5	43.35
1994	5345.33	14.2	45.62
1995	5998.54	1	46.04
1996	6101.19	2.8	43.9
1997	6580.00	10.47	43.6
1998	6673.56	11.49	42.25
1999	6774.15	7.01	43.27
2000	8103.47	14.89	49.62
2001	6860.23	-9.53	43.57
2002	7084.22	11.22	41.42
2003	7681.62	11.25	40.68
2004	9122.93	9.01	44.15
2005	10071.56	2.69	41.27
2006	11627.13	6.94	41.13
2007	12775.97	3.73	39.49
2008	15686.59	4.01	38.53
2009	11703.64	-9.59	27.82
2010	15209.67	12.65	30.68
2011	22255.86	20	37.61

(Note: n.a implies not availability of data)

Sources: World Bank and OECD National Accounts data files in Index Mundi (2014).

Sector-wise exports of Sri Lanka are summarized below. The table indicates that industrial export builds the major part of exports of Sri Lanka. Among industrial exports, ‘Food, Beverage and Tobacco’ and ‘Textiles and Garments’ are the two major components. Agriculture sector is another good contributor of exports in Sri Lanka. As it is indicated ‘tea, rubber and coconut’ is the largest agriculture export sub-sector of the country.

Table 2. 20: Sector-wise Exports (Goods) of Sri Lanka (In Million US\$)

	2003	2004	2005	2006	2007	2008	2009	2010
1. Industrial Exports	3976.0	4506.1	4948.4	5383.4	5967.5	6159.6	5305.4	6172.8
1.1 Food Beverage & Tobacco	145.0	175.1	318.2	363.9	513.5	458.3	406.1	503.4
1.2 Textiles & Garments	2575.0	2808.9	2894.5	3080.3	3339.6	3468.7	3274.2	3504.1
1.3 Petroleum Products	65.0	99.6	130.9	187.2	168.9	254.8	134.7	216.3
1.4 Rubber Products	231.0	282.9	394.4	427.5	482.5	541.9	384.7	567.6
1.5 Ceramic Products	42.0	46.8	47.1	47.4	47.1	49.0	36.4	39.1
1.6 Leather, Travel Goods & Footwear	58.0	42.6	43.8	40.6	22.9	16.7	13.6	17.1
1.7 Machinery & Equipment	290.0	385.7	329.9	394.3	542.2	461.0	330.3	487.8
1.8 Diamond & Jewellery	233.0	265.3	277.9	327.0	367.2	436.1	329.8	334.7
1.9 Other Industrial Exports	337.0	399.2	511.7	515.2	483.6	473.1	395.6	502.7
2. Mineral Exports	84.0	120.0	143.3	136.2	127.8	122.4	88.7	92.6
3.Total Industrial & Mineral Exports	4060.0	4626.1	5091.7	5519.6	6095.3	6282.0	5394.1	6265.4
4. Agricultural Exports	965.0	1065.2	1153.8	1292.7	1507.3	1854.9	1690.3	2041.4
4.1 Tea, Rubber & Coconut	815.0	903.3	970.4	1098.1	1275.8	1567.6	1449.9	1719.4
4.2 Other Agricultural Products	150.0	161.9	183.4	194.6	231.5	287.3	240.4	322.0
5. Unclassified	108.0	66.0	101.2	70.4	37.6	0.0	0.0	0.3
5. Total Exports	5133.0	5757.3	6346.7	6882.7	7640.2	8136.9	7084.4	8307.1

Source: Ministry of Industry and Commerce, Government of Sri Lanka

In the next table below commodity-wise import of goods from 2003 to 2010 in Sri Lanka is shown. Intermediate goods such as petroleum, fertilizer, chemicals, and garments and textiles etc. compose the major share of Sri Lankan imports. Consumer goods such as

food and beverages, rice, sugar and wheat etc. and investment goods such as Machinery and Equipment, and Transport Equipment and Building Materials also contribute greatly to goods imports of Sri Lanka. For example, in 2010 the total import volume was recorded as US\$13511.7 million among which Intermediate Goods constitutes US\$7495.9 million, the share of Consumer Goods was US\$ 2870.3 million and Investments Goods captured US\$ 2969.6 million in total imports of the country.

Table 2. 21: Commodity-wise Imports (Goods) of Sri Lanka (In Million US\$)

Items/Years	2003	2004	2005	2006	2007	2008	2009	2010
1. Consumer Goods	1481.0	1623.5	1644.0	1980.2	2001.8	2559.6	1971.9	2870.3
(a) Food & Beverages	701.0	779.1	752.6	956.0	1064.7	1513.0	1246.3	1641.8
(i) Rice	8.0	59.4	15.6	5.5	38.7	44.3	22.9	59.0
(ii) Sugar	116.0	111.4	132.3	223.7	154.1	206.4	218.7	363.3
(iii) Wheat	137.0	183.1	141.4	198.6	233.9	375.5	259.3	257.2
(iv) Other	440.0	425.2	463.3	528.2	638.0	886.8	745.4	962.3
(b) Other Consumer Goods	780.0	844.4	891.4	1024.2	937.1	1046.6	725.6	1228.5
2. Intermediate Goods	3811.0	4645.4	5317.2	5962.4	6513.4	8344.3	5669.1	7495.9
(i) Petroleum	838.0	1209.3	1655.3	2070.3	2496.8	3368.2	2166.6	3018.7
(ii) Fertilizer	88.0	106.7	135.0	164.1	192.5	576.6	193.4	240.5
(iii) Chemicals	170.0	205.9	248.6	260.8	281.4	361.4	312.5	389.9
(iv) Garments & Textiles	1372.0	1514.1	1531.0	1546.2	1632.2	1702.0	1442.0	1732.3
(v) Other	1343.0	1609.4	1747.3	1921.0	1910.5	2336.1	1554.6	2114.5
3. Investments Goods	1320.0	1669.9	1815.0	2245.7	2685.1	3048.0	2450.9	2969.6
(i) Machinery & Equipment	698.0	857.4	806.4	1065.4	1246.7	1330.7	1012.8	1205.9
(ii) Transport Equipment	206.0	256.6	325.3	364.5	364.5	438.8	436.3	642.2
(iii) Building Materials	328.0	402.0	507.0	546.2	780.3	942.6	714.5	809.6
(iv) Other	88.0	153.9	176.3	269.6	293.6	335.9	287.3	311.9
4. Unclassified Imports	60.0	61.1	32.6	65.4	100.2	139.4	114.8	175.9
5. Total Imports	6672.0	7999.9	8808.8	10253.7	11300.5	14091.3	10206.7	13511.7

Source: Ministry of Industry and Commerce, Government of Sri Lanka

About FDI inflow to Sri Lanka, the country's inward looking policies until 1977 had retarded free flow of foreign investment (FDI) due to various restrictions imposed by the government. Prior to liberalization of the economy only a few initiatives were taken place to attract FDI. Among these steps, the white paper for FDI in 1966 and the creation of foreign investment advisory committee in 1968 were the most appealing. Later in 1977, when the

country accepted market based policies, liberalization of the FDI regime was also considered and then the Investment Act of 1978 came to the front as a viable engine of FDI growth in Sri Lanka. Moreover, the Board of Investment was established in 1992 to attract more FDI flow to the country. As a result of these initiatives, many foreign companies started to invest in Sri Lanka and at present the number of foreign firms operating in Sri Lanka has exceeded 1000. The current FDI policy regime of Sri Lanka is very investment friendly and FDI laws are very transparent. For instance, all of the earnings, profits and capital proceeds of investors enjoy no repatriation (Athukorala, 2003). The data table below gives a clear idea about FDI inflows in US dollar million and FDI as a percentage of GDP since 1970 until 2012 for Sri Lanka. Inflow of foreign investment in the country has increased remarkably. Notable progress of FDI inflow was first seen in the 1978 and then again in 1992.

Table 2. 22: FDI Inflows of Sri Lanka (1970 to 2012)

Year	FDI (in Million US\$)	FDI (% of GDP)
1970	(0.30)	-0.01
1975	0.14	0.00
1980	43.01	1.07
1985	26.16	0.44
1990	43.36	0.54
1995	155.99	0.43
1996	119.87	0.86
1997	430.06	2.85
1998	193.42	1.22
1999	176.41	1.13
2000	172.94	1.06
2001	171.79	1.09
2002	195.50	1.15
2003	228.72	1.21
2004	232.80	1.13
2005	272.40	1.12
2006	479.70	1.70
2007	603.00	1.86
2008	752.20	1.85
2009	404.00	0.96
2010	477.56	0.96
2011	955.92	1.62

Source: IMF Balance of Payments database, supplemented with data from the UNCTAD

Although quantum of FDI inflows in Sri Lanka has escalated substantially, still the country's share as a percentage of total world's inflow is very small. The next table presents Sri Lanka's FDI as percentages of total inflows of the world, of developing countries, of Asian countries and finally of South Asian countries from 1991 to 2010. The data presented here shows that almost no progress has taken place in Sri Lanka's FDI as a percentage of total flows of the world since the 1991. Similarly, other indicators show decline or no improvement at all in this time period.

Table 2. 23: Sri Lanka's FDI as Shares of Various Inflows

Year	As % of World Inflows	As % of Inflows to Developing Countries	As % of Inflows to Asia	As % of Inflows to South Asia
1991	0.04	0.17	0.28	14.99
1992	0.07	0.23	0.37	16.31
1993	0.09	0.25	0.35	14.33
1994	0.06	0.16	0.24	8.51
1995	0.02	0.06	0.08	2.31
1996	0.03	0.09	0.14	3.93
1997	0.09	0.23	0.41	8.00
1998	0.02	0.08	0.16	3.82
1999	0.02	0.09	0.18	6.19
2000	0.01	0.07	0.12	3.56
2001	0.02	0.08	0.15	2.29
2002	0.03	0.11	0.20	1.84
2003	0.04	0.12	0.20	2.78
2004	0.03	0.08	0.13	2.18
2005	0.03	0.08	0.13	1.89
2006	0.03	0.11	0.17	1.73
2007	0.03	0.09	0.15	1.47
2008	0.04	0.11	0.20	1.45
2009	0.03	0.08	0.13	0.95
2010	0.04	0.08	0.13	1.50

Sources: Gulshan & Neerja (2012)

Sector distribution of FDI in Sri Lanka shows that in the past FDI inflow was dominated mainly by the manufacturing industry. However, starting from the 1990s the services sector began to receive large share in inward FDI due to the initiatives taken by the Sri Lankan government to liberalize the country's FDI regime. In 2010, 48.3 per cent of the

total inflow was in the services sector while other sectors such as manufacturing and agriculture got 30.9 per cent and 1.2 per cent respectively. Among the manufacturing sector, the Textile and Clothing industry is remained as one of the most important sectors as an FDI recipient in Sri Lanka. Infrastructure and Telecommunication are another two very important FDI destinations for the country. Most of the services sector FDI goes to construction, energy, telecommunications and port services. In recent years some labor-intensive industries such as footwear, travel goods, plastic products, gems and jewelry, rubber-based products and ceramics are receiving increasingly large share of FDI. On the other hand, agriculture sector has been suffering shrinkage in FDI grants since the 1990s.

Table 2. 24: Sector-wise Distribution of FDI in Sri Lanka

Year	Manufacturing	Services	Agriculture	Total
In Million US\$				
1995	61.3	39.5	16.7	117.5
1996	40.5	146.6	16.7	203.8
1997	72.4	189.8	1.8	264.0
1998	74.0	173.7	9.1	256.8
1999	62.9	211.9	3.6	278.5
2000	91.3	195.3	2.0	288.6
2001	43.1	17.2	4.0	64.3
2002	71.2	52.7	1.9	125.8
2003	38.4	165.6	9.5	213.5
2004	82.2	23.9	3.2	109.3
2005	135.3	151.3	0.4	287.2
2006	234.7	368.1	0.6	603.6
Percentage of Total Inflow				
Year	Manufacturing	Services	Agriculture	
2000	18.3	17.1	n.a	
2005	47.1	42.6	0.2	
2006	38.9	50.0	0.1	
2007	23.7	59.6	0.1	
2008	21.3	66.3	0.3	
2009	27.3	57.9	0.6	
2010	30.9	48.3	1.2	

Source: Dushni & Thennakoon (2009)

2.4 Impact of Liberalization Reforms on South Asia's Foreign Trade and FDI

2.4.1 Model Specification and Data

After about three decades of the reform measures have been adopted, one question arises in general: have the reform initiatives to liberalize the economy become effective to promote trade and FDI in the countries of South Asia? By utilizing an empirical estimation we try to find out the answer. Here we will make an effort to empirically test whether reform measures are effectively lifting foreign trade and FDI for South Asian countries. We use the following empirical equations:

$$(1) \quad \text{Ln}(\text{OPN}_{i,t}) = \mu_0 + \mu_1 \text{Ln}(\text{PCY}_{i,t}) + \mu_2 \text{Ln}(\text{FDI}_{i,t}) + \mu_3 \text{Ln}(\text{OPN}_{i,t-1}) + \mu_4 \text{Ln}(\text{RIR}_{i,t}) + \mu_5 \text{Ln}(\text{MCY}_{i,t}) + \mu_6 \text{Ln}(\text{TAXRY}_{i,t}) + \mu_7 \text{Ln}(\text{GNEXY}_{i,t}) + U_{i,t}$$

$$(1) \quad \text{Ln}(\text{FDI}_{i,t}) = \mu_0 + \mu_1 \text{Ln}(\text{PCY}_{i,t}) + \mu_2 \text{Ln}(\text{OPN}_{i,t}) + \mu_3 \text{Ln}(\text{FDI}_{i,t-1}) + \mu_4 \text{Ln}(\text{RIR}_{i,t}) + \mu_5 \text{Ln}(\text{MCY}_{i,t}) + \mu_6 \text{Ln}(\text{TAXRY}_{i,t}) + \mu_7 \text{Ln}(\text{GNEXY}_{i,t}) + U_{i,t}$$

For the above model, PCY represents per capita GDP; FDI implies net inflow of foreign direct investment, the variable OPN represents the trade openness indicator in the form of total volume of export and import as a share of GDP; RIR stands for real rate of interest which is the financial openness indicator; MCY is market capital as a share of GDP—it acts as a capital account openness indicator; TAXRY is tax revenue as a percentage of GDP and GNEXY is Government Expenditure as a share of GDP—TAXRY and GNEXY are proxy variables for fiscal reforms and U is for error terms. Openness (OPN) and FDI are the dependent variables considered for equation 1 and equation 2 respectively.

To estimate the model in the first equation, we use panel random effects estimation technique and to estimate the second equation, we utilize panel fixed effects estimation technique. We use data of 5 countries from South Asia such as Bangladesh, India, Nepal, Pakistan and Sri Lanka. The time horizon for the data is from 1991 to 2012. Data is collected from the World Development Indicators of the World Bank, the Asian Development Data

Source and the United Nations Conference on Trade and Development Database.

2.4.2 Empirical Results

The results are summarized in the tables below. According to the findings, ‘FDI’ and ‘Lag of trade openness’ become significantly positive at 5 per cent and 1 per cent level respectively, ‘Real interest rate’ which represents financial sector liberalization reforms and ‘Market capital’ which is proxy for capital market liberalization have negative effect on trade. ‘Tax revenue and gross national expenditure’ which are fiscal reform proxies appeared as significantly positive at 10 per cent and 5 per cent level respectively.

Table 2. 25: Impact of Reforms on Foreign Trade of South Asia (Dependent Variable: Economic Openness)

		(1)	(2)	(3)	(4)	(5)
Variables	Explanation	lnopn	lnopn	lnopn	lnopn	lnopn
lnpcy	Per capita GDP	0.0392 (0.0468)	-0.00248 (0.0338)	-0.00500 (0.0343)	0.00402 (0.0363)	-0.0201 (0.0349)
lnfdiy	Foreign Direct Investment (FDI) as percentage of GDP	0.449*** (0.0724)	0.0863 (0.0550)	0.0913 (0.0562)	0.103 (0.0581)	0.156** (0.0567)
lnlagopn	Lag values of Openness Indicator		0.885*** (0.0397)	0.884*** (0.0400)	0.877*** (0.0411)	0.744*** (0.0522)
lnrir	Real Interest Rate			-0.0276 (0.0564)	-0.0458 (0.0612)	-0.0161 (0.0745)
lnmcy	Market Capital as percentage of GDP				-0.0156 (0.0200)	-0.0273 (0.0211)
lnntaxry	Tax Revenue as percentage of GDP					0.177* (0.0837)
lngnexy	Gross national expenditure as percentage of GDP					1.120** (0.399)
Constant		3.217*** (0.307)	0.403 (0.210)	0.493 (0.279)	0.545 (0.288)	-4.529* (1.881)
Observations		109	109	109	109	109
R-squared						
Number of Panels		5	5	5	5	5
rmse		0.187	0.152	0.152	0.153	0.144

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2. 26: Impact of Reforms on FDI inflow of South Asia (Dependent Variable: Total Inward Flow of FDI)

Variables	Explanation	Coefficient
lncpy	Per capita GDP	-0.0398** (0.0197)
lnopn	Openness Indicator (Total Trade as percentage of GDP)	0.0135 (0.0317)
lnlagfdiy	Lag values of FDI as percentage of GDP	1.5403*** (0.0391)
lnrir	Real Interest Rate	-0.0854*** (0.0281)
Intaxy	Tax Revenue as percentage of GDP	-0.0949** (0.0456)
lngnexy	Gross national expenditure as percentage of GDP	0.6684** (0.2795)
Constant		-2.5643** (1.2196)
Observations	109	
R-squared	0.9695	
Number of Panels	5	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The empirical estimation for impact of economic reforms on inward FDI in South Asian countries was done by the panel fixed effect regression estimate. The results show that ‘Trade openness’, ‘Lag of FDI’ and ‘Gross national expenditure’ have been positive while ‘Real interest rate’ and ‘Tax revenue’ appeared to be negative. The variables such as ‘Lag of FDI’ and ‘Real interest rate’ were significant at 1 per cent level while ‘Tax revenue’ and ‘Gross national expenditure’ were significant at 5 per cent level. The empirical findings for the second estimate are summarized in table 2.25.

2.5 Discussion of Findings and Conclusion

First, these results indicate that the economies in South Asia have achieved a great expansion in international trade as they were opened and liberalized gradually since the 1980s. Therefore, total volume of exports and imports has grown enormously. Second, being factor driven economies, capital markets are yet to be expanded and flourished. Like other developing countries, banks and other financial institutions act as key intermediaries to provide necessary funds for businesses. Although the contribution of financial liberalization

reform to improvement of trade is not significant enough but it acts as a crucial factor for the economies in the region. Third, according to our findings, the impact of FDI and Market Capital are also regarded as very important determinants for trade development in the countries of South Asia.

The implications of the empirical findings of this chapter are simple. First of all, the verification of a positive relationship hypothesis between trade and the factors considered in this study indicates the credibility of South Asia's robust growth in the external sector in recent years. Throughout the 2000s, export growth in South Asia was seen to be continuously positive. Moreover, export earning performance of some of the major sectors including woven-RMG, knit-RMG, frozen foods and leather goods has experienced significant improvement since the past two decades. Furthermore, industry leaders were able to undertake timely measures for production of exportable goods at a competitive price thanks to increase in volumes rather than price of South Asia's export products. Nevertheless, in these countries export trade is continued to be featured by the dominance of a few commodities in a narrow market and there is no visibility of mentionable breakthrough in the performance of the thrust sectors. It is, therefore, necessary to remove these impediments in order to maintain a sustainable external sector.

According to neo-classical growth advocates, in a capital shortage economy the marginal productivity of investment is increased if additional capital is injected in the form of long-run investment like FDI. On the other hand, endogenous growth economists postulate that such increased efficiency of investment can be achieved because foreign capital is capable of providing comparative advantages (Romer, 1986). Moreover, in low-income countries FDI and similar foreign capitals act as a source of fund to fill up the gap between existing level in resources and the amount needed in the development endeavor. Such funds stimulate productivity through complementing scarce domestic resources, easing foreign

exchange constraints, inviting modern technologies and managerial skills, and facilitating easy access to foreign markets (Adhikary, 2011).

Unfortunately, the influx of foreign capital flow which had been expected to accelerate growth in some new and emerging industries has not occurred in South Asia. Every year very little foreign investment is occurring in these countries and some companies who have invested previously are leaving because of a corrosive business environment. Institutionalized corruption in all government organs, political instability, poor management in transportation, inadequate infrastructure and above all a crisis of wise leadership can be considered as some of the reasons that have reduced FDI flow. However, to support a higher growth environment by compensating for domestic resource constraints more and more FDI flow needs to be supported in South Asia. Hence, in order to achieve valuable foreign capitals in the form of FDI such impediments need to be eliminated.

CHAPTER 3

THEORY OF THE GRAVITY MODEL

3.1 Introduction

International trade brings countries close to each other. With some exceptions, now-a-days almost all countries, developed or developing, are trying to eliminate or reduce various trade barriers to facilitate more and more trade from foreign countries. In this current age economic integration, free trade and trade liberalization became some very popular words in the public news media. Some basic questions may arise such as what is the reason for trade between countries or can all countries gain from trade or how large is the flow of trade between two or more trading partners. Trade theories pioneered by economists in the past years can thoroughly answer these questions. The explanation for the *why* questions is rooted in Classical Trade Theory and Modern Trade Theory literature whereas the gravity model of trade can answer the question relating magnitude or volume of trade between countries.

In this chapter the theoretical framework of international trade will be highlighted. The chapter is organized as it follows: we discuss about some basic theories of trade such as the Classical Trade Theory, the Modern Trade Theory and the New Trade Theory etc. The Classical Trade Theory is discussed first where classical models of trade including the Mercantilism Model as well as the Absolute and Comparative Advantage Theory are narrated briefly. Then we give a short overview of some Modern Trade Theories such as The Eli Hecksher and Bertil Ohlin Model, Specific Factors and Income Distribution Model and The Standard Model of Trade etc. Later the New Trade Theory is discussed. After that, we study broadly about the Gravity Theory of Trade. We try to derive the gravity model for both aggregate and disaggregate levels. We also discuss the general conditions of gravity in international trade. Finally, we conclude the chapter in the last section.

3.2 Classical Trade Theories

3.2.1 Mercantilism Model

This is also termed as William Petty, Thomas Mun and Antoine de Montchrétien Model. This theory was emerged about three centuries ago from the so called “commercial revolution” or “transition from local economies to national economies, from feudalism to capitalism, and from a rudimentary trade to a larger international trade”. The essence of this theory is that the world has limited or fixed amount of wealth and that a country has to take some wealth from another country to increase its own wealth through raising import/export ratio. In this system, tendency of countries was to export more and import less. The premise of this model is based on the belief that nations should try to gather wealth and power through increasing exports and collecting precious metals in return. The basic policy of Mercantilism was to maintain a positive balance of payment by having more exports to and no imports from other countries. Mercantilism dominated the school of thoughts until the emergence of the Industrial Revolution and the concept of ‘laissez faire’.

3.2.2 Absolute Advantage and Comparative Advantage

Mercantilism Policies were criticized by newly appeared class of the eighteenth century because they emerged as an obstacle to economic development. Adam Smith in his book “The Wealth of Nations” blamed mercantilist policies for being biased to producers and ignoring the interests of consumers. Adam Smith forwarded the Absolute Advantage Model which says that the value of goods must be determined by measuring the labor needed to produce them. He used a unifactorial system of economy and analyzed Absolute Advantage Theory using one factor of production: ‘the productivity of labor’. Adam Smith made a comparison of nations and households. A household makes one item and exchanges it for another item with another household and through this exchange both of them gain. The same

argument can be applied to countries so that one country utilizes its absolute advantage and specializes in producing a good in order to exchange for another good with another country. Therefore, through trade both of them gain and thus it is reasonable that both countries engage their all resources to the good for which they have absolute advantage.

The Absolute Advantage Theory brings a good solution but it cannot explain satisfactorily the reason of participating in trade for a country which lacks any absolute advantage. David Ricardo solved the problem and came forward to suggest a basic economic model known widely as the 'Principle of Comparative Advantage'. This theory demonstrates that "countries can gain from trade even if one of them is less productive than another to all goods that it produces". Giving another form referring to Lindert (1991), the model suggests that "a nation like a person, gains from trade by exporting the goods or services in which it has greatest comparative advantage in productivity and importing those in which it has the least comparative advantage". In this connection, D. Ricardo explains comparative advantage as the situation of incurring higher opportunity cost for one country in producing a good than that for another country.

3.3 Modern Trade Theory

The argument of Comparative Advantage Theory is convincing in many ways. It has answered the question that Adam Smith's Absolute Advantage Model could not solve. This theory is now regarded as the basis for international trade. However, the model pioneered by D. Ricardo has some limitations. For instance, its assumption of extreme degree of specialization for a country is not realistic because a nation, in practice, can produce and import a good simultaneously. Another limitation of the Ricardian Model is that it ignores the fact that international trade may have effects on distribution of income within countries, thus the statement that 'every country gains from trade' is no more valid in some cases. Finally,

dissimilar resource endowments among nations, the role of economies of scale and trade within the same industry were ignored in the Comparative Advantage Theory.

3.3.1 The Eli Hecksher and Bertil Ohlin Model

This model answers why countries participate in trade and it emphasizes on differences in resource levels or factor endowments between two countries. According to this theory, the interaction between the existing resources and level of production technology a country possesses influences comparative advantage. The model demonstrates that among a pair of countries, if one country has more of a kind of resource than in another then the country with more resources is said to be relative abundant in that resource and tends to concentrate more on producing the goods that utilize that specific resource. According to this theory, trade between countries allows them to specialize. Each country produces and exports the good for which the country has relative abundant in resources that are needed for that good. Similarly, each country imports the good for which it is less suited to produce.

The Hecksher-Ohlin Model extends the Ricardian Model by adding an additional factor of production called as 'capital' while the original classical models consider only one factor, labor. This model emphasizes that 'differences in relative endowments of factors of production' brings the only difference between countries but technologies remain same. According to Husted & Melvin (2001), The Hecksher-Ohlin Model suggests that not every country can be benefited from trade because the income distribution effects of international trade cannot be avoided and in this way it differs from the Ricardian Model. The individuals who own the country's abundant factors gain while the owners of the scarce resources lose.

3.3.2 Specific Factors and Income Distribution Model

Two American economists Paul Samuelson and Ronald Jones have elaborated this theory on the basis of specific factors. In this model, three factors of production namely labor,

capital and territory are considered. Therefore, it is also called the tri-factorial model of international trade. Some goods like food are made by using territory and labor while other goods like manufactured products need capital and labor. Here labor is termed as mobile factor and territory and capital are recognized as specific factors. Specific Factors and Income Distribution Model demonstrates that a country with abundance in capital and less of land tends to concentrate on producing of more manufactured goods while a territory abundant country tends to concentrate on producing of more food. Having other things constant, an increase in capital will result in an increase in marginal productivity in the manufacturing sector. Similarly, if the abundance of territory increases then marginal productivity of food production will get a rise. In a case both countries start to trade, an integrated global economy will emerge whose total manufactured and food production will be the same to the sum of the two countries' productions. If a country refuses to trade with the other then the production and consumption for a good will be equal.

3.3.3 The Standard Model of Trade

Paul Krugman and Maurice Obsfeld advanced this model. In the Standard Model of Trade, there exists a relative global supply curve and a relative global demand curve. The intersection between these two curves determines the exchange rate between the export prices and the import prices. According to this model, an improvement of the exchange rate for a country will result in a substantial rise in the welfare of that individual country.

3.4. New Trade Theory

The Classical Trade Theory, which implies more trade between less similar countries, is unable to explain the huge trade between countries who have similar factor of endowments and the vast amount of intra industrial trade in the perspective of developed countries. The New Trade Theory has emerged and established in the 1980s to solve this

issue. This theory emphasizes on ‘economics of scale, imperfect competition and product differentiation’ instead of classical theory’s assumptions of ‘constant return to scale, perfect competition and homogeneous goods’. New Trade Theory implies that each country specializes to produce a smaller range of goods in a larger volume with better productivity and cheaper costs. According to Markusen et al (1995) and Krugman & Maurice (2005), this theory suggests that two countries can engage in trade even when they are similar in resource endowments and acquisition of production technologies.

3.5 The Gravity Model of Trade

The trade theories discussed so far such as the Classical Model and the New Trade Theory can successfully answer the question of why countries join in international trade but they cannot quantify the amount of trade flows between countries. Patterns and performances of international trade also cannot be explained by these trade models. Therefore, another trade theory, the Gravity Model of Trade has emerged in the literature and is used intensively to measure trade between countries. The Gravity Trade Model, which is regarded as the workhorse of research in international trade, has been utilized as an empirical model to explain trade between countries or regions. Because of its ability to correctly approximate bilateral trade flows, the model has been treated as one of the most reliable empirical relationships in the broad field of economics (Leamer & Levinsohn 1995).

Several different theories have been pioneered by researchers to support the gravity model of international trade. The differences in these theories help to explain the various forms of the gravity equation and the variations among the results.

The concept has been pioneered by Tinbergen (1964) and Poyhonen (1963) from its simplest form of the analogy with Newton’s “Law of Universal Gravitation” which says that a mass of goods or labor or other factors of production at origin i (E_i) is attracted to a mass of

demand for goods or labor at destination j (E_j), but the potential flow is reduced due to distance between them, (ϕ_{ij}). In another words, the flow of goods from country i to country j is equal to the product of the potential trade capacities of the two countries divided by any resistance to trade such as the distance factor. Isard & Peck (1954) and Beckerman (1956) have applied the above framework in their studies. It was found that geographically closer countries have greater trade flows. Tinbergen (1964) and Poyhonen (1963) implemented the same framework in their researches and got that income of the trading partners and distances between them are statistically significant and have the expected signs. Aitken (1973) and Learner (1974) also utilized the above framework in their studies. Applying the relation mathematically it gives,

$$X_{ij} = E_i E_j / \phi_{ij}^2 \quad (5.1)$$

One of the most important reasons behind the success of the gravity trade equation is its explanatory power of some phenomena that the conventional factor endowment theory of international trade cannot explain. In this regard, trade between industrialized countries or the intra-industry trade cannot be explained by the factor endowment theory because they are characterized by a lack of dramatic re-allocations of resources when liberalization processes have taken place (Deardorff, 1984).

Tinbergen (1964) and Poyhonen (1963) are two studies that have used the Gravity Trade Model to estimate trade flows between countries. Later Linnemann (1966) has followed them and introduced Walrasian General Equilibrium (WGE) as an additional tool to the model. Deardorff (1984) indicates that the Gravity Trade Model explains the volume of trade and it does not deal with anything about the composition of trade. According to Leamer & Levinsohn (1995) and Helpman (1999), the empirical model utilizes an equation format to estimate the volume of trade between countries as a measure of their levels of income, amount of populations and some other restraining factors on bilateral basis. Leamer & Stern

(1970) applied the probability model of transaction in an effort to estimate the Gravity Model. On the other hand, in a study conducted by Leamer (1974), both the Gravity Equation and the Heckscher-Ohlin Model of international trade were used in a regression study of trade flow. Anderson (1979) utilized models related to product differentiation to estimate the Gravity Equation and assumed the Cobb-Douglas preferences. This study later applied the Constant Elasticity of Substitution (CES) preferences and made assumption that the basis of product differentiation is 'country of origin'.

A number of researchers have suggested various ways to derive the Gravity Equation from product differentiation models. According to the claim of Helpman & Krugman (1985) and Helpman (1987), monopolistic competition creates the force of gravity in international trade. On the other hand, Grossman (1998) suggests that specialization rather than monopolistic competition generates the source of gravity. Grossman (1998) further indicates a link between the Gravity Model and a number of other trade models, including Richardian, Armington and Heckscher-Ohlin models. Song (2000), however, argues that the equality of the market shares, not specialization, generates the force of gravity. According to Song (2000), the equation of gravity holds as long as the market shares of each exporting country in the importing countries are identical across the world.

Returning back to the strict analogy of trade and the physical force of gravity, there is a clash with the observation that there is no set of parameters for which equation (5.1) above will hold exactly for an arbitrary set of observations. The traditional gravity departs from the strict analogy to allow the coefficients of 1 applied to the mass variables and of 2 applied to bilateral distance to be generated by data in order to fit a statistically inferred relationship between data on flows and the mass variables and distance. The typical stochastic version of the gravity equation holds the following form:

$$X_{ij} = \alpha_0 E_i^{\alpha_1} E_j^{\alpha_2} \phi_{ij}^{\alpha_3} \varepsilon_{ij} \quad (5.2)$$

where α_0 , α_1 , α_2 and α_3 are unknown parameters. Some authors including Tinbergen (1962) expressed the model in a *log-log* form where the parameters represent elasticity of the trade flow with respect to the explanatory variables. In equation (2), it is assumed that adjacent countries have a more intense trade than what distance alone would predict. A dummy variable N_{ij} was utilized in this case and it takes a value 1 if the two countries share a common land border. In addition, another dummy V_{ij} is used to augment the equation with political factors and it indicates the situation that goods traded received a preferential treatment if they were included in some unilateral or system of preferences. The effect of Preferential Trade Agreement (PTA) has been used widely in the literature, although, now-a-days, preferential margin guaranteed by the agreement are also taken into account. The conventional model is given by the following form:

$$\ln X_{ij} = \alpha_0 + \alpha_1 \ln E_i + \alpha_2 \ln E_j + \alpha_3 \ln \phi_{ij} + \alpha_4 N_{ij} + \alpha_5 V_{ij} + \varepsilon_{ij} \quad (5.3)$$

The Gravity Model can be originated from a variety of trade frameworks. Anderson (1979), under perfect competition, considered the assumption of a Constant Elasticity of Substitution (CES) import system in his derivation of the gravity equation. The basic of the CES analogy is that each country produces and sells differentiated products in the world market. Eaton & Kortum (2002), on the other hand, considered the case of homogeneous goods on the demand side and presented another derivation framework. Eaton & Kortum (2002) also considered the ‘iceberg trade costs and Ricardian technology with heterogeneous productivity for each country and good due to random productivity draws’ in the derivation procedures. Arkolakis et al. (2012) implies that while there are only consumption gains in the case of Anderson (1979) and Anderson (2011), both consumption and production gains can be achieved in the case of Eaton & Kortum (2002).

Anderson & Wincoop (2003) imposed two important restrictions in obtaining gravity-type structures. First, the aggregator of varieties needs to be identical across the trading countries and CES system. The CES form requires both homothetic (i.e. relative demands are functions of relative aggregate prices) and separable preferences (i.e. ensuring that the allocation of expenditure across product classes is separate from the expenditure budget allocation within a product class). Following Armington (1969), location defines product classes where goods are differentiated by place of origin.

3.5.1 Derivation of the Gravity Trade Model

The simple gravity trade model can be derived from a rearrangement of a Cobb-Douglas expenditure system. Let us think such a world where each country completely specializes in producing its own good. In such a world, one country produces one good and there are no tariffs or transport costs. Let us consider that the amount of income spent on the product of country i is indicated as s_i which is same for each country. Therefore, we can say that there are identical Cobb-Douglas preferences everywhere. An import by country j from country i is written as $s_i Y_j$ where Y_j is denoted as income of country j . The quantity of consumption value by country j is equal to the export value of country i to country j and can be written as X_{ij} . The first equation is given by

$$X_{ij} = s_i Y_j \quad (5.4)$$

Given that income and sales are equal to each other, the budget constraint or trade balance equation for a country is given by the following equation:

$$Y_i = \sum X_{ij} = s_i \sum Y_j \quad (5.5)$$

Rearranging equation (5.5) gives:

$$s_i = \frac{Y_i}{\sum Y_j} \quad (5.6)$$

If we substitute equation (5.6) into equation (5.4) then we get the following:

$$X_{ij} = \frac{Y_i Y_j}{\sum Y_j} \quad (5.7)$$

If we consider that Y_w is the world's income (i.e. total GDP of the world) then

$$Y_w = \sum Y_j \quad (5.8)$$

From equation (5.7) and using the relation in equation (5.8) we can write as

$$X_{ij} = \frac{Y_i Y_j}{Y_w} \quad (5.9)$$

Equation (5.9) is the simplest form of the Gravity Trade Model. The above equation implies that the expenditure system of the trading partners can encompass a major portion of the explanatory power of the Gravity Model of International Trade. Taking the logarithm in equation (5.9) gives us the following:

$$\log X_{ij} = b_0 + b_1 \log Y_i + b_2 \log Y_j \quad (5.10)$$

for the above equation, $b_0 = -\log Y_w$ and $b_1 = b_2 = 1$

The country level discussion can be extended to the industry level in which we consider that X_{ij}^k is the country i 's export value of good k to country j and s_i^k is the fraction of income that is spent by country j for good k . This s_i^k is identical for any j . The value of total consumption for good k in country j which is imported from country i is given by:

$$X_{ij}^k = s_i^k Y_j \quad (5.11)$$

The total income earned by country i from the export of good k is:

$$Y_i^k = \sum X_{ij}^k = s_i^k \sum Y_j \quad (5.12)$$

Rewriting equation (5.12) gives the following:

$$s_i^k = \frac{Y_i^k}{\sum Y_j} \quad (5.13)$$

Next by substituting equation (5.13) into equation (5.11), the following equation is given:

$$X_{ij}^k = \frac{Y_j Y_i^k}{\sum Y_j} \quad (5.14)$$

Equation (5.14) is the industry level form of the simple gravity equation. Equation (5.14) can also be written in the form of:

$$X_{ij}^k = \frac{Y_i Y_j^k}{Y_w} \quad (5.15)$$

If we take logarithm in equation (5.15), we get the next equation:

$$\log X_{ij}^k = b_0 + b_1 \log Y_j^k + b_2 \log Y_i \quad (5.16)$$

For the above equation, $b_0 = -\log Y_w$ and $b_1 = b_2 = 1$

3.5.2 General Gravity Conditions

The gravity equations that we have just derived are too simple to deal with the real world problems. The assumptions of identical preferences, income elasticity of unity, and constant and same prices in all countries limit their application to the real world. But they are useful in exploring the condition for gravity. This present section discusses in detail the general conditions of gravity.

Let us consider such a world where there are no trade barriers and no price differences for a good (say good k). The world has N number of countries and every single country has balance in trade. Therefore, in each country, total production is identical to total expenditure. We think that consumers in such a world have same homothetic preferences. For the purpose of further discussion let us identify some variables:

X_{ij}^k = Value of good k shipped from country i to country j .

$\sum X_{ij}^k = X_{ij}$ = Total export from country i to country j .

Y_i^k = Value of good k produced in country i .

As we considered previously a condition of trade balance, $Y_i^k = \sum X_{ij}^k$

$\sum Y_i^k$ = The summation over all commodities $k = Y_i$ = Total income of country i

$\sum Y_i^k$ = The summation over all countries i = Y_w^k = Total income of the world from exporting good k = Total production of good k for the world

Y_w = World production = $\sum Y_i$ = World income

Now, we will introduce some share variables for the next derivations.

s^k = Expenditure share of good k which is identical in every country for the assumption of an identical homothetic preference.

$\lambda_{ij}^k = \frac{X_{ij}^k}{s^k Y_j}$ = country i 's share in country j 's expenditure on good k

$\lambda_i^k = \frac{Y_i^k}{s^k Y_w}$ = country i 's share in the world's expenditure on good k

$\lambda_{ij} = \frac{X_{ij}}{Y_j}$ = country i 's share in country j 's total expenditure

$\lambda_i = \frac{Y_i}{Y_w}$ = country i 's share in the world's total expenditure

We like to explore the theoretical foundation of the simple gravity equation both in the aggregate level and the industry level. The equations were derived in a previous section as $X_{ij} = \frac{Y_i Y_j}{Y_w}$ and $X_{ij}^k = \frac{Y_j Y_i^k}{Y_w}$. In this section we introduce some propositions related to these equations.

Proposition 1: If and only if $\lambda_{ij} = \lambda_i$ for each i , then $X_{ij} = \frac{Y_i Y_j}{Y_w}$ for all i and j .

Proof: If $\lambda_{ij} = \lambda_i$

Then, $\frac{X_{ij}}{Y_j} = \frac{Y_i}{Y_w}$

Or, $X_{ij} = \frac{Y_i Y_j}{Y_w}$

Proposition 2: If and only if $\lambda_{ij}^k = \lambda_i^k$ in any j for each i , then $X_{ij}^k = \frac{Y_j Y_i^k}{Y_w}$ for all i, j and k .

Proof: If $\lambda_{ij}^k = \lambda_i^k$

Then, $\frac{x_{ij}^k}{s^k Y_j} = \frac{Y_i^k}{s^k Y_w}$

Or, $X_{ij}^k = \frac{Y_i^k Y_j}{Y_w}$

The propositions that we presented here help us to realize the reason for which the gravity equation makes sense under diverse conditions. Next, we will present some lemma related to our discussion above.

Lemma 1: $\sum s^k \lambda_{ij}^k = \lambda_{ij}$, for all i and j .

Proof: $\sum s^k \lambda_{ij}^k = \sum s^k \frac{x_{ij}^k}{s^k Y_j}$

$$= \sum \frac{x_{ij}^k}{Y_j}$$

$$= \frac{\sum x_{ij}^k}{Y_j}$$

$$= \frac{x_{ij}}{Y_j}$$

From this, $\sum s^k \lambda_{ij}^k = \lambda_{ij}$ (5.17)

We turn a conclusion from the above propositions that the first two conditions for the simple aggregate and industry level gravity equations are:

(a) $\lambda_{ij} = \lambda_i$ in any j and

(b) $\lambda_{ij}^k = \lambda_i^k$ in any j

In simple words, it can be postulated that in any j , λ_{ij} and λ_{ij}^k are constant. Let us see the following example.

Example 1: In the case of complete specialization, let us assume that each good is produced in only one country. If good k is produced in country i , then $Y_i^k = Y_w^k$. From this, it can be written that $\frac{Y_i^k}{Y_w^k} = \lambda_{ij}^k = \lambda_i^k = 1$ in any j . In the opposite, if country i does not produce good

k , then $Y_i^k = 0$. From this, $\frac{Y_i^k}{Y_w^k} = \lambda_{ij}^k = \lambda_i^k = 0$ in any j , which implies that λ_{ij}^k is constant in any j .

In the case of aggregate level, $Y_i = Y_i^k$, where k is the good produced by country i , which means that country i 's total income equals its income from producing and exporting good k . The reason behind this is that only one good is produced in and exported from each country. From the previous discussion, since country i produces good k , i 's share in the total world's expenditure of k must be $\lambda_i^k = \frac{Y_i^k}{s^k Y_w} = 1$. From this, we can write $Y_i^k = s^k Y_w = Y_i$.

In the aggregate version of gravity equation, $\lambda_i = \frac{Y_i}{Y_w} = \frac{s^k Y_w}{Y_w} = s^k$. Because of our assumption of homothetic preferences, s^k is identical in any j . Therefore, $\lambda_i = \lambda_{ij}$ and both of them are constant in any j .

The random selection model assumes that there are multiple producers of good k . The total production by the world of good k is Y_w^k . A consumer randomly selects a producer from a number of producers of good k because all goods in the pool are equally priced. The probability of country i 's good to be selected by country j 's consumer is estimated as $\frac{Y_i^k}{Y_w^k}$,

where $\frac{Y_i^k}{Y_w^k} = \lambda_i^k$. Hence, this probability is constant and same in any j . For this reason, the proportion of country i 's export (of good k) to country j to j 's total expenditure on k is also constant. We can write that $\frac{Y_i^k}{Y_w^k} = \lambda_{ij}^k = \lambda_i^k$ and that λ_{ij}^k is constant. From our first lemma,

$\lambda_{ij} = \sum s^k \lambda_{ij}^k = \sum s^k \frac{Y_i^k}{Y_w^k} = \sum s^k \frac{Y_i^k}{s^k Y_w} = \sum \frac{Y_i^k}{Y_w}$. From this relation, we can write that λ_{ij} is constant because Y_i^k and Y_w are constant in any j . Therefore, the condition is well satisfied.

Here let us introduce the case of a Cournot competition where every firm has the right to maximize its profit by independently setting the price of its own good given that the

price of other firms are known. We assume that each consumer has an identical homothetic function and an elasticity of μ . Let us think that the number of firms producing good k in country i is n_i^k and the unit cost for each good is c_i^k . In this framework, $\sum n_i^k$ firms in each country participate in a Cournot game in a market differentiated/segmented by national border. If P_j^k is the price of good k in country j , α_{ij}^k is the share of each i 's firm in country j ; then country j 's market equilibrium exists if the following equation satisfies:

$$P_j^k \left(1 - \frac{\alpha_{ij}^k}{\mu}\right) = c_i^k \quad (5.18)$$

From equation (5.18), $\alpha_{ij}^k = \left(1 - \frac{c_i^k}{P_j^k}\right)\mu$

From the relation of $\lambda_{ij}^k = n_i^k \alpha_{ij}^k$, we can write $\lambda_{ij}^k = \left(1 - \frac{c_i^k}{P_j^k}\right)n_i^k \mu \quad (5.19)$

In equilibrium, the condition of gravity is well satisfied. If equilibrium happens then P_j^k is same in every j because of the same number of firms competing in every market. In country j demand elasticity remains constant. An assumption of constant unit costs and constant firm number in any market location makes λ_{ij}^k becomes constant for each i .

In the connection to our assumption of homothetic utility function, $\lambda_{ij}^k = \lambda_i^k$; it means that λ_{ij}^k is constant in any j . This can be expressed in alternative words that the share of country i 's firm in any j is same and equal to the share of country i 's firm in the world. Mathematically, $\lambda_i^k = n_i^k \alpha_i^k = n_i^k \alpha_{ij}^k = \lambda_{ij}^k$. In the aggregate model, using lemma 1, we can write that $\lambda_{ij} = \sum s^k \lambda_{ij}^k = \sum s^k \left(1 - \frac{c_i^k}{P_j^k}\right)\mu \quad (5.20)$

Turning back to our previous discussion; s^k , c_i^k , P_j^k and μ are constant in any j . Hence, it can be concluded that $\lambda_i (= \lambda_{ij})$ is constant in any j .

In the simple gravity equation, from the discussion so far, an exporting country's market shares in different importing countries should be constant. It should be noted that the

common market share can vary in between 0 and 1 as the above example indicates. Another fact is that the common market share is not constant across industry. The implementation is that the gravity equation holds in the following three situations provided that the market-share in each industry (λ_{ij}^k) is constant in all importing countries:

- (a) A model of complete specialization in a part or subset of industries
- (b) A random selection in another segment or subset and
- (c) A Cournot competition in the rest of the industries

The propositions that we have introduced are in their simplest form. In order to make them more estimable, some authors used a constant term and log-normal disturbance term in their model to capture the impact of other factors (see for example Anderson, 1979 and Oguledo & Macphee, 1994). Following these studies, for the discussion in next section, we add two coefficients to capture such factors which drive the Gravity Trade Model. These terms are called gravity coefficients and indicated as G_{ij} and G_{ij}^k . The value of these coefficients may vary in different circumstances.

Lemma 2: $\sum_j \lambda_j \lambda_{ij} = \lambda_i$ for any i and j .

Proof: $\sum_j \lambda_j \lambda_{ij} = \sum_j \frac{Y_j}{Y_w} \times \frac{X_{ij}}{Y_j} = \sum_j \frac{X_{ij}}{Y_w} = \frac{\sum_j X_{ij}}{Y_w} = \frac{Y_i}{Y_w} = \lambda_i$

Therefore, $\sum_j \lambda_j \lambda_{ij} = \lambda_i$ (5.21)

Now let us introduce the next proposition of 3

Proposition 3: $X_{ij} = G_{ij} \frac{Y_i Y_j}{Y_w}$, for any i and j .

In proposition 3, $G_{ij} = \frac{\lambda_{ij}}{\lambda_i}$ and $\sum_j \lambda_j G_{ij} = 1$

Proof: From lemma 2, $\sum_j \lambda_j \lambda_{ij} = \lambda_i$

Or, $\frac{\sum_j \lambda_j \lambda_{ij}}{\lambda_i} = 1$

Or, $\sum \lambda_j G_{ij} = 1 \quad [\because G_{ij} = \frac{\lambda_{ij}}{\lambda_i}]$

Now let us substitute, $G_{ij} = \frac{\lambda_{ij}}{\lambda_i}$

We get, $G_{ij} \frac{Y_i Y_j}{Y_w} = \frac{\lambda_{ij}}{\lambda_i} \times \frac{Y_i Y_j}{Y_w} = \frac{X_{ij}}{Y_j} \times \frac{Y_w}{Y_i} \times \frac{Y_i Y_j}{Y_w} = X_{ij}$

Therefore, $X_{ij} = G_{ij} \frac{Y_i Y_j}{Y_w}$

In this stage, we will introduce another lemma for the disaggregate version of the gravity equation,

Lemma 3: $\sum \lambda_j \lambda_{ij}^k = \lambda_i^k$ for any i, j and k .

The relationship can be derived as follows.

$$\sum \lambda_j \lambda_{ij}^k = \sum \frac{Y_j}{Y_w} \times \frac{X_{ij}^k}{s^k Y_j} = \sum \left[\frac{X_{ij}^k}{s^k Y_w} \right] = \frac{\sum X_{ij}^k}{s^k Y_w} \quad [\because \text{we assumed previously that consumers have}$$

similar homothetic preferences and because of that reason s^k and Y_w are constant in any j .

From this, $\sum \lambda_j \lambda_{ij}^k = \frac{Y_i^k}{s^k Y_w} = \lambda_i^k$

$$\therefore \sum \lambda_j \lambda_{ij}^k = \lambda_i^k \quad (5.23)$$

Proposition 4: $X_{ij}^k = G_{ij}^k \frac{Y_j Y_i^k}{Y_w}$, for any i, j and k provided that $G_{ij}^k = \frac{\lambda_{ij}^k}{\lambda_i^k}$ and $\sum \lambda_j G_{ij}^k = 1$

Derivation: Turning back to lemma 3,

$$\sum \lambda_j \lambda_{ij}^k = \lambda_i^k$$

or, $\frac{\sum \lambda_j \lambda_{ij}^k}{\lambda_i^k} = 1$

or, $\sum G_{ij}^k \lambda_j = 1 \quad [\because \text{substituting } \frac{\lambda_{ij}^k}{\lambda_i^k} = G_{ij}^k]$

Now, $G_{ij}^k \frac{Y_j Y_i^k}{Y_w} = \frac{\lambda_{ij}^k}{\lambda_i^k} \times \frac{Y_j Y_i^k}{Y_w} = \frac{X_{ij}^k}{s^k Y_j} \times \frac{s^k Y_w}{Y_i^k} \times \frac{Y_j Y_i^k}{Y_w} \quad [\because \text{putting values of } \lambda_{ij}^k \text{ and } \lambda_i^k]$

Or, $G_{ij}^k \frac{Y_j Y_i^k}{Y_w} = X_{ij}^k \quad (5.24)$

Here another relationship between G_{ij} and G_{ij}^k ($G_{ij} = \sum \frac{Y_i^k}{Y_i} G_{ij}^k$) can be established recalling our lemma 1.

Derivation: From the previous discussion, $G_{ij} = \frac{\lambda_{ij}}{\lambda_i}$

Substituting of $\lambda_{ij} = \sum s^k \lambda_{ij}^k$, we get, $G_{ij} = \frac{\sum s^k \lambda_{ij}^k}{\lambda_i}$

Now we have, $G_{ij}^k = \frac{\lambda_{ij}^k}{\lambda_i^k}$ and so, $\lambda_{ij}^k = \lambda_i^k G_{ij}^k$,

Hence, $G_{ij} = \frac{1}{\lambda_i} \sum s^k \lambda_i^k G_{ij}^k = \frac{Y_w}{Y_i} \sum s^k \frac{Y_i^k}{s^k Y_w} G_{ij}^k = \sum \frac{Y_w}{Y_i} \frac{Y_i^k}{Y_w} G_{ij}^k$ [$\because \lambda_i = \frac{Y_i}{Y_w}$ and $\lambda_i^k = \frac{Y_i^k}{s^k Y_w}$]

Or, $G_{ij} = \sum \frac{Y_i^k}{Y_i} G_{ij}^k$ (5.25)

The gravity coefficient can be defined as the proportion of the share of country i in country j 's expenditure in good k or the share of country i in the world's expenditure in good k and has important implications in the original gravity equation. The above propositions indicate that for an exporting country i , because of a variation in λ_{ij} and λ_{ij}^k across j , the gravity coefficients vary across importing countries. Factors such as distance, trade related treaties and/or currency unions can influence the distribution of these coefficients. One thing should be noted that the weighted average of the gravity coefficient always equals unity (i.e. $\sum \lambda_j G_{ij} = 1$). Here the weight λ_j is determined by the relative sizes of importing partners because of the fact that $\lambda_j = \frac{Y_j}{Y_w}$. It is indicative that the gravity equation holds 'on average' and the reason for trade has nothing to do with it.

Accordingly, in a case the value of gravity coefficients (G_{ij}) is higher than unity for some importers such as j then they should have values less than unity for other importers such as m . Let us take in account that exporter i exports to 10 potential importers ($j = 1, 2, \dots, 10$) of same size where $Y_j = Y_1 = Y_2 = Y_3 = \dots = Y_{10}$.

Therefore, $Y_w = 10Y_j$ and $\lambda_j = \frac{Y_j}{Y_w} = \frac{1}{10} = 0.1$.

If, for example, exporter i exports its goods to two of importers j ($j=1, 2$) with equal amount (i.e. $G_{i1}=G_{i2}$) and does not export anything to the rest (i.e for $j=3, \dots, 10$, $X_{ij} = 0$), then it can

be written that $\lambda_{ij} = \frac{X_{ij}}{Y_j} = 0$ and that $G_{ij} = \frac{\lambda_{ij}}{\lambda_i} = 0$.

From this, $\sum(j = 3 \text{ to } 10)G_{ij} = 0$

Now, $\sum(j = 1 \text{ to } 10)\lambda_j G_{ij} = 0.1G_{i1} + 0.1G_{i2} + \sum(j = 3 \text{ to } 10)\lambda_j G_{ij}$

Putting $\sum(j = 3 \text{ to } 10)\lambda_j G_{ij} = 0$ gives $\sum(j = 1 \text{ to } 10)\lambda_j G_{ij} = 1$ and $G_{i1} = G_{i2}$

We get, $0.2G_{i1} = 1$ or $G_{i1} = 5 = G_{i2}$

The conclusion is that in this example, gravity coefficients for these two importing partners ($j=1, 2$) should be 5 each and the gravity coefficients for the rest are zero. It also should be noted here that if country i 's exports are equally divided among the 10 importing countries, then $\lambda_{i1} = \lambda_{i2} = \dots \lambda_{i10}$ and hence, $G_{i1} = G_{i2} = \dots = G_{i10}$.

Now, $\sum(j = 1 \text{ to } 10)\lambda_j G_{ij} = 0.1G_{i1} + 0.1G_{i2} + 0.1G_{i3} + 0.1G_{i3} + 0.1G_{i4} + \dots + 0.1G_{i10}$

Putting $G_{i1} = G_{i2} = \dots = G_{i10}$ and $\sum(j = 1 \text{ to } 10)\lambda_j G_{ij} = 1$ into this we get,

$$10 \times 0.1G_{i1} = 1$$

$$\therefore G_{i1} = 1$$

$$\text{or, } G_{i1} = G_{i2} = \dots = G_{i10} = 1$$

The decision here is that if country i exports its goods equally divided among importers of same size, the gravity coefficient for each importing country is necessarily should have same value and this value equals unity. The case where the gravity coefficient has the value of unity (i.e. $G_{ij} = 1$) is one of the observations of a simple gravity equation that we have derived previously in our proposition 1 and 2.

3.6 Conclusion

In this chapter we have shown that the existence of gravity in international trade can be identified in both aggregate and disaggregate conditions and gravity equation can be derived from several trade theories. The equation of gravity can hold in a case when more than one producer compete with homogeneous goods. In this chapter, we have shown that in a frictionless world, gravity can be thought as equivalent to the constancy of market shares. In this connection, due to the constancy of market shares, gravity still exists in a model where firms from many countries produce in a single industry such as a Cournot Model where complete specialization is absent. Two-way trade or reciprocal dumping occurs for the k product as firms from each country try to maximize their profits by selling their products in markets from both home and abroad. The scope of the gravity equations widens due to the above facts discussed in this chapter. The chapter gives us a clear idea about why the gravity model can fit under such diverse conditions and provides us with a concrete understanding about the reasons of the model's coexistence in conditions such as incomplete specialization and trade in homogeneous goods.

In our assumption, we have thought a frictionless world where there are no border effects of various kinds like transport costs and tariffs etc. But in a real world our propositions in industry level are not plausible because of the existence of these effects and an unequalled price structure across countries. Therefore, the real world trade pattern is more complex than the simple gravity equation. This is one limitation of the simple gravity model.

Nonetheless, the gravity coefficients G_{ij} and G_{ij}^k in our propositions 3 and 4 can vary across j based upon other factors different from income. G_{ij} and G_{ij}^k , therefore, represent additional variables like transportation costs, tariff and trade arrangement etc. It should be noted that in the case we relax the assumption of homothetic preferences or allow changes in prices across various markets segmented by borders (through adding

transportation costs), then the weighted average of G_{ij} and G_{ij}^k is not equal unity. Instead of this, the gravity coefficient presented in our model still captures the impact of factors other than income which drive the gravity of international trade.

CHAPTER 4

DETERMINANTS OF INTRA REGIONAL TRADE IN SOUTH ASIA

4.1 Introduction

The aim of this present chapter is to trace the major determinants of intra regional trade in South Asia. The chapter empirically examines these determinants by employing a statistical estimation of the gravity trade model using a set of panel data from 1990 until 2012. A brief literature review of theoretical and empirical aspects of the gravity equation of international trade will be presented in the beginning section. Significant empirical works which have utilized the gravity model in analyzing trade flows between countries will be reviewed next. Then previous studies about intra-regional trade determinants in South Asia will be revised thoroughly, although, there are very few studies that have used the gravity model and focused trade flows between countries in South Asia. Empirical results of the determinants of intra-regional trade in South Asia will be highlighted next and based upon the findings a conclusion will be turned in the final section.

4.2 Theoretical Foundation of the Gravity Model of Trade: Revision of the Previous Chapter

Researches in economics and social sciences have accepted many laws and relations that are already established in natural sciences due to their scientific and directly intuitive nature. The application of Epidemic Theory of mathematician William Farr in innovation economics and Prey–predator Model of Lotka Volterra in growth cycles are two popular examples. Application of these relations has presented positive results for economics researches and many of them offer high degree of robustness in various cases of different econometric tests. The Gravity Trade Model which is borrowed from physics and applied in international trade is one such relation. This model states that the magnitude of trade flows between two locations (i.e. country or region) depends on the supply conditions at the origin,

demand conditions at the destination and stimulating forces such as distance, historical ties or other related factors between two trade partners. The model has been successfully applied in a number of other related fields of economic study such as flow of intra regional trade and FDI and international trade flow of goods and services between countries.

A number of different theories have been developed so far to support the gravity trade model. Tinbergen (1964) and Poyhonen (1963) for the first time have utilized Newton's physical law of gravitation to establish a relationship among economic transactions in the form of trade flows, national income and distance within two trading partners. Linnemann (1966), in a study on world trade flows, provides with a derivation technique of the gravity model. Linnemann (1966) introduced three groups of factor that can determine international trade between partners. These are the supply factors in the exporting country, the demand factors in the importing country and the resistance factors (that help or hinder trade flows from a potential supplier to a potential buyer). According to Linnemann (1966), international trade between two countries takes place due to two factors: (a) the imbalance in compositions of domestic demand and domestic supply in an individual country and (b) comparative advantages developed by these imbalances in certain fields of production. Linnemann (1966) indicates two factors that determine the amount of foreign supply of a country. These are total national product (income) of the country and the ratio of total domestic market production (DM) to total production meeting foreign demand (FM). Based upon the existence of 'economies of scale' and demand diversification at higher levels of income per capita, it is postulated that the difference between DM and FM can be explained well by difference in size of population of two trading countries. Accordingly, potential supply and potential demand for a certain country largely depend on three factors such as total domestic product, size of population and level of per capita income of the country.

About resistances of trade there are two groups of factors: natural trade barriers and artificial trade barriers. Natural trade resistance factors include transport cost, transport time and economic horizon or the psychic distance between exporter and importer. However, researchers frequently use geographical distance in its widest sense as a proxy variable for all of the above resistance factors. Artificial resistance factors, on the other hand, indicate to the situation when tradable goods cannot pass a certain country or region freely due to factors such as tariff barriers, quantitative restrictions and other similar treatment. On the contrary, the opposite also happens such that establishment of a preferential trading area or economic alliances may reduce significantly the effect of resistances for the member countries. Let us indicate S^P for potential supply, D^P for potential demand and R for resistance. If T_{ij} be the flow of trade from country i to country j , T_{ij} can be expressed as:

$$T_{ij} = \frac{(S_i^P)^{\gamma_1} (D_j^P)^{\gamma_2}}{(R_{ij})^{\gamma_3}} \quad (6.1)$$

Next, let denote that Y = total National Product, N = total population size, y = income per capita, D = geographical distance and P = preferential trade related factors. Because S^P is a function of Y , N and y ; hence the following equation can be written:

$$S^P = \beta_0 Y^{\beta_1} N^{\beta_2} y^{\beta_3} \quad (6.2)$$

In this equation, $\beta_1 = 1$ and β_2 is negative because of the facts that the ratio of DM/FM is inversely related to Y and proportionally related to N . Due to the relation of $y = Y/N$, the coefficient of y is dependent and associated automatically with the other variables. The next equation can be written:

$$S^P = \beta'_0 Y^{\beta'_{11}} N^{\beta'_{12}} \quad (6.3)$$

Equation (6.3) is the final expression of potential supply, S^P . The same procedure can be followed to derive the potential demand equation. The demand equation is written as:

$$D^P = \beta'_4 Y^{\beta'_{55}} N^{\beta'_{56}} \quad (6.4)$$

Next, the final gravity equation is derived by replacing trade resistance factor R with geographical distance D and preferential trade arrangement factor P . According to Linnemann (1966), the expression is written as indicated below:

$$T_{ij} = \alpha_0 \frac{Y_i^{\alpha_1} Y_j^{\alpha_3} P_{ij}^{\alpha_6}}{N_i^{\alpha_2} N_j^{\alpha_4} D_{ij}^{\alpha_5}} \quad (6.5)$$

The above expression can be rewritten as:

$$T_{ij} = \alpha_0 Y_i^{\alpha_1} N_i^{-\alpha_2} Y_j^{\alpha_3} N_j^{-\alpha_4} D_{ij}^{-\alpha_5} P_{ij}^{\alpha_6} \quad (6.6)$$

Equation (6.6) is the standard form of the gravity model formulated by Linnemann (1966).

For simplicity, the above equation is rewritten as:

$$T_{ij} = \mu_0 Y_i^{\mu_1} Y_j^{\mu_2} N_i^{\mu_3} N_j^{\mu_4} D_{ij}^{\mu_5} A_{ij}^{\mu_6} \varepsilon_{ij} \quad (6.7)$$

Using natural logarithms equation (6.7) gives the following form:

$$\ln T_{ij} = \ln \mu_0 + \mu_1 \ln Y_i + \mu_2 \ln Y_j + \mu_3 \ln N_i + \mu_4 \ln N_j + \mu_5 \ln D_{ij} + \mu_6 \ln A_{ij} + \varepsilon_{ij} \quad (6.8)$$

4.3 Review of Literature

Many people in the field of economics have undertaken researches using the gravity model of trade. Most of them have estimated the impacts of various factors on bilateral trade flows between a pair of countries. For the South Asia regional perspective, almost all of the studies in international trade conducted by the gravity model gathered and estimated data for countries in South Asia and their trading partners from Asia, Europe and North America. However, none of them have investigated the determinants of intra-regional trade in South Asia by utilizing bilateral trade data between the countries within the region itself. Hence, the main purpose of this chapter is to contribute the literature by performing an estimation of the gravity model for the countries of South Asia and their trade partners within the region. In this section some past empirical studies and their findings in general are summarized.

Tinbergen (1962), for the first time, employed the gravity model in international trade to detect the basic factors that determine volume of trade flows between a pair of two

trading countries. In its simplest form, the author used three variables only such as Gross National Product (GNP) of the exporting country, GNP of the importing country and the physical distance between them. Then the gravity equation was formulated as:

$$E_{ij} = \delta_0 Y_i^{\delta_1} Y_j^{\delta_2} D_{ij}^{\delta_3} \quad (6.9)$$

For this above equation E_{ij} stands for exports of country i to country j , Y_i and Y_j symbolize GNPs of countries i and j ; and D_{ij} is distance between them. Tinbergen (1962) applied this model for export data of 18 countries of similar economic structures in 1958 fitted with the Ordinary Least Square (OLS) estimation technique. Later a set of other variables which are semi-economic in nature were added. Especial Trade Agreements and other preferential arrangements of this type and dummy variables such as common border and adjacent or neighboring country dummies were employed. Then the gravity equation took the following form:

$$E_{ij} = \delta_0 Y_i^{\delta_1} Y_j^{\delta_2} D_{ij}^{\delta_3} N^{\delta_4} P^{\delta_5} \quad (6.10)$$

For equation (6.10), N represents adjacent/neighboring country dummy and P is for trade preference arrangement dummy. The author found that adding of these additional variables increased the original regression coefficients.

Tinbergen (1962) extended this study further by adding more countries and more variables such as other semi-preferential trade relations like colonial tie dummy and degree of commodity concentration in exports etc. Tinbergen (1962) found that GNPs of both exporting and importing countries are positively associated with exports where the exporting country has a larger coefficient. A larger coefficient for the exporting country's GNP implies that export volume depends more on the GNP of exporting country than that of the importing country. Distance has been negatively correlated, preferential trade arrangement had positive coefficient, the variable 'Gini coefficient of concentration' had a negative sign which

indicates that larger value in Gini coefficient reduces volume of trade or in other words, a larger commodity diversification increases export flow.

Linnemann (1966) applies a multivariate single equation regression analysis and investigates if the variables utilized in the model can explain world trade and if there is any deviation between actual and hypothetical value of world trade flow. This author utilizes data for 80 countries and followed the least-square regression for the following equation:

$$\log X_{ij} = \eta_1 \log Y_i + \eta_2 \log N_i + \eta_3 \log Y_j + \eta_4 \log N_j + \eta_5 D_{ij} + \eta_6 \log P_{ij}^{UUC} + \eta_7 \log P_{ij}^{FFC} + \eta_8 \log P_{ij}^{PB} + \theta'_0 \quad (6.11)$$

In this above equation, P^{UUC} , P^{FFC} , and P^{PB} indicate three preference factors namely British Commonwealth, French Community and Belgian and Portuguese colonial preferences respectively. Linnemann (1966) used 3400 export statistics and 3532 import statistics with a value of 0.1 million US dollar annually for a number of 80 countries worldwide. The results of Linnemann (1966) show that, all the explanatory variables had their expected signs and turned to be statistically significant. Moreover, a positive trade balance for the larger countries and negative trade balance for the comparatively smaller countries were reported. The coefficient for the preference factors did not show any significant impact for trade flow of the commonwealth member countries due to their very low values in the parameters. In the next step, Linnemann (1966) introduced an additional explanatory variable and the author termed it as ‘commodity composition of trade’. This variable indicates the degree of goodness of fit of an exported product of country i to the imports of country j . Having other factors unchanged, two new preference factors were added. The new regression results presented a slight rise in the values of the coefficients.

The debate that ‘the gravity equation of Linnemann (1966) lacks price variables’ was the basis for the model established by Bergstrand (1985). According to Bergstrand

(1985), price variables should be included in the analysis of trade because aggregate trade flows are differentiated by national origin. Bergstrand (1985) used aggregate price indexes in his model to show the relevance of import price indexes. In addition, exchange rate index between the two countries was added. Other explanatory variables used by this author were preferential trading arrangements for tariff related barriers, distance as a proxy of transport cost and national GNP etc. The model was estimated for 1965, 1966, 1975 and 1976 in 15 OECD countries with the following generalized model:

$$PX_{ij} = \beta Y_i^{\alpha_1} Y_j^{\alpha_2} D_{ij}^{\alpha_3} T_{ij}^{\alpha_4} E_{ij}^{\alpha_5} P_i^{\alpha_6} P_j^{\alpha_7} L_i^{\alpha_8} L_j^{\alpha_9} \quad (6.12)$$

In this above equation, the variables are termed as below:

PX_{ij} : Trade flow from country i to country j

Y_i : Income of country i

Y_j : Income of country j

D_{ij} : Distance between the economic centers of country i and country j

T_{ij} : Tariff rate (which implies the preferential treatment by various trading arrangements)

E_{ij} : Exchange rate index between i and j

P_i : Export unit value index of country i

P_j : Export unit value index of country j

L_i : GDP deflator of i

L_j : GDP deflator of j

The results by this study show that all the estimated coefficients of the explanatory variables had similar sign as was hypothesized before. Income of importing country, adjacency dummy and preferential trade arrangements dummy had all positive signs while distance and GDP deflator had negative coefficients. It was also reported that currency appreciation in the importing country increases export flow from country i to country j .

Srinivasan & Canonero (1993) estimated an augmented gravity equation by including variables such as tariffs and exchange rates additional to the standard gravity variables. The authors considered the time period between 1968 and 1991. The estimation was done covering 5 countries in South Asia and their trading partners in North America, Europe and Asia. It has utilized data for 10 composite commodities under the SAFTA framework. Findings of the study suggested that removal of tariff would have great impacts on trade for most of the South Asian countries. It was also demonstrated that such gains would lead to an increase in trade of 3 per cent for India, 7 per cent for Pakistan, 21 per cent for Bangladesh, 36 per cent for Sri Lanka and 59 per cent for Nepal.

Frankel, Stein & Wei (1995) examined the determinants of bilateral trade patterns between countries that are located in a common region. The following gravity equation was modeled and estimated:

$$\ln(TT_{ij}) = \beta + \alpha_1 \ln(Y_i \times Y_j) + \alpha_2 \ln(y_i \times y_j) + \alpha_3 \ln(D_{ij}) + \alpha_4(Ad_{ij}) + \delta_1(EA_{ij}) + \delta_2(EC_{ij}) + \delta_3(NAFTA_{ij}) + u_{ij} \quad (6.13)$$

For this above equation;

TT_{ij} : total bilateral trade (sum of exports and imports) between countries i and j

Y_i : GNP of country i

Y_j : GNP of country j

y_i : per capita GNP of country i

y_j : per capita GNP of country j

D_{ij} : distance between countries i and j

Ad_{ij} : adjacent dummy

EA, EC and NAFTA: dummy variables for East Asia, the European Community and the North American Free Trade Area respectively.

In this above study, GNPs and per capita GNPs were included in the adopted model in a product form. The empirical study was undertaken for trade data that ranges from 1965 to 1990. It was estimated that four standard gravity variables such as GNP, Distance, Adjacency Dummy and Preferential Factors were statistically significant. For an example, in 1990 coefficient of the variable 'Distance' was found to be -0.6 which indicates that trade between two countries falls 0.6 per cent if distance between them gets higher by 1 per cent. It was also found that richer countries with higher per capita GNP trade more. Similarly, countries with larger GNP trade more than countries with smaller GNP. Moreover, these countries are less dependent on international trade because their market is large and their economy is diversified. Regarding the trade preference factors, the authors of this study found that these dummy variables are statistically significant. It was estimated in general that countries in the same regional bloc did business with each other 86 per cent more in 1980 than they would have otherwise. The regional dummy 'NAFTA' became significantly positive in 1985, 'EC' became significant in 1985 and 'EA' in 1980s.

Frankel et al (1995) later employed other dummy variables to check the situation if two countries speak the same language and if they had colonial ties in the past. The authors found that a pair of such countries trade 65 per cent more than they would be otherwise. The Heckscher-Ohlin effect was also tested but was not found any evidence to claim that countries trade capital intensive goods for unskilled labor-intensive products. Even it was found by this author that the Linder Hypothesis was true as countries with similar economies trade more than dissimilar ones.

Hajazi & Trefler (1996) applied the gravity trade model in a study of Canadian trade patterns and their implications of growth in Canadian trade with East Asia. These authors utilized a data set of bilateral trade between 103 countries for 37 tradable sectors for a period

of 22 years from 1970 to 1992. The following equation was modeled for a pair of countries i and j locating in the same region r .

$$\ln(M_{ijgt}) = \mu_g + \ln(X_{ijt}) \mu'_g + \sum_r D_{ijr} \delta_{rg} + \sum_r D_{ijr}^* \delta_{rg}^* + \xi_{ijgt} \quad (6.14)$$

The variables were identified as:

M_{ijgt} : it is the bilateral imports of country i from country j and this is explained by three types of determinants such as transaction costs, regional variables and the unobserved factors of

X_{ijt} : this variable represents transaction costs and it includes the following factors:

$Y_{it} \times Y_{jt}$: product of gross domestic products (GDPs) in countries i and j

$y_{it} \times y_{jt}$: product of per capita GDPs in i and j

PPP_{ijt} : purchasing power parity index between countries i and j

$Distance_{ij}$: distance between countries i and j

$Neighbors_{ij}$: dummy variable to indicate adjacency

$Language_{ij}$: dummy variable representing usage of common language

D_{ijr} and D_{ijr}^* : dummy variables to represent unobserved differences in each region.

The regions included in this model were East Asia Economic Caucus (EAEC), NAFTA, EC, the European Free Trade Area (EFTA), the Western Hemisphere (WH) and the Asia Pacific Economic Cooperation (APEC). The initial ideology/hypothesis of Hajazi & Trefler (1996) is that countries with same level in GDP and per capita GDP which are also neighbor or adjacent to each other or located in the same region, use the same language and have less deviations in exchange rate will incur smaller transaction costs. Consequently, such advantages will yield larger amount of bilateral trade between a pair of such countries.

The estimation was done with the help of Analysis of Variance (ANOVA) technique. The study's results indicate that all the transaction cost variables are in their expected sign. It was found that the transaction cost variables explain between 22 to 58 per cent sample

variations while the regional dummy variables explain between 4 to 30 per cent of the variation. Summary of the findings of this study highlighted that unexplained trade within regions is larger than unexplained trade between regions and both within region and between region trades are larger than unexplained trade outside regions. Moreover, evidence of trade diversion was also found in this study by Hajazi & Trefler (1996).

Frankel & Wei (1997) used the gravity trade equation to determine and quantify the intra-regional trade bias in East Asia. The study was designed on the basis of two observable aspects: (a) trade between countries is very low in East Asia regional bloc not including Japan and (b) the same region under Japanese direction acts properly as a successful trading and investment bloc. Frankel & Wei (1997) used bilateral total trade between two countries as the dependent variable. Explanatory variables and other aspects are pretty similar to the previously studied Frankel, Stein & Wei (1995) except that this study used product of GDP data rather than GNP data. The model was formulated as:

$$\ln(TT_{ij}) = \beta + \alpha_1 \ln(Y_i \times Y_j) + \alpha_2 \ln(y_i \times y_j) + \alpha_3 \ln(D_{ij}) + \alpha_4 (Ad_{ij}) + \alpha_5 (LA_{ij}) + \gamma(ASEAN_{ij}) \quad (6.15)$$

Where;

TT_{ij} : total bilateral trade (sum of exports and imports) between countries i and j

Y_i : GDP of country i

Y_j : GDP of country j

y_i : per capita GDP of country i

y_j : per capita GDP of country j

D_{ij} : distance between countries i and j

Ad_{ij} : adjacent dummy

ASEAN : Dummy variable for Association of South East Asian Nations (ASEAN)

The authors of this study used other dummies such as common language and some other regional bloc dummies including EU, NAFTA, MERCOSUR, ANDEAN and ANZCERTA. The Ordinary Least Square (OLS) estimation technique was utilized for the analysis of data from 1980, 1990, 1992 and 1994 for 63 countries. The findings by Frankel & Wei (1997) show that the ASEAN dummy is statistically significant for all of the years tested. It indicates that a clear regional bias in the region is present. Based upon the empirical results, the authors claimed that any pair of two ASEAN member countries trade six times more than two non-member countries.

Feenstra et al. (1998) estimated a gravity equation for the purpose of analyzing bilateral exports in three categories of products such as homogeneous goods, reference priced goods and differentiated goods. The study was conducted based on cross section data (for the years of 1970, 1975, 1980, 1985 and 1990) for 110 countries worldwide. The following model was designed:

$$\ln EX_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln D_{ij} + \beta_4 A_{ij} + \beta_5 L_{ij} + \beta_6 FTA_{ij} + \beta_7 Rem_{ij} + \varepsilon_{ij} \quad (6.16)$$

The variables are identified as;

EX_{ij} : value of bilateral export from country i to country j

Y_i : GDP in real terms for country i

Y_j : GDP in real terms for country j

D_{ij} : distance between country i and country j

A_{ij} : adjacency dummy

L_{ij} : common language dummy

FTA_{ij} : common free trade area dummy

Rem_{ij} : dummy variable for remoteness applicable to country j and

ε_{ij} : error terms

The aim of this study was to test if the goods in consideration are homogeneous or differentiated and if there are barriers to entry or not. The authors found that differentiated goods are qualified for monopolistic competition model or a reciprocal dumping model with free entry. On the case of homogeneous goods, they are suitable for national product differentiation or reciprocal dumping model with barriers to entry. These authors also found that the coefficient of the exporter's GDP variable regarding differentiated goods is significantly higher than for homogeneous goods. It indicates that while differentiated goods fit the prediction of the monopolistic competition model with free entry, the homogeneous goods fit the prediction of the reciprocal dumping model with restricted entry.

Mathur (1999) used the gravity model to various commodity groups such as total manufactures, food and raw materials etc. for a number of 43 countries who represent the NAFTA, the European Union (EU) and the Asia Pacific region. Mathur (1999) also utilized cross section data from 1991 through 1994. The feature of this study lies in the procedure of measuring distance between the capital cities of the trading partners. Mathur (1999) first measured the geographical distance and then converted it to the stanine scale or the so called nine point scale. The results show consistent with the predicted values for all coefficients except for the variable of importer's per capita GDP in the case of total manufactures in years 1991 and 1992. Among the major explanatory variables, the exporter's GDP is the most dominating one. Explanatory power of other variables were found in the order of distance, exporter's per capita GDP, importer's per capita GDP and importer's GDP. Accordingly, exporter's GDP affects bilateral trade in manufactures more than that of food and raw materials. The implication of these findings is that size of the economy in terms of GDP has a great impact on trade in differentiated goods. The variable distance shows significantly negative values in its coefficients for all commodity groups with a larger negative value for

food. This indicates that distance affects food products more than other items due to their feature of perishability.

Carrillo & Li (2002) have applied the gravity equation of trade to see the effects of the Andean Community and MERCOSUR on both intra-regional and intra-industrial trade of 11 countries for 6 time periods. These authors have divided trade into homogeneous and differentiated products. They further classified the data into two categories of trade in natural resources and trade in manufactured goods. The following gravity equation was estimated:

$$\log IM_{ij} = \alpha_0 + \alpha_1 \log Y_i + \alpha_2 \log Y_j + \alpha_3 \ln DIF_{ij} + \alpha_4 D_{ij} + \alpha_5 CG_{ij} + \alpha_6 PTAA_{ij} + \alpha_7 PTAM_{ij} + \alpha_8 DUM90_{ij} + \zeta_{ij} \quad (6.17)$$

For the above model, the variables are identified as:

IM_{ij} : country i's imports from country j

Y_i : GDP of country i

Y_j : GDP of country j

DIF_{ij} : difference of per capita income between country i and j in absolute terms

D_{ij} : distance between country i and country j

ADJ_{ij} : dummy variable to indicate if countries i and j have a common geographic frontier

$PTAC$: dummy variable representing Andean Preferential Trade Agreement

$PTAM$: dummy variable representing MERCOSUR

$DUM90$: dummy variable to capture the impact of reopening of the international credit market and the trade forums that were adopted in the area after 1990.

ζ_{ij} : error terms

A random effect Tobit left censoring estimation was applied. The results of this study show that impacts of the variables importer's GDP and exporter's GDP have been found to be significantly positive. According to the findings, the impact of exporter's GDP is greater for differentiated products while on the other hand, income elasticity of importer is

higher in the case of homogeneous products. Other variables such as distance and dummy of common geographic frontier had the expected sign and were statistically significant.

Hirantha (2004) applied a gravity model with the following form:

$$\log(\text{Trade}_{ijt}) = \alpha_0 + \beta_1 \log(\text{GDP}_{it} \times \text{GDP}_{jt}) + \beta_2 \log(\text{PGDP}_{it} \times \text{PGDP}_{jt}) + \beta_3 \log(\text{Distance}_{ij}) + \beta_4 \log(\text{Border}_{ij}) + \sum_k \gamma_k (\text{RTA}_{ijk}) + \varepsilon_{ijt} \quad (6.18)$$

Where;

Trade_{ijt} : the amount of total bilateral trade between countries i and j at time t.

GDP_{it} : gross domestic product of country i at time t

GDP_{jt} : gross domestic product of country j at time t

PGDP_{it} : per capita GDP of country i at time t

PGDP_{jt} : per capita GDP of country j at time t

Distance_{ij} : distance between country i and country j

Border_{ij} : dummy variable to indicate if countries i and j share a common border or not

RTA_{ij} : dummy variable for regional trading arrangements

The study utilized a set of annual data of bilateral trade flows from 1996 to 2002 for SAARC countries and their major trading partners. The author considered seven regional blocs and two bilateral trade arrangements including South Asian Preferential Trade Agreement (SAPTA), ASEAN, NAFTA and the EU as regional dummies. Trade diversion effect was also tested by introducing an additional variable. In order to check the robustness of the results, three regressions were run (1) with all the trading blocs plus the bilateral agreements; (2) with South Asian trading blocs plus bilateral trade agreements and (3) with all regional trading blocs excluding bilateral trade agreements.

The empirical results of the study show that all three standard gravity variables were significant with their expected sign. The implication of these findings has been outlined that trade increases with country size but less than proportionately and richer countries trade more.

The importance of the variables such as distance and common border also appeared to be significant. The author reported that an increase of 1 per cent in distance reduces trade by 0.64 per cent between a pair of countries. About the border effect, it was found that a pair of countries sharing common border do trade 18 per cent more than two otherwise similar partners. Among the regional dummies, SAPTA in partial has appeared to be statistically significant. The study found a significant trade creation among the SAPTA arrangement. On the other hand, SAARC countries suffer from trade diversion effect. Other similar variables such as ASEAN, NAFTA and EU were statistically significant and positive.

Coulibaly (2005) tested an extended gravity model that included some of the major regional trade arrangements such as SAFTA and SAPTA agreements in South Asia to see their trade creation/diversion effects. This study found that SAPTA agreement was a net trade creating factor for the South Asian region. A similar study by Tumbarello (2007) also found trade creating effects arising from the SAPTA agreement.

Rahman, Shadat & Das (2006) estimated an augmented gravity model that hired SAPTA with nine other regional trading agreements to examine empirically their trade creation/diversion effects for South Asia. The results of their estimation suggested that significant intra-regional trade creation effects were present in SAPTA member countries. They also warned that trade diversion would also take place in South Asia and that only larger economies such as India, Pakistan and Bangladesh would be benefited greatly while smaller economies such as Sri Lanka, Nepal and Bhutan would suffer adversely.

Banik & Gilbert (2008) utilized the following gravity equation with the form of:

$$x_{ij}^t = \alpha_1(py_i^t \times py_j^t) + \alpha_2(I_i^t \times I_j^t) + \alpha_3 T_{ij}^t + \alpha_4 ER_{ij}^t + \alpha_5 TC_{ij}^t + \alpha_6 D_{ij} + e_{ij}^t \quad (6.19)$$

Where;

x_{ij}^t : Exports of country i to country j

py_i^t : Per capita GDP of country i at time t

py_j^t : Per capita GDP of country j at time t

I_i^t : Infrastructure index for country i

I_j^t : Infrastructure index for country j

T_{ij}^t : Bilateral tariff rate between countries i and j

ER_{ij}^t : Exchange rate between countries i and j

TC_{ij}^t : Transaction cost of trade between countries i and j

D_{ij} : Country specific dummy variables

e_{ij}^t : Error terms

The authors collected data for a period from 1995 to 2006 because during this time a considerable amount of reforms has been adopted in the South Asia region. For this study, India acts as the base country (i) while other South Asian countries are included as trade partners (j) of India. A least square dummy variable (LSDV) model within transformed fixed effect and random effect was used in the empirical estimation.

The results of the study indicate that almost all of the variables have come out with expected sign. The trade cost variables appeared to be statistically significant and it was found that for an increase of 1 per cent in combined per capita GDP, exports from India increased about 0.29 per cent. It was reported that Indian exports are quite price sensitive. Exchange rate was not very robust and the dummy variables that captured country specific trading relations with India were estimated to be negative. Infrastructure variables became statistically significant in explaining export of India with its other South Asian trade partners.

Weerahewa (2009) examined the extent to which trade facilitation in South Asia helps to improve trade flows within the South Asian countries and their trading partners by estimating an augmented gravity model with the following equation:

$$\ln(\text{EXPORTS}_{ei}) = \beta_0 + \beta_1 \ln(\text{GDP}_e \times \text{GDP}_i) + \beta_2 \ln(\text{DIST}_{ei}) + \beta_3 \ln(\text{LPI}_e \times \text{LPI}_i) + \beta_4 \ln(\text{COST}_e) + \beta_5 \ln(\text{COST}_i) + \beta_6 \ln(\text{COM}_{\text{LAN}_{ei}}) + \beta_7 \ln(\text{COM}_{\text{COL}_{ei}}) + \beta_8(\text{ASEAN}) + \beta_9(\text{BIMSTEC}) + \beta_{10}(\text{APTA}) + \beta_{11}(\text{SAPTA}) + \varepsilon_{ei} \quad (6.20)$$

Where;

EXPORTS_{ei} : Bilateral exports of agricultural commodities between country e and country i

$\text{GDP}_e \times \text{GDP}_i$: Product of gross domestic product of countries e and i

DIST_{ei} : Geographical distance between the trading countries (e and i)

$\text{LPI}_e \times \text{LPI}_i$: Product of logistic performance index of countries e and i

COST_e : Cost involved in export in country e

COST_i : Cost involved in import in country i

$\text{COM}_{\text{LAN}_{ei}}$: Dummy variable for common language

$\text{COM}_{\text{COL}_{ei}}$: Dummy variable for common colonial tie

ASEAN, BIMSTEC, APTA and SAPTA : dummy variables for regional trade agreements

ε_{ei} : Error terms

The member countries of the South Asian Association for Regional Cooperation (SAARC), their top five export destinations and import sources and other countries that are engaged in trade agreements with them are considered for the empirical estimation. The model was estimated in log-log form with the fixed effects model. The results showed that most of the variables had statistically significant coefficient values. The common variables of the gravity estimate had their expected signs such as GDP in either country was significant with positive coefficients. Distance became negative with highly significant impact on bilateral agriculture trade. The regional dummy variables provided mixed results. Only the ASEAN had positive and significant impact on exports of agriculture products. SAPTA was positive for all agriculture exports but live animals. However, APTA appeared to be

significantly negative for export values of live animals. Other variables such as common language and common colonial tie had positive and significant influence.

Moinuddin (2013) estimated a log-linear form of the gravity equation of international trade in South Asia using bilateral merchandise export flows expressed in free on board (FOB) terms as the dependent variable. The model was estimated using a panel data set of 43 countries and an FTA called SAFTA. The purpose of this study was to investigate intra-regional trade creation in the SAFTA area. The gravity model considered in this study took the following form:

$$\log X_{ijt} = \beta_0 + \theta_t + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} + \beta_3 \log D_{ij} + \beta_4 \log N_{it} + \beta_5 \log N_{jt} + \beta_6 \log FX_{ijt} + \beta_7 \log IMGDP_{jt} + \beta_8 \log TAR_{jt} + \beta_9 \log TR_j IM_j + \beta_{10} k SAFTA_{(ij)t} + \beta_{11} k MFA_{(ij)t} + \log u_{ijt} \quad (6.21)$$

Where the variables are indicated as follow:

X_{ijt} : Bilateral exports from country i to country j

Y_{it} : Country i's GDP at time t

Y_{jt} : Country j's GDP at time t

D_{ij} : Distance between countries i and j

N_{it} : Country i's population

N_{jt} : Country j's population

FX_{ijt} : Exchange rate between country i and country j at time t

$IMGDP_{jt}$: Country j's import-GDP ratio at time t

TAR_{jt} : Country j's Applied MFN tariff rate at time t

$TR_j IM_j$: Total tariff-import ratio of country j

$SAFTA_{(ij)t}$: Dummy variable to show if both countries are members of SAFTA

$MFA_{(ij)t}$: Dummy variable to show if both countries refer to the multi-fiber agreement

u_{ijt} : Error terms where $E(\log(u_{ijt})) = 0$ and

θ_t : Time specific effects

The author has estimated the above gravity equation by a panel least square regression along with the random effects (RE) and the fixed effects (FE) models under the panel data approach. For simplicity, only the results by the panel least square approach are summarized here. Coefficients of the standard gravity variables presented statistically significant and theoretically justified outcomes. It was reported that economic size of the trading countries apparently plays important role in trade flow between them. The distance variable has appeared as negative. On the other hand, market size proxied by population for both trading partners implied absorption effects as these variables were highly significant with negative signs. The coefficient of the variable exchange rate showed a very low value with opposite sign suggesting that currency manipulation in terms of devaluation of domestic currency did not have any effect on a country's exports. Import-GDP ratio which is a proxy of openness of the economies presented significantly positive impact. The rest of the variables such as tariff-import ratio and applied tariff rates of the importing country were statistically significant but had opposite signs than that have been initially expected.

Dembatapitiya & Weerahewa (2014) utilized a gravity model of international trade as the analytical tool to assess the effects of various regional trading arrangements such as the World Trade Organization (WTO), SAFTA, the EU, ASEAN, the Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC) and some bilateral trade agreements (BTAs) etc. on bilateral trade of South Asia. Other standard gravity variables included in the study were distance between the trading partners, dummy of common language and colonial ties. The authors used Ordinary Least Squares (OLS) including importer and exporter fixed effects to estimate a set of cross sectional data covering 2555 bilateral trade observations in 2012.

The results of this study reported that sharing of common language, common colonial tie and membership with the WTO left positive and significant effects on value of bilateral exports. Geographical distance became negative as it was expected initially. Accordingly, memberships in BTA and RTA presented mixed results. Among the RTAs, EU became significantly negative while other regional variables such as SAFTA, ASEAN, BIMSTEC and NAFTA did not show any significant impact on bilateral exports. However, BTAs were statistically significant and had a positive effect on bilateral trade in South Asia.

4.4 Methodology and Model Specification

4.4.1 The Basic Model

In this present study the basic gravity model takes the following simple form. For the sake of simplicity, two factors such as ‘Total Trade in Million US Dollar’ and ‘Total Trade Share between a Pair of Countries’ are utilized as the dependent variable as indicated below.

$$\ln X_{ij} = \mu_0 + \mu_1 \ln(GDP_i) + \mu_2 \ln(GDP_j) + \mu_3 \ln(POP_i) + \mu_4 \ln(POP_j) + \varepsilon_{ij} \quad (6.22)$$

Where;

X_{ij} : (1) total trade in million US dollar between reporting country i and partnering country j

: (2) total trade share (%) between countries i and j

GDP_i : reporting country i's GDP

GDP_j : partnering country j's GDP

POP_i : reporting country i's population

POP_j : partnering country j's population

ε_{ij} : error term.

4.4.2 The Augmented/ Modified Model

In order to detect other determinants of trade between countries, a number of additional variables are added to the simple gravity equation. This is to indicate and measure

the impact of artificial trade barriers or trade preferences imposed by various regional trade agreements. These factors are: the artificial or psychic distance between reporting country and partnering country, adjacent country dummy and a group of other dummy variables.

Then the gravity equation gets the following form:

$$\ln X_{ij} = \mu_0 + \mu_1 \ln(\text{GDP}_i) + \mu_2 \ln(\text{GDP}_j) + \mu_3 \ln(\text{POP}_i) + \mu_4 \ln(\text{POP}_j) + \mu_5 \ln(\text{DIST}_{ij}) + \mu_6 \ln(\text{D}_{\text{ADJACENT}_{ij}}) + \sum \gamma_k D_{kij} + \sigma_{ij} \quad (6.23)$$

Where ;

X_{ij} : (1) total trade in million US dollar between reporting country i and partnering country j

: (2) total trade share (%) between countries i and j

GDP_i : reporting country i's GDP

GDP_j : partnering country j's GDP

POP_i : reporting country i's population

POP_j : partnering country j's population

DIST_{ij} : geographical distance of country j from country i

$\text{D}_{\text{ADJACENT}_{ij}}$: dummy variable which takes a value of 1 if the two countries are adjacent to each other and takes the value of 0 otherwise.

$\sum \gamma_k D_{kij}$: a group of dummy variables which capture the impact of artificial trade barriers or trade preferences imposed by regional trade arrangements. These dummies take a value of 1 where a set of countries i and j are members of the same trading bloc k and take the value of 0 otherwise.

σ_{ij} : error term.

In the above equation, the dummy variable for preferential trade arrangement can be replaced with separate variables for reporting and partnering countries. The good thing with this separation is that these newly introduced regional dummy variables can capture the impacts of, what are termed as, trade creation and trade diversion effects. These new

dummies can help us measure the level of benefit gained by a member country for maintaining membership of a regional economic bloc. We express them as follow:

$$\sum \gamma_k D_{kij} = \sum \gamma D_{ijr} + \sum \gamma^{EX} D_{ijr}^{EX} + \sum \gamma^{IM} D_{ijr}^{IM} \quad (6.23a)$$

For the above equation we consider the following assumptions,

$$D_{ijr} = 1, \text{ given that both exporter (i) and importer (j) are members of the region r} \\ = 0, \text{ otherwise}$$

$$D_{ijr}^{EX} = 1, \text{ given that only the exporter (i) is a member of r} \\ = 0, \text{ otherwise}$$

$$D_{ijr}^{IM} = 1, \text{ given that only the importing country (j) is a member of region r} \\ = 0, \text{ otherwise}$$

After replacing $\sum \gamma_k D_{kij}$ for $\sum \gamma D_{ijr} + \sum \gamma^{EX} D_{ijr}^{EX} + \sum \gamma^{IM} D_{ijr}^{IM}$ our further modified gravity equation takes the following form:

$$\ln X_{ij} = \mu_0 + \mu_1 \ln(GDP_i) + \mu_2 \ln(GDP_j) + \mu_3 \ln(POP_i) + \mu_4 \ln(POP_j) + \mu_5 \ln(DIST_{ij}) + \\ + \mu_6 \ln(D_{ADJACENTij}) + \sum \gamma D_{ijr} + \sum \gamma^{EX} D_{ijr}^{EX} + \sum \gamma^{IM} D_{ijr}^{IM} + \sigma_{ij} \quad (6.24)$$

We then include other dummy variables such as common language (LANG) and common border (BORDER) etc. to the above model. Common language dummy is used to check the impact of using the same official language by a pair of countries. Additionally, common border is a dummy that is used for pairs of countries that share common borders. It is added to capture the impact of sharing common borders by two closely adjacent countries. LANG dummy takes a value of 1 when two trading countries use the same official language and a value of 0 in other conditions. Similarly, BORDER dummy takes a value of 1 when pairs of countries have same border and a value of 0 otherwise. We use language dummy for the disaggregate model only. Some authors such as M. Cortes (2007) also used real exchange rate (REXC) of currencies and real openness (OPN) of the economies in consideration. In our study, we add them in our augmented model and write the final gravity equation as:

Augmented Model 1 (For the Aggregate Model)

$$\ln X_{ij} = \mu_0 + \mu_1 \ln(GDP_i) + \mu_2 \ln(GDP_j) + \mu_3 \ln(POP_i) + \mu_4 \ln(POP_j) + \mu_5 \ln(INFRA_i) + \mu_6 \ln(INFRA_j) + \mu_7 \ln(OPN_i) + \mu_8 \ln(OPN_j) + \mu_9 \ln(REXC_i) + \mu_{10} \ln(REXC_j) + \mu_{11} \ln(DIST_{ij}) + \mu_{12} D_{ADJACENT} + \mu_{13} D_{BORDER} + \sum \gamma D_{ijr} + \sum \gamma^{EX} D_{ijr}^{EX} + \sum \gamma^{IM} D_{ijr}^{IM} + \sigma_{ij} \quad (6.25)$$

We add some other variables such as Remittances Earning (REMY) and FDI inflow (FDI) as a percentage of GDP for both exporting and importing countries to build our disaggregate model. We write the second modified gravity equation as indicated below:

Augmented Model 2 (For the Disaggregate Model)

$$\ln X_{ij} = \mu_0 + \mu_1 \ln(GDP_i) + \mu_2 \ln(GDP_j) + \mu_3 \ln(POP_i) + \mu_4 \ln(POP_j) + \mu_5 \ln(INFRA_i) + \mu_6 \ln(INFRA_j) + \mu_7 \ln(REMY_i) + \mu_8 \ln(REMY_j) + \mu_9 \ln(OPN_i) + \mu_{10} \ln(OPN_j) + \mu_{11} \ln(FDI_i) + \mu_{12} \ln(FDI_j) + \mu_{13} \ln(REXC_i) + \mu_{14} \ln(REXC_j) + \mu_{15} \ln(DIST_{ij}) + \mu_{16} D_{BORDER} + \mu_{17} D_{LANG} + \sum \gamma D_{ijr} + \sum \gamma^{EX} D_{ijr}^{EX} + \sum \gamma^{IM} D_{ijr}^{IM} + \sigma_{ij} \quad (6.26)$$

5.4.3 The Initial Hypotheses

(Hypothesis 1) In the above equation, the regression coefficients μ_1 and μ_2 is to be significantly positive. It implies that a larger GDP of the exporter promotes volume and varieties of its total national income which ultimately creates a greater scope for exports. Similarly, a larger GDP for an importer creates more opportunities and capabilities to import more from an individual trade partner.

(Hypothesis 2) The population variable is expected to be significantly negative for both the exporter and the importer; meaning μ_3 and μ_4 will have negative signs in this estimation, because in general, a more populous country will be more self-sufficient and have less engagement in international trade.

(Hypothesis 3) The distance variable's regression coefficient μ_5 is projected to have a negative sign. A trading partner locating in a larger distance will necessarily incur larger trading cost and also impose more impediments to bilateral trade than a country locating in a

smaller distance. Another thing is, nearer countries generally have more similarities in their taste, preferences and business culture which may lead to greater trade between them.

(Hypothesis 4) Adjacent countries also have more probability of being common members of some regional preferential trading agreements and regional trading blocs. It is generally believed that geographically adjacent countries interact and cooperate more to achieve greater trade with each other. Therefore, μ_6 is expected to be positive. Preferential trading arrangements are also expected to be positive.

Table 4. 1 : Variables in the Equations and Their Expected Signs (Initial Hypotheses)

Variable	Definition	Hypothesis	Expected sign
X_{ij}	(1) Total trade in million US dollar (2) Trade share (%)	n.a n.a	n.a n.a
GDP_i	Reporting country i's GDP.	Significantly positive	Positive (+)
GDP_j	Partnering country j's GDP.	Significantly positive	Positive (+)
POP_i	Reporting country i's population.	Significantly negative	Negative (-)
POP_j	Partnering country j's population.	Significantly negative	Negative (-)
$DIST_{ij}$	Distance between trade partners	Significantly negative	Negative (-)
$D_{ADJACEN}$ T_{ij}	Dummy variable, which takes a value of 1 if the two countries are adjacent to each other and takes the value of 0 otherwise.	Significantly negative	Negative (-)
$\sum \gamma_k D_{kij}$	A group of dummy variables which capture the impact of artificial trade barriers imposed by regional trade arrangements. These dummies take a value of 1 where set of countries i and j are members of the same trading bloc k and take the value of 0 otherwise.	Significantly positive	Positive (+)

(Note: n.a implies not having any prior hypothesis)

4.4.4 Additional Hypotheses (for the Augmented Models)

(Add. Hypothesis 1a) The trade creation dummy D_{ijr} may or may not enhance trade between partners in a given region. A statistically significant and positive value of the coefficient for this variable will indicate more trade than the hypothetical trade level within the member nations of the region.

(Add. Hypothesis 1b) D_{ijr}^{EX} reflects trade diversion or expansion in a given region. A negative and significant value for the coefficient of this variable implies a situation where export trade diversion has been occurred because members of the region have shifted their exporting deals from non-member countries to member countries. In the case the coefficient of this variable has turned to be significantly positive implies a situation which is called export trade expansion, because, members of the given region have exported more to non-member countries than the hypothetical trade level of export.

(Add. Hypothesis 1c) D_{ijr}^{IM} represents the effect of trade diversion or trade expansion but with respect to imports. A negative and significant value for the coefficient of the dummy variable indicates trade diversion with respect to import activities of the given region. In another words, a member country has imported more from other member countries due to the establishment of the regional trading bloc. On the contrary, a significantly positive value for the coefficient shows import trade expansion because establishment of the regional trading bloc caused a member country to import from a non-member country higher than the hypothetical level of import.

(Add. Hypothesis 2) A pair of countries that uses the same language might have better scope to do business and it is possible that they trade more with each other than a pair of countries that uses different languages. Our expectation for the coefficient of the variable Common Language (LANG) is significantly positive.

(Add. Hypothesis 3) Openness is a measure of the total volume of trade or total amount of exports and imports for a country. In general, more open a country is more possibility that it will trade more with other countries. Thus, we expect a significantly positive coefficient for this variable.

(Add. Hypothesis 4) Common Border is hypothesized to have a coefficient which is positive and significant because we expect that countries having common borders would be trading more than countries that do not share common border.

(Add. Hypothesis 5) Real Exchange Rate is expected to become positive or negative.

(Add. Hypothesis 6) Infrastructure is expected to be positive.

(Add. Hypothesis 7) Remittances is expected to be positive.

(Add. Hypothesis 8) FDI is expected to be positive.

The additional hypotheses described so far are summarized in the table below.

Table 4. 2 : Additional Explanatory Variables in the Augmented Equation and Their Expected Signs (Additional Hypotheses)

Variable	Definition	Hypothesis	Expected sign
INFRA _i	Infrastructure of reporting country	Significantly positive	Positive (+)
INFRA _j	Infrastructure of partnering country	Significantly positive	Positive (+)
REMY _i	Remittances inflow of reporting country	Significantly positive	Positive (+)
REMY _j	Remittances inflow of partnering country	Significantly positive	Positive (+)
FDI _i	FDI inflow of reporting country	Significantly positive	Positive (+)
FDI _j	FDI inflow of partnering country	Significantly positive	Positive (+)
OPN _i	Openness of reporting country <i>i</i>	Significantly positive	Positive (+)
OPN _j	Openness of partnering country <i>j</i>	Significantly positive/	Positive (+)
REXC _i	Real exchange rate of currency of reporting country with US dollar	Significantly positive/ Significantly negative	Positive (+)/ Negative (-)
REXC _j	Real exchange rate of currency of partnering country with US dollar	Significantly positive/ Significantly negative	Positive (+)/ Negative (-)
D _{ADJACE} NT	Dummy variable for adjacent countries	Significantly positive	Positive (+)
D _{LANGij}	Common language dummy variable	Significantly positive	Positive (+)
D _{BORDERi} j	Dummy variable for common border shared by the reporting and partnering countries (<i>i</i> and <i>j</i>)	Significantly positive	Positive (+)
<i>D_{ijr}</i>	Dummy variable which takes a value 1 if both reporting and partnering countries are member of a respective socioeconomic region or trading arrangement and takes a value 0 otherwise.	Significantly positive	Positive (+)
<i>D_{ijr}^{EX}</i>	Dummy variable which takes a value of 1 if only the reporting country (<i>i</i>) is a member of a respective socioeconomic region or trading arrangement and takes a value 0 otherwise.	Significantly negative in the case of export trade diversion/ Significantly positive in the case of export trade expansion	Positive (+) / Negative (-)
<i>D_{ijr}^{IM}</i>	Dummy variable which takes a value 1 if only the partnering country (<i>j</i>) is a member of a respective socioeconomic region or trading arrangement and takes a value 0 otherwise.	Significantly negative in the case of import trade diversion/ Significantly positive 0 in the case of import trade expansion	Positive (+) / Negative (-)

4.4.5 Selection of Variables and Their Description

In the gravity model, there are some common variables that are frequently used by researchers. The most popular variables are: population, distance and GDP of the trading partners. There are some other variables that are also similarly popular and are used very often such as dummy variables of common language, common socioeconomic region and colonial tie etc.

For this study, there are two dependent variables that are used for the estimation purpose. These are: total bilateral trade and bilateral trade share. A number of independent variables such as population, GDP, remoteness and openness are used for both exporting and importing countries. Other explanatory variables that are employed in the model are: geographical/economic distance, infrastructure, remittances, FDI inflow and real bilateral exchange rates. Some dummy variables such as adjacency, common language and common border are also used as explanatory variables.

Total bilateral trade (million US dollar) and Bilateral Trade share. ‘Total bilateral trade’ is the sum of the value of exports and imports between a pair of countries. The indicator is expressed in million US dollar. On the other hand, ‘bilateral trade share’ is the percentage of trade with a partner to total trade of a country. It is computed as the dollar value of total trade of country i with country j expressed as a percentage share of the dollar value of total trade of country i with the world. In this connection, a higher share indicates a higher degree of integration between partnering countries.

GDP and Population. GDP is one of the most popular explanatory variables used in the gravity model. There are some scholars such as Geraci & Prewo (1977) and Bergstrand (1985) used total amount of GDP while others such as Bergstrand (1989) and Sanso, Cuairan & Sanz (1993) used per capita GDP to measure its enhancing ability to trade. According to

Kalbasi (2001), GDP measures the productive capacity of an exporting country and at the same time it also measures the absorptive capacity of an importing country. Income per capita of the exporting and importing countries may also be used in its logarithmic form. Countries with higher income, in general, trade more than that of low income countries. The present study uses data of GDP values from the World Bank data source.

Population is another very important explanatory variable used in the gravity model. Population represents physical size of a country and also acts as an indicator of diversification of its economy. A country with a large population may have better probability of having a diversified economy with less trade and self-sufficient. Nevertheless, a country with a diversified economy may also boost better opportunity to trade a variety of goods. Fitzsimons, Hogan & Neary (1999) indicates that the population variable over GDP is helpful in interpreting the estimated results. According to Martinez-Zarzosa & Nowak-Lehmann (2002), population size of a country may have positive or negative effect on exports.

Distance. This is a proxy variable to measure the impact of trading cost on bilateral trade between countries. We use the log of the distance between the two major cities of the trading partners. In our model, the cities are taken as the capitals of the respective countries. One question about why distance matters in the gravity model may arise. There are a number of explanations offered by trade economists. Some are described below.

First, distance acts as a proxy of transportation cost incurred for shipment of goods from one point to another. Shipping costs such as freight charges and marine insurance are some basic forms. Second, distance captures the impact of time needed for shipment because perishable goods have low probability of surviving intact in longer transit. Risks may arise from other issues including damage or loss of the product due to unavoidable reasons such as weather problem or mishandling, decomposition and loss of the market etc. Third,

synchronization costs appear in the case of international trade between distant partners. In the case a production plant needs multiple inputs in its production process, the inputs are required to arrive in time. In order to avoid bottlenecks, factories sometime use warehouses to keep inventories of inputs and warehousing incurs them extra costs. Therefore, sourcing inputs from nearby suppliers may reduce synchronization costs. Fourth, distance may proxy for communication costs of personal contact between managers and customers as well as transaction costs in searching for new business opportunities.

Distances between cities can be calculated in various ways. In the past, a number of methods used distance data along the shipping routes between two points and they differentiated between land and sea distances. Another way of measuring distance is to consider the air transport because at present international trade by air transport rather than sea or land represents a bigger share. In this method, air routes are considered as the most convenient justification in utilizing the straight line or Great Circle measure of distance. According to Linnemann (1966), Great Circle distance offers a way of averaging across different transportation modes and works well in practice. There are some authors, such as Wang (1992) who have used both measures of sea distances and land distances. Bikker (1987) used sea routes to measure distance and isolated the physical shipping costs in his model. We followed the ‘Great Circle Distance’ between a pair of city points in our model¹.

¹ To calculate Great Circle Distances the following formula can be applied to obtain the distance measure in miles: $D_{ij} = 3962.6 \arccos([\sin(Y_i) \cdot \sin(Y_j)] + [\cos(Y_i) \cdot \cos(Y_j) \cdot \cos(X_i - X_j)])$ where X is longitude in degrees multiplied by 57.3 to convert it to radians and Y is latitude multiplied by -57.3 (assuming it is measured in degrees West). Another formula to calculate the Great Circle Distance is written as: $\cos(D) = \sin(a)\sin(b) + \cos(a)\cos(b)\cos(c)$, where a and b represent the latitudes in degrees of the respective coordinates and c is the absolute value of the difference of longitude between the respective coordinates. For this study, we have followed the following webpage in our calculation of Great Circle Distances between capital cities. It is available at <http://www.chemical-ecology.net/java/capitals.htm>

Infrastructure. Considering the consequences of globalization, recent studies have emphasized the role of infrastructure on trade between countries. For most South Asian countries high transaction costs due to poor infrastructure is considered as one of the large barriers to trade integration. Access to better transportation infrastructure facilities enables countries to have more trade with a partner. It was estimated by De (2006) that better access to transport infrastructure for both exporting and importing countries produces a significant positive effect on bilateral trade. Therefore, it can be inferred that improved transport and other communication infrastructure facilities will help enhance intra-regional trade and may speed up the economic integration process. Various previous studies such as Wilson & Otsuki (2007), Weerahewa (2009), Ahmed & Ghani (2007), and Mzrtinez-Zarzoso & Nowak-Lehmann (2003) also used infrastructure as an explanatory variable in testing determinants of trade. The present study uses data indicating level of infrastructure in the countries of South Asia from World Bank's World Development Indicators.

Remittances. In general, remittances play a significant role to offset chronic balance of payments deficits by reducing the shortage of foreign exchange in a developing country context. These transfers help growth of exports and imports through easing the crucial restraint imposed by balance of payments (BOP) deficits of a country. Their impact on the balance of payments is higher than other similar monetary inflows such as financial aid and direct investment or loans etc. due to their features of free use, bearing no interest and lacking any obligation of repayment (OECD, 2006).

Earnings from remittances have been one of the important factors for the economies of South Asia for a long period of time and their scale as well as their development impact got a new level of significance in the last two to three decades. Although the overall share of remittances in the region's total GDP is not so high (only 3 per cent); they contribute a large share in GDPs of Nepal (22 per cent), Bangladesh (10 per cent) and Sri Lanka (10 per cent)

(Nabi, 2010). Hossain (2015a) claimed that remittances raise consumption in a developing country and are helpful to boost more demand of imported goods. In order to test the role of remittances on bilateral trade and investment integration in South Asia, the current study uses data of ‘foreign remittances as a share of GDP’ provided by the World Bank.

FDI Inflow. Chaisrisawatsuk & Chaisrisawatsuk (2007) reported that there is a high correlation between FDI and trade. FDI inflow to a developing country also has big influence on exports and imports. Moreover, FDI inflows help enhance gains from trade given that trade and investment are complementary in the context of a developing country. In addition, FDI inflows can improve competitiveness of the host country through improving efficiency and productivity. In this regard, Otsubo *et al* (1998b) and Otsubo (1999) in Otsubo (2003) indicate four major channels through which FDI exerts economic impacts on a host economy. The first channel is through expanding productive capacity due to infusion of capital. The next one is through an improvement of productivity by bringing with new technologies and know-hows. The third channel is through stimulating domestic savings and investment activities due to the inflow of foreign capital that maintains higher productivity and better rates of return. The last channel is through leaving trade effects where industrial and trade structures are improved and additional trade transactions take place. Therefore, the present study adds FDI inflow as a share of GDP for individual South Asian countries in order to see the correlation of FDI with regional trade. Many other similar studies such as Levy *et al* (2002), Waldkirch (2003), Monge-Naranjo (2002) and Hossain (2015) have used FDI inflow in explaining determinants of intra-regional trade.

Real Exchange Rate. In this study, the real bilateral exchange rate is included to check its impact on trade of South Asian countries because bilateral exchange rate is responsible for price changes. It is defined as the amount of a partner country’s currency that can be purchased by one unit of US dollar. It is expected that the bilateral exchange rate

variable is negatively correlated for export and positively correlated for import of a South Asia country concerned. Many similar researches have explored the effects of exchange rate volatility in trade and they suggested mixed results.

Economic Openness. Openness might be an important indicator in the gravity model. A large country may have low level of openness ratio if it has a large distance from the rest of the world. Openness ratio of a country is formulated as total exports plus total imports over GDP. Bilateral trade of South Asian countries between other trading partners within the region could increase or decrease with respect to their openness level.

Adjacency Dummy and Common Border Dummy. Whether national borders still matter for trade is a frequently asked question because, now-a-days, a borderless world is advanced by economists and political scientists. McCallum (1995), Head & Mayer (2011) and many other studies investigated that there are high border effects in trade patterns between countries and regions. There are many reasons behind border effects of trade and one such reason might be related to the great importance of legal, monetary and social institutions that may promote or even discourage trade. Another fact is that strong network of connected firms within a small area may reduce higher costs initiated by borders and distance due to transport and tariff related expenses. Hence, it is logical that adjacency may promote trade between countries. Similarly, sharing common borders may further boost trade because of the same reason that high distance imposes high transportation and other similar costs. For an example, trade between India and Bangladesh may boost high volume because these are adjacent neighboring countries but trade between these two countries may further boost because they share a common border with each other.

Common Language Dummy. Recall that distance imposes a negative effect on trade through a number of ways including incurring of additional transaction costs due to

communication difficulties and cultural barriers. Countries that share a common language are culturally close to each other, hence, it is expected that they trade more. Literature suggests enough evidences that a pair of countries who use the same official language or speak the same language trade twice to three times more than countries that do not.

Preference Factors and Free Trade Agreements. One of the primary purposes of the gravity trade model is to evaluate the impact of regional FTA or regional trading blocs on bilateral trade. Various regional economic agreements such as the SAFTA, SAPTA and APTA have proliferated during the last three decades in South Asia. Some South Asian countries are members of other regional blocs outside the region and almost all of the countries do business with countries that are members of a different trading bloc. Of course, all of them play at least some roles in bilateral trade of South Asian countries because regional trading blocs and FTAs may raise trade by as much as 50 per cent and even more. The present study utilizes and evaluates the following regional FTA or regional blocs that are considered to be important for the countries of South Asia.

- 1) The Asia-Pacific Trade Agreement (APTA)
- 2) The Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC)
- 3) The India-Sri Lanka Bilateral Free Trade Agreement and
- 4) The Pakistan-Sri Lanka Bilateral Free Trade Agreement

Other regional arrangements of South Asian Association for Regional Cooperation (SAARC), South Asia Free Trade Area (SAFTA) and South Asian Preferential Trade Agreement (SAPTA) were not included in the model due to multi-colinearity problem. However, the impact of these regional blocs is assessed in a later chapter of this thesis.

Table 4. 3 : Summary of Variables Used in the Aggregate Model

Variable	Symbol	Definition/Proxy	Unit of Measurement
Total Bilateral Trade (million US\$)	X_{ij}	The sum of the value of bilateral exports and imports.	Million US dollar
Bilateral Trade share (%)	X_{ij}	The percentage of trade with the region to total trade of a country/region. A higher share indicates a higher degree of integration between partner countries/regions.	Percentage
Gross Domestic Product	GDP	Total income of the country (used for both exporting and importing countries).	Million US dollar
Total Population	POP	Total number of population of the country (used for both exporting and importing countries).	Million
Infrastructure	INFRA	Number of telephone connections per one thousand people.	n.a
Distance	DIST	Geographical distance between exporting and importing countries.	Kilometer
Real Exchange Rate	REXC	Real bilateral exchange rate with US dollar (used for both exporting and importing countries).	n.a
Openness	OPN	This is the percentage of total trade to GDP calculated as (Total export + Total import) ÷ Real GDP	n.a
Adjacency Dummy	$D_{ADJACENT}$	If two trading partners locate in the same region but do not necessarily share same border. It takes a value 1 for countries locating adjacent to each other or 0 otherwise.	
Common Language Dummy	D_{LANG}	If the trading partners use the similar official language. It takes a value 1 for countries using the same official language or 0 otherwise	
Common Border Dummy	D_{BORDER}	If the exporter and the importer share the same border, it takes a value 1 for countries sharing the same land border or 0 otherwise.	
Dummies for Socioeconomic Region/Preference Factors: 1) the Asia-Pacific Trade Agreement 2) the Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation 3) India-Sri Lanka Bilateral Free Trade Agreement 4) Pakistan-Sri Lanka Bilateral Free Trade Agreement	<p>APTA</p> <p>BIMSTEC</p> <p>INDSL</p> <p>PAKSL</p>	<p>The Asia-Pacific Trade Agreement</p> <p>The Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation</p> <p>India-Sri Lanka Bilateral Free Trade Agreement Pakistan-Sri Lanka Bilateral Free Trade Agreement</p>	

(Note: n.a implies not applicable)

Table 4. 4 : Summary of Variables Used in the Disaggregate Model

Variable	Symbol	Definition/Proxy	Unit of Measurement
Total Bilateral Trade (million US\$)	X_{ij}	The sum of the value of bilateral exports and imports	Million US dollar
Bilateral Trade share (%)	X_{ij}	The percentage of trade with the region to total trade of a country/region. A higher share indicates a higher degree of integration between partner countries/regions	Percentage
Gross Domestic Product	GDP	Total income of the country (used for both exporting and importing countries)	Million US dollar
Total Population	POP	Total number of population of the country (used for both exporting and importing countries).	Million
Infrastructure	INFRA	Number of telephone connections per one thousand people	
Remittances	REMY	Remittances as a percentage of GDP	percentage
Foreign Direct Investment	FDI	FDI inflow as a percentage of GDP	percentage
Distance	DIST	Geographical distance between exporting and importing countries	Kilometers
Real Exchange Rate	REXC	Real bilateral exchange rate with US dollar	n.a
Openness	OPN	This is the percentage of total trade to GDP calculated as $(\text{Total export} + \text{Total import}) \div \text{Real GDP}$	n.a
Common Language Dummy	D_{LANG}	If the trading partners use the similar official language. It takes a value 1 for countries using the same official language or 0 otherwise	
Common Border Dummy	D_{BORDER}	If the exporter and the importer share the same border, it takes a value 1 for countries sharing the same land border, or 0 otherwise	

(Note: n.a implies not applicable)

4.4.6 Method of Regression

This study follows analysis of a set of time series panel data. A panel random effects estimation is considered for the estimation purpose. The objective here is to measure the degree of contribution of the explanatory variables in explaining trade flows between partners. In other words, the regression technique facilitates estimation of numerical values for the parameters specified in the gravity equation.

Fixed Effects (FE) and Random Effects (RE) Models. Fixed Effects Model is used to indicate the relationship between predictor and outcome variables within an entity such as a country, a person or a company etc. Each entity has its own individual characteristics within it which may or may not have any influence on the explanatory variables. For examples, the political system of a particular country could have some effect on its foreign trade; or being male or female could influence the opinion toward certain issue. Applying fixed effects model initially assumes that such features of the individual may bias or impact the outcome variables and it is important that we control for this. FE can remove the effect of those time-invariant characteristics. Another important assumption of the fixed effect model is that those entity specific time-invariant characteristics are unique to the individual and should not be correlated with other individual's characteristics. In other words, the entity's error term and the constant should not be correlated. If the error terms are correlated, then Fixed Effects may not be suitable and the random effects model is need to be used (Green, 2008).

Unlike the fixed effects model, the random effects model assumes that the variation across entities is random and uncorrelated with the predictors. In other words, in random effects model the unobserved individual effect does not embody elements that are correlated with the regressors included in the model. If there is enough reason to consider that differences across entities have some influence on the dependent variable then the random effect model is need to be applied.

For this present study, a Hausman test is done to decide whether fixed effects or random effects model is appropriate. Hausman test investigates whether the unique errors are correlated with the independent variables where the null hypothesis is that they are not. For

this study, a random effects GLS regression technique is followed in both aggregate and disaggregate analyses.

4.4.7 Data Issues, Years and Countries for the Statistical Tests

Data is drawn from a number of sources. Data for the dependent variables of (1) total bilateral trade in million US dollar and (2) total bilateral trade share (%) were collected from the Asia Regional Integration Center (ARIC)'s Integration Indicators Database of the Asian Development Bank (ADB). The Integration Indicators Database is an interactive database that features a set of indicators to monitor progress on regional cooperation and integration. Covering the 48 regional members of the ADB; the database has 12 trade indicators, 8 foreign direct investment (FDI) indicators, and 17 money and finance indicators. However, the original source indicated by ARIC is the International Monetary Fund's Direction of Trade Statistics (DOTS). Aggregate data for the whole South Asia as well as for individual countries except Afghanistan and Bhutan are utilized in the regression analyses. The World Bank's World Development Indicators are utilized for the macroeconomic variables such as GDP, population, openness and real exchange rate of individual member countries. Distance between capital cities was calculated online from the source of 'Great Circle Distance between Capital Cities'.

The empirical estimation was conducted for six countries in South Asia namely Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka. Afghanistan and Bhutan were not included due to data unavailability of these two countries. Moreover, these two economies are comparatively smaller. The years for this study were chosen as ranging from 1991 to 2012. This time span is considered because most of the South Asian countries actively started to liberalize their economies since 1990. In addition, countries of South Asia have adopted most of the integration measures in this time period. Therefore, after about

more than 20 years have passed, evaluation of these integration policies makes enough sense to these countries.

4.5 Empirical Results and Analytical Discussion

For this study, the explanatory variables can be categorized into four types such as macroeconomic variables, policy variables, regional dummy variables and other ordinary dummy variables. Therefore, four regressions were run against the dependent variables to achieve more robustness in the results. A summary of the obtained empirical results of intra-regional trade determinants for South Asia aggregate and for individual countries (by the disaggregate model) are presented separately in the appendix section of this chapter.

4.5.1 Findings of the Aggregate Model

We have estimated four equations for the aggregate model: (1) Gravity equation with the macroeconomic variables (Traditional Gravity Model), (2) Gravity equation with the macroeconomic variables and the policy variables (Augmented Model 1), (3) Gravity equation with macroeconomic variables, policy variables and regional dummy variables (Augmented Model 2) and (4) Gravity equation with macroeconomic variables, policy variables, regional dummy and ordinary/standard dummy variables (Augmented Model 3). In this estimation, the term ‘reporting country’ implies a country for which trade is reported and the term ‘partnering country’ implies a country with which the reporting country’s amount of trade is reported. The results are summarized in tables 4.5 and 4.6 in the appendix part.

While taking ‘total bilateral trade’ as the dependent variable in the estimation, the results summarized in table 4.5 show that impact of the standard gravity variables turns to be statistically significant and theoretically justified. The coefficients of the variables such as GDP (of the partner countries), population and distance indicate expected and predicted signs. Apparently, consistent with other studies size of the economy and people’s income or level of

ability to consume play an important role in bilateral trade flows in South Asia. It is also evident that the increase of bilateral trade flows between a pair of countries is less than proportional to the increase of GDP. According to our empirical results, an increase of 1 per cent in GDP of the reporting country leads to an increase of 2.11 per cent [$\text{EXP}(0.746) = 2.11$] of trade. Similarly an increase of 1 per cent in partnering country's GDP causes a 1.59 per cent [$\text{EXP}(0.462) = 1.59$] increase in trade. Coefficients of population variables for both reporting and partnering countries also got expected sign and are statistically significant. The last macroeconomic variables such as infrastructure of reporting and partnering countries have positive sign as expected but were statistically not significant.

As per the policy variables, openness of both reporting and partnering countries as well as real exchange rate of both countries have opposite signs as initially expected while only real exchange rate variable were statistically significant. According to our estimation, the coefficients were found as -0.699 and -0.834 for the variables exchange rates of reporting and partnering countries respectively. Positive coefficient of the openness variables indicates that intra-regional trade among the South Asian countries will rise with achieving more economic and financial openness.

For the standard/ordinary dummies, none of these variables got coefficients that are statistically significant. Distance and adjacency dummy variables are with expected sign while border dummy had negative coefficient which is contrary to the hypothesis of this study. It is indicative that trade between countries gets a boost if the partners are adjacent to each other but reduces if they have common border. This is probably due to bitter political relations between countries that share common border in South Asia. Among the regional dummy variables APTA, BIMSTEC and India-Sri Lanka Bilateral FTA are positive while Pakistan-Sri Lanka Bilateral FTA turned to be negative. A positive sign for APTA and BIMSTEC indicates 'trade creation effect' in South Asia.

Table 4.6 highlights the summary of estimated results for intra-regional trade determinants taking ‘Regional Bilateral Trade Share’ as the dependent variable. None of the macroeconomic variables except partnering country’s population and infrastructure had statistically significant coefficient value. Contrary to the hypothesis, GDP and population of the reporting country are negative. This is due to a weak relative trade relation among the economies of South Asia as compared with other partners from EU and US markets.

All of the policy variables except real exchange rate of the partnering country are significant. However, contrary to our expectation, these variables show opposite sign. Only trade openness of the partnering country got a positive coefficient which is initially expected. Once again, a negative coefficient for openness of the reporting country might be an outcome of larger trade of South Asian countries with extra regional partners.

Among the dummy variables, all of them have appeared with expected sign but none of them was statistically significant. The factors of common border, adjacency, BIMSTEC, India Sri Lanka Bilateral FTA and Pakistan Sri Lanka Bilateral FTA have positive effect on intra-regional trade of South Asia while distance between trade partners has negative impact.

4.5.2 Findings of the Disaggregate Model

For the disaggregate model, we have estimated the equation for each of the countries separately. The countries are Bangladesh, India, Nepal, Pakistan and Sri Lanka. ‘Total bilateral trade’ and ‘bilateral trade share’ for each country are considered as dependent variables. The results are summarized in the appendix section (tables 4.7 through 4.16). In the Random-effects GLS regression we have considered each country and its partners for which data is available. We did not add Afghanistan, Bhutan and Maldives in our estimation. The results are discussed below. In this discussion, the country in consideration is termed as ‘the reporting country’ and the rest of them are termed as ‘the partnering countries’.

Bangladesh. In the case of Bangladesh the partnering countries are India, Nepal, Pakistan and Sri Lanka. We did not consider Maldives as a partnering country for Bangladesh as bilateral trade data for Bangladesh and Maldives is not available. The results are summarized in table 4.7 and table 4.8. According to table 4.7, while taking ‘total bilateral regional trade’ as the dependent variable, trade between Bangladesh and partnering countries is affected positively by GDP, remittances and economic openness of both reporting and partnering countries. Population, FDI inflow and infrastructure of partnering country and the common border dummy variables also have a positive coefficient. Negatively impacting factors are: population, infrastructure and FDI inflow of the reporting country. Real exchange rates of both reporting and partnering countries, physical distance and common border dummy also have negative effect. Among the explanatory variables GDP of reporting country, population and openness of partnering country are significant at 10 per cent level while reporting country’s real exchange rate is significant at 5 per cent level.

Table 4.8 highlights regression results for Bangladesh while taking bilateral regional trade share as the dependent variable. Variables such as GDP, remittances and openness of both reporting and partnering countries and population, infrastructure and FDI of partnering country have a positive effect on bilateral trade. Population, infrastructure and FDI of reporting country and real exchange rates of both countries have turned to be negative which is opposite to our expectation. Distance between partners has negative impact which is expected but border dummy also has a negative coefficient which is opposite to our hypothesis. Probably, as it was mentioned before, this is due to bitter political relation between the countries that share a common border in South Asia. Among the variables, economic openness of partnering country and real exchange rate of the reporting country are significant at 5 per cent level while population of the partnering country is significant at 10 per cent level.

India. In the Indian case GDP, remittance earnings and real exchange rate of both reporting and partnering countries and distance, common border and common language are positively associated with bilateral trade. Similarly, the coefficients of infrastructure and openness of reporting country and FDI inflow of the partnering countries are positive. The negatively affecting variables are population of both reporting and partnering countries, infrastructure and openness of partnering country and FDI inflow of reporting country. Among the factors GDP of reporting country, population and remittances of partnering country and the common border dummy are significant at 1 per cent level. Population and infrastructure of reporting country and real exchange rate of partnering country are significant at 5 per cent level. Finally, other determinants such as GDP of partnering nations, openness of both countries and common language dummy are significant at 10 per cent level. For the Indian perspective, distance is positively associated with bilateral trade which is opposite to our initial hypothesis. This is because of the fact that India trades more with distant countries in other regions than with its closely located partners in South Asia.

Next, we consider regional trade share of India with its partnering countries in South Asia as the dependent variable. According to our empirical results, GDP, remittances and real exchange rates of both reporting and partnering countries; distance between them, common border and common language dummy variables affect regional trade of India positively. Other factors that have positive impact are reporting country's infrastructure and economic openness and partnering country's FDI inflow. On the other hand, population of both countries, infrastructure and openness of partnering country and FDI inflow of reporting country have negative coefficients. Population and remittances of partnering country, infrastructure of reporting country, distance and border dummies are significant at 1 per cent level while real exchange rate of partnering country and language dummy are significant at 5 per cent level. Population of reporting country, infrastructure and economic openness of

partnering country are significant at 10 per cent level. These results are presented in table 4.9 and table 4.10.

Nepal. Results of Random-effects GLS regression for Nepal are presented in tables 4.11 and 4.12. According to table 4.11, bilateral regional trade of Nepal is positively affected by factors such as GDP of both reporting and partnering countries, population and economic openness of reporting country, remittances of partnering country, distance between the trading countries and the common border dummy etc. Factors such as population and openness of partnering country; infrastructure, real exchange rates and FDI inflow of both reporting and partnering countries; and remittances of reporting country are positively associated with Nepal's regional bilateral trade. Among the explanatory variables, population of both countries and border dummy are significant at 1 per cent level; FDI inflow of partnering country is significant at 5 per cent level; and real exchange rate of partnering country becomes significant at 10 per cent level.

While considering bilateral regional trade share for Nepal as the dependent variable, GDP of partnering country; population, infrastructure, FDI inflow and economic openness of reporting country; remittances of both countries; distance between the trading countries and common border dummy are positive. On the other hand, GDP of reporting country; population, infrastructure, FDI inflow and openness of partnering country; and real exchange rates of both countries are negatively impacting factors. Only population of partnering country and common border dummy variables are significant at 1 per cent level where population of reporting country, FDI inflow and real exchange rate of partnering country are significant at 5 per cent level.

Pakistan. For the case of Pakistan bilateral regional trade is positively affected by GDP and infrastructure of partnering country; population and economic openness of both

reporting and partnering countries; remittances and FDI inflow of reporting country; and common border dummy variables. The factors that have negative impact are: reporting country's GDP and infrastructure; partnering country's remittance flow and FDI; real exchange rates of both reporting and partnering countries; and common border dummy etc. Among the explanatory variables, only a few are statistically significant. For example GDP, remittances flow, economic openness of partnering country and distance between reporting and partnering countries are significant at 1 per cent level while reporting country's real exchange rate is significant at 5 per cent level.

If we consider bilateral regional trade share as the dependent variable, we get a slightly different estimates. Here remittances income and FDI inflow of the reporting country; GDP, infrastructure and openness of partnering country; population of both reporting and partnering countries; and distance between the partners are positive. The negatively associated factors are: reporting country's GDP, infrastructure and openness; remittance income and FDI inflow of partnering countries; real exchange rates of both reporting and partnering countries; and common border dummy. Accordingly, only a few variables such as GDP of both countries; remittances and openness of partnering country; and distance between the trading partners get coefficients that are significant at 1 per cent level. No other variables are statistically significant. The results for Pakistan are put forth separately in tables 4.13 and 4.14.

Sri Lanka. Determinants of bilateral intra-regional trade for Sri Lanka are presented in tables 4.15 and 4.16. According to our estimated results, GDP and real exchange rate of partnering country; infrastructure, remittance earnings and economic openness of both reporting and partnering countries; distance between the trading partners; and common language dummy have been positive. Variables such as reporting country's GDP and real exchange rate; and population, FDI inflows of both reporting and partnering countries have

negative coefficients. Among the explanatory variables partnering country's GDP, population and remittances income and the language dummy have been statistically significant at 1 per cent level. Distance variable is significant at 5 per cent level whereas reporting country's remittances, partnering country's economic openness and reporting country's real exchange rate are significant at 10 per cent level.

Considering bilateral regional trade share of Sri Lanka as the dependent variable, the random-effects GLS regression results have changed slightly. GDP, economic openness and real exchange rate of partnering country; infrastructure and remittances of both reporting and partnering countries; distance factor; and common language dummy are positively associated with bilateral regional trade of Sri Lanka. On the other hand GDP, economic openness and real exchange rate of reporting country; population and FDI inflows of both reporting and partnering countries have negative impact. GDP of both reporting and partnering countries; population, remittance income of partnering country; and language dummy are statistically significant at 1 per cent level while distance and remittance earnings of reporting country are significant at 5 per cent and 10 per cent level respectively.

4.6 Conclusion

In this chapter, we have investigated the major determinants of intra-regional trade in South Asian countries. Our empirical findings suggest that GDP, population, infrastructure, economic openness, real exchange rate and distance are some of the important determinants of trade for the region. The study also indicates a very weak trade creation effect in South Asia as only a few of the regional dummy variables are positively associated with intra-regional trade. Most of the regional dummy variables were statistically not significant and there was a clear country effect as the countries with larger GDP and population dominate trade in the region.

4.7 Chapter Appendix

Table 4. 5: Determinants of Intra Regional Trade for South Asia Aggregate (Dependent Variable: Total Regional Trade in Million USD)

Random-effects GLS regression					
Variables	Explanation	x_{ij}	x_{ij}	x_{ij}	x_{ij}
Macroeconomic Variables					
gdpi	GDP of reporting country	0.835**	0.741*	0.747*	0.746*
		(0.254)	(0.299)	(0.303)	(0.310)
gdpj	GDP of partnering country	0.459	0.471	0.466	0.462
		(0.247)	(0.295)	(0.298)	(0.305)
popi	Population of reporting country	0.457***	0.745***	0.681***	0.737***
		(0.137)	(0.136)	(0.180)	(0.218)
popj	Population of partnering country	0.358**	0.653***	0.574***	0.591**
		(0.124)	(0.128)	(0.165)	(0.189)
infrai	Infrastructure of reporting country	0.183*	0.127	0.0784	0.0937
		(0.0930)	(0.116)	(0.119)	(0.120)
infraj	Infrastructure of partnering country	0.105	0.167	0.120	0.138
		(0.0919)	(0.116)	(0.119)	(0.120)
Policy Variables					
opni	Trade openness of reporting country		0.328	0.312	0.305
			(0.192)	(0.192)	(0.192)
opnj	Trade openness of partnering country		0.198	0.184	0.176
			(0.190)	(0.189)	(0.190)
rexci	Reporting country's real exchange rate with U		-0.807**	-0.664*	-0.699*
			(0.286)	(0.299)	(0.305)
rexcj	Partnering country's real exchange rate with U		-0.907**	-0.767*	-0.834**
			(0.295)	(0.311)	(0.320)
Standard/Ordinary Dummy Variables					
distij	Distance between trading countries			0.403	-0.787
				(0.419)	(0.561)
adjacent	Adjacent dummy			1.544*	1.002
				(0.747)	(0.924)
border	Common border dummy			0.330	-0.557
				(1.083)	(0.1414)
Regional Dummy Variables					
apta	Asia Pacific Trade Agreement				0.742
					(0.659)
bimstec	The Bay of Bengal Initiative for Multi-sectora Technical and Economic Cooperation dummy				0.465
					(0.863)
indsl	India Sri Lanka Bilateral FTA dummy				1.016
					(1.082)
paksl	Pakistan Sri Lanka Bilateral FTA dummy				-0.431
					(0.329)
_cons	Constant	-18.18***	-23.95***	-24.00***	-24.49***
		(3.502)	(3.492)	(4.655)	(5.618)
Total no. of Observations		505	505	505	505
R-squared					0.6826
rho	0 (friction of variance due to σ_{ij})				
Number of panels		23	23	23	23

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4. 6: Determinants of Intra Regional Trade for South Asia Aggregate (Dependent Variable: Regional Trade Share, %)

Random-effects GLS regressionn					
		(1)	(2)	(3)	(4)
Variables	Explanation	x_{ij}	x_{ij}	x_{ij}	x_{ij}
Macroeconomic Variables					
gdpi	GDP of reporting country	-0.266 (0.250)	-0.410 (0.290)	-0.404 (0.295)	-0.417 (0.296)
gdpi	GDP of reporting country	0.248 (0.243)	0.292 (0.285)	0.306 (0.291)	0.310 (0.291)
popi	Population of reporting country	-0.306* (0.142)	-0.245 (0.136)	-0.429* (0.188)	-0.338 (0.210)
popj	Population of partnering country	0.326* (0.128)	0.713*** (0.128)	0.540** (0.172)	0.588** (0.183)
infrai	Infrastructure of reporting country	0.0240 (0.0907)	0.0644 (0.112)	0.0228 (0.114)	0.0297 (0.115)
infraj	Infrastructure of partnering country	-0.00553 (0.0896)	0.364** (0.111)	0.327** (0.114)	0.336** (0.114)
Policy Variables					
opni	Economic openness of reporting country		-0.439* (0.184)	-0.446* (0.184)	-0.457* (0.184)
opnj	Economic openness of partnering country		0.987*** (0.181)	0.994*** (0.181)	0.983*** (0.181)
rexci	Reporting country's real exchange rate with US		-0.921** (0.277)	-0.800** (0.290)	-0.824** (0.291)
rexcj	Partnering country's real exchange rate with US		-0.282 (0.286)	-0.121 (0.302)	-0.169 (0.304)
Standard/Ordinary Dummy Variables					
distij	Distance between countries			0.448 (0.650)	-0.142 (0.771)
border	Common border dummy			1.435 (1.132)	0.335 (1.374)
adjacent	Common Language dummy			0.739 (0.702)	0.252 (0.792)
Regional Dummy Variables					
bimstec	Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation dummy				0.426 (0.825)
indsl	India Sri Lanka Bilateral FTA dummy				1.082 (1.016)
paksl	Pakistan Sri Lanka Bilateral FTA dummy				1.001 (0.437)
_cons	Constant	-0.590 (3.610)	-5.756 (3.482)	-4.408 (5.733)	-2.631 (6.194)
Total no. of Observations		505	505	505	505
R-squared					0.5459
rho	0 (friction of variance due to σ_{ij})				
Number of panels		23	23	23	23

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 7: Determinants of Intra Regional Trade for Individual Country Context (Bangladesh) (Dependent Variable: Bilateral Regional Trade in million USD)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	1.7382*	1.67
		(1.0425)	
gdpj	GDP of partnering country	0.2518	0.22
		(1.1511)	
popi	Population of reporting country	-3.6541	-0.46
		(7.9209)	
popj	Population of partnering country	1.3459*	1.69
		(0.7965)	
infrai	Infrastructure of reporting country	0.2239	-0.41
		(0.5493)	
infraj	Infrastructure of partnering country	0.2325	1.06
		(0.2198)	
remyi	Reporting country's remittances (% of GDP)	0.6348	0.71
		(0.8963)	
remyj	Partnering country's remittances (% of GDP)	0.1267	0.73
		(0.1734)	
fdii	Reporting country's FDI inflow (% of GDP)	0.0298	-0.43
		(0.0687)	
fdij	Partnering country's FDI inflow (% of GDP)	0.1149	0.45
		(0.2577)	
opni	Economic openness of reporting country	1.0430	1.07
		(0.9721)	
opnj	Economic openness of partnering country	0.7743*	1.94
		(0.3993)	
rexci	Real exchange rate of reporting country	-2.8808**	-2.00
		(1.4422)	
rexcj	Real exchange rate of partnering country	-0.3842	-0.04
		(0.9909)	
distij	Distance between trading countries	-0.3576	-0.27
		(1.3333)	
border	Common border dummy	-1.1373	-0.92
		(1.2382)	
_cons	Constant	3.5178	0.04
Total no. of Observations	88		
R-squared (overall)	0.9578		
Wald chi squared (16)	1612.30		
Sigma_u	0		
Sigma_e	0.4685		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	4		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 8: Determinants of Intra Regional Trade for Individual Country Context
(Bangladesh) (Dependent Variable: Bilateral Regional Trade share, %)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	0.8331 (1.0460)	0.80
gdpj	GDP of partnering country	0.07212 (1.1550)	0.06
popi	Population of reporting country	-3.8852 (7.9473)	-0.49
popj	Population of partnering country	1.4885* (0.7992)	0.7992
infrai	Infrastructure of reporting country	-0.4111 (0.5511)	-0.75
infraj	Infrastructure of partnering country	0.2549 (0.2206)	1.16
remyi	Reporting country's remittances (% of GDP)	0.8289 (0.8993)	0.92
remyj	Partnering country' remittances (% of GDP)	0.1215 (0.1740)	0.70
fdii	Reporting country's FDI inflow (% of GDP)	-0.0245 (0.0689)	-0.36
fdij	Partnering country's FDI inflow (% of GDP)	0.1195 (0.2586)	0.46
opni	Economic openness of reporting country	0.3179 (0.9753)	0.33
opnj	Economic openness of partnering country	0.7869** (0.4006)	1.96
rexci	Real exchange rate of reporting country	-3.0940** (1.4470)	-2.14
rexcj	Real exchange rate of partnering country	-0.0550 (0.9941)	-0.06
distij	Distance between trading countries	-0.1910 (1.3378)	-0.14
border	Common border dummy	-1.0141 (1.2423)	-0.82
_cons	Constant	2.568 (1.892)	
Total no. of Observations	22		
R-squared (overall)	0.9531		
Wald chi squared (16)	1442.62		
Sigma_u	0		
Sigma_e	0.4712		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	4		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 9: Determinants of Intra Regional Trade for Individual Country Context (India)
(Dependent Variable: Bilateral Regional Trade in million USD)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	2.2565*** (0.8411)	2.68
gdpj	GDP of partnering country	0.7260* (0.4165)	1.74
popi	Population of reporting country	-1.93504** (0.94947)	-2.04
popj	Population of partnering country	-1.4756*** (0.4279)	-3.45
infrai	Infrastructure of reporting country	0.7587** (0.2957)	2.57
infraj	Infrastructure of partnering country	-(+)0.2289 (0.1136)	-2.02
remyi	Reporting country's remittances (% of GDP)	0.2971 (0.2903)	1.02
remyj	Partnering country' remittances (% of GDP)	0.3115*** (0.0676)	4.61
fdii	Reporting country's FDI inflow (% of GDP)	0.0231 (0.07407)	-0.31
fdij	Partnering country's FDI inflow (% of GDP)	0.08144 (0.0814)	0.59
opni	Economic openness of reporting country	1.2615* (0.6485)	1.95
opnj	Economic openness of partnering country	-0.3647* (0.2199)	-1.66
rexci	Real exchange rate of reporting country	(-)1.3487 (0.8827)	1.53
rexcj	Real exchange rate of partnering country	(-)0.7553** (0.2973)	2.54
distij	Distance between trading countries	-1.0239*** (0.3141)	3.26
border	Common border dummy	2.5443*** (0.6085)	4.18
lang	Common language dummy	1.0091* (0.5319)	1.90
_cons	Constant	3.3394* (1.7161)	1.95
Total no. of Observations	110		
R-squared (overall)	0.8196		
Wald chi squared (17)	418.05		
Sigma_u	0		
Sigma_e	0.2507		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	5		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 10: Determinants of Intra Regional Trade for Individual Country Context (India)
(Dependent Variable: Bilateral Regional Trade share, %)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	1.04678 (0.8262)	1.27
gdpj	GDP of partnering country	0.6501 (0.4092)	1.59
popi	Population of reporting country	-1.64874* (0.93273)	-1.77
popj	Population of partnering country	-1.4091*** (0.4203)	-3.35
infrai	Infrastructure of reporting country	0.8026*** (0.2904)	2.76
infraj	Infrastructure of partnering country	-0.2172* (0.1116)	-1.95
remyi	Reporting country's remittances (% of GDP)	0.1345 (0.2852)	0.47
remyj	Partnering country's remittances (% of GDP)	0.3082*** (0.0664)	4.64
fdii	Reporting country's FDI inflow (% of GDP)	-0.0005 (0.0728)	-0.01
fdij	Partnering country's FDI inflow (% of GDP)	0.0953 (0.1355)	0.70
opni	Economic openness of reporting country	0.2031 (0.6370)	0.32
opnj	Economic openness of partnering country	-0.4096* (0.2161)	-1.90
rexci	Real exchange rate of reporting country	1.0606 (0.8671)	1.22
rexcj	Real exchange rate of partnering country	-0.7160** (0.2921)	2.45
distij	Distance between trading countries	-1.0203*** (0.3085)	3.31
border	Common border dummy	2.4706*** (0.5977)	4.13
lang	Common language dummy	1.0411** (0.5225)	1.99
_cons	Constant	305.8882* (168.5876)	1.81
Total no. of Observations	110		
R-squared (overall)	0.8196		
Wald chi squared (17)	418.06		
Sigma_u	0		
Sigma_e	0.2507		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	5		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 11: Determinants of Intra Regional Trade for Individual Country Context (Nepal)
(Dependent Variable: Bilateral Regional Trade in Million USD)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	0.0695 (1.4787)	0.05
gdpj	GDP of partnering country	1.1157 (1.0639)	1.05
popi	Population of reporting country	0.5661*** (0.2006)	2.82
popj	Population of partnering country	-0.3861*** (0.1169)	-3.30
infrai	Infrastructure of reporting country	0.3371 (1.0520)	-0.32
infraj	Infrastructure of partnering country	0.0839 (0.5960)	-0.14
remyi	Reporting country's remittances (% of GDP)	0.3504 (0.3603)	-0.97
remyj	Partnering country's remittances (% of GDP)	0.1615 (0.4361)	0.37
fdii	Reporting country's FDI inflow (% of GDP)	-0.2132 (0.8183)	-0.26
fdij	Partnering country's FDI inflow (% of GDP)	-0.2418** (0.1219)	-1.98
opni	Economic openness of reporting country	0.6143 (1.4509)	0.42
opnj	Economic openness of partnering country	-1.4963 (1.0251)	-1.46
rexci	Real exchange rate of reporting country	2.2503 (2.1451)	-1.05
rexcj	Real exchange rate of partnering country	2.6739* (1.4052)	-1.90
distij	Distance between trading countries	2.5848 (2.6836)	0.96
border	Common border dummy	0.8.3725*** (0.2.3759)	3.38
_cons	Constant	-27(.)8.592 (-22(.)8.487)	-1.13
Total no. of Observations	66		
R-squared (overall)	0.9612		
Wald chi squared (16)	1213.83		
Sigma_u	0		
Sigma_e	0.5689		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	3		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 12: Determinants of Intra Regional Trade for Individual Country Context (Nepal)
(Dependent Variable: Bilateral Regional Trade Share, %)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	-0.1454 (1.4641)	-0.10
gdpj	GDP of partnering country	0.9542 (1.0534)	0.91
popi	Population of reporting country	4.5772** (1.9856)	2.31
popj	Population of partnering country	3.9420*** (1.1573)	-3.41
infrai	Infrastructure of reporting country	0.2017 (1.0416)	0.19
infraj	Infrastructure of partnering country	-0.0123 (0.5901)	-0.02
remyi	Reporting country's remittances (% of GDP)	0.0208 (0.3567)	0.06
remyj	Partnering country's remittances (% of GDP)	0.0957 (0.4317)	0.22
fdii	Reporting country's FDI inflow (% of GDP)	0.0711 (0.8102)	0.09
fdij	Partnering country's FDI inflow (% of GDP)	-0.2619** (0.1207)	-2.17
opni	Economic openness of reporting country	1.1272 (1.4365)	0.78
opnj	Economic openness of partnering country	-1.562 (1.0149)	-1.54
rexci	Real exchange rate of reporting country	-1.3702 (2.1238)	-0.65
rexcj	Real exchange rate of partnering country	2.8137** (1.3912)	-2.02
distij	Distance between trading countries	2.6183 (2.6569)	0.99
border	Common border dummy	0.82240*** (2.3541)	3.50
_cons	Constant	-59.4198 (226.2189)	-0.26
Total no. of Observations	66		
R-squared (overall)	0.9596		
Wald chi squared (16)	1165.05		
Sigma_u	0		
Sigma_e	0.5633		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	3		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 13: Determinants of Intra Regional Trade for Individual Country Context (Pakistan)
(Dependent Variable: Bilateral Regional Trade in Million USD)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	1.0061 (0.7091)	-1.50
gdpj	GDP of partnering country	1.2342*** (0.4540)	2.72
popi	Population of reporting country	0.9065 (0.5630)	1.61
popj	Population of partnering country	0.6256 (0.5038)	1.24
infrai	Infrastructure of reporting country	0.6483 (0.5644)	-1.15
infraj	Infrastructure of partnering country	0.1499 (0.2574)	0.58
remyi	Reporting country's remittances (% of GDP)	0.0841 (0.1685)	0.50
remyj	Partnering country' remittances (% of GDP)	0.2972*** (0.0989)	-3.00
fdii	Reporting country's FDI inflow (% of GDP)	0.0604 (0.1242)	0.49
fdij	Partnering country's FDI inflow (% of GDP)	-0.3574 (0.2253)	-1.59
opni	Economic openness of reporting country	0.5683 (0.9243)	0.61
opnj	Economic openness of partnering country	1.4444*** (0.2908)	4.97
rexci	Real exchange rate of reporting country	-2.0346** (1.0305)	-1.97
rexcj	Real exchange rate of partnering country	-0.2632 (0.3744)	-0.70
distij	Distance between trading countries	-2.6601*** (0.7394)	3.60
border	Common border dummy	-0.9619 (1.5461)	-0.62
_cons	Constant	-55.6475** (-39.854)	-2.20
Total no. of Observations	110		
R-squared (overall)	0.9702		
Wald chi squared (16)	3027.12		
Sigma_u	0		
Sigma_e	0.4093		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	5		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 14: Determinants of Intra Regional Trade for Individual Country Context (Pakistan)
(Dependent Variable: Bilateral Regional Trade share, %)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	1.9979*** (0.7024)	-2.84
gdpj	GDP of partnering country	1.1941*** (0.4498)	2.65
popi	Population of reporting country	0.61931 (0.5578)	1.11
popj	Population of partnering country	0.66024 (0.4991)	1.32
infrai	Infrastructure of reporting country	-0.3642 (0.5591)	-0.65
infraj	Infrastructure of partnering country	0.1545 (0.2550)	0.61
remyi	Reporting country's remittances (% of GDP)	0.0789 (0.1669)	0.47
remyj	Partnering country' remittances (% of GDP)	-0.2977*** (0.0979)	-3.04
fdii	Reporting country's FDI inflow (% of GDP)	0.0199 (0.1230)	0.16
fdij	Partnering country's FDI inflow (% of GDP)	-0.3432 (0.2232)	-1.54
opni	Economic openness of reporting country	-0.0795 (0.9156)	-0.09
opnj	Economic openness of partnering country	1.4347*** (0.2881)	4.98
rexci	Real exchange rate of reporting country	-1.4873 (1.0209)	-1.46
rexcj	Real exchange rate of partnering country	-0.2649 (0.3709)	-0.71
distij	Distance between trading countries	-2.7096*** (0.7325)	3.70
border	Common border dummy	-0.8949 (1.5317)	-0.58
_cons	Constant	-12.5.767 (8.9.0063)	-1.41
Total no. of Observations	110		
R-squared (overall)	0.9693		
Wald chi squared (16)	2940.99		
Sigma_u	0		
Sigma_e	0.4044		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	5		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 15: Determinants of Intra Regional Trade for Individual Country Context (Sri Lanka) (Dependent Variable: Bilateral Regional Trade in Million USD)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	-0.8653 (0.5563)	-1.56
gdpj	GDP of partnering country	1.9674*** (0.4767)	4.13
popi	Population of reporting country	-0.5683 (4.9515)	-0.11
popj	Population of partnering country	-1.6519*** (0.4592)	-3.60
infrai	Infrastructure of reporting country	0.2074 (0.3057)	0.68
infraj	Infrastructure of partnering country	0.3176 (0.2344)	1.36
remyi	Reporting country's remittances (% of GDP)	1.5302* (0.9237)	1.66
remyj	Partnering country's remittances (% of GDP)	0.3643*** (0.1421)	2.56
fdii	Reporting country's FDI inflow (% of GDP)	-0.0042 (0.0919)	-0.50
fdij	Partnering country's FDI inflow (% of GDP)	-0.0899 (0.0583)	-1.54
opni	Economic openness of reporting country	0.5722 (0.5017)	1.14
opnj	Economic openness of partnering country	0.4299* (0.2602)	1.65
rexci	Real exchange rate of reporting country	-1.4992* (0.8275)	-1.81
rexcj	Real exchange rate of partnering country	0.4253 (0.5347)	0.80
distij	Distance between trading countries	-2.8369** (1.3743)	2.86
language	Common language dummy	2.2975*** (0.8032)	2.86
_cons	Constant	-9.3287 (8.15805)	-0.11
Total no. of Observations	88		
R-squared (overall)	0.9729		
Wald chi squared (16)	2551.04		
Sigma_u	0		
Sigma_e	0.2855		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	4		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. 16: Determinants of Intra Regional Trade for Individual Country Context (Sri Lanka) (Dependent Variable: Bilateral Regional Trade share, %)

Random-effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdpi	GDP of reporting country	1.6358*** (0.5504)	-2.97
gdpj	GDP of partnering country	1.9568*** (0.4716)	4.15
popi	Population of reporting country	-2.0999 (4.8992)	-0.43
popj	Population of partnering country	-1.6359*** (0.4543)	-3.60
infrai	Infrastructure of reporting country	0.1111 (0.3025)	0.37
infraj	Infrastructure of partnering country	0.3303 (0.2319)	1.42
remyi	Reporting country's remittances (% of GDP)	1.5614* (0.9139)	1.71
remyj	Partnering country's remittances (% of GDP)	0.3681*** (0.1406)	2.62
fdii	Reporting country's FDI inflow (% of GDP)	-0.0427 (0.0909)	-0.47
fdij	Partnering country's FDI inflow (% of GDP)	-0.0884 (0.0576)	-1.53
opni	Economic openness of reporting country	-0.2550 (0.4962)	-0.51
opnj	Economic openness of partnering country	0.4113 (0.2575)	1.60
rexci	Real exchange rate of reporting country	-1.2923 (0.8188)	-1.58
rexcj	Real exchange rate of partnering country	0.4091 (0.5291)	0.77
distij	Distance between trading countries	-2.7819** (1.3598)	2.05
language	Common language dummy	2.2696*** (0.7947)	2.86
_cons	Constant	33.0553 (80.7185)	0.41
Total no. of Observations	88		
R-squared (overall)	0.9701		
Wald chi squared (16)	2304.96		
Sigma_u	0		
Sigma_e	0.2829		
rho	0 (friction of variance due to σ_{ij})		
Number of panels	4		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

CHAPTER 5

DETERMINANTS OF INTRA REGIONAL FOREIGN DIRECT INVESTMENT (FDI) IN SOUTH ASIA

5.1 Introduction

Inflow of foreign direct investment (FDI) to developing countries has increased enormously since the early nineties. East Asian countries especially received major share of global FDI inflows. Other Asian developing countries such as the nations of South Asia could attract only a tiny part. Foreign investors, as a first priority, try to capture the rate of return on their investment and next measure the certainties and uncertainties related to these hypothetical returns before making any investment decision in a host country. Therefore, the country specific potential return and risk of any investment is considered as one of the most important determinants by private investors. Before taking any investment decision these investors take into consideration of some other factors that are directly related to economic, institutional, regulatory and infrastructural environment of the host country. Investors measure carefully condition of the host economy from the view point of trade policy issues, labor laws, availability of social and physical infrastructure, and governance and regulatory policies. Dunning (1977) and Dunning (1988) argued for five main location-specific determinants of FDI such as macroeconomic fundamentals of the host country, infrastructural facilities, availability of inputs, size of the market and its growth potential, and the country's FDI and trade related regimes etc. These are some of the important determinants of FDI in any host country and can be controlled by the government. There are some other FDI determinants that cannot be controlled by applying policy measures such as location of the host country, market size and resource endowment etc. (UNCTAD, 2003). Nonetheless, countries can formulate national economic policies and investment framework to create an investment friendly environment so that more and more potential investors are attracted. In

general, FDI inflow depends on some common factors such as higher GDP or higher GDP per capita as well as the growth rate of the economy, macroeconomic stability, a sound exchange rate regime and low level of inflation. Countries can adopt proper policies to achieve improvement on these factors. In the table below the most familiar determinants of FDI are summarized.

Table 5. 1 : Summary of Most Familiar FDI Determinants

Determinants of FDI	
Category 1: Economic Conditions	Category 2: Host Country Policies
<ul style="list-style-type: none"> • Market Size • Growth Prospect of the Market • Rate of Return • Urbanization/Industrialization • Labor Cost • Human Capital • Physical Infrastructure and • Macroeconomic Fundamentals like Inflation, Tax regime and External debt etc. 	<ul style="list-style-type: none"> • Promotion of Private Ownership • Efficient Financial Market • Trade Policies/ Free Trade Policy/ Regional Trade Agreements • FDI Policies • Perception of Country Risk • Legal Framework and • Quality of Bureaucracy

Source: Sahoo (2006)

There is a sizeable literature on regional economic integration initiatives and intra-regional trade in the regional perspective of South Asia. However, intra-regional FDI has not so far been studied from a comparative region-wide perspective. In this backdrop, the main objective of this chapter is to understand the relevance of major determinants of FDI in the countries of South Asia. The rest of the chapter is organized as it follows. The immediate next section highlights theoretical aspects of the determinants of FDI where various theories related to FDI flow advanced by many specialists are described. Next, past empirical literatures on FDI determinants from the viewpoints of various regions including both Asia and South Asia are reviewed. Later the methodology of estimation is put forth with details of data issues. In this section, adopted estimation techniques are also reported before summarizing and analyzing the chapter's empirical results in a later part. The final section concludes the chapter.

5.2 Determinants of FDI: Theoretical Background

The theoretical literature on FDI determinants is rich enough and a number of theories have been advanced such as the market imperfection hypothesis by Hymer (1976), internalization theory by Rugman (1986) and eclectic approach theory by Dunning (1988). However, no contemporary theory can describe the determinants of FDI from all dimensions regardless of inward or outward flows. In other words, there is not any self-contained single theory that can alone explain FDI of all types at industry or country level. Dunning (1993) suggested three types of FDI based on the private investor's motive towards investment to a host country. First, an investing firm likes to serve local or regional markets through market seeking or horizontal FDI. Within this framework, MNCs try to replicate their production facilities in a host economy so that they can capture the target market by increasing local production. Therefore, the size of the target market and its growth potential in the host economy can act as one of the major FDI determinants.

Markusen & Venables (1998) imply that horizontal/ market seeking FDI happens because of trade costs. First of all, barriers of trade created by high tariffs and large transport costs related expenses encourage potential investors to produce and sell locally in the host country. On the other hand, resource-seeking or export-oriented foreign direct investment is occurred when MNCs invest to get access to natural resources, raw materials or cheap labor of a host country. According to Helpman & Krugman (1985), such FDI takes place when there are different levels in factor prices across countries. This type of FDI is also known as vertical FDI and is featured by relocating production parts (by an MNC) to a host country. For resource-seeking or vertical FDI, investors consider mainly the countries that are featured with large natural endowments such as oil and natural gas. Low cost labor is another important factor. Availability of cheap and skilled labor in developing countries also plays a crucial role in this kind of FDI. Dunning (1993) suggests another type of FDI called

efficiency-seeking FDI which is utilized by a firm to achieve more benefits from the presence of economies of scale and scope. Investors can practice 'common governance of geographically dispersed activities' in efficiency-seeking FDI.

According to UNCTAD (1998), the host country determinants of FDI are identified as political factors, economic factors and business facilitation related factors. Cost of doing business is another important factor of FDI inflow. Profit-seeking foreign investors prefer countries where they can reduce various costs of doing business so that they can maximize their profit. Input costs, operation costs and hidden costs are some basic expenses that investors like to keep low. According to UNCTAD (1998), availability of cheap and skilled labor, improved transportation facilities, sufficient supply of electricity and water services, efficient port facilities, telephone services and internet facility etc. in a host country can reduce business expenses greatly for efficiency seeking foreign investors. Proper rules and regulations aiming to ensure a good business environment and proper functioning of the market are important requirements that affect business costs negatively. Foreign investors examine factors such as regulatory framework, bureaucratic hurdles and red tape, corruption, time required to start a new business, time required to get electricity connection, judicial transparency, political instability and violence etc. in a host country context. These are some very important requirements that affect efficiency, productivity and cost structure for a foreign firm and thus significantly affect investors' decision regarding FDI.

The lack of reliable and generally accepted theory to explain FDI determinants forces researchers to rely on empirical findings. A large number of variables have been utilized and suggested in the literature to explain FDI determinants. Some of them have formal theoretical background and others make sense just instinctively. Most of the variables used by authors in the research of FDI followed the classification of FDI determinants

advanced by UNCTAD (1998). In the following table, key FDI determinants classified by UNCTAD (2002) and IMF (2003) are summarized.

Table 5. 2 : Major FDI Determinants Classified by UNCTAD and IMF

The UNCTAD' s Classification of FDI Determinants	
Determinants	Examples
Policy Variables	Tax policy, trade policy, privatization policy, macroeconomic policy and investment incentives
Business Variables (Market-related Economic Determinants)	Market size, market growth and market structure etc.
Resource-related Economic Determinants (or Efficiency-related Economic Determinants)	Raw materials, labor cost, technology transport and communication costs and labor productivity etc.
The IMF' s Classification of FDI Determinants	
<ul style="list-style-type: none"> • Market size and growth prospects • Wage-adjusted productivity of labor (rather than the local labor cost) • The availability of proper infrastructure • Reasonable levels of taxation and the overall stability of the tax regime (rather than tax incentives and tax holidays) • A broad consensus in the host country in favor of foreign investment such as a reasonably stable political environment as well as conditions that support physical and personal security • Corruption and governance concerns • The investment regime and the environment for business—including the business licensing system, the tax regime, and the attitude and quality of the bureaucracy • The legal framework and the rule of law. 	

Source: UNCTAD (2002) and IMF (2003) in Cevis & Camurdan (2007)

5.3 Review of Empirical Literature

Talamo (2007) has used the following set of gravity equations to investigate determinants of FDI in 29 source countries from the OECD and 61 host countries from both OECD and non-OECD regions. The empirical model took the form of

$$\ln FDI_{ijt} = \alpha_0 + \lambda_t + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(POP_{it}) + \beta_4 \ln(POP_{jt}) + \beta_5 \ln(D_{ij}) + \beta_6 \text{Lang}_{ij} + \beta_7 \text{CTax} + \beta_8 \text{Openness}_{jt} + \beta_9 \text{Shp}_{jt} + \varepsilon_{ijt} \quad (7.1)$$

$$\ln FDI_{ijt} = \alpha_0 + \lambda_t + \theta_i + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(POP_{it}) + \beta_4 \ln(POP_{jt}) + \beta_5 \ln(D_{ij}) + \beta_6 \text{Lang}_{ij} + \beta_7 \text{CTax} + \beta_8 \text{Openness}_{jt} + \beta_9 \text{Shp}_{jt} + \varepsilon_{ijt} \quad (7.2)$$

$$\ln FDI_{ijt} = \alpha_0 + \lambda_t + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(POP_{it}) + \beta_4 \ln(POP_{jt}) + \beta_5 \ln(D_{ij}) + \beta_6 \text{Lang}_{ij} + \beta_7 \text{CTax}_{jt} + \beta_8 \text{Openness}_{jt} + \beta_9 \text{Shp}_{jt} + \beta_{10} (\text{Shp if Openness} \leq 1) + \beta_{11} (\text{Shp if } 1 \leq \text{Openness} \leq 2) + \beta_{12} (\text{Shp if } 2 \leq \text{Openness} \leq 3) + \beta_{13} (\text{Shp if } 3 \leq \text{Openness} \leq 4) + \beta_{14} (\text{Shp if } 4 \leq \text{Openness} \leq 5) + \varepsilon_{ijt} \quad (7.3)$$

Where;

FDI_{ijt} : Foreign direct investment outflow from source country i to host country j at time t

GDP_{it} : GDP per capita of source country i at time t

GDP_{jt} : GDP per capita of host country j at time t

POP_{it} : Population of source country i

POP_{jt} : Population of host country j

D_{ij} : Geographical distance between the financial centers of country i and country j

$Lang_{ij}$: Dummy variable to show if country i and country j share a common language

$CTax_{jt}$: Host country's corporate tax rate

$Openness_{jt}$: Openness level to FDI for host country j

Shp_{jt} : Share holder protection index proxy for anti-director rights in the host country

$\beta_1, \beta_2, \beta_3, \dots, \beta_{14}$: slope parameters

λ_t : Time effect

θ_i : Source country fixed effects

ε_{ijt} : Normal error terms with mean zero

This study used a linear regression to the above model for data ranging from 1980 to 2001. The results of the study reported that coefficients of GDP per capita for both source and host countries are positive and significant. An increase of 1 per cent in GDP per capita of host country led to 0.47 to 0.51 per cent increase in FDI flows. According to empirical findings by Talamo (2007), the coefficient of source country's per capita GDP is higher than 1 that indicates an evidence of scale economies in FDI flows and also indicates that FDI is more concentrated in higher income countries. Population of source and host countries, common language dummy, and the time dummy which denotes an indicator of globalization all get positive and significant coefficients while distance between countries has imposed

negative impact on FDI. Openness indicator has got results that are consistent with usual economic theory. The coefficient of openness indicator has become positive and significant meaning that FDI flows are more likely to establish in countries with low level of protection measures in foreign ownership.

Hemkamon (2007) estimates the determinants of foreign direct investment in ASEAN countries at the time of the establishment of ASEAN Free Trade Area and its enlargement. The following basic gravity model was used.

$$\ln(FDI_{ijt}) = \alpha + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(POP_{it}) + \beta_4 \ln(POP_{jt}) + \beta_5 \ln(DIST_{ij}) + \sum_t \gamma_t Y_t + e_{ij} \quad (7.4)$$

For this above equation the variables were indicated as follow,

α : Constant term

FDI_{ijt} : Gross bilateral FDI inflows from source country i to host country j at time t

GDP_{it} : Source country i's gross domestic product at time t

GDP_{jt} : Host country j's gross domestic product at time t

POP_{it} : Source country i's population

POP_{jt} : Host country j's population

$DIST_{ij}$: Distance between country i and country j

Y_t : Time dummies that capture the effect of common global events

e_{ij} : Error terms

$\beta_1, \beta_2, \beta_3, \dots, \beta_5$: slope parameters

With the above basic model the author added some additional explanatory variables such as remoteness, ASEAN-10 dummy, adjacency dummy, common official language dummy, colonial tie dummy, common colonizer dummy, location characteristics dummy for host countries, dummy variable for FDI flow into ASEAN-5 and dummy for FDI flow into

new ASEAN member countries etc. The author applied a panel data set of bilateral FDI flows from a source country to a host country in ASEAN from a period of 1999 through 2003. The aim of this study was to detect the determinants of inward FDI by focusing on proximity and the characteristics of the economy. An Ordinary Least Square estimate was employed.

The empirical results proposed by Hemkamon (2007) show that all of the variables except host country's population in the basic gravity model became significant with expected sign. GDP of both source and host countries got positive coefficient meaning that GDP has a dominant effect in determining FDI flows. Population of both source and host countries had negative sign indicating the sufficiency of home market in ASEAN countries. The variable distance acted as a proxy of information cost and got the negative sign which is indicative that firms prefer to invest in a country which is more familiar. Other variables such as remoteness, dummy for adjacency, common language, colonial ties, common colonizer and host country fixed effect appeared to be insignificant.

Sahoo (2006) applied the following gravity model based upon theoretical foundation of FDI and previous empirical literature in the perspective of South Asia.

$$FDI_{it} = a_0 + a_1GDP_{it} + a_2GDPGR_{it} + a_3IFNINDEX_{it} + a_4IRR_{it} + a_5INFL_{it} + a_6LIT_{it} + a_7TRADEY_{it} + a_8EXP_{it} + a_9LFTGR_{it} + a_{10}RESM_{it} + a_{11}DBCY_{it} + a_{12}RIR_{it} + u_{it} \quad (7.5)$$

Where;

FDI_{it} : Foreign direct investment inflow in country i at time t

GDP_{it} : Gross domestic product of country i at time t

$GDPGR_{it}$: Growth rate of GDP in country i at time t

$IFNINDEX_{it}$: Infrastructure index for country i at time t

IRR_{it} : Inverse rate of return in country i at time t

$INFL_{it}$: Inflation rate in country i at time t

LIT_{it} : Literature rate in country i at time t

TRADEY_{it} : Trade openness index (export plus import as percentage of GDP) for country i

EXP_{it} : Export volume in country i at time t

LFTGR_{it} : Labor force growth of country i

RESM_{it} : Total reserves sufficient for number of months of imports for country i

DBCY_{it} : Domestic bank credit as percentage of GDP for country i

RIR_{it} : Real interest rate of country i at time t

u_{it} : Error terms

a_0 : Constant term and

$a_1, a_2, a_3, \dots, a_{12}$: coefficients of intercepts

The author used a data set of panel data from 1975 to 2003. A panel OLS technique and a panel cointegration method with and without time dummy have been used. The results of this study found that total GDP is the most important factor to affect positively FDI inflow in South Asian countries. It was also noted that FDI is flowing in the region to tap the large emerging market due to huge population. The author found that an increase of one per cent in GDP may lead to a 0.5 per cent increase in FDI flow. Growth of GDP which indicates prospects of market also got positive but insignificant coefficient. Infrastructure index which is regarded as one of the major determinants of FDI inflow in developing countries was statistically significant. Labor force growth has appeared to be another important factor of FDI. Openness indicator was also significant variable to affect FDI indicating more FDI inflow in more outward oriented economies. Other variables such as rate of return, literacy ratio, total debt as percentage of GDP and total reserves sufficient for number of months of imports have turned to be insignificant.

Grosse & Trevino (1996) analyzed the determinants of FDI into the US economy from 23 partnering countries over the period 1980 to 1992. The authors found that home

country exports to US and home country market size influenced FDI flow positively while cultural differences between host and home countries and geographical distance had strong negative influence. The author also found that political risks, the cost of funds, relative rates of return and Japan dummy were either insignificant or only marginally significant.

Grosse (1997) has studied the potential determinants of aggregate FDI flows into several Latin American countries. The author has estimated the country-specific determinants of FDI inflow for these countries. It was found that gross domestic product (GDP), GDP per capita, rate of inflation, fiscal balance and interest rates were the positively affecting factors of FDI while official reserves, country risks and oil prices were negatively affecting determinants. The author found only two variables such as official reserves and inflation rate to be statistically significant.

Rajan (2008) has undertaken an empirical investigation of some of the possible determinants of FDI flows from emerging Asia to the rest of the Asian region. ‘Can a gravity model framework that is commonly used to rationalize outward FDI flows from OECD economies be used to understand intra-Asian FDI flows’ was the fundamental hypothesis in this study. The sample is based on annual data of 14 source countries and 10 host countries from Asia between 1990 and 2005. The following gravity model was used.

$$\ln(1 + FDI_{ijt}) = \beta_0 + \beta_1 \ln(GDP_{jt}) + \beta_2 \ln(GDP_{it}) + \beta_3 LANG_{ij} + \beta_4 \ln(DIST_{ij}) + \beta_4 (X_{ijt}) + \lambda_t + v_{ijt} \quad (7.6)$$

Where;

FDI_{ijt} : FDI inflow to host country j from the source country i in a time period t

GDP_{jt} and GDP_{it} : Nominal GDP of the host country and nominal GDP of the source country respectively

$LANG_{ij}$: Dummy variable to indicate if both countries share a common official language

$DIST_{ij}$: Geographical distance between host and source countries

X_{ijt} : A vector of control variables influencing FDI outflows

λ_t : Unobservable time effects (used for year dummies)

v_{ijt} : Error terms

In this study the author used a set of other controls such as difference in GDP per capita of the host and source countries, lag value of export of goods from country i to country j, exchange rate volatility of country i with respect to country j, nominal exchange rate of i with respect to j, average corporate tax rate in country j, political risk index for country j and a dummy variable to indicate if countries i and j maintain a free trade agreement (FTA).

The author has reported that distance between the host and source countries have a tendency to reduce FDI. Sharing of common official language was noted as a positive factor. GDP or market size is also found to be positive and significant. Other variables such as the difference in GDP per capita was negative, lag of exports was positive and statistically significant, currency appreciation and higher exchange rate volatility turned to be positively associated with FDI flow but not significant, lower political risks in the source country and presence of a bilateral trade treaty influenced FDI flow positively, and corporate tax rate appeared to be negative and statistically significant.

Hattari & Rajan (2008) used data of bilateral FDI flows for some Asian countries and investigated trends in intra-Asian FDI flows over a 16 year time frame starting from 1990 until 2005. The authors employed an augmented gravity model to find out the major determinants of intra-Asian FDI flows. The following model was adopted in this study.

$$\ln(FDI_{ijt}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 LANG + \beta_4 \ln(DIST_{ij}) + \beta_5 X_{ijt} + \eta_i + \mu_j + \lambda_t + v_{ijt} \dots\dots\dots (7.7)$$

Where;

FDI_{ijt} : Real FDI flow from source country i to host country j

GDP_{it} : Real GDP in US\$ for source country i

GDP_{jt} : Real GDP in US\$ for host country j

LANG: Dummy variable to show if both source and host countries share a common language

$DIST_{ij}$: The geographical distance between the countries

X_{ijt} : Vector of explanatory variables influencing FDI flows. They include real GDP per capita differentials, lag of real export of goods from the source country to the host country, change in bilateral real exchange rate of the source country with respect to the host country, the ratio of stock market capitalization to GDP of the host country's stock market, average corporate tax rates in the host country, a dummy variable to indicate if the two countries share common legal system originated from British common law system and another dummy to indicate if these two countries maintain membership of an operational free trade agreement (FTA), and a financial openness index for the host country.

η_i : Unobservable source country effects (source country dummies)

μ_j : Unobservable host country effects (host country dummies)

λ_t : Unobservable time effects (year dummies)

v_{ijt} : Nuisance (error) terms

The authors used data from a number of sources mainly from FDI database of the UN Conference on Trade and Development (UNCTAD), the World Development Indicators by the World Bank and IMF's Direction of Trade and Statistics database. The authors have run four different regressions and the results indicate that distance variable was statistically and economically significant, GDP became positive meaning that larger countries received larger volumes of FDI, the language dummy got positive sign but was not significant, differences in GDP per capita was also positive and has become statistically significant but economically insignificant, lag of exports was positive indicating a degree of complimentary

between exports and FDI flows, exchange rate appreciation got positive coefficient, the variable stock market capitalization in the host country was positive and significant, and the financial openness in the host country was also positively associated with FDI flow. It was also found that lower political risk and adoption of a similar legal system to the British common law system in the host country led to greater FDI inflows. Finally, the presence of an operational FTA also was found to influence FDI between the source and host countries positively in this study by Hattari & Rajan (2008).

Asiedu (2002) summarizes the extent to which some of the variables included in previous studies explain the variation in FDI. This author explored if the impact of various factors that affect FDI in developing countries is different in countries of sub-Saharan Africa. The author used an ordinary least square (OLS) technique for two separate regressions: (1) a cross section regression where the variables were averaged over the 10-year period and (2) a panel regression where the variables were averaged over three sub periods. This study used FDI as a percentage of GDP in the dependent variable. The explanatory variables considered for the estimation purpose were trade openness (total exports plus imports as a share of GDP) of the host country, infrastructure (logarithm of phones per 1000 population), rate of return on investment (logarithm of inverse GDP per capita) in the host country, the ratio of government consumption as a percentage of GDP, inflation rate (as a measure of economic stability), political risk, the ratio of liquid liabilities to GDP (as a measure of financial depth), and growth of GDP (as an indicator of the host country's market attractiveness).

The author found that a higher return on investment and better infrastructure have a positive impact on FDI to non-sub Saharan Africa (non-SSA) countries but there was no evidence of significant impact on FDI to countries of sub-Saharan Africa (SSA). Openness to trade was found to be positively associated with FDI flow in both SSA and non-SSA while the marginal benefit was comparatively less in SSA. Asiedu (2002) has also summarized

some results of previous similar studies about determinants of FDI. These are presented in the following table below.

Table 5. 3 : Impact of Various Factors on FDI (evidence from previous studies)

Determinants of FDI	Positive	Negative	Insignificant
Real GDP per capita	Schneider & Frey (1985) Tsai (1994) Lipsey (1999)	Edwards (1990) Jaspersen, Aylward, & Knox (2000)	Loree & Guisinger(1995) Wei (2000) Hausmann & Fernandez-Arias (2000)
Infrastructure quality	Wheeler & Mody (1992) Kumar (1994) Loree & Guisinger (1995)		
Labor cost	Wheeler & Mody (1992)	Schneider & Frey (1985)	Tsai (1994) Loree & Guisinger(1995) Lipsey (1999)
Openness	Edwards (1990) Gastanaga et al. (1998) Hausmann & Fernandez-Arias (2000)		
Taxes and tariffs		Loree & Guisinger (1995) Gastanaga et al. (1998) Wei (2000)	Wheeler & Mody (1992) Lipsey (1999)
Political instability		Schneider & Frey (1985) Edwards (1990)	Loree & Guisinger (1995) Jaspersen et al. (2000) Hausmann & Fernandez-Arias (2000)

Source: Asiedu (2002)

Jaumotte (2004) has investigated if the market size of a regional trade agreement (RTA) is an important factor of foreign direct investment flow to the member countries participating under that RTA. This study covered data of 71 developing countries starting from 1980 until 1999. The following empirical model was designed and tested.

$$\ln(\text{FDI}_{i,t+1}) = \lambda \ln(\text{FDI}_{i,t}) + \alpha_1 \ln(Y_{i,t}) + \alpha_2 \ln(\text{REGY}_{i,t}) + \beta_1(g_{Y i,t}) + \beta_2(\text{REGg}_{Y i,t}) + \gamma_1 \ln(\text{educ}_{i,t}) + \gamma_2 \ln(\text{GAPeduc}_{i,t}) + \delta_1 \ln(\text{stabfin}_{i,t}) + \delta_2 \ln(\text{GAPstabfin}_{i,t}) + \phi_1 \ln(\text{tv}_{i,t}) + \phi_2 \ln(\text{GAPtv}_{i,t}) + \theta \text{res}(X/Y)_{i,t} + \mu_i + \omega_{t+1} + \varepsilon_{i,t+1} \quad (7.8)$$

Where;

FDI : Stock of FDI (in 1995 U.S. dollars)

Y : Real GDP (in 1995 U.S. dollars)

$REGY$: The market size extended to include RTA market size

g_Y : Real GDP growth

$REGg_Y$: Average real growth rate in RTA partner countries

$educ$: Average years of education of people over age 15

$stabfin$: Financial risk index of the Political Risk Services Group (PRSG)

tv : Number of televisions per capita

$res(X/Y)$: Measure of trade openness

μ : Country fixed effect

ω : Time effect

GAP : Ratio between the domestic value of a variable and the average value for all countries sharing a RTA with country i (including country i itself)

The estimation was done using feasible generalized least squares with correction for panel-heteroskedasticity. The results showed a positive and statistically significant effect on FDI of the variables such as lagged FDI, education, financial stability and trade openness. Infrastructure was not significant at any level. It was reported that market size had not any significant impact but the growth of domestic market size appeared to be positive and had significant influence on FDI. In addition, the regional market size for RTA countries had positive and significant effect.

Velde & Bezemer (2004) has estimated a model explaining the real stock of UK and US FDI in 165 developing countries (68 received FDI from UK and 97 of them got FDI from the US). The study was conducted for a set of data over 1980-2001 and it has investigated the effects of specific investment-related provisions on FDI. Three separate equations were used as mentioned below.

$$FDI_{ijt} = f(HOME_{ijt}, HOST_{ijt}, OTHER_{ijt}, RTA_{kjt}) \quad (7.9a)$$

$$FDI_{ijt} = f(HOME_{ijt}, HOST_{ijt}, RTA_{jt}, RTA_{jt}, POSITION_{jt}) \quad (7.9b)$$

$$\Delta \ln FDI_{ijt} = \alpha \ln(FDI_{ijt-1}) + \beta \ln(HOSTGDP_{ijt-1}) + \chi RTA_{jt} + \gamma \Delta \ln(HOSTGDP_{ijt}) + \text{cons} + \text{USdum} + \varepsilon_{ijt} \quad (7.9c)$$

Where i is for home country (here US and UK), j is the host country and t indicates time.

Other factors were indicated as below.

FDI : The real stock of FDI

HOME : Home country factors that may include variables such as GDP and interest rates and factors indicating if different source countries react differently.

HOST : Host country factors (it includes amongst others market size, human capital and infrastructure)

OTHER : Other factors that indicate such variables as distance or shared language

RTA : Factors indicating measures of investment related provisions in a RTA applicable in host country j at time t

POSITION : this variable indicates and measures the position of country j in a region in three different ways: (a) real GDP of country j compared to the largest economy in the region at time t (in order to check if countries of different sizes attract different amounts of FDI), (b) GDP per capita of country j compared to the richest country in the region at time t (in order to test if richer or more productive countries attract more FDI than poorer and less productive ones), and (c) distance of country j from the largest economy in the region (in order to test if core and periphery countries attract different amounts of FDI).

The results of this study showed that standard explanatory variables such as infrastructure, education and inflation were statistically significant with expected sign. Another variable termed as 'region' was used here to show if a country is part of any of the developing country regions and found to be statistically insignificant in the case of hardly integrated regional blocs. 'Region' was found to be significant and positive for other highly

integrated blocs such as NAFTA, MERCOSUR, CARICOM and ASEAN etc. The variables ‘regional investment provisions’ and ‘relative size of the country in the region’ also were positive and significant. However, ‘relative GDP per capita’ was not significant. Distance of the host country from the largest economy in the region has affected FDI negatively.

5.4 Methodology

5.4.1 Model Specification

Based upon the past literatures and the socio-economic characteristics of the South Asia region, the following model is designed and utilized for the present study. Apart from the ordinary ones some new variables such as free from corruption, business freedom, investment freedom, trade freedom and financial freedom etc. are tested in the model presented below.

$$\begin{aligned} \log(\text{RFDI}_{ij}) = & \alpha + \beta_1 \log(\text{GDP}_i) + \beta_2 \log(\text{POP}_i) + \beta_3 \log(\text{LABF}_i) + \beta_4 \log(\text{INFR}_i) + \\ & \beta_5 \log(\text{NY}_i) + \beta_6 \log(\text{OPN}_i) + \beta_7 \log(\text{RIR}_i) + \beta_8 \log(\text{REXCR}_i) + \beta_9 \log(\text{INFL}_i) + \\ & \beta_{10} \log(\text{LRFDI}_i) + \beta_{11} \log(\text{FFC}_i) + \beta_{12} \log(\text{PS}_i) + \beta_{13} \log(\text{BF}_i) + \beta_{14} \log(\text{INVF}_i) + \\ & \beta_{15} \log(\text{TF}_i) + \beta_{16} \log(\text{FNF}_i) + u_i \end{aligned} \quad (7.10)$$

Where the variables are denoted for the host country i as below

FRDI_{ij} : Total regional FDI flow to host country i

GDP_i : GDP of host country i

POP_i : Population of host country i

LABF_i : Labor force ratio of host country

INFR_i : Infrastructure

NY_i : Total natural resources rents (per cent of GDP) in host country

OPN_i : Openness of host country

INFL_i : Inflation rate

RIR_i : Real interest rate

REXCR_i : Real exchange rate of host country i 's currency with US\$

$LFDI_i$: Lag of total regional FDI

FFC_i : Free from corruption index for host country i

PS_i : Political stability index

BF_i : Business freedom index

$INVF_i$: Investment freedom index

TF_i : Trade freedom index

$FNFi$: Financial freedom index and

u_i : Error terms

5.4.2 Variable Selection and Additional Empirical Evidences

The existing literature has suggested various determinants of FDI. Many empirical studies have examined the impact, importance as well as the direction of effect of different variables that are considered to be FDI determinants and findings of these studies offered mixed results. In the following section some potential determinants of FDI will be discussed.

Market Size. First of all, market size which is measured by GDP or per capita GDP of a host economy influences FDI inflow greatly (ODI, 1997 and Charkrabarti, 2001). As it was indicated by Wang and Swain (1995), market size is one of the very important factors because it provides opportunities of making greater revenue and profit (through local sales) to potential investors. Market size or size of the economy gives a clear understanding about the sophistication or breath of the host country, thus, also indicates the probability of fulfilling a targeted rate of return. Moore (1993), Jordaan (2004) and Schneider & Frey (1985) claim that in general economies with a bigger market will attract larger amount of FDI because larger markets offer larger purchasing power of buyers, bigger sales and consequently a high rate of return for investors. According to Artige & Nicolini (2005), market size acts as one of the most robust determinants of FDI in econometric studies especially in the case of horizontal

FDI. Charkrabarti (2001) claims that large markets facilitate better and efficient utilization of resources for MNCs and help foreign firms attain benefit from exploitation of economies of scale. ODI (1997) states a well-established correlation between FDI and size of the market in a host country context. There are many other authors such as Pärletun (2008), Ang (2008), Schneider & Frey (1985) and Tsai (1994) who found positive and significant impact of market size on inflow of FDI. But some other authors such as Edwards (1990) and Asidu (2002) suggest that market size and growth of the economy have no impact on FDI inflows. On the other hand, Edwards (1990) and Jaspersen et al. (2000) found an inverse correlation between GDP per capita and FDI.

Prospect of Growth. After market size, FDI inflow depends largely on growth prospect of economies because growth rate of per capita GDP and inflow of FDI maintain a positive correlation with each other (Schneider & Frey, 1985 and Durham, 2002). Authors such as Lipsey (1999) and Dasgupta & Rath (2000) also found positive impact of economic growth on FDI inflow. A higher rate of growth and a positive country condition can make positive image for a host economy. Therefore, countries with high and sustained growth rates attract more FDI than those with volatile economic conditions because foreign investors like to invest in those countries that can reduce uncertainties to a potential investment.

The role of growth in attracting FDI was estimated by various authors including Lunn (1980), Schneider & Frey (1985), Culem (1988), Tsai (1994), Ancharaz (2003) and Gastanaga et al. (1998). Most of them have found a positive correlation between economic growth and FDI. According to Lim (1983), rapidly growing economies may offer higher rate of return for any kind of investment so that foreign investors can easily benefit from better opportunities provided by a fast growing country. On the other hand, a slow growing or stagnated economy lacks these advantages. Culem (1988) claimed that growth has a positive effect on FDI. Similarly Tsai (1994) and Ancharaz (2003) found positive and significant

correlation. On the contrary, Nigh (1985) has estimated weak positive impact of growth on FDI inflows in less developed countries and weak negative effect in developed countries. Therefore, the impact of growth on FDI inflows is mixed and not free from controversy.

Labor Productivity and Availability of Skilled Labor. One of the most contentious potential determinants of FDI is labor cost. High labor productivity and availability of skilled work force in a host country attract efficiency-seeking FDI. Proponents from both of the dependency school of thoughts and the modernization hypothesis agreed that cheap labor is an important factor considered by foreign firms. Countries with large supply of skilled human capital and a comparatively low wage rate maintain comparative advantage in attracting foreign investment especially in labor intensive sectors where wage expense is an important component of production cost. Thus, a high wage-adjusted productivity of labor enables investors to make better profit by producing and selling products in the host market.

Empirical literature suggests that the role of wage on FDI is significantly important. Most of the studies that have explored the labor cost-FDI nexus have presented that higher host country wages impact inbound FDI negatively (example includes Goldsbrough, 1979; Saunders, 1982; Wheeler & Mody, 1992 and Flamm, 1984). Tsai (1994) demonstrated that cheap labor cost has strong and positive correlation with FDI. According to ODI (1997), in the case of FDI in labor-intensive industries and export-oriented subsidiaries, labor cost turns to be statistically significant. However, in the case of similar wages among host countries or when wage rates vary little from country to country, the productivity of labor or skill of the work force becomes significant determinants of FDI.

Availability of Proper Infrastructure. Infrastructure facilities which include electricity, energy, transportation and communication networks, water supply, and institutional development is an important determinant of FDI. Transportation facilities such

as roads, port facilities, rail ways etc. and communication facilities such as telephones and internet etc. are important requirements of efficient trade facilitation activities. On the other hand, institutional development such as accounting, restriction policies of patent and copy rights, and legal services etc. are needed to operate a business freely in a host country. Foreign investors prefer a location for their investment where quality infrastructures are available and a country that is best prepared to provide these facilities. Poor level in infrastructure, however, is regarded as a major constraint to FDI; although some authors state that infrastructure bottlenecks may appear as an opportunity because sometimes host governments allow foreign investors' substantial involvement in the process of infrastructure development (ODI, 1997). Empirical studies such as Wheeler & Mody (1992) and Loree & Guisinger (1995) found a positive correlation between infrastructure and FDI inflows. Good quality infrastructure and well developed business facilities can improve productivity of current investments, raise rate of returns of new investments and increase profitability of FDI in a host economy (Jordaan, 2004). Hence, proper infrastructure seems to be an important factor to stimulate FDI flows in a recipient country.

Natural Resources. Availability of natural resources is considered as an important FDI determinant because it may capture both the incentives for investments to exploit a country's natural resources and the availability of productive inputs. Total natural resources rents (per cent of GDP) which is the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents and forest rents is used in this study as a proxy. Estimates are based on sources and methods mentioned in "The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium" by the World Bank.

Export Orientation and Openness of the Economy. It is widely believed that open economies attract more foreign direct investment. Openness of an economy shows mixed results of impact as a determinant of FDI (Charkrabarti, 2001). In general, it is maintained

that in a case most foreign firms are operating in the tradable sectors, an economy's degree of openness to international trade, or in other words, a country's level of export promotion serves as a relevant factor to FDI inflows. In a world of more and more international trade, countries try to offer policies that can promote more and more investment by overseas investors. However, the impact of openness on FDI differs based on the type of investment. In a trade restricted regime of less openness where countries try to promote import substitution policies, market-seeking FDI inflows may increase because, referring to the tariff jumping hypothesis, foreign firms will preferably set up subsidiaries in a host country if import of their products from the origin country is difficult. In the contrary, resource-seeking FDI or efficiency-seeking FDI by MNCs will be discouraged because trade protection policies make export difficult and costly by imposing various restrictive measures (Jordaan, 2004). Empirical observations by Kravis & Lipsey (1982), Edwards (1990), Wheeler & Mody (1992), Botrić & Škuflić (2006), Ghosh (2007) and Greenaway, Sapsford & Pfaffenzeller (2007) found a strong positive impact of openness and export promotion on FDI inflow. Schmitz & Bieri (1972), Nonnemberg & Mendonça (2004) and Razafimahefa & Hamori (2005) found a weak positive correlation. On the other hand, Cuadros & Alguacil (2004) and Goldberg & Klein (1999) offered mixed results. According to Cuadros & Alguacil (2004), in some cases openness appeared to be positively correlated in one country while negatively associated in other countries. Goldberg & Klein (1999) found that in some industries the impact of openness on FDI is positive while for other it becomes negatively correlated. There are two reasons for including openness as FDI determinant. First, there is a widely accepted perception that open economies encourage more confidence and thus more foreign direct investment. Second, according to Chen (1994), foreign firms usually maintain higher export propensity compared to the local ones.

Currency Valuation and Macroeconomic Stability. Unstable economic conditions always hinder FDI inflows and researchers found that lack of stability in the macroeconomic front of a country increases uncertainty in forecasts of investment returns no matter whether the investment is foreign or domestic (Bloom & Reenen, 2007). In general, coefficient of variation for real exchange rate is considered to be a proxy variable of macroeconomic stability in the literature. Exchange rate is also considered as an indicator of inflation and can alter the purchasing power of the investing firm in a host country. Investors can reduce exchange rate risk in an environment of devaluation of exchange rates of a host country. In other words, if currency depreciates in the host country then investing firm's purchasing power in foreign currency terms is increased. The opposite is also true. Therefore, a significant relationship between exchange rate and FDI inflow is expected. However, other studies like Lucas (1993) contend that exchange rate plays a residual role in determining the value of repatriated profits.

Tax, Incentives and Policy Measures. Government policies including investment incentives are considered to be impacting factors of FDI and literature suggests that many authors such as Dunning (2002), Blomsrom & Kokko (2002), Schneider & Frey (1985), Grubert & Mutti (1991), Loree & Guisinger (1995), Taylor (2000) and Kumar (2002) have tested the role of these factors. In general, governments try to influence FDI inflow by offering various incentives such as partial or complete exemptions from corporate taxes and import duties. Other standard policies that host governments try to focus are tax holidays, import duty exemptions and different kind of direct subsidies. Foreign investors are also motivated by corporate tax rate differentiation. Profit-seeking MNCs see subsidies helpful in many ways because subsidizing helps investors to reduce various operating costs, improves incentives to create patents and trademarks, and enhances creating new production facilities.

It is not clear whether tax related expenses are affecting FDI decisions of foreign investors. Some authors suggested that corporate tax is sensitive to FDI inflow because corporate taxes have a significant negative impact on FDI (example includes Hartman, 1994; Grubert & Mutti, 1991; Hines & Rice, 1994; Loree & Guisinger, 1995; Cassou, 1997 and Kemsley, 1998). But others such as Root and Ahmed (1979), Lim (1983), Wheeler & Mody (1992), Jackson & Markowski (1995), Yulin & Reed (1995), and Porcano & Price (1996) found no such relations and they stated that taxes are not affecting FDI inflows.

Quality of Institutions. The role played by institutions in financial globalization of FDI flows from one country to another attracts more and more attention in recent years. Better institutions can reduce various risks for investors and decrease all types of costs such as financial, time and effort costs related to starting, continuing and even closing a business. They also reduce information asymmetry in investment related activities and help improve business environment by increasing transparency of rules and regulations.

Rate of Return on Investment. Rate of return or profitability of investment is an important FDI determinant because investment decisions of MNCs are largely influenced by the prospect of future profit. A small number of previous studies have utilized this variable and found positive correlation (example includes Asiedu, 2002). In order to measure the empirical estimation, Asiedu (2002) used the log of inverse per capita earning of the host countries as a proxy of rate of return. According to Asiedu (2002), capital scarce nations that have low per capita GDP generally offer a higher rate of return on investment. From this postulation, Asiedu (2002) concludes that profit-seeking foreign investors are motivated greatly by a high rate of return and prefer countries with a low per capita GDP.

Freedom From Corruption Index. We add ‘freedom from corruption’ index as an explanatory variable in our model. Corruption causes insecurity and uncertainty in economic

relationships and erodes economic freedom from an economy. The Corruption Perceptions Index (CPI) of the Transparency International is considered as one of the most reliable and widely referred sources to indicate corruption level in a country. The freedom from corruption index score is derived primarily from CPI of 2011. The original indicator is based on a 10-point scale in which a score of 10 indicates very little corruption and a score of 0 indicates a very corrupt government. In scoring this indicator the data converts the raw CPI data to a scale of 0 to 100 by multiplying the initial CPI score by 10 indicating that a score of 100 implies very little corruption and a score of 0 refers to a high level of corruption.

Political Factors. The role of political factors as a determinant of FDI is not clear; although the proxy variables such as number of strikes and riots and/or work days lost etc. were used in some empirical studies and have been found to be significant. One of the limitations of the proxies is that they can only capture some aspects of the qualitative nature of the broader variable of ‘political risks’. Empirical findings suggest a range of conclusion from no relationship at all to significant correlation between political risks and FDI inflows. For instances, Hausmann & Fernandez-Arias (2000) states that political risks are not significant determinants of FDI while Schneider & Frey (1985) suggested that FDI inflow is reduced due to political instability and violence. Loree & Guisinger (1995) has found a negative effect of political risk in 1982 for the case of the U.S economy. Some other authors such as Edwards (1990) used political instability measured by probability of change of government and political violence measured by political assassinations, strikes and riots etc. as proxy variables. It was reported that while political instability turned to be statistically significant violence was insignificant. On the other hand, ODI (1997) claims that in a country which has abundant of natural resource endowment, political instability and violence are not important factors. High returns in a resourceful country may compensate for political risks and other security related factors.

Business Freedom. Business freedom is also an important factor of FDI and has been defined as an overall indicator of the efficiency of government's regulation for controlling the entire business environment of the country. A quantitative score based upon the World Bank's 'Doing Business Index' indicating the level of difficulty of starting, operating and closing a business is given for each country. Indicator for business freedom presents the score based on an array of 10 factors all weighted equally. The score ranges between 0 and 100 with 100 equaling the freest business environment.

Investment Policy Openness or Investment Freedom. Every country has its own investment related policies and it is widely accepted that the more open the investment regime of a country, the greater is its FDI inflows. Restrictions of FDI may include adopting different rules for domestic and overseas investment; setting regulations for foreign investors to have restriction on access of foreign exchange; imposing limits on payments, transfers and capital transactions; and even prohibiting certain industries to FDI etc. For the purpose of the econometric estimation of the present study, an indicator called 'Investment Freedom Index' provided by the Heritage Foundation is used as a proxy variable.

Trade Freedom. It is another important determinant of FDI which indicates level of difficulty in performing trade related activities such as exporting and importing of goods and services etc. This is a composite measure of the absence of tariff and non-tariff barriers that affect trade between a pair of countries. Trade freedom score is based on two inputs namely the trade-weighted average tariff rate and other non-tariff barriers (NTBs). The proposed score is calculated using the following equation as indicated here: $\text{Trade Freedom}_i = (((\text{Tariffmax} - \text{Tariff}_i) / (\text{Tariffmax} - \text{Tariffmin})) \times 100) - \text{NTB}_i$ where Trade Freedom_i represents the trade freedom in country i ; Tariffmax and Tariffmin represent the upper and lower bounds for tariff rates (per cent) and Tariff_i represents the weighted average tariff rate (per cent) in country i .

Financial Freedom Index. Financial development may act as either a deterrent or a positive factor of FDI. A financially developed country can ensure the availability of required capital for production and thus discourages inflow of FDI. On the other hand, financial deepening and a sound financial environment can attract FDI by reducing transaction costs of investment and facilitating other related financial activities (Al Nasser & Gomez, 2009). In this study, Heritage Foundation's Financial Freedom Index is called for as a proxy variable. This index is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector. State ownership of banks and other financial institutions such as insurers and capital markets reduces competition and generally lowers the level of available services.

6.4.3 Data Issues and Regression Methods

For the purpose of empirical estimation, secondary data has been collected from the World Bank's World Development Indicators, the Asian Development Bank and the Heritage Foundation's Economic Freedom Index data sources. Macroeconomic variables are collected from the World Bank while integration indices are sourced to the Asian Development Bank. For the variables representing level of economic freedom in the countries of South Asia, data has been collected from the Heritage Foundation's Index of Economic Freedom data source. In this connection, economic freedom is defined as "the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies; governments allow labor, capital and goods to move freely and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself" (The Heritage Foundation, 2015). The panel data set employed in this estimation ranges from a period of 22 years starting from 1991 until 2012. For the purpose of econometric analysis of data, the random effects GLS regression is followed.

5.5 Empirical Results and Discussion

In table 5.4 below estimates for random effects GLS regression are presented. Here, the dependent variable is ‘Total Regional FDI Inflow in Million US Dollar’. The results show that most of the variables got their expected sign. Among the macroeconomic variables coefficients of gross domestic product (GDP), employment to population ratio (labor force), infrastructure and total natural resources were positive while population got negative coefficient. GDP, labor force, infrastructure and natural resource are some of the significant regional FDI determinants with 1 per cent, 10 per cent, 5 per cent and 1 per cent level respectively. According to the findings, an expansion of national income or an increase of 1 per cent in the host country’s GDP leads to an increase of 1.93 per cent in regional FDI inflow [$\text{EXP}(0.6596) = 1.93$]. Similarly, an improvement of infrastructure, quality of labor force and having more natural resources in the host country lead to more FDI inflow but with different extent.

Among the policy variables openness of the host economy, real rate of interest and inflation rate have negative coefficients while real exchange rate is positively associated with regional FDI. Only real exchange rate is one of the statistically significant policy variables at 1 per cent level. Similarly, the lag value of regional FDI (or in other words, FDI flow in the previous years) has been positive and significant. According to our findings, the impact of devaluation of host country currency appeared to be very strong as a 1 per cent devaluation may improve FDI inflow for about 1.27 per cent [$\text{EXP}(0.2349) = 1.27$]. Also, on an average, a reduction of interest rate of 1 per cent in a host country can increase regional total FDI flow of 1.01 per cent [$\text{EXP}(0.0103) = 1.01$].

On the other hand economic freedom indices such as free from corruption, investment freedom and financial freedom are positive while political stability, business freedom and trade freedom have negative coefficients. Among these variables, only two

factors such as free from corruption and business freedom are statistically significant at 1 per cent level. As shown in the table below, an improvement of 1 per cent in corruption level in the host country (i.e. reduction of corruption) may contribute regional FDI flow to increase about 1.52 per cent [$\text{EXP}(0.4245) = 1.52$]. Other such variables like business freedom in the host country has negative coefficient value meaning that the countries in South Asia got reduction in FDI inflow while improving this index. Similar result is found for trade freedom index. On the other hand, the financial freedom and investment freedom indices got expected positive coefficient and an increase of 1 per cent in these parameters may lead to an increase of 1.001 per cent and 1.37 per cent respectively in regional FDI flow [$\text{EXP}(0.0071) = 1.001$ and $\text{EXP}(0.3143) = 1.37$].

These empirical results clearly indicate a mixed conclusion as majority of the indices of economic freedom have positive correlation with FDI inflow while some other indices have negative impact. After all, economic freedom which in our study implies business freedom, trade freedom, fiscal freedom, investment freedom, financial freedom and freedom from corruption indicates an important role as a determinant of regional FDI flow. The implication of these findings is that a country that has offered a business environment where a potential investor can create, operate and close an enterprise freely without any interference from the government and has provided business owners with the right to keep and control their income and wealth for their own benefit has attracted a greater amount in regional flow of FDI. Among the countries of South Asia, Sri Lanka and India have offered a comparatively better investment environment for foreign investors.

Table 5. 4 : Determinants of Intra Regional FDI in South Asia

Random effects GLS regression			
Variables	Explanation	Coefficient	z-statistic
gdp	Gross Domestic Product	0.6596*** (0.2573)	2.56
pop	Population of host country	-0.5158 (0.3301)	-1.56
labf	Employment to population ratio, 15+, total (%)	1.5643* (0.8198)	1.91
infr	Infrastructure	0.3088** (0.1209)	2.55
ny	Total natural resources rents (% of GDP)	0.6760*** (0.1456)	4.64
opn	Openness index	-0.0266 (0.2628)	-0.10
rir	Real interest rate in host country	-0.0103 (0.3189)	-0.03
rexcr	Real exchange rate of host country's currency with US\$	2.3949*** (0.4049)	5.91
infl	Rate of inflation	-0.1284 (0.1286)	-1.00
lrfdi	Lag Regional FDI inflow	0.1692*** (0.0568)	2.98
ffc	Freedom from corruption	0.4245*** (0.1612)	2.63
ps	Political stability index for host country	-1.3856 (0.05682)	-1.24
bf	Business freedom in host country	-1.3746*** (1.1188)	-2.96
invf	Investment freedom	0.3143 (0.2229)	1.41
tf	Trade freedom	-0.1944 (0.2957)	-0.66
fnf	Financial freedom	0.0071 (0.2988)	0.02
_cons	Constant	-22.7377** (7.3166)	-2.15
Total no. of Observations	109		
Number of panels	5		
R-squared (overall)	0.8897		
Wald chi squared (16)	741.81		
Sigma_u	0		
Sigma_e	0.4378		
rho	0 (friction of variance due to u_i)		

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.6 Conclusion

In this chapter we have estimated an augmented gravity model to figure out the major determinants of intra-regional FDI in South Asia. We have found that the major factors

that matter regional FDI are GDP, labor force, infrastructure, natural resources, real exchange rate, FDI in the last years, good governance/corruption and level of business freedom etc. One of the limitations of the model used for this chapter is that we have used total regional FDI flow to a host country as the dependent variable. Bilateral FDI flow might be a better option, however, lack of proper data restricted our attempt to perform such estimation. Nevertheless, using total regional FDI flow to an individual country makes this study different from other similar studies in South Asia.

CHAPTER 6

INTRA REGIONAL TRADE, INTRA REGIONAL FDI AND ECONOMIC INTEGRATION: THE PERSPECTIVE OF SOUTH ASIA

6.1 Introduction

Economic cooperation and integration in the regional level can bring economic prosperity through expanding markets and creating opportunities of greater trade. Some scholars even identify regional cooperation as a way of coping with the competitive global economy for developing countries. Countries within a region that are featured by similar production capabilities and same level in technological development and productivity can easily cooperate with each other. They can engage in various trade and investment agreements without facing many structural difficulties. Moreover, regionally integrated countries enjoy the benefits of proximity, familiarity and low transport cost.

Many Asian countries have achieved remarkable rise in their economies since the early 1980s. There are a number of factors behind their sustained economic growth. In this connection, regional integration through trade liberalization has acted as one of the most important driving forces of development. East Asia has been among the most dynamic and integrated regions in the world that has established a new era of improved efficiencies and higher productivity. Most of the countries in the region including main land China, South Korea, Hong Kong and Singapore have welcomed overwhelmingly the export oriented trade strategies. As a result, these countries experienced increasing momentum of GDP growth and huge sums of FDI inflow from the period of 1978.

On the other side of Asia, one of the least integrated regions that has followed growth-retarding import substitution policies since the Post-Second World War is South Asia. The countries of the region put these ineffective policies and programs for a long period of

time rather embracing outward-oriented strategies. While most other parts of Asia grew very fast the economies of South Asia stagnated. Political conflict which is featured as one of the major driving forces of State formation in the region has further aggravated the situation.

It is widely acknowledged that intra-regional trade and investment has not got developed yet in South Asia. Almost all of the countries in the region still do business with distant partners and there exists a very disproportionate bias toward extra-regional trade and investment. Data shows that in 2012 total trade volume of the region amounted to be US\$ 877839.13 million of which only 3.22 per cent or US\$ 28251.18 million was intra-regional (ADB, 2012a). Compared to other emerging regions of Asia such as the ASEAN or the Southeast Asia, the same indicators were 24.56 per cent and 24.56 per cent respectively. The following table shows the differences.

Table 6. 1 : Intra Regional Trade share (%) for Three Regions in Asia

Year	ASEAN	South Asia	Southeast Asia
1990	16.96	1.91	16.96
1991	18.06	2.62	18.06
1992	18.54	2.83	18.54
1993	19.63	3.14	19.63
1994	21.28	3.37	21.28
1995	20.98	4.11	20.98
1996	21.19	4.45	21.19
1997	21.34	3.89	21.34
1998	21.02	4.38	21.02
1999	21.76	3.52	21.76
2000	22.74	3.94	22.74
2001	22.15	4.50	22.15
2002	22.65	4.57	22.65
2003	24.44	5.11	24.44
2004	24.44	4.73	24.44
2005	24.86	4.34	24.86
2006	24.85	3.82	24.85
2007	25.01	3.88	25.01
2008	24.85	3.64	24.85
2009	24.31	2.95	24.31
2010	24.62	3.15	24.62
2011	24.26	3.21	24.26
2012	24.56	3.22	24.56

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

With this background, the present chapter focuses on intra-regional trade and intra-regional FDI in South Asia. The chapter is planned as it follows: the immediate next section describes about the theoretical framework of globalism and regionalism in an attempt to shape the definition of a 'region' or a 'regional bloc'. Then the history of evolution of integration in South Asia is discussed. Next, intra-regional trade scenarios as well as intra-regional FDI flows in the countries of South Asia are analyzed using recent data before performing an empirical estimation of the impact of integration on intra-regional trade and FDI in South Asia. Next a comparative analysis of intra-regional trade flows in South Asia and the ASEAN is also provided in an independent section. An analysis for simulation of intra regional trade and intra regional FDI in South Asia is also done before the last section concludes the chapter.

6.2 Theoretical Framework of Globalism and Regionalism

The concept of globalism implies a borderless world system. In the post-Second World War period, the sense of geographical distance started to reduce and the concept of 'one global village' emerged. Despite the fact that the meaning of globalization and regionalization are intricately related to each other, the earlier is a new phenomenon in the literature of social science. Regionalism has an impressive theoretical background while globalism is a recent fact. Globalization creates such a competitive world environment where larger regional bodies such as the European Union, the North American Free Trade Area (NAFTA) and the Association of the Southeast Asian Nations (ASEAN) are necessarily formed to ensure both economic efficiency and political strength needed to face the rules and institutions that govern the world economy. Such economic integration which ranges from preferential trade arrangements (PTA) to free trade area (FTA) and custom union (CU) to economic union (EU) belongs to one or several regions and serves as a link for cooperation in the broad fields of economic, socio-political and cultural issues Iqbal (2006).

Later in order to stimulate trade and investment in the region, the leaders of the nations discovered the need of a different and independent forum. Then the SAARC Preferential Trading Arrangement (SAPTA) was established in 1995. The SAPTA agreement is considered as one of the major initiatives to achieve broader integration of the economies in the region through regional trade liberalization and economic cooperation. The main objective of this arrangement was to encourage intra-regional cooperation in trade by reducing import tariffs on listed items. SAPTA was expected to give preferential treatment to its member countries especially those who are least developed by gradual reduction of tariff and other related trade barriers.

On the contrary, regions are defined as a group of States that are linked by geographical relationship and mutual independence. Regional integration harmonizes trade policies for achieving deeper economic integration at the beginning phase and political integration at the end. Regionalism itself acts in two different ways: to promote regional cooperation by offering a model or to provoke regional integration by creating protectionist threat. Regions sometimes emerge as arenas for competition and appear to be effective regional actor in order to converge national interest. According to Iqbal (2006), the study of regionalism lies in the problem of how conflict can be avoided and how cooperation and stability can be maintained.

6.3 Evolution of Integration in South Asia: From SAARC to SAFTA

The talk of regional integration in South Asia has not started until 1980 when the nations of the region for the first time realized that a viable regional bloc of their own is needed for economic and political cooperation. Then the South Asian Association for Regional Cooperation (SAARC) was established in 1985. The major aim of SAARC was to promote welfare for all the countries of South Asia through mutual cooperation and active collaboration. Although the ultimate objective was to improve quality of life for all the

people of the region, the aims and objectives of SAARC are many: from political welfare to economic growth to cultural integration.

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As a final step of the integration process, the South Asian Free Trade Area (SAFTA) was introduced in 2004 and was adopted in 2006 in order to further strengthen intra regional trade by greater economic cooperation. SAFTA then became in force as a parallel initiative to raise multilateral trade liberalization in the region. The principal objective of SAFTA is to realize more intra regional trade and investment by reducing tariffs to the range of 0 to 5 per cent over ten years period. The member States came to an agreement under the SAFTA regime that the non-least developed countries such as India, Pakistan and Sri Lanka will set their custom tariff under 5 per cent by 2013. The other members who are categorized as least developed nations namely Afghanistan, Bangladesh, Bhutan, Maldives and Nepal are to reduce or eliminate tariffs by 2016. The following table represents major integration initiatives in South Asia.

Table 6. 2 : Evolution of Economic Integration in South Asia

First South Asia Foreign Secretaries' Meeting, 1981	
	Technical Co-operation in five selected areas (agricultural, telecommunication, rural development, meteorology, and health and population)
First South Asia Foreign Ministers' Meeting, 1983	
	Launched the Integrated Programs of Actions (IPA) through South Asian Regional Cooperation, foreign ministers began to meet on a regular basis
Establishment of SAARC, 1985	
	Objectives are defined on a wide range of issues including: promoting welfare, accelerating economic growth, strengthening collective self-reliance, etc. A Secretariat was set up in Nepal and a set of IPAs is discussed under SAARC
South Asian Preferential Trading Arrangement (SAPTA), 1995	
	Signed in 1993 by the Council of Ministers Operational in December 1995; notified the WTO as a PTA
Different rounds of tariff cut under SAPTA	
	SAPTA-1 (226 6-digit HS items) concluded in 1995, SAPTA-2 (1800 6-digit HS items) concluded in 1997, SAPTA-3 (2700 6-digit HS items) concluded in 1998, SAPTA-4 initiated in 1999 but postponed. Talks began again in 2002.
South Asian Economic Union (SAEU) – Stage 1	
Setting up of a Free Trade Area (SAFTA)	
	Agreed in 1996 to move toward SAFTA by 2005. In 1997, the above deadline brought forward to 2001. The postponed 11th SAARC summit held in January 2002 that directed the Council of Ministers to finalize the draft of SAFTA treaty by the end of 2002. The Group of Eminent Persons (GEP) Report (SAARC Secretariat, 1999) recommended setting up SAFTA by 2008 (for LDC members this deadline is 2010)
SAEU – Stage 2	
	Setting up of a South Asian Customs Union (SACU) by 2015 (the GEP Report)
SAEU – Stage 3	
	Setting up of an SAEU by 2020 (the GEP Report)
South Asian Free Trade Area	
	Signed in 2004 by Foreign Ministers of Member Countries Operational since 1 January 2006 with difficulties relating to its implementation
SAARC Agreement on Trade in Services (SATIS)	
	Signed in 2010 at the 16th SAARC Summit in Thimphu, Adjunct to the SAFTA Agreement will be operational upon ratification by the member countries.

Source: Bandara & Yu (2003) in Moinuddin (2013).

In addition to above initiatives, as the latest development, the SAARC Agreement on Trade in Services (SATIS) has been signed in 2010 and recently three bilateral free-trade agreements (FTA) have been formulated. These are India-Bhutan, India-Sri Lanka and

Pakistan-Sri Lanka bilateral FTAs. Some other trade agreements that incorporate South Asian countries include the Asia-Pacific Trade Agreement (APTA) and the Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation (BIMSTEC). Moreover, some bilateral investment treaties (BIT) such as India-Bangladesh BIT, India-Sri Lanka BIT and Pakistan-Sri Lanka BIT etc. have been adopted in the recent past to stimulate regional FDI in the region.

6.4 Intra Regional Trade in South Asia

Table 6. 3 : Total Regional Trade by South Asian Countries (in million US\$)

Year	Afghanistan	Bangladesh	India	Maldives	Nepal	Pakistan	Sri Lanka
1990	80.23	224.68	495.31	23.38	92.00	344.30	170.64
1991	32.70	238.90	619.44	32.47	115.28	339.07	262.64
1992	44.76	309.21	714.85	36.80	124.25	500.67	383.13
1993	35.60	418.70	814.64	39.71	108.00	366.61	396.66
1994	23.96	524.35	1044.19	50.43	122.82	379.14	471.00
1995	25.53	1070.01	1636.08	57.57	158.23	421.01	551.00
1996	33.82	1063.26	1668.14	70.18	528.60	532.20	650.00
1997	42.85	862.40	1680.63	84.12	545.50	453.22	664.00
1998	50.15	1279.18	1782.60	87.84	607.80	640.13	643.72
1999	53.13	1106.72	1679.40	95.13	335.73	501.87	646.04
2000	60.20	1018.46	2015.33	102.09	892.20	534.67	795.16
2001	47.25	1279.97	2324.24	108.66	978.80	559.77	771.51
2002	79.04	1207.89	2836.01	115.50	951.00	456.86	1094.82
2003	176.61	1579.06	4100.47	128.13	1262.40	655.97	1417.79
2004	216.28	1846.64	4571.66	149.87	1500.90	1045.12	1933.91
2005	220.04	2109.14	5612.02	143.61	1778.20	1444.50	2475.36
2006	230.63	2273.84	6038.57	131.87	2049.93	1998.85	2745.85
2007	344.17	2940.88	8375.87	166.42	2560.64	2750.86	3225.75
2008	521.80	3956.69	8228.70	190.24	2804.91	2925.74	3963.17
2009	635.77	3117.50	6680.94	173.89	2011.34	2027.00	2239.32
2010	576.29	4299.85	10107.26	200.30	2625.04	3557.23	3146.47
2011	694.76	5511.57	13663.09	227.56	3497.92	3290.39	5097.47
2012	676.44	5366.56	14245.76	217.08	3870.01	3360.62	4552.06

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

Table 6.3 above depicts intra-regional trade of South Asia. Data of the period from 1990 to 2012 shows that trade between countries has increased but not significantly. Trade

shares of Afghanistan, Maldives and Nepal are very small compared to other big economies. India mostly dominates the region's trade. Small regional trade of the economies in South Asia indicates that they seem to be ignoring the RTAs such as the SAFTA or SAARC rather they are more interested to intensify their market access in other distant regions such as the USA or European countries.

The data enclosed in the next table of 6.4 describes the comparative situation of South Asian trade with the world as well as within the region. Export growth, import growth, total trade growth and total trade volume are reported. The first half of the table indicates the trade statistics of South Asia with the region itself and the second part gives an overview of various trade indices with the world from 1991 to 2012. A careful attention to the data of the mid 1990s and in 1995 for the case of trade within the region indicates that all the growth indices increased dramatically. Probably, the adoption of SAPTA agreement gave a sudden push in regional trade in the 1990s. Later the growth of export, import and total trade again decreased. Total trade volume, however, increased gradually. In the second half of the table, South Asia's trade with the global economy is reported. A similar trend to the regional trade is seen in the case of total trade volume. Total trade has increased gradually from US\$48513.23 million in 1991 to US\$122456.99 million in 2000 to US\$877839.13 million in year 2012. While export growth of South Asia has been fluctuated, the other indicators such as import growth and total trade growth were increasing gradually. It is indicative that trade of South Asia with the world is growing very fast whereas the regional trade is not growing with such a rapid pace.

Table 6. 4 : South Asia's Trade with the World and Within the Region

	Year	Export Growth (%)	Import Growth (%)	Total Trade Growth (%)	Total Trade, in million US\$
	1991	25.71	26.59	26.12	1268.73
	1992	12.42	36.51	23.61	1568.24
	1993	11.91	14.73	13.36	1777.72
	1994	25.47	23.55	24.47	2212.79
	1995	52.00	61.60	56.95	3472.89
	1996	3.64	24.32	14.61	3980.17
	1997	1.96	-7.72	-3.61	3836.64
	1998	9.15	19.25	14.71	4401.14
	1999	-8.24	-15.20	-12.23	3863.02
South Asia vs South Asia	2000	25.71	24.17	24.86	4823.24
	2001	10.96	15.15	13.27	5463.17
	2002	25.21	4.43	13.58	6205.22
	2003	41.54	32.29	36.79	8487.85
	2004	12.54	23.21	17.85	10002.97
	2005	21.27	21.03	21.15	12118.33
	2006	6.41	11.89	9.26	13240.07
	2007	33.97	27.33	30.43	17269.56
	2008	0.04	20.85	10.85	19143.71
	2009	-19.61	-30.37	-25.70	14222.99
	2010	49.15	38.09	43.28	20378.93
	2011	33.97	40.65	37.39	27997.61
	2012	5.45	-3.22	0.91	28251.48
	1991	1.00	-14.04	-7.86	48513.23
	1992	11.76	16.56	14.39	55496.15
	1993	8.60	-3.36	1.90	56551.99
	1994	14.76	17.10	16.00	65602.04
	1995	24.30	32.52	28.70	84432.82
	1996	6.05	5.98	6.01	89510.00
	1997	8.01	11.99	10.21	98645.51
	1998	-1.20	4.13	1.79	100411.50
	1999	6.72	11.33	9.36	109814.91
	2000	19.18	6.04	11.51	122456.99
South Asia vs World	2001	0.24	-1.68	-0.82	121449.33
	2002	12.35	11.55	11.91	135913.01
	2003	19.40	24.47	22.18	166059.82
	2004	22.30	31.36	27.36	211497.05
	2005	27.26	35.68	32.11	279418.53
	2006	22.87	24.71	23.96	346372.40
	2007	25.50	30.36	28.39	444722.30
	2008	14.55	20.52	18.16	525484.65
	2009	-6.48	-9.49	-8.34	481672.79
	2010	32.63	35.11	34.14	646111.89
	2011	37.18	33.36	34.84	871213.98
	2012	-3.81	3.72	0.76	877839.13

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

The next table 6.5 includes several trade indices such as exports share, imports share and total trade for individual South Asian countries. These data are presented as percentages of the respective country's total exports, total imports and total trade within the region. Data for some smaller economies such as Bhutan and Afghanistan were not included because of the lack of such data for these countries. It is indicative that smaller economies such as Maldives, Nepal and Sri Lanka have performed better than the larger economies.

Table 6. 5 : Various Intra Regional Trade Integration Index for the Countries of South Asia

Reporter	Partner	Indicator	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bangladesh	SouthAsia	ExportGrowth(%)	N/A	36.14	-11.55	21.30	-29.93	42.75	26.41	59.96	34.83	40.50	33.08	-14.28	19.08	62.73	0.08
Bangladesh	SouthAsia	ExportShare(%)	2.24	1.84	0.98	1.16	0.86	1.07	1.11	1.58	1.56	2.01	2.49	2.02	2.10	2.44	2.53
Bangladesh	SouthAsia	ImportGrowth(%)	N/A	110.02	-7.76	25.93	-4.30	30.25	16.53	12.03	5.97	28.37	34.68	-21.86	39.86	25.16	-2.94
Bangladesh	SouthAsia	ImportShare(%)	5.12	15.59	10.71	13.46	14.80	15.13	15.21	14.26	13.00	14.54	15.17	12.94	14.22	13.67	14.06
Bangladesh	SouthAsia	TradeShare(%)	4.22	11.12	6.98	8.68	9.09	9.73	9.63	9.44	8.20	9.44	10.56	8.60	9.70	9.30	9.51
India	SouthAsia	ExportGrowth(%)	N/A	53.33	19.14	12.22	28.83	49.44	8.12	18.50	8.10	39.33	0.33	-18.73	53.33	36.38	5.67
India	SouthAsia	ExportShare(%)	2.49	4.83	3.83	4.23	4.67	5.77	5.06	4.60	4.05	4.42	3.84	3.36	3.81	3.78	4.14
India	SouthAsia	ImportGrowth(%)	N/A	95.66	23.83	28.53	-3.27	20.57	32.17	44.08	5.54	36.08	-10.77	-19.18	41.31	28.82	-3.63
India	SouthAsia	ImportShare(%)	0.22	0.47	0.76	0.98	0.81	0.78	0.76	0.78	0.65	0.67	0.50	0.44	0.46	0.44	0.41
India	SouthAsia	TradeShare(%)	1.18	2.52	2.17	2.49	2.59	3.03	2.61	2.36	2.03	2.15	1.79	1.58	1.76	1.77	1.81
Maldives	SouthAsia	ExportGrowth(%)	N/A	-5.51	10.43	23.04	-17.31	11.66	-0.69	10.10	39.74	-26.63	-2.87	8.86	124.22	-13.72	-29.19
Maldives	SouthAsia	ExportShare(%)	13.98	22.62	18.13	22.20	15.49	13.92	12.69	17.38	14.70	11.59	9.52	16.29	30.98	18.38	12.17
Maldives	SouthAsia	ImportGrowth(%)	N/A	20.26	6.84	3.83	10.68	10.83	19.43	-5.83	-14.67	37.94	16.34	-10.31	2.12	20.80	0.01
Maldives	SouthAsia	ImportShare(%)	11.67	12.98	22.69	23.33	25.96	23.89	20.82	16.98	12.26	13.59	12.40	15.24	13.13	12.90	13.55
Maldives	SouthAsia	TradeShare(%)	12.31	14.16	21.95	23.14	23.99	21.96	19.52	17.02	12.64	13.35	12.07	15.34	14.92	13.54	13.37
Nepal	SouthAsia	ExportGrowth(%)	N/A	109.58	82.11	16.37	1.95	-5.89	22.52	28.71	4.05	12.25	-0.40	-30.90	17.00	1.35	2.59
Nepal	SouthAsia	ExportShare(%)	7.35	9.09	42.89	47.74	60.09	53.82	57.96	66.97	68.26	72.48	70.89	65.08	65.61	62.49	62.47
Nepal	SouthAsia	ImportGrowth(%)	N/A	18.41	251.27	6.17	-5.62	56.99	17.53	14.46	20.23	29.74	12.82	-27.53	34.27	40.98	12.04
Nepal	SouthAsia	ImportShare(%)	13.04	16.79	37.13	39.53	41.87	57.52	58.52	59.61	61.88	62.34	61.06	57.93	57.47	58.23	52.29
Nepal	SouthAsia	TradeShare(%)	11.53	14.50	38.94	42.20	47.41	56.46	58.36	61.69	63.52	64.59	63.03	59.35	58.90	58.82	53.49
Pakistan	SouthAsia	ExportGrowth(%)	N/A	5.46	-6.26	-6.36	-13.48	48.94	45.01	48.05	-24.12	11.43	28.45	2.40	14.83	36.50	0.35
Pakistan	SouthAsia	ExportShare(%)	3.98	3.16	3.18	2.87	2.32	2.86	3.72	4.56	3.36	3.28	3.66	4.65	4.36	4.97	5.00
Pakistan	SouthAsia	ImportGrowth(%)	N/A	20.64	25.78	17.10	-22.78	38.20	74.83	29.38	102.63	47.70	-0.06	-43.08	116.23	-23.19	3.27
Pakistan	SouthAsia	ImportShare(%)	1.65	1.47	2.35	2.90	2.03	2.41	3.10	2.80	4.22	5.33	4.58	3.83	6.00	3.95	4.01
Pakistan	SouthAsia	TradeShare(%)	2.65	2.16	2.73	2.89	2.16	2.63	3.37	3.48	3.94	4.67	4.29	4.12	5.46	4.29	4.34
SriLanka	SouthAsia	ExportGrowth(%)	N/A	34.88	42.90	-16.97	71.28	37.70	49.09	30.55	-11.23	8.82	-16.95	-21.93	44.51	12.61	10.55
SriLanka	SouthAsia	ExportShare(%)	1.98	1.53	2.93	2.81	4.86	6.10	8.11	9.55	7.87	7.10	5.46	4.79	5.86	5.46	6.77
SriLanka	SouthAsia	ImportGrowth(%)	N/A	15.19	18.93	0.55	35.80	27.35	32.80	27.19	18.17	19.60	31.75	-46.53	39.69	72.51	-13.65
SriLanka	SouthAsia	ImportShare(%)	5.05	11.00	9.50	11.14	14.40	16.55	18.33	21.05	21.50	23.45	25.07	18.39	20.15	21.66	22.77
SriLanka	SouthAsia	TradeShare(%)	3.77	6.65	6.55	7.38	10.23	12.01	14.06	16.24	16.02	16.51	17.36	12.39	14.11	15.90	16.78

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

Then table 6.6 shows various trade and import intensity indexes of individual South Asian countries such as export intensity index and trade intensity index. Definitions of these indexes are given by the Asia Regional Integration Center (ARIC) of Asian Development Bank (ADB). While Export intensity index is the ratio of export share of a country/region to the share of world export going to a partner, trade intensity index is defined as the ratio of trade share of a country/region to the share of world trade with a partner. According to the Asia Regional Integration Center (ARIC), an index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade. Interestingly, all South Asian countries show better indexes with some exceptions. Probably, such high index for the indicators is a result of their very small shares in the total world trade.

Table 6. 6 : Various Trade and Export Intensity Index of South Asian Countries

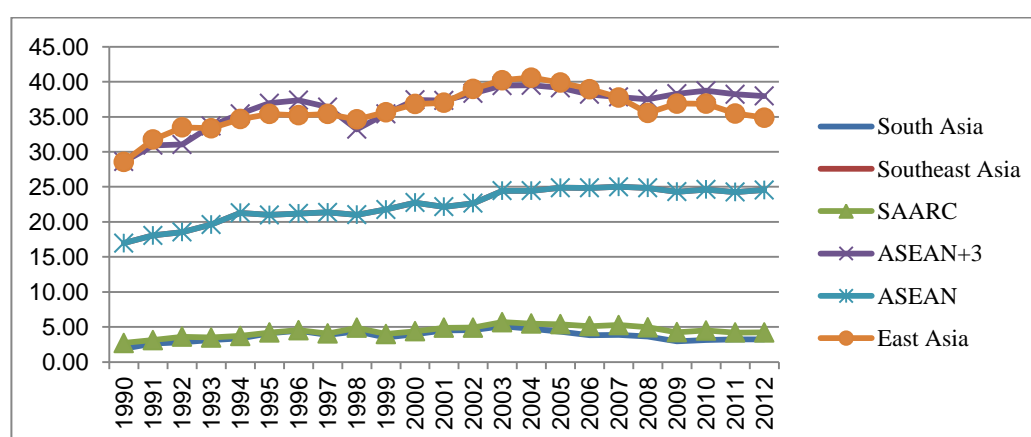
Year	Bangladesh		India		Maldives		Nepal		Pakistan		Sri Lanka	
	Trade Intensity	Export Intensity	Trade Intensity	Export Intensity	Trade Intensity	Export Intensity	Trade Intensity	Export Intensity	Trade Intensity	Export Intensity	Trade Intensity	Export Intensity
1990	5.32	2.58	1.50	2.87	15.53	16.12	14.55	8.47	3.35	4.59	4.75	2.28
1991	6.52	3.27	2.31	4.43	21.01	26.15	21.21	9.29	3.17	4.57	7.25	1.96
1992	7.37	1.00	2.32	4.57	22.11	34.10	20.60	15.96	4.14	6.52	8.45	1.34
1993	7.83	1.43	2.27	4.19	20.69	35.28	13.97	5.45	2.66	3.73	6.80	1.45
1994	8.44	1.82	2.45	4.54	21.79	28.46	14.52	4.56	2.72	3.73	7.38	1.54
1995	12.53	1.98	2.84	5.19	15.96	24.31	16.35	9.77	2.44	3.40	7.50	1.64
1996	11.14	0.75	2.62	4.87	20.93	19.31	33.17	21.42	2.66	2.68	7.89	1.84
1997	8.58	1.22	2.38	4.47	21.48	16.73	28.65	26.31	2.39	2.72	7.17	1.84
1998	12.21	2.04	2.51	4.81	21.90	18.17	34.61	37.77	3.85	5.13	6.21	1.88
1999	8.90	1.33	2.08	3.70	21.14	19.00	19.59	28.64	2.77	3.47	6.15	2.35
2000	7.45	1.04	2.31	4.04	23.41	19.14	41.55	45.27	2.91	3.36	6.98	3.09
2001	9.46	1.31	2.71	4.79	25.22	25.17	45.99	54.13	3.15	3.26	8.04	3.19
2002	9.36	0.91	2.67	4.98	24.70	16.51	48.82	64.04	2.23	2.47	10.54	5.18
2003	9.51	1.06	2.96	5.75	21.46	13.87	55.17	53.63	2.57	2.85	11.74	6.08
2004	8.70	1.04	2.36	4.73	17.64	11.87	52.75	54.23	3.04	3.48	12.71	7.59
2005	7.88	1.32	1.97	3.83	14.22	14.47	51.51	55.75	2.91	3.80	13.56	7.95
2006	5.89	1.02	1.46	2.67	9.09	9.68	45.66	44.94	2.83	2.21	11.52	5.18
2007	5.85	1.08	1.34	2.38	8.28	6.23	40.05	38.97	2.90	1.76	10.24	3.82
2008	5.86	1.19	1.00	1.83	6.70	4.55	35.00	33.85	2.38	1.75	9.64	2.61
2009	4.52	0.90	0.83	1.49	8.06	7.24	31.19	28.93	2.17	2.07	6.51	2.13
2010	4.53	0.82	0.82	1.50	6.97	12.18	27.49	25.80	2.55	1.71	6.59	2.30
2011	4.14	0.93	0.79	1.44	6.03	6.99	26.18	23.78	1.91	1.89	7.08	2.08
2012	4.21	0.95	0.80	1.54	5.92	4.54	23.68	23.32	1.92	1.87	7.43	2.53

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

6.4.1 Comparison of Trade Integration in South Asia and the ASEAN

According to Ahmed & Ghani (2007), if integration is measured as a progress in regional cooperation of nation States through intra-regional trade in goods, capital and ideas then South Asia is the least integrated region in the world. The next figure 6.1 shows degree of integration during the period of 1990 to 2012 for some regional blocs in Asia. As it is reported by the Asian Development Bank, East Asia and ASEAN+3 are the most integrated areas. Among the regions, South Asia and the SAARC are the least integrated ones. Regional total trade in million US\$ presented in the figure indicates that both SAARC and South Asia have less regional trade than the ASEAN. In 1990, ASEAN's intra-regional trade was estimated as US\$ 52210.39 million against only a mere US\$1006.01 million for South Asia. Similarly in the most recent year in 2012, South Asian countries traded only US\$ 28251.48 million regionally while ASEAN has reported a total trade of US\$ 611096.37 million. In both cases, ASEAN's intra-regional trade is much higher than that of South Asia. Compared to ASEAN or the Southeast Asian regions cross-border investment, cross-border movement of people, technology transfer or royalty payments are also smaller in South Asia.

Figure 6. 1 : South Asia's Integration Compared to Other Regions in Asia



Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

6.5 Intra Regional FDI Profile of South Asia

It is evident that South Asian countries except Bhutan and Afghanistan have implemented economic reform policies in order to raise their shares of benefits from international trade and FDI. Industrial policies that they have introduced during the reform era of 1990s have imposed a positive impact on intra regional FDI flows despite the fact that still today the total FDI inflow of South Asia region relative to the ASEAN or the East Asian countries is too small to compare.

Almost all of the countries in South Asia followed import substitution policies in the root of their national development strategy for a long period of time during the post Second World War era. None of the nations were very receptive to international trade and foreign direct investment but from the late 1990s, they started to encourage export-oriented FDI. In the case of outward FDI, these countries followed even more restrictive policies. But by the mid-1990s, some South Asian countries began to open their doors and started to liberalize their economies through market friendly reforms. Within the last three decades, these countries achieved various commonalities in their institutional settings and other macroeconomic policy perspectives. Tariff levels in these countries were lowered substantially and at present all the countries of the region except Bhutan achieved IMF Article 7 status. All of the member States now follow investment friendly policies to become more receptive to FDI. FDI liberalization has brought into various measures such as attractive financial incentives, fast tracking of FDI approvals, procedural simplifications and signing investment protection agreements with source nations in all of the South Asian countries. Outward FDI regimes too have become more liberalized now-a-days in these countries.

6.5.1 Regional Integration and FDI: The link

Regional economic integration can reduce trade cost, broaden market access and improve policy credibility for individual economies. Integration among a myriad of other factors is also expected to promote FDI. Athukorala (2013) suggests two dimensions of FDI to indicate the impact of regional economic integration on the FDI-Trade nexus. These are horizontal investment or market-seeking FDI (HFDI) and vertical investment or efficiency-seeking FDI (VFDI). Horizontal investment or market-seeking FDI (HFDI) reduces trade cost for multi-national enterprises (MNEs) through eliminating transport cost of exporting goods from one country to another because MNEs produce the same goods or services in different countries or locations. Vertical investment or efficiency-seeking FDI (VFDI), by contrast, fits to MNEs that like to fragment production of goods into a number of stages in order to improve efficiency and productivity. According to Athukorala (2013), HFDI can promote intra regional trade through enlargement of market. Trade between countries in the same region may further increase if the member countries have similarities in income and demand but diversity in preferences. The same author indicates that formation of a RTA or regional trading agreement can attract more HFDI inflow through creating incentives for new investments. Liberalization of the economies in the same region may expand markets and thus facilitate better utilization of resources, which ultimately benefits the HFDI regimes of all members. On the other hand, RTAs among developing countries have limited impact on intra regional VFDI flows because member countries have very similar factor endowments; however, VFDI may take place in the case of economic integration among developing countries that have differences in their stages of development.

6.5.2 Intra Regional FDI Scenarios in South Asia

In the next two tables (Tables 6.7 and 6.8), inward foreign direct investment and inward foreign direct investment stock data for individual South Asian countries from 1972

to 2013 have been presented. Sri Lanka, India, Bangladesh and Pakistan have performed the best in attracting FDI while Afghanistan, Bhutan and Maldives performed very poorly. After presenting inward FDI, outward FDI data for individual countries of South Asia during the period of 1990 to 2012 are also presented in a later part in table 6.9. According to data, India and Sri Lanka played better than their other regional counterparts. It is indicative from the same table that South Asia's regional FDI outflow as a percentage of total outflows from developing countries is also very small.

Table 6. 7 : Inward Foreign Direct Investment Flows for Individual South Asian Countries in Million US\$ (annual, 1972-2013, current prices and current exchange rates)

	Afghanistan	Bangladesh	India	Maldives	Nepal	Pakistan	Sri Lanka
1972	0.15	0.09	17.79	0.00	0.03	17.00	0.30
1975	0.00	1.54	85.09	1.97	0.00	25.00	-0.10
1980	9.00	8.51	79.16	-0.13	0.30	63.63	42.90
1985	0.00	-6.66	106.09	1.21	0.65	47.44	24.40
1990	0.00	3.24	236.69	5.60	5.94	278.33	43.35
1991	-0.28	1.39	75.00	6.50	2.22	271.92	67.00
1992	0.36	3.72	252.00	6.60	0.00	360.57	122.63
1993	-0.02	14.05	532.00	6.90	0.00	399.30	194.49
1994	0.02	11.15	974.00	8.74	0.00	789.34	166.41
1995	-0.09	92.30	2151.00	7.23	0.00	492.10	65.00
1996	0.69	231.61	2525.00	9.32	19.16	439.31	133.00
1997	-1.46	575.29	3619.00	11.41	23.06	711.00	433.00
1998	-0.01	576.46	2633.00	11.50	12.02	506.00	150.00
1999	6.04	309.12	2168.00	12.30	4.35	532.00	201.00
2000	0.17	578.64	3587.99	22.26	-0.48	309.00	172.95
2001	0.68	354.47	5477.64	20.50	20.85	383.00	171.79
2002	50.00	328.31	5629.67	24.67	-5.95	823.00	196.50
2003	57.80	350.25	4321.08	31.77	14.78	534.00	228.72
2004	186.90	460.40	5777.81	52.93	-0.42	1118.00	233.00
2005	271.00	845.26	7621.77	73.23	2.45	2201.00	272.00
2006	238.00	792.48	20327.76	95.23	-6.65	4273.00	480.00
2007	188.69	666.36	25349.89	132.43	5.89	5590.00	603.40
2008	94.39	1086.31	47138.73	181.26	1.01	5438.00	752.20
2009	75.74	700.16	35657.25	157.96	38.56	2338.00	404.00
2010	211.25	913.32	27431.23	216.47	86.74	2022.00	477.60
2011	83.41	1136.38	36190.40	256.46	95.49	1326.00	981.10
2012	93.80	1292.56	24195.77	283.98	91.98	859.00	941.12
2013	69.29	1599.13	28199.45	325.26	73.63	1307.00	915.57

Source: UN Conference on Trade and Development (UNCTAD) data base

Table 6. 8 : Inward Foreign Direct Investment Stock of South Asian Countries (Million US\$)

Year	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
1980	11.10	460.99	0.42	451.75	4.86	1.24	691.31	230.51
1981	11.28	466.35	0.42	543.67	4.83	1.01	694.49	299.50
1982	11.38	473.31	0.42	615.75	1.95	0.98	662.73	396.74
1983	11.38	473.71	0.42	621.39	2.19	0.38	706.13	425.34
1984	11.38	473.16	0.42	640.63	2.05	1.33	676.97	462.69
1985	11.38	466.50	0.42	746.72	3.26	1.98	1079.25	517.00
1986	11.38	468.94	0.42	864.45	8.66	3.15	1297.95	541.60
1987	11.78	472.15	0.42	1076.77	13.76	4.54	1351.49	604.57
1988	11.78	473.99	0.42	1168.02	14.96	5.22	1257.42	618.00
1989	11.78	474.24	0.42	1420.12	19.36	5.64	1422.13	635.90
1990	11.78	477.48	2.02	1656.81	24.96	11.58	1891.70	679.25
1991	11.50	478.87	2.62	1731.81	31.46	13.80	2059.89	746.25
1992	11.86	482.59	2.62	1983.81	38.06	13.80	2603.01	868.88
1993	11.84	496.64	2.62	2515.81	44.96	13.80	2586.28	1063.37
1994	11.86	507.79	2.62	3489.81	53.70	13.80	3860.12	1229.78
1995	11.77	600.09	2.67	5640.81	60.93	13.80	5408.08	1294.78
1996	12.46	831.69	4.07	8165.81	70.25	32.96	6993.63	1427.78
1997	11.00	1407.00	3.37	10630.10	81.66	56.02	9210.31	1860.78
1998	10.99	1833.00	3.37	14065.36	93.16	68.05	8541.91	2010.78
1999	17.03	1890.59	4.42	15051.81	105.46	72.40	7185.54	2211.78
2000	17.20	2161.76	4.42	16338.95	127.72	71.91	6918.62	1596.21
2001	17.88	2202.20	4.42	19675.92	148.22	116.20	5545.25	1516.66
2002	67.88	2450.69	6.50	25826.28	172.89	110.25	6110.10	1713.16
2003	125.68	2875.97	9.03	32549.19	204.66	125.03	7195.00	1941.88
2004	312.58	3090.68	12.50	38060.24	257.60	124.61	7606.00	2174.88
2005	583.58	3537.15	21.60	43201.58	330.83	127.06	10209.00	2446.88
2006	821.58	4187.23	16.44	70870.28	426.06	120.41	13682.00	2927.00
2007	1010.27	4398.78	22.48	105790.49	558.49	126.30	25621.00	3530.40
2008	1104.66	4816.02	26.33	125211.65	739.74	127.31	16473.00	4282.60
2009	1180.39	5278.92	52.82	171217.90	897.71	165.87	17673.00	4686.60
2010	1391.64	6072.07	66.87	205580.17	1114.18	252.61	19828.00	5008.40
2011	1475.06	6165.81	88.46	206353.82	1370.64	348.09	20916.00	5989.50
2012	1568.86	7750.24	141.65	224988.26	1654.62	440.07	23125.00	6930.62
2013	1638.15	8595.70	162.93	226748.44	1979.87	513.70	27589.00	7846.19

Source: UN Conference on Trade and Development (UNCTAD) data base

Table 6. 9 : Outward Flow of FDI from South Asia in Million US\$

Year	South Asia	Bangladesh	India	Pakistan	Sri Lanka	Regional FDI outflow (% of total outflow from developing countries)
1990-94	22.0	0.3	20.3	-3.0	4.4	0.1
1995-99	145.6	4.1	119.8	10.8	10.9	0.2
2004-05	1574.3	7.7	1528.2	29.0	9.4	2.3
2005	3071.8	3.3	2985.5	45.0	38.0	2.3
2006	14426.6	3.6	14285.0	109.0	29.0	6.0
2007	19768.4	21.0	19594.4	98.0	55.0	6.2
2008	19376.5	9.3	19256.5	49.0	61.7	5.9
2009	16047.4	29.3	15927.1	71.0	20.0	6.0
2010	13259.1	15.4	13151.0	47.0	45.7	3.3
2011	14873.2	9.2	14752.0	62.0	50.0	3.9

Source: Athukorala (2013)

In the next tables below various FDI scenarios in South Asian region are presented. According to table 6.10, in 2009 the region's global cumulative FDI inflows, cumulative FDI share, yearly FDI inflows and yearly FDI share have been estimated as US\$179433.77 million, 1.14 per cent, US\$ 36348.94 million and 3.11 per cent respectively. Table 6.11 shows that intra regional FDI is very negligible in South Asia and FDI to the region is mainly coming from countries outside the region. For an instance in 2009 South Asia's cumulative FDI inflows, cumulative FDI share, yearly FDI inflows and yearly FDI share within the region were US\$84.48 million, 0.11per cent, US\$15.36 million and 0.10 per cent respectively. A comparison of intra regional FDI data for South Asia and the ASEAN region indicates that South Asia stands far behind. According to table 6.11, in 2009 the ASEAN's performance for the mentioned FDI indicators were US\$49603.07 million, 28.81 per cent, US\$ 2436.84 million and 7.35 per cent respectively.

Table 6. 10 : Total Global FDI Inflow for South Asian Region (1990-2012)

Year	Cumulative FDI inflows, in million US\$	Cumulative FDI share (%)	FDI inflows, in million US\$	FDI share (%)
1990	239.93	0.10	239.93	0.10
1991	316.32	0.07	76.39	0.04
1992	572.04	0.09	255.72	0.13
1993	1118.09	0.13	546.05	0.23
1994	2103.24	0.18	985.15	0.34
1995	4346.54	0.28	2243.30	0.62
1996	7103.15	0.37	2756.61	0.70
1997	11297.44	0.47	4194.29	0.88
1998	14505.90	0.47	3208.46	0.47
1999	16983.02	0.41	2477.12	0.23
2000	21149.65	0.39	4166.63	0.34
2001	26981.76	0.44	5832.11	0.77
2002	32939.74	0.49	5957.98	1.11
2003	37611.06	0.52	4671.33	0.81
2004	43849.27	0.53	6238.21	0.67
2005	52316.30	0.58	8467.03	0.96
2006	73436.54	0.70	21120.24	1.50
2007	99452.80	0.78	26016.25	1.20
2008	143084.82	0.98	43632.03	2.28
2009	179433.77	1.14	36348.94	3.11

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

Table 6. 11 : Total Intra Regional FDI Scenario in South Asia and ASEAN

Year	Cumulative FDI inflows, in million US\$		Cumulative FDI share (%)		FDI inflows, in million US\$		FDI share (%)	
	South Asia	ASEAN	South Asia	ASEAN	South Asia	ASEAN	South Asia	ASEAN
1995	0.30	7850.30	0.12	32.88	0.30	2007.18	0.24	19.39
1996	1.30	9888.08	0.44	33.29	1.00	2037.78	2.30	34.96
1997	3.00	12099.45	0.72	36.30	1.70	2211.37	1.40	60.98
1998	4.70	13782.35	0.98	37.66	1.70	1682.90	2.69	51.49
1999	4.70	15220.22	0.92	39.42	N/A	1437.87	N/A	71.32
2000	13.10	16534.14	1.27	36.83	8.40	1313.92	1.62	20.93
2001	15.20	19387.77	0.63	29.56	2.10	2853.64	0.15	13.79
2002	19.50	22391.35	0.47	32.73	4.30	3003.58	0.25	106.64
2003	23.00	25457.83	0.38	34.71	3.50	3066.48	0.18	62.15
2004	29.80	27201.46	0.36	36.35	6.80	1743.63	0.31	116.33
2005	36.70	30547.09	0.33	34.87	6.90	3345.63	0.23	26.20
2006	45.42	37707.81	0.18	40.12	8.72	7160.72	0.06	112.37
2007	50.64	41638.65	0.12	34.71	5.22	3930.84	0.03	15.13
2008	69.12	47166.23	0.11	33.93	18.48	5527.58	0.09	29.02
2009	84.48	49603.07	0.11	28.81	15.36	2436.84	0.10	7.35

Source: Asia Regional Integration Center (ARIC) Integration Indicators Database, Asian Development Bank (ADB)

In order to show South Asia's intra regional movement of FDI, data of intra regional FDI flows such as Indian Investment in Bangladesh, Pakistan's Investment in Bangladesh, Sri Lankan Investment in Bangladesh and Indian Investment in Sri Lanka are presented below in tables 6.12 through 6.16. They indicate that India leads regional FDI for South Asia. Other major countries that are also investing within the region are Bangladesh, Sri Lanka and Pakistan. Recent data indicates that intra regional FDI in South Asia is increasing gradually. The major investing firms that are contributing mostly are from India and now-a-days Indian firms are trying to expand their businesses within South Asia and the Asia Pacific region. Firms from Bangladesh and Sri Lanka are also increasing their FDI shares and recently they are trying to undertake more investment within the region. Nepal and Bhutan rely mostly on India because Indian firms predominantly invest in these two countries while investors from other South Asian countries are almost absent in these two countries. In the case of Bangladesh Indian, Pakistani and Sri Lankan firms are expanding their FDI shares in various sectors. In recent years, Bangladesh got US\$418 million in some 133 venture projects

invested by firms from India, Sri Lanka and Pakistan. On the other hand, Pakistan attracts negligible amount of intra regional FDI and none of the South Asian countries is a significant investor in Pakistan. For India, as a host of regional FDI, Bangladesh is the largest investor followed by Sri Lanka, Nepal and Maldives although their combined contribution is almost negligible both in relative and absolute terms compared to India's vast internal market. In 2012, all SAARC countries contributed only 1 per cent of total foreign investment in India. The main sectors that received intra-regional FDI are textile and garment sectors in Bangladesh and Sri Lanka, infrastructure projects in India and power sector in Pakistan.

Table 6. 12: Indian Investment in Bangladesh

Source country	Industry	Number of Firms	Cumulative Investment (Million US\$)	Employment
India	Manufacturing	108	266.08	30243
	Food	18	20.1	2127
	Textile	2	20.4	2177
	Clothing	24	54.2	17699
	Leather products/footwear	3	36.1	2754
	Paper and Paper products	3	2.4	255
	Chemical, rubber and plastic	32	62.1	3626
	Fabricated metal products	17	66.6	886
	Other manufacturing	8	3.7	668
	Construction/Real Estate	4	4.2	468
	Software and IT services	19	8.8	1277
	Trade and services	11	29.6	1479
	Clothing Washing plants	6	7.5	1099
	Total	141	308.14	33416

Source: Athukorala (2013)

Table 6. 13: Pakistan's Investment in Bangladesh

Source country	Industry	Number of Firms	Cumulative Investment (Million US\$)	Employment
Pakistan	Manufacturing	39	93.4	6035
	Food	2	11.5	120
	Textile	6	12.3	672
	Clothing	6	6.8	2943
	Leather products/footwear	1	0.1	30
	Paper and Paper products	2	4.1	322
	Chemical, rubber and plastic	6	1.4	404
	Non-metallic mineral products	1	0.4	27
	Fabricated metal products	10	56.0	1245
	Other manufacturing	4	0.8	257
	Construction/Real Estate	2	1.4	333
	Software and IT services	1	0.5	62
	Trade and services	4	2.5	105
	Total	45	97.6	6520

Source: Athukorala (2013)

Table 6. 14: Sri Lankan Investment in Bangladesh

Source country	Industry	Number of Firms	Cumulative Investment (Million US\$)	Employment
Sri Lanka	Manufacturing	23	29.0	6778
	Food and beverages	2	0.3	151
	Textiles	2	7.4	151
	Clothing	7	10.1	5463
	Chemicals, rubber and plastic	2	0.4	148
	Fabricated metal products	2	0.5	51
	Other manufacturing	8	5.2	814
	Clothing accessories	4	2.8	219
	Software and IT services	4	1.4	151
	Trade and services	6	27.0	1121
	Clothing Washing plants	1	0.5	102
	Total	31	51.4	8050

Source: Athukorala (2013)

Table 6. 15: Indian Investment in Sri Lanka

Period	Total FDI Inflow (million US\$)	FDI from India		India's position among source countries
		Million US\$	Share (%)	
1984-89	50.0	5.1	12.2	12
1990-94	231.0	7.5	3.2	14
1995-99	433.6	7.6	1.7	8
2000	173.5	1.9	1.1	8
2001	121.3	14.4	11.9	5
2002	168.0	101.3	60.3	1
2003	158.4	53.8	34.0	1
2004	214.0	25.2	11.8	4
2005	249.0	17.9	7.2	4
2006	506.2	27.1	5.4	9
2007	644.7	42.9	6.7	4
2008	779.0	126.0	16.2	2
2009	601.0	78.0	13.0	3
2010	516.3	110.2	21.3	1
2011	1067.0	147.0	13.8	2

Sources: The Sri Lanka Board of Investment and Central Bank of Sri Lanka, Monthly bulletin of Statistics (various issues)

Table 6. 16: South Asian FDI in Nepal as at 2011 and 2012

Source country/ sectors	2011			2012		
	Number of Projects	Total Investment (in Million US\$)	FDI (in Million US\$)	Number of Projects	Total Investment (Million US\$)	FDI (in Million US\$)
Bangladesh	26	7.0	3.6	31	7.12	3.8
Agriculture	1	0.1	0.1	1	0.1	0.1
Construction	1	0.1	0.1	1	0.1	0.1
Manufacturing	9	5.8	2.7	9	5.8	2.7
Service	9	0.6	0.4	14	0.9	0.7
Tourism	6	0.3	0.2	6	0.3	0.2
Bhutan	3	0.4	0.0	3	0.4	0.0
Manufacturing	1	0.1	0.0	1	0.1	0.0
Service	1	0.1	0.0	1	0.1	0.0
Tourism	1	0.2	0.0	1	0.2	0.0
India	501	847.4	437.6	525	666.22	361.95
Agriculture	7	10.7	5.6	7	7.9	4.2
Construction	17	30.3	25.3	17	22.5	18.8
Energy based	12	112.6	69.5	13	92.4	60.3
Manufacturing	296	398.4	198.4	303	313.7	152.0
Mineral	6	60.5	30.5	6	44.8	36.32
Service	112	166.9	87.6	125	131.42	71.9
Tourism	51	67.9	20.5	54	53.5	18.43
Pakistan	15	29.3	2.0	17	21.9	1.6
Manufacturing	7	3.8	1.6	7	2.8	1.2
Service	5	25.3	0.3	6	18.7	0.3
Tourism	3	0.3	0.1	4	0.3	0.1
Sri Lanka	4	1.2	0.6	5	0.9	0.5
Service	4	1.2	0.6	5	0.9	0.5
Total	549	885.3	443.9	581	696.54	367.85

Source: Athukorala (2013) and Government of Nepal (2012)

6.6 Impact of Integration on Intra Regional Trade and FDI of South Asia

Literature suggests mixed results for the impact of regional economic integration on bilateral trade and investment of individual South Asian countries. Hassan (2001) used a gravity model specification to relate bilateral trade to traditional gravity variables for selected partner countries in SAARC region. In order to estimate the model, Hassan (2001) collected annual data on bilateral trade flows of the SAARC member countries along with their 27 major trading partners for several years. The author suggests that the member countries have not been benefited yet by trade creation features of the SAARC arrangement. It was also found that both actual intra regional trade within the SAARC region and their total trade with the world are very low compared to the expected amount. The author finally suggests that

more regional integration is to be achieved and liberalization of trade through removal of tariff and nontariff barriers in the member States should be encouraged. Moinuddin (2013), on the other hand, has estimated if the SAFTA agreement could impose viable impact on regional trade integration in South Asia. In the paper “Fulfilling the Promises of South Asian Integration: A Gravity Estimation”, the author has made an effort to examine the trade effects of the South Asian Free Trade Area (SAFTA). This author used data for the member States of the SAFTA and their 43 trading partner countries all over the world for the period 1992-2011. The author emphasized mainly on the trade impact of SAFTA on its member countries. Empirical findings of this paper suggest that the regional dummy SAFTA is associated with trade creation and the author reported that the respective coefficient is positive.

6.6.1 Model Specification

For the purpose of the empirical estimation, we use the following empirical models presented below. The first equation will be estimated to measure the impact of integration on intra regional trade and the second equation will be utilized to estimate the impact of integration on total intra regional FDI flow in South Asia.

$$(1) \quad \text{Ln}(\text{TRT}_{it}) = \mu_0 + \mu_1 \text{Ln}(\text{PCGDP}_{it}) + \mu_2 \text{Ln}(\text{POP}_{it}) + \mu_3 \text{Ln}(\text{AVTR}_{it}) + \mu_4 \text{Ln}(\text{LIR}_{it}) + D_{\text{SAFTA}} + D_{\text{SAPTA}} + D_{\text{BIMSTEC}} + D_{\text{INDSL}} + D_{\text{PAKSL}} + U_{it}$$

$$(2) \quad \text{Ln}(\text{RFDI}_{it}) = \mu_0 + \mu_1 \text{Ln}(\text{PCGDP}_{it}) + \mu_2 \text{Ln}(\text{POP}_{it}) + \mu_3 \text{Ln}(\text{LIR}_{it}) + \mu_4 \text{Ln}(\text{INFL}_{it}) + \mu_5 \text{Ln}(\text{CBSP}_{it}) + D_{\text{SAFTA}} + D_{\text{SAPTA}} + D_{\text{IBBIT}} + D_{\text{INBIT}} + D_{\text{ISBIT}} + D_{\text{SPBIT}} + U_{it}$$

The dependent variable of the first model in equation (1) is Total Regional Trade (TRT) of an individual member country to the South Asia region and for the second equation the dependent variable is Total Regional FDI flow (RFDI). The dummy variables such as South Asia Free Trade Area (SAFTA) and SAARC Preferential Trade Arrangement (SAPTA) are used for both equations. The equation specific dummies are: Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), India Sri

Lanka FTA (INDSL) and Pakistan Sri Lanka FTA (PAKSL) for the trade integration equation. On the contrary, in the second equation India-Bangladesh Bilateral Investment Treaty (IBBIT), India-Nepal Bilateral Investment Treaty (INBIT), India-Sri Lanka Bilateral Investment Treaty (ISBIT) and Pakistan-Sri Lanka Bilateral Investment Treaty (PSBIT) are used as proxy of regional integration from the perspective of inward FDI. Other explanatory variables are: Per Capita GDP (PCGDP), Population (POP) and Lending Interest Rate (LIR) for both equations. The equation specific explanatory variables are: Average Effective Tariff Rate (AVTR) for equation (1) and Inflation Rate (INFL) and Cost of business start-up procedures as percentage of GNI per capita (CBSP) for equation (2).

Panel data for six member countries of South Asia namely Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka are used in the empirical analysis. The range of data is from 1990 to 2012. Data has been collected from the Asia Regional Integration Center (ARIC), Integration Indicators Database of the Asian Development Bank (ADB), the World Bank Data Bank and the UNCTAD data base. In our analysis, we use the panel random effects technique for the above mentioned equations.

6.6.2 Results and Discussion

The results of the econometric analysis has been shown below. The empirical estimation for impact of integration on South Asia's regional trade (table 6.17) shows that among the macroeconomic variables per capita GDP and population are positive but not significant, average tariff rate and lending interest rate have become negative with interest rate significant at 1 per cent level. All the dummy variables except Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is positively associated with intra regional trade. Among them only the India Sri Lanka Free Trade Agreement (ISFTA) is significant with 10 per cent level where the coefficient for this variable is 0.528.

Table 6. 17: Impact of Economic Integration on Intra Regional Trade in South Asia
(Dependent Variable: Total Regional Trade)

Variables	Explanation	TRT	TRT	TRT
lnpcgdp	Per capita GDP of individual member Countries	1.096*** (0.130)	0.604*** (0.123)	0.164 (0.133)
lnpop	Population of individual member countries	0.597*** (0.0692)	0.509*** (0.0451)	0.334*** (0.0418)
lnavtr	Average tariff rate		-0.456** (0.145)	-0.131 (0.159)
lnlir	Lending interest rate		-1.263*** (0.318)	-1.022*** (0.288)
safta	South Asian Free Trade Area			0.532* (0.216)
sapta	South Asia Preferential Trade Agreement			0.316 (0.237)
bimstec	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation			-0.0956 (0.245)
indsl	India Sri Lanka Free Trade Agreement			0.528* (0.220)
paksl	Pakistan Sri Lanka Free Trade Agreement			0.332 (0.154)
Constant		-0.109*** (1.681)	-1.599 (1.739)	2.184 (1.307)
No. of Observations		137	137	137
R-squared				0.632
Number of Panels		6	6	6
rmse		0.810	0.761	0.675

According to table 6.18, results of empirical estimation for the impact of economic integration on intra regional FDI indicate that among the macroeconomic variables per capita GDP and population have become positive with population significant at 10 per cent level. Lending interest rate and inflation are significantly negative at 1 per cent and 10 per cent level respectively. The variable cost of business start-up procedure has been negative but not significant. Among the integration variables South Asian Free Trade Area (SAFTA) has a positive impact on regional FDI with 1 per cent significant level. Asia Pacific Trade Agreement (APTA) dummy is positively associated but not significant and none of the bilateral investment treaties has been significant at any level.

Table 6. 18: Impact of Economic Integration on Intra Regional FDI in South Asia (Dependent Variable: Total Regional FDI)

Variables	Explanation	RFDI	RFDI	RFDI
lnpcgdp	Per capita GDP of individual member countries	1.659*** (0.225)	1.516*** (0.266)	0.496 (0.313)
lnpop	Population of individual member countries	0.352*** (0.0759)	0.398** (0.0698)	0.165* (0.0748)
lnlir	Lending interest rate		-3.7558*** (0.575)	-2.493*** (0.577)
lninfl	Rate of Inflation		-0.188 (0.377)	-0.859* (0.359)
lncbasp	Cost of business start-up procedures (% of GNI per capita)		-0.114 (0.330)	-0.381 (0.378)
safta	South Asian Free Trade Area			1.873*** (0.441)
sapta	South Asia Preferential Trade Agreement			0.769 (0.651)
IBBIT	India Bangladesh BIT			0.774 (0.302)
INBIT	India Bangladesh BIT			0.972 (0.114)
ISBIT	India Bangladesh BIT			0.106 (0.025)
SPBIT	Sri Lanka Pakistan BIT			0.998 (0.651)
_cons	Constant	-0.150*** (0.249)	-0.437 (0.348)	0.483 (0.396)
No. of Observati		137	137	137
R-squared				0.773
Number of Panel		6	6	6
rmse		1.856	1.625	1.456

Early empirical studies about prospects of integration in South Asia suggest inconclusive results and they have predicted pessimistic outcomes. Researchers such as De Melo et al. (1993), De Rosa & Govindan (1994), Srinivasan & Canonero (1993) and Srinivasan (1994) have concluded that the South Asia region cannot fulfill the necessary preconditions to emerge as a successful trading bloc. Others such as Bandara & Yu (2003) imply that the region would better focus on achieving unilateral trade liberalization. Baysan et al. (2006) and Panagariya (2003) argued that trade integration in South Asia will cause net welfare loss and create slow unilateral liberalization. Indeed, it can be hypothesized that similarities in some basic macroeconomic factors among the countries reduce potential of economic integration in the region. Nevertheless, more and more economic integration can

secure newer and larger markets for traditional products and may contribute to diversify the domestic economic structures. UNCTAD (2008) argued that increased economic integration within the region of South Asia may benefit both intra regional trade in goods and services and bilateral investment. Despite the inconclusive findings by empirical studies, the SAARC Secretariat (1999) promoted that a deeper integration in the region can strengthen economic and political good relations among the nations of South Asia. Based upon the above empirical findings, the present study suggests that effective cooperation in South Asia may happen through regional economic integration. If the countries in the region can conceptualize integration as an evolving process, then it is possible that the region will emerge as a bigger and effective economic bloc in the future. In this regard, the economic rise achieved by the SAARC nations in the recent past forces them to enter a deeper integration regionally and globally. Economic integration through adopting various multilateral agreements including the SAFTA framework may act as the stepping stone in this direction.

6.7 Simulation of South Asia's Intra Regional Trade and Intra Regional FDI: Actual vs Potential

6.7.1 Concept and Estimation Method

‘Simulation of Trade’ is a widely used concept in the study of international trade between countries. It is also termed as ‘trade potential’ in the literature. The method is very simple. In the beginning, a sample of countries for which trade is supposed to have reached its potential is considered for statistical estimation. A gravity equation with GDP, distance and population variable is used to estimate the coefficients of bilateral trade between trading partners. Then the estimated coefficients are used for the purposes of simulation and prediction of trade. Finally, the predicted values and the observed values are compared to examine potential of trade between a pair of countries. The method is appropriately used for both aggregate and industry level. However, for the purpose of this study and based upon the

estimates found in the initial gravity analysis in the previous chapters (chapter 4 and chapter 5), we apply it for the aggregate level only.

6.7.2 Simulation of Intra Regional Trade

In our gravity analysis of intra regional trade, we have estimated an augmented model for the countries of South Asia for a comparatively large period of 22 years. In order to simulate intra regional trade, we will use the ratio of predicted trade (P) and actual values (A) of bilateral trade (P/A) between a pair of member countries. Predicted trade is arrived at by the estimated coefficients of the gravity equation in chapter 4. For the sake of simplicity, only the estimated coefficients of the gravity equation with the dependent variable of ‘bilateral total trade in million US dollar’ are considered for further analysis. According to the estimation technique of trade potential simulation, a value of P/A that exceeds unity for a country with a particular trading partner indicates potential to expand trade. Another way of measuring trade potential between countries is to calculate the absolute differences between the predicted and actual values ($P-A$). If the absolute difference turns to be positive, it implies a situation of trade expansion in the future between a country pair. On the other hand, a negative value signals that trade potential has been exceeded.

The results are presented in tables 6.19 through 6.23 (in the appendix section of this chapter). It is evident that all of the countries in South Asia have high trade prospect and they did not explore their maximum potential of intra regional trade yet. Especially, almost all of the countries possess large potential of bilateral trade with India as the ratio (P/A) has appeared to be substantially large. Pakistan-India pair has large potential of bilateral trade but these two countries have been the least integrated. According to our findings, the potential of bilateral trade for Sri Lanka-India and Pakistan-India pairs has been the largest. Other countries such as Bangladesh and Nepal also have large potential of trade with India and intra

regional trade potential has been growing continuously. It is also evident that intra regional trade in South Asia has been led by India as India's potential of trade is comparatively smaller than that of other countries. India shows remarkably large potential with two countries of Maldives and Nepal. The probable reason would be these two nations heavily rely on India for export and import and their economies are very small compared to their regional counterparts. India has a sizable amount of trade with the rest of the countries. Moreover, almost all of these countries have high deficit in trade with India. It is also found that some of the countries could exceed or reach their trade potential in the beginning of 1990s but gradually the difference of predicted trade and actual trade increased. A value less than one or a negative value of $(P-A)$ after 1990 confirm this hypothesis.

6.7.3 Simulation of Intra Regional FDI

The concept of FDI potential has been unexplored yet in the literature. Here we try to apply the same method of trade potential for estimating regional FDI potential of South Asia. We have estimated a gravity model in chapter five of this study with 'Total Regional FDI Inflow of an Individual Country' as the dependent variable. Here we use the results of our estimated coefficients to calculate the predicted value of regional FDI flow. Finally, the ratio of predicted value and actual value (P/A) as well as the absolute differences $(P-A)$ is measured for the years for which we have performed the original gravity analysis.

The results are summarized in table 6.24 in appendix. According to our findings, all of the countries that we have considered for the estimation have high potential of regional FDI inflow. India and Pakistan showed very inspiring results as these countries have the largest potential of FDI. Bangladesh and Nepal also have large potential while Sri Lanka's prospect is comparatively lower. It means that Sri Lanka performed the best in attracting regional FDI in South Asia. However, none of the countries could exceed or even reach their

potential in the past years. Unlike trade potential, none of the countries got a ratio of P/A that is less than unity or a value that is negative for the absolute difference ($P-A$).

6.8 Conclusion

The South Asian region has achieved remarkable progress in economic growth, investment and trade development. More importantly, the countries of the region have made significant improvement in integration with other countries and region through greater flows of trade and FDI. However, compared to the region's integration with the global economy its regional interaction in trade and investment is very limited. Tariff and non-tariff barriers within the member countries are larger than those with the rest of the world. Poor connectivity, security related issues and political conflict between countries in the region have further deteriorated regional cooperation. Therefore, the beneficial effects of geographical proximity, common culture and similarity in languages have been neutralized.

South Asia is one of the regions in the world that has immense potential for regional integration. The countries here locate very close to each other and their cultures are very similar. Most of these countries were colonies of Britain in the past; hence, there is a similarity in their current socio-economic conditions. Their contiguity, proximity and familiarity with each other have made them qualified for a very successful regional bloc in Asia. However, these advantages of the region have not been utilized and the accompanying opportunities of growth, trade and investment have not been explored yet.

Still South Asia has many untapped opportunities and prospects, thus, intra regional trade and investment offers a set of mutual benefits for the region. Above all, some goal-oriented policies and political commitment towards integration are needed. The investment climate of the countries is to be improved by making integrated and concerted efforts. Such initiatives will also contribute to improve investors' confidence through

countering the existing view that most of the countries here with their very small economies are unattractive investment destination. In this regard, making SAFTA and SAARC more comprehensive and adopting a new multi-lateral investment treaty by the member countries may improve significantly the environment for integration in the region. Relaxation of sensitive lists under the SAFTA and a means of addressing other bilateral trade and investment related issues are two aspects that should be taken care of as a priority task.

6.9 Chapter Appendix

Table 6. 19: Potential of Bangladesh's Trade with Other South Asian Countries

	Bangladesh-India		Bangladesh-Nepal		Bangladesh-Pakistan		Bangladesh-Sri Lanka	
Year	P/A	P - A	P/A	P - A	P/A	P - A	P/A	P - A
1991	1.24	51.20	0.23	-9.04	1.10	9.33	0.82	-1.91
1992	1.14	40.58	5.08	2.38	0.99	-1.47	0.65	-5.71
1993	1.25	98.33	0.57	-3.09	1.33	38.36	0.95	-0.86
1994	1.21	100.66	0.38	-9.32	1.22	28.22	1.52	5.37
1995	0.97	-35.70	0.64	-5.02	1.42	68.15	0.86	-3.03
1996	1.15	159.16	1.58	3.77	2.20	153.23	2.02	12.29
1997	1.71	588.64	1.05	0.64	2.69	182.89	2.43	18.76
1998	1.10	118.28	0.35	-20.92	2.30	132.58	3.98	21.89
1999	1.29	313.76	0.68	-4.57	1.96	105.49	2.13	15.47
2000	1.59	586.59	n.a	n.a	1.39	50.32	2.89	20.24
2001	1.22	282.23	1.91	5.53	1.66	73.88	2.57	15.52
2002	1.41	488.15	n.a	n.a	2.57	136.46	2.74	15.21
2003	1.41	640.37	1.87	6.79	2.14	156.89	2.07	16.05
2004	1.73	1328.78	n.a	n.a	2.25	202.78	2.06	20.07
2005	2.03	2141.65	2.81	11.62	2.73	338.15	2.46	27.61
2006	2.37	3061.91	n.a	n.a	2.79	406.85	2.41	33.28
2007	2.60	4607.23	1.49	10.68	3.09	565.15	3.51	60.59
2008	3.60	9929.28	0.48	-48.85	3.53	950.43	4.65	102.45
2009	4.32	10018.40	1.34	19.14	3.74	985.81	3.73	80.66
2010	3.34	9798.72	1.41	25.78	2.96	957.98	3.59	93.96
2001	2.65	8888.86	1.70	31.73	1.64	494.63	3.09	98.40
2012	3.08	10861.49	1.71	39.00	2.64	905.31	2.64	99.61

(Note: n.a implies unavailability of data)

Table 6. 20: Potential of India's Trade with Other South Asian Countries

	India-Bangladesh		India-Maldives		India-Nepal		India-Pakistan		India-Sri Lanka	
Year	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A
1991	0.15	-279.90	1.75	247.74	1.19	18.63	3.49	243.06	0.11	-165.96
1992	0.15	-310.22	1.50	179.96	0.82	-17.21	1.69	135.77	0.09	-222.95
1993	0.13	-384.82	1.24	106.51	0.75	-23.18	3.06	215.51	0.09	-240.81
1994	0.19	-450.71	2.10	612.28	1.34	33.34	5.55	484.44	0.12	-320.36
1995	0.13	-902.73	1.71	738.75	1.50	66.97	9.11	874.14	0.16	-356.42
1996	0.22	-697.26	2.64	1462.86	1.10	20.81	5.50	807.66	0.18	-406.07
1997	0.36	-547.57	3.67	2300.48	1.16	40.99	6.52	1044.48	0.26	-385.41
1998	0.30	-703.30	3.12	2124.04	1.22	59.98	3.26	650.43	0.27	-355.45
1999	0.51	-394.27	5.29	3436.38	1.30	98.10	5.64	931.52	0.33	-351.79
2000	0.56	-414.66	6.24	4922.73	n.a	n.a	6.68	1296.56	0.33	-435.04
2001	0.46	-576.35	6.92	6273.83	1.38	209.74	6.45	1274.34	0.34	-442.17
2002	0.57	-515.43	8.16	8545.04	n.a	n.a	12.09	2665.51	0.33	-627.04
2003	0.80	-341.55	9.38	14017.08	3.04	1781.08	15.11	4530.51	0.38	-864.32
2004	1.54	912.99	19.49	31156.79	n.a	n.a	18.78	9543.23	0.57	-715.87
2005	2.76	3107.53	27.68	47116.10	7.86	8246.10	22.49	17316.16	0.83	-397.09
2006	3.59	4760.31	38.24	68532.98	n.a	n.a	17.91	24895.42	1.13	345.28
2007	4.80	10815.95	60.57	169454.24	16.23	29069.73	26.14	52589.86	2.06	3467.10
2008	6.33	15299.27	74.91	212144.57	19.62	38482.12	30.40	55662.78	3.33	6775.56
2009	6.64	13638.14	66.28	157709.09	24.32	43011.32	26.59	44102.60	4.08	6344.29
2010	8.58	25657.56	70.11	233799.54	35.01	82091.25	29.08	72221.75	4.16	12133.16
2001	7.27	27273.61	61.58	263391.82	40.95	128874.61	50.32	100563.45	4.32	18367.51
2012	4.61	20249.10	35.61	193903.80	28.78	98803.45	31.96	72157.93	3.98	13557.78

Table 6. 21: Potential of Nepal's Trade with Other South Asian Countries

	Nepal-Bangladesh		Nepal -India		Nepal -Pakistan	
Year	P/A	P-A	P/A	P-A	P/A	P-A
1991	1.34	4.35	0.27	-74.33	0.05	-4.21
1992	52.73	29.58	0.66	-34.59	0.09	-4.30
1993	3.71	21.51	1.02	2.12	0.77	-0.25
1994	1.83	13.56	0.95	-5.55	0.27	-2.91
1995	3.27	32.91	0.72	-39.36	0.38	-2.31
1996	1.92	17.70	0.35	-328.70	0.76	-0.59
1997	2.16	18.98	0.49	-271.04	1.15	0.58
1998	3.57	39.90	0.90	-56.43	1.49	3.43
1999	8.72	107.27	3.79	892.38	9.22	23.85
2000	n.a	n.a	n.a	n.a	n.a	n.a
2001	20.57	191.79	1.53	507.59	46.94	78.10
2002	n.a	n.a	n.a	n.a	n.a	n.a
2003	52.35	492.93	2.88	2357.33	51.11	150.32
2004	n.a	n.a	n.a	n.a	n.a	n.a
2005	126.21	863.96	2.27	2244.42	44.81	240.96
2006	n.a	n.a	n.a	n.a	n.a	n.a
2007	36.72	1620.75	1.54	1342.57	86.25	352.92
2008	33.01	2357.83	1.71	1922.95	178.90	743.61
2009	33.27	1729.21	2.50	2922.21	623.55	958.38
2010	42.56	2460.70	2.30	3329.84	663.29	1294.84
2001	56.52	2466.90	1.40	1374.01	741.78	1622.08
2012	47.02	2472.11	2.17	4440.90	1212.86	2766.56

(Note: n.a implies unavailability of data)

Table 6. 22: Potential of Pakistan's Trade with Other South Asian Countries

	Pakistan-Bangladesh		Pakistan-India		Pakistan -Maldives		Pakistan-Nepal		Pakistan-Sri Lanka	
Year	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A
1991	2.29	177.78	623.88	56905.03	0.01	-1.79	4.82	18.22	0.11	-90.49
1992	1.58	108.01	245.38	45890.19	0.01	-1.88	5.55	22.33	0.10	-105.43
1993	1.82	117.44	350.24	41954.94	0.02	-0.83	33.68	35.41	0.14	-84.79
1994	1.84	119.91	387.01	45612.11	0.02	-1.20	4.88	14.33	0.14	-95.99
1995	5.53	853.80	535.04	63752.18	0.03	-1.58	9.71	30.33	0.37	-66.32
1996	3.96	428.37	255.26	64322.56	0.02	-2.98	5.06	23.51	0.22	-96.70
1997	1.60	81.19	302.71	52710.32	0.02	-2.26	5.71	23.43	0.12	-118.72
1998	1.13	18.34	125.86	44517.87	0.02	-1.89	2.78	15.86	0.13	-112.07
1999	1.11	14.73	230.47	50751.27	0.02	-1.45	10.53	26.69	0.11	-125.88
2000	0.88	-21.48	236.59	55479.55	0.02	-1.50	n.a	n.a	0.18	-94.95
2001	1.47	68.36	120.01	36565.37	0.01	-1.92	7.16	18.68	0.12	-89.74
2002	2.48	199.82	326.16	68733.47	0.01	-2.54	n.a	n.a	0.17	-86.15
2003	1.50	103.82	476.60	147400.17	0.01	-2.75	8.75	52.53	0.20	-101.21
2004	1.68	164.40	433.08	264922.17	0.03	-1.96	n.a	n.a	0.22	-141.33
2005	2.01	305.41	542.07	494968.06	0.01	-6.32	42.76	299.23	0.28	-152.84
2006	4.44	766.39	397.46	620132.31	0.02	-7.76	n.a	n.a	0.40	-118.56
2007	5.22	1127.1	400.95	897808.32	0.03	-9.47	119.65	481.44	0.41	-133.34
2008	4.18	1130.0	368.75	845911.10	0.03	-10.88	316.39	1269.5	0.38	-157.66
2009	3.13	941.56	498.17	652173.56	0.04	-3.43	192.13	295.29	0.26	-199.35
2010	3.12	971.04	376.57	1039632.1	0.03	-4.40	141.41	275.50	0.29	-231.16
2001	3.03	1465.4	665.45	1444209.4	0.04	-4.89	160.15	349.73	0.35	-253.01
2012	3.78	1429.3	587.96	1439355.1	0.03	-5.13	151.52	344.85	0.29	-274.70

(Note: n.a implies unavailability of data)

Table 6. 23: Potential of Sri Lanka's Trade with Other South Asian Countries

	Sri Lanka-Bangladesh		Sri Lanka -India		Sri Lanka -Pakistan	
Year	P/A	P-A	P/A	P-A	P/A	P-A
1991	0.03	-8.31	22.05	4898.59	0.01	-104.88
1992	0.03	-21.36	36.41	11270.27	0.02	-94.37
1993	0.09	-12.95	59.49	21212.95	0.03	-87.76
1994	0.10	-15.28	107.71	45672.46	0.04	-99.65
1995	0.14	-15.45	169.82	84580.43	0.08	-87.15
1996	0.34	-9.31	246.87	148750.93	0.10	-95.18
1997	0.72	-3.60	437.66	263740.16	0.22	-59.18
1998	1.40	4.64	710.97	409666.38	0.18	-96.74
1999	1.52	8.43	1283.40	718433.09	0.23	-97.08
2000	3.08	28.69	1966.50	1293647.59	0.48	-53.26
2001	4.62	43.88	2987.47	2011283.40	0.81	-18.93
2002	5.32	60.74	3047.69	3054756.98	1.55	52.14
2003	7.47	108.84	3644.66	4814046.32	2.00	107.93
2004	9.78	189.83	4588.54	8398206.65	2.53	225.97
2005	16.00	369.54	6366.51	15288938.78	4.37	536.22
2006	25.63	656.95	9956.05	26503442.36	6.63	1154.78
2007	35.94	1177.32	18366.89	57401088.58	9.53	1991.32
2008	60.73	1918.04	19826.54	76636423.24	12.09	2925.63
2009	64.21	2574.46	46556.26	99709699.36	16.52	3911.50
2010	88.55	4056.77	59308.86	180502185.56	18.10	5893.76
2001	107.36	7517.54	63419.01	313903056.00	28.11	11093.39
2012	170.03	12701.94	111545.03	491323089.15	49.29	19739.98

(Note: n.a implies unavailability of data)

Table 6. 24: Intra-regional FDI in South Asia (Actual vs Predicted)

	Bangladesh		India		Nepal		Pakistan		Sri Lanka	
Year	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A	P/A	P-A
1991	23.12	6.64	43.79	12.84	2.47	0.44	8.02	2.11	8.03	2.11
1992	27.06	7.82	69.48	20.54	3.77	0.83	8.57	2.27	8.65	2.29
1993	28.20	8.16	93.34	27.70	5.45	1.33	11.29	3.09	11.25	3.07
1994	27.33	7.90	94.06	27.92	7.03	1.81	15.27	4.28	12.69	3.51
1995	24.66	7.10	113.86	33.86	7.66	2.00	16.53	4.66	15.84	4.45
1996	15.20	14.20	62.46	61.46	4.58	3.58	16.31	15.31	9.48	8.48
1997	6.42	9.21	65.02	108.83	3.18	3.70	11.27	17.45	2.60	2.73
1998	11.44	17.74	83.57	140.37	4.65	6.21	12.03	18.74	5.03	6.84
1999	16.38	26.15	78.83	132.31	11.12	17.20	27.10	44.36	15.17	24.09
2000	5.63	38.88	21.95	175.98	2.30	10.90	8.50	63.04	2.76	14.79
2001	39.85	81.58	166.67	347.91	20.08	40.06	95.36	198.16	7.17	12.96
2002	13.53	53.87	66.97	283.65	8.13	30.64	25.94	107.23	2.88	8.09
2003	14.16	46.07	136.95	475.84	23.21	77.74	34.56	117.47	6.66	19.80
2004	15.21	96.64	59.49	397.75	15.38	97.80	18.67	120.15	3.42	16.43
2005	39.45	265.29	53.34	361.17	14.13	90.60	29.60	197.35	4.05	21.03
2006	19.50	161.28	57.86	495.78	15.21	123.91	38.60	327.86	6.93	51.73
2007	35.40	179.59	81.76	421.55	31.82	160.89	150.34	779.57	21.08	104.82
2008	11.93	201.94	27.26	485.33	5.79	88.53	74.44	1357.26	5.76	87.91
2009	11.99	168.85	37.14	555.09	6.45	83.74	164.80	2515.98	7.39	98.13
2010	16.19	233.29	64.26	971.64	11.63	163.32	220.73	3375.13	6.22	80.20
2001	18.99	276.25	73.76	1117.52	5.79	73.51	559.91	8584.93	5.51	69.31
2012	16.10	231.94	84.85	1287.89	7.25	96.08	311.01	4761.72	6.42	83.27

CHAPTER 7

SUMMARY AND CONCLUSION

7.1 Summary of Main Findings

In this chapter summary and conclusion of the entire study will be presented. The chapter is planned to perform a chapter by chapter summary in the beginning part. Then we suggest the study's policy recommendations on the basis of our findings so far in the previous chapters. Finally we conclude in the last section by indicating the study limitations and some guidance for future research in this field.

This current research is a thorough analysis of the determinants of intra regional trade and intra regional FDI in the South Asia region with a particular attention to the countries of Bangladesh, India, Nepal, Pakistan and Sri Lanka. In this study a gravity analysis has been followed to find out these determinants. The main objective is to indicate the factors that affect trade and FDI within the said region.

At the beginning of the study, we have estimated empirically the impact of economic liberalization reforms on foreign trade and FDI inflow of the countries in South Asia after presenting the overview of these economies. By estimating a set of panel data from 1991 to 2012, we have investigated if reform initiatives to liberalize the economy have become effective to promote foreign trade and investment. Then the theoretical background of the proposed gravity model has been highlighted before we have presented the findings of the study separately in two consecutive parts. We have used an augmented gravity model with the ordinary variables of GDP, population and geographical distance between the capital cities of the countries to investigate the major determinants of intra regional trade and intra regional FDI in South Asia. For the case of intra regional trade determinants, the model has been employed for both aggregate and disaggregate levels. But only the aggregate data was

used in the estimation purpose of intra regional FDI determinants. The empirical results showed that the major factors of intra regional trade in South Asia are GDP and size of the market, population, infrastructure, economic openness, real exchange rate and distance. The study also indicated a very weak trade creation effect in South Asia as only a few of the regional dummy variables became positively associated with intra regional trade. On the other hand, our empirical findings for the determinants of intra regional FDI showed that the factors that matter regional FDI in South Asia are GDP and economic growth, labor force, infrastructure, natural resources, real exchange rate, FDI development in the past years, corruption state and level of business freedom etc. in a host country. The overall summary of the major determinants of intra regional trade and intra regional FDI has been noted in the tables 7.1 and 7.2 presented below.

After that we have studied thoroughly about various aspects of economic integration in South Asia. Here we have conducted two separate empirical analyses to investigate the impact of regional integration on intra regional trade and intra regional FDI. We have defined two empirical models—one for the purpose of intra regional trade and another one for intra regional FDI. We have included various multilateral agreements and some bilateral treaties as dummy variables for economic integration in South Asia and have examined their impact on intra regional trade and intra regional FDI in a region wide perspective. Our empirical estimation shows that all the integration variables except ‘Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation’ become positively associated with intra regional trade. Among them only the ‘India Sri Lanka Free Trade Agreement’ became significant. Results of our empirical estimation for the impact of economic integration on intra regional FDI indicate that among the integration initiatives ‘South Asian Free Trade Area’ has a positive impact on regional FDI. None of the bilateral investment treaties has been significant stimulator of intra regional FDI.

Table 7. 1: Summary of Major Intra Regional Trade Determinants in South Asia

	Macroeconomic Determinants (estimated sign)	Policy Determinants (estimated sign)	Resistance Factors (estimated sign)
South Asia Aggregate	(a) GDP of reporting country (+) (b) Population of reporting country (+) (c) Population of partnering country (+) (d) Infrastructure of partnering country (+)	(a) Economic openness of reporting country (-) (b) Economic openness of partnering country (+) (c) Reporting country's real exchange rate (-) (d) Partnering country's real exchange rate (-)	n.a
Bangladesh	(a) GDP of reporting country (+) (b) Population of partnering country (+)	(a) Economic openness of partnering country (+) (b) Real exchange rate of reporting country (-)	n.a
India	(a) GDP of reporting country (+) (b) GDP of partnering country (+) (c) Population of reporting country (-) (d) Population of partnering country (-) (e) Infrastructure of reporting country (+) (f) Infrastructure of partnering country (-)	(a) Partnering country's remittances (+) (b) Economic openness of reporting country (+) (c) Economic openness of partnering country (-) (d) Real exchange rate of partnering country (-)	(a) Distance between trading partners (-) (b) Common border dummy (+) (c) Common language dummy (+)
Nepal	(a) Population of reporting country (+) (b) Population of partnering country (+)	(a) Partnering country's FDI inflow (-) (b) Real exchange rate of partnering country (+)	(a) Common border dummy (+)
Pakistan	(a) GDP of reporting country (+) (b) GDP of partnering country (+)	(a) Partnering country's remittances (+) (b) Economic openness of partnering country (+) (c) Real exchange rate of reporting country (-)	(a) Distance between trading partners (-)
Sri Lanka	(a) GDP of reporting country (+) (b) GDP of partnering country (+) (c) Population of partnering country (-)	(a) Reporting country's remittances (+) (b) Partnering country's remittances (+) (c) Economic openness of partnering country (+) (d) Real exchange rate of reporting country (-)	(a) Distance between trading partners (-) (b) Common language dummy (+)

(Note: n.a implies no significant variable in this group)

Table 7. 2: Summary of Major Intra Regional FDI Determinants in South Asia

	Macroeconomic Determinants (estimated sign)	Policy Determinants (estimated sign)	Resistance Factors (estimated sign)
South Asia Aggregate	(a) Gross Domestic Product (+) (b) Labor Force/ Employment to population ratio (+) (c) Infrastructure (+) (d) Total natural resources rents (+)	(a) Real exchange rate of host country's currency (+) (b) Regional FDI inflow in the past years (+) (c) Freedom from corruption (+) (d) Business freedom in host country (-)	n.a

(Note: n.a implies no significant variable in this group)

7.2 Policy Recommendations and Major Strategic Directions

In this final part, we suggest some policy proposals based upon our findings so far. We also advance policy proposals regarding the effectiveness of main regional agreements and bilateral investment treaties in South Asia. In addition, we try to figure out the role of India in South Asia's integration and highlight the impact and overall prospect of regional economic cooperation.

South Asia's very small proportion of intra regional trade and FDI to its total trade volume supports the assumption that the initiatives taken so far toward an expansion of intra regional trade and FDI have not been successful. Weak institutional framework, inter State hostility and ineffective regional agreements have been accused for not to push regional integration forward to a level commensurate with potential. Major regional arrangements like SAARC, SAPTA and SAFTA are beset with problems and show no hope of changing the ground quite rapidly. It is true that some progress was achieved in the past years but this is not enough to build trust-based relationships and proper institutions among the countries. If the countries in the region want to create significant benefits from regional cooperation through exploring the potential of trade and FDI, some conditions need to be fulfilled.

We suggest the need for reforms at both country and regional levels. Indeed, efforts are required in several key areas such as GDP growth, infrastructure development, inflow of remittances, promotion of economic openness, inflation control, bank interest rate management, exchange rate management, quality of labor and labor force development, level of corruption, business freedom, governance and effective implementation, and after all confidence building among the countries. The South Asian Free Trade Area (SAFTA) arrangement should also be broadened and explored to include investment (FDI) and services. We suggest the following policy proposals in the regional and country settings. All these

proposed policy measures are expected to contribute strengthening intra regional trade and intra regional FDI in South Asia.

It is needed that the countries of South Asia overcome the major barriers in intra regional movement of trade and FDI. There are many reasons for South Asia's poor performance in intra regional trade and FDI. First, size of the economies in the region is very different from each other. India has an overwhelmingly bigger economy as its GDP is about 80 per cent of the region's total GDP. On the other hand Afghanistan, Bhutan, Maldives and Nepal belong to a very tiny economy. Second, differences in economic policies of the member countries also hamper intra regional flows of trade and FDI. Individual countries in the region have adopted various economic reform programs to protect and promote their respective domestic economies but these are not much qualified for regional cooperation and coordination. Third, various trade barriers such as different standardization and certification processes, different rules and regulations in custom clearance, differences in tax law and regulations, tariff and non-tariff barriers, exchange rates, and interest rate structure are inhibiting intra regional trade and FDI. Fourth, low level of physical and non-physical infrastructure facilities have held back integration in the region. None of the countries except India could establish a sound infrastructure system up to the mark yet. Doing business and investment in these countries requires high direct cost because of their poor regulatory, fiscal and legal systems. Moreover uncertainty arising from corruption, bureaucratic delays and property disputes also reduce free movement of intra regional trade and FDI. Fifth, absence of effective banking networks acts as another important barrier. Poorly developed banking network within the commercial banks and a lack of cooperation between the central banks also impose limitations on integration. Sixth, the region could not build an integrated transport network which also restricts trade and FDI. Smooth production and marketing of goods and services are hampered due to a lack of cross border facilities of transportation and

communication through rail, inter country road network, water ways and air transport means. Finally political factors, mistrust and a lack of confidence among the countries are considered as one of the biggest impediments. Unsettled political disputes between country groups and political instability in almost all of the countries created long lasting hostility here (Alam & Aowrangazab, 2005). We suggest that the following factors need to be taken proper care of.

I. Infrastructure and Natural Resources Rents: Transport, Telecommunications and Power generation

In the regional level the problem of inadequate and poor quality infrastructure in South Asia is to be addressed immediately. Focus should be pointed upon intra regional connectivity among the countries. First of all, the transport and telecommunication sectors should be focused. Facilities in road and rail networks and ports are to be broadened and developed gradually but immediately. More direct links by land, air and sea routes should be achieved for a greater efficient movement of goods and people. This is also important that an integrated transport network in the region is to be built as a first priority to explore the benefits of the SAFTA framework. These countries especially India and Pakistan need to be more interconnected through better access by land routes. Next, the telecommunication sector reform is another priority. The very high telecommunication tariff should be reduced first and then improvement and expansion of this area should be focused to facilitate the needs of industry and commerce. Cooperation is also needed in South Asia to improve and expand energy generation, transmission and distribution among the countries.

In the country perspective, Bangladesh needs to achieve better infrastructure through improvement in gas exploration, coal mine development and coal power generation. The government needs to enhance private and public investment including FDI in the power and gas sectors. For the Indian case, immediate action is needed to solve the bottlenecks in the country's infrastructure and transport sectors. India should focus on intra regional

connectivity for better access of its products. Sector caps in telecommunications, airports and airlines should be removed soon. On the other hand, infrastructure has been identified as one of the top constraints to doing business in Pakistan. This should be addressed soon because inadequate transport infrastructure constrains foreign trade and FDI in Pakistan. Hence, road networks, port facilities and other means of transport should be improved soon. In the Nepal's case, the country has immense hydropower resources. The government should deal hydropower matters professionally, efficiently and with greater care. Transparent and enabling framework is required in Nepal's biogas and solar energy too. For Sri Lanka, on the other hand, proper care should be taken in improving domestic infrastructure especially energy as well as road networks. In this regard, infrastructure development should remain a top priority in Sri Lanka's development manifesto in the medium to long term.

II. Trade and Investment Issues such as Tariffs, Non-tariff barriers (NTBs) and Long Negative List

First of all, in the regional setting, official tariff rates as well as high and specific duties should be reduced and if possible be eliminated. The region's tariff structures need to be simplified and transparent. It is also an important obligation to curtail long negative lists and remove important trading items from these lists.

In the country level, Bangladesh and Pakistan should try to curtail many of the most important tradable items that have remained in the negative list of their other regional partners including India. Moreover, the current provision of duty-free imports of raw materials and other incentives to export-oriented firms needs to be continued. India, being the largest country in the region, should consider and accept that all NTBs should be reduced or eliminated. Nepal trades mainly with India and faces the problem of numerous NTBs. The country needs to cooperate closely with India to get reduction of NTBs in the areas of sanitary and phytosanitary requirements, quarantine rules, and customs procedures. Moreover,

trade facilitation measures and improvement in custom clearance procedures are to be achieved to reduce trade costs.

III. Fair Distribution of Benefit of Regional Integration through SAFTA and Other Multilateral Agreements

In the regional setting, promises by the SAFTA provision regarding compensating least developed countries due to custom revenue losses should be followed as a constructive mechanism. This is also likely important to ensure accrual of benefits of economic integration to all member countries regardless of their economic size or strength.

In the country concern, India's opening up of its market to other South Asian neighboring countries will benefit the entire region. In this regard, India needs to simplify its rules of origin, improve product prices and diversify its product range for the greater benefit of the region as well as its own. Creating greater awareness among the member countries about the benefits that integration may provide is also similarly important.

IV. FDI Regime and Related Policy Framework

In the regional level, first of all, the provision and scope of SAFTA need to be broadened to encompass investment and services. Establishment of an investment protocol with cross-border investment rules is another important obligation. Next, a different viable risk-underwriting regional investment accord with provision of working through problems of repatriation and ownership of assets by foreign investors has to be adopted immediately. Further, various institutions of conflict resolution are to be set up as an urgent task.

In the country setting, FDI projects in Bangladesh from rest of South Asia undergo more stringent scrutiny procedures and hence its rate of implementation of FDI projects is much lower than in other countries. The country needs to review such policy and practices. India should promote private investment in rural areas so that rural places may emerge as

new center of growth. Such initiatives will facilitate additional demand for goods and investment. For Nepal, on the other hand, some form of selective intervention including provision of training programs and R&D activities, balancing foreign exchange and imposing restrictions on domestic borrowing are needed to reduce negative effect of foreign investment. In Pakistan's case, liberalization of FDI regime has to follow proper sequencing and pacing. It is also needed that Pakistan considers the need of an appropriate regulatory framework. Pakistan's strategies and efforts should be focused to achieve diversity in FDI inflow from other South Asian countries. Sri Lanka, on the other hand, needs to review and evaluate its current FDI policy framework. The regulatory restrictions on FDI in the country's education sector (degree awarding institutes) should be reviewed.

V. General Business Environment: Freedom from Corruption, Governance, State of Commerce and Financing Services, and Macroeconomic Stability

The region's lack of an adequate and enabling policy framework to facilitate and assist intra regional trade and investment should be addressed. South Asia's existing policy regime is inadequate in many ways considering the regional concerns and issues relating to security, political instability and various protections on intra regional trade and FDI. Moreover, to facilitate greater inflow of FDI, each country government needs to create laws and regulations on the protection of intellectual property rights.

In the country concern, for the case of Nepal as well as Pakistan and Bangladesh, instability in government and country policy fronts, inefficient bureaucracy, corruption in various government organs including tax regulations and administration, and delays in customs and transshipment reduce firm productivity and profitability. These caps should be reduced and eliminated gradually. For Pakistan and Bangladesh, it is also likely important that high and rising inflation should be kept in control. Similarly for the case of India and Sri Lanka, the unstable and uncertain macroeconomic environment with inefficient trade policies

aggravates inflow of foreign trade and FDI. Problems such as bureaucratic red tape, delays in approval of FDI project and high costs of compliance also impose barriers to greater trade and investment. These issues should be addressed soon with priority efforts.

VI. Finance and Banking, Lending Interest Rates and Remittances

In the country policy front of Bangladesh and Pakistan, cost of doing business is high enough due to high cost of loans provided by banks. Therefore, it is important that these countries try to reduce lending interest rate by banks. India, on the other hand, needs to eliminate mainstream constraints of trade and investment such as inadequate finance and credit facilities, lack of standardization of letters of credit, and lack of foreign investment guarantees. Nepal is in need of providing proper assistance to the country's financial corporations. The regulatory regime of 67 per cent cap on foreign equity in financial services in Nepal should be reviewed in order to increase its financial sector's competitiveness. For the Sri Lankan case, given the country's higher borrowing costs under-developed capital markets should be addressed immediately.

For all of these countries, we suggest that it is especially important to focus on remittances during a time of great financial chaos in the global markets where most financial flows have already dried up. There is emerging evidence that remittances tend to be more stable and resilient in the face of financial uncertainty in South Asia. Therefore, proper utilization of these foreign capitals may become more important means to pull the region out of the current or future chaos in the global financial markets.

VII. Economic Openness: Liberalization of Trade and FDI Regimes

For the case of South Asia in general, we suggest that prolonged protection of the region's trade and FDI regime would lead to inefficiency and inability to compete in the international market. On the other hand, premature, universal and 'across-the-board' trade

and investment liberalization would lead to de-industrialization, concentration in production and exports of primary commodities, resource-based products and simple labor-intensive industries or assembly operations without much ability to catch-up and upgrade. In short, we advance that although ensuring greater economic openness may enhance greater regional integration, liberalization of FDI and trade regimes become essential when an industry reaches a certain level of maturity, provided it is undertaken selectively and gradually.

VIII. Human Resources Development, Labor Issues and Travel Restrictions

In a regional basis, to ensure greater economic integration of the region, the SAARC countries should ease travel and visa restrictions through extension of SAARC visa exemptions to bona fide business people.

In the country perspective, Bangladesh should initiate proactive measures in the country's human resource development. India should focus on better training and development of skills given that the country has entered an era of 'knowledge economy' where many jobs are available for trained and skilled workers. Nepal, on the other hand, needs to relax its Labor Act as firms face a big problem of high retrenchment cost due to this regulation. Nepal's restriction on import of foreign labor makes big difficulties in bringing skilled and experienced specialists, other essential workers and managerial talents. These issues should be addressed. In the Sri Lankan case, some provisions of 'Termination of Employment of Workmen' restrict freedom to restructure firms by employers as termination of an employee requires government approval. These provisions need to be reconsidered. Instead, at the same time, government should establish a standard minimum notice period of termination and severance payment formula across the country.

The role of regional trade agreements needs to be reconsidered. The role of various multilateral agreements in the region should be taken proper care of. After the

creation of SAARC, South Asian leaders adopted SAPTA as the first initiative to support regional economic integration among the countries. However, the achievement of SAPTA framework is not mentionable. SAPTA featured the consolidated list of concessions covered 3,857 tariff lines and special concessions of 2,762 tariff lines offered to LDCs. World Bank (2004) reported that the actual trade coverage of preferential access granted under SAPTA was very limited such as, on an average, only 8.4 per cent of tariff lines for imports from non-LDC members and 6.2 per cent for imports from LDC members were successfully covered. Mukherji (2000) estimated that amount of imported products under SAPTA concessions was only 15 per cent of total imports between the member States. Hence, SAPTA had little or no impact and became almost ineffective to promote regional trade and investment. Adoption of a modified SAPTA regime is required.

The failure of SAPTA influenced the policy makers to launch a new framework of South Asia Free Trade Area (SAFTA) with an expectation that this new agreement should contribute greatly to the region's integration process by promoting more regional trade and FDI. SAFTA's key features are modalities of the trade liberalization program (TLP), the treatment of sensitive goods and the rules of origin. Similar to SAPTA, this agreement also achieved very limited success to support enhanced integration of South Asia by promoting regional trade and FDI (Weerakoon, 2008). The following aspects should be considered to attain a more comprehensive and effective SAFTA agreement.

Presence of bilateral preferential trade agreements in South Asia affects the contribution of regional trade treaties negatively. First, under the India Sri Lanka FTA and the Pakistan Sri Lanka FTA partner countries offer better market access than they do to LDCs under the SAFTA arrangement. Thus LDCs cannot benefit from the preferred treatment and they even lose advantage that is supposed to be reaped under the SAFTA framework. Second, the India Sri Lanka FTA offers more favorable rules of origin by providing preferential

treatment to a product which is not wholly originated in any of the contracting parties given that inputs from a third party do not exceed 65 per cent of the final good. The SAFTA allows only 60 per cent of the inputs from a third party for the non LDCs. Therefore, a producer who produces using 60 to 65 per cent of raw materials from a third party will prefer the India Sri Lanka FTA rather than the SAFTA arrangement. Third, the SAFTA framework is granted for a tariff reduction scheme to between 0-5 per cent by 2016. The bilateral agreements such as India Sri Lanka FTA and Pakistan Sri Lanka FTA offer faster schedules for reduction of tariff. Fourth, under the India Bhutan FTA, India grants discretionary benefits to Bhutan by selling some products that are originally banned to export. Moreover, wide sensitive lists of products and limited coverage of non-tariff barriers and inefficient dispute settlement mechanisms make the SAFTA less preferable to the bilateral agreements under operation.

Similarly promoting the role of bilateral investment treaties (BITs) is needed.

Countries in South Asia have signed some bilateral investment treaties to achieve confidence of foreign investors. These are BITs between: India and Bangladesh, India and Sri Lanka, India and Nepal, and Sri Lanka and Pakistan. Although creating of BITs is a big push to regional integration of FDI in South Asia, a closer look at the role of these treaties indicates that they have negligible impact on intra regional flow of investment.

Why BITs did not promote integration of regional FDI is a big question. Originally, the basic purpose of BITs is to protect foreign investors' property rights. Investors are protected either by relative or absolute standards under some provisions. There are some clauses regarding a BIT such as Most Favored Nation (MFN) clause, National Treatment (NT) clause and Fair and Equitable (F&E) clause etc. First, under the MFN clause, the investor should be treated from a contracting party relatively on the same manner as third parties by the host country government. Second, the NT clause obligates the host country to treat the investors as contracting parties in a similar manner to an investor from the host

country. Third, the F&E clause creates an absolute standard for foreign investors to provide a minimum standard of treatment by the host government. In addition to these three clauses, some BITs also add an extra clause to ensure full protection and security for foreign investors. While there are a lot of BITs signed by ASEAN countries that provide this additional clause, none of the BITs in South Asia has included this additional feature of protection while such additional features grant more favorable treatment for a foreign investor as a contracting party by the host government under any other regional agreement. Therefore, it is important that in order to achieve better cooperation and deeper integration of regional FDI South Asian countries adopt fresh and newer policies by adding these exceptional features to the current BITs under operation.

The role of India on South Asia's regional integration should be recognized and acknowledged. The impact of various multilateral trade agreements and bilateral investment treaties among countries in South Asia has proved to be insignificant. However, a key issue that needs to be addressed is that if there are any other alternative arrangements through which economic integration of trade and FDI in the region can advance successfully. In this connection, the role and relevance of the largest economy in the region (India) is very crucial.

There are several reasons for India's unwillingness to promote regional cooperation in South Asia. The first issue is related to a perception by Indian policy makers that a more regionally integrated space with effectively open borders will exacerbate security problems for the country. In this current age of globalization, this sentiment is getting strong supports due to the presence of increasing evidence of anti-Indian and extremist activities in recent years. The second issue is related to the small land mass of the South Asia region. Indian leaders hold a perception that the region is too small for India to compromise and spend its political and economic capital of negotiation. And the third reason is related to the view of somewhat intransigent stance for India in some neighboring countries such as Pakistan which

refuses to afford India as the leading country in the region. The fourth issue is all about India's positive attitude toward bilateral agreements that are deeper and broader in their coverage. The slow progress of multilateral agreements shows India another path to engage more resources in adopting bilateral FTAs with its closely located neighboring countries. However and most importantly, India remains the single largest trading partner for all of the South Asian countries and India's share in regional trade of some countries such as Bhutan, Nepal, Sri Lanka and Bangladesh approximates to 90 per cent or above. Even the share of bilateral trade of Pakistan with India is more than 50 per cent. Therefore, economic integration in South Asia can be described as bilateral links of other regional member countries in the region with India. Notably, India is the key player in South Asia's integration through trade and FDI. There is evidence to suggest that bilateral trade treaties between India and other South Asian countries have been playing very important roles towards establishing a free trade area in the region. Market access granted by India to its other trading partners under bilateral trade agreements provides an environment that could resemble to free flow of FDI and trade. Bhutan, Nepal and Sri Lanka are already granted for virtual free trade access to India for their exports under some bilateral free trade agreements (FTA). Bangladesh and Maldives also have less restriction on their exports to the Indian market. Both Bangladesh and Maldives enjoy the benefit of unilateral reduction of India's sensitive list by further 264 items. India granted Bangladesh to get greater access to its market through other regional arrangements such as the Asia Pacific Trade Agreement (APTA) and the Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation (BIMSTEC). In addition, recently the two nations have advanced substantially towards adopting a new FTA. In this regard, India's role as the leading country of the region toward intra regional trade and intra regional FDI is very important. The following table shows India's involvement in bilateral and multilateral treaties with other South Asian countries.

Table 7. 3: Bilateral and Multilateral Regional Agreements in South Asia That Involve India

Country	Bilateral Agreement	Other Agreement
Afghanistan	Preferential Trading Agreement (2003)	
Bangladesh	Trade Agreement (2006), Bilateral Investment Treaty (BIT)	APTA, BIMSTEC
Bhutan	Free Trade Agreement	BIMSTEC
Maldives	Trade Agreement (1981)	
Nepal	Free Trade Agreement (1991)	BIMSTEC
Pakistan	n.a	n.a
Sri Lanka	Free Trade Agreement (1998), Bilateral Investment Treaty (BITs)	APTA, BIMSTEC

Source: Weerakoon (2010)

Seeing from a different angle, according to Tanaka (2010), the international regional common markets that contain capital goods exporting countries could achieve high volume of intra regional trade and FDI. The countries such as Germany, French and so on from the European Union (EU); United States in NAFTA; and Japan from the ASEAN supply plants and intermediate goods and carry out FDI in the sectors of consumer durable goods in the rest of the countries in each common market. In the case of South Asia, India is very important in a meaning of capital goods exporting country and under the SAFTA framework; India may play an important role in the integration process of the whole region.

There is another way to gain greater intra regional trade and FDI in a common market. This is to practice supply chain management of automotive, electric and electronic industries or to build global value chain (GVC) where each fragmented production process is allocated to some countries in a regional common market. For example, according to Hiratsuka (2010), hard disk drive (HDD) plant of Hitachi Global Strategy Technologies (HGST) in Thailand sourcing a lot of parts from China, Taiwan, the Philippines, Hong Kong, Indonesia, Malaysia and Singapore. HDD plant in Thailand is assembly one and ASEAN is including to the global sourcing strategy by HGST. If we look at SAFTA, India may perform

the role of Thailand. However, this scenario requires the rest of the countries of South Asia to develop enough so that they can produce necessary related parts (Tanaka, 2010).

As a final observation, Promoting intra regional trade and FDI of South Asia requires that both India and Pakistan, the two least integrated economies in the region, should adopt an expanded liberalization program. For a long period of time, lack of trust and unwillingness to cooperate by these two major countries have created SAARC and SAFTA to be nothing more than ‘unavoidable sunk cost’ for the region. Therefore, it is expected that for the sake of better regional economic integration in terms of greater trade and investment, the presence of political hostility between India and Pakistan or any other pair of countries should not be translated to economic bitterness.

7.3 Study Limitations and Guide for Future Research

One important concern is that regional economic integration has been negatively affected by inter-state conflict and hostility in South Asia. Additionally, intra-state tensions in the region caused spillover effects on other inter-state relations. The link between inter-state conflicts and economic integration within South Asia can be indicated from a time-line analysis. The below par performance of SAPTA can be attributed to the escalation of tensions between most conflict prone members in the early 1990s. Formulation and adoption of the SAFTA agreement was delayed due to tension between member countries. Further, decentralization of SAARC’s negotiation procedures to line ministries such as finance, labor and transport after the ministry of foreign affairs was not possible because of political tensions and mutual suspicions between major SAARC members (Khan et al, 2007).

Formal trade agreements in the region failed to bypass ‘political logjam stalling movements’ on the regional trade agreements (RTA) partially due to India’s desire to leverage its economic size and influence over its small neighbors like Bhutan, Nepal, Sri

Lanka and Bangladesh. India established bilateral free trade area (FTA) with Sri Lanka and Bhutan. India also signed trade and transit treaties with Nepal and recently with Bangladesh. Pakistan is the only major SAARC member that has not participated in any bilateral trade pact with India. Through these efforts, the impact of intra-state hostility on trade and FDI integration could have been mitigated to some extent. However, still Pakistan is reluctant to establish any effective trade relation with India and Pakistan continues to view trade relations as secondary to settlements of long lasting disputes. On the other hand, despite the recent approval of the transit and trade agreement between India and Bangladesh, only a modest cooperation in trade and FDI has been achieved so far. Therefore, despite the visible negative impact of political conflict between countries to some extent, there is a clear controversy about the correlation between inter-state hostility and economic integration in the region. This present study's one limitation is that it did not include inter-state political conflict and hostility as a determinant of intra regional trade and FDI due to the fact that pair of countries that do not have any major conflict also did not show any mentionable performance in bilateral flows of trade and FDI. On the other hand, such data also has not become available for South Asia yet. Future such studies may explore this issue.

There were several limitations and short comings with this study. First of all, lack of bilateral data for some countries such as Afghanistan, Bhutan and Maldives reduce number of observations. In this study, we have broadened our observations and number of sample countries as much as possible; however, unavailability of data for some countries restricted our empirical estimation only for five among eight members. Moreover, we also tried to perform the statistical analyses for more years starting from 1970s. But this effort was also hampered due to a lack of data for previous years before 1991. Doing the same research for a greater number of years and more number of countries may increase the degree of freedom, thus, can present more accurate results.

In our empirical analysis for determinants of intra regional FDI, we could not employ the disaggregate model due to not availability of bilateral regional FDI data for most of the countries. We also could not add distance as an explanatory variable for the same reason. It is also possible that there was a sample selection bias due to our limitation in country choice. Correcting these issues will definitely improve the results. In addition, the issue of the correct specification of the gravity model of FDI is not established yet and only a few studies have focused this estimation technique for the case of regional FDI flows.

In general, for both determinants of intra regional trade and FDI we faced the problem of limitations in data availability for the countries of Afghanistan, Bhutan and Maldives. However, inclusion of these countries may reduce the selection bias and suggest more reliable results. It is also possible that the extremely bigger size of the Indian economy compared to other countries in the region imposed some limitations on the empirical estimates. Thus, we suggest that the results presented in this study should be considered as a preliminary effort for future research in this field.

Regarding our study of intra regional trade determinants, we have used ‘Total Bilateral Trade in Million US Dollar’ and ‘Bilateral Regional Trade Share to Total Trade’ as our dependent variables, however, inclusion of ‘Bilateral Export’ and ‘Bilateral Import’ variables can also be used to capture the fluctuation of bilateral trade between country pairs. On the other hand, we tested ‘Total Regional FDI Inflow for a Member Country from the Rest of the Region’ as our dependent variable in the case of bilateral FDI determination. But inclusion of Bilateral FDI data instead of total regional flow may update this empirical study with new and different findings. In addition, future study of intra regional FDI determinants by gravity model may include horizontal or market-seeking FDI (HFDI) and vertical or efficiency-seeking FDI (VFDI) data in the dependent variable side to explain or indicate the factors that drive MNEs in their FDI decision in a host country.

Next, it is also possible that the disaggregate model of both intra regional trade and intra regional FDI determination can be utilized for sector or industry levels when such data become available in the future. As a whole, we conclude that there are plenty of ways to expand this study by doing more researches when more relevant data becomes available. Moreover, the method that has been suggested could be tested for other similar regions.

Nevertheless, we believe that this thesis made a useful contribution to the study of intra regional trade and intra regional FDI in South Asia. The present study will have served its ultimate objective if it can provide with some useful information, implications and policy pointers for greater integration of trade and FDI in South Asia.

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