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Foreign Direct Investment and Bilateral Trade: Complement or Substitute? Evidence from Asian Developing Economies

by

Abdul Samad Khan

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TO MY BELOVED FAMILY, RESPECTABLE TEACHERS, AND DEAR FRIENDS

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CERTIFICATE OF APPROVAL

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Abstract

This study examines the impacts of FDI on the bilateral trade between the East-Asian and South Asian economies with their trading partners. The period of study covers the bilateral data on trade and FDI from 2001 to 2012. This study estimates an augmented gravity model of trade. Mundlak approach is employed as an alternative for fixed effect model for empirical estimation. Importantly, FTA and CPI both have positive and significant effect on bilateral trade. Subsequently, the distance variable becomes insignificant, when the FTA variable included in the model. This indicates that FTAs marginalize the effect of distance on bilateral trade between the member countries. To conclude, the policymakers in the developing countries would encourage and liberalize the foreign investment from developing countries to enhance the volume of bilateral trade.

Keywords; FDI, Bilateral Trade, Gravity model, Mundlak approach.

Contents

List of Tables

Abbreviations

FDI	Foreign Direct Investment
GDP	Gross domestic product
IMF	International Monetary Fund
UNCTAD	United Nation Conference on Trade and Development
TDR	Trade and Development Report
WIR	World Investment Report
EU	European Union
OECD	The Organization for Economic Co-operation and Development
R&D	Research and Development
U.S	the United States
U.K	the United Kingdom
MNCs	Multinational corporations
SEE-5	5 South East European countries
EU-NMS-10	10 new member states of European Union
WTO	World Trade Organization
MNEs	Multinational Enterprises
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
FTA	Free Trade Agreement

Chapter 1

Introduction

1.1 Background of the Study

FDI plays an important role in economic development for many developed and developing economies. In 2016, the global FDI flows account for about USD 1.75 trillion. Moreover, the East Asian economies received about USD 260 billion, followed by the South Asian economies accounted for about USD 54 billion in the same year (UNCTAD, 2016).

The previous literature regarding FDI and bilateral trade shows either complement or substitute to each other. Both FDI and trade have a principal role in the fast-growing economies and the further the globalization process. The reason behind the important role could be that both are considered the major influential resource of technological and economic development (Omri and Kahouli, 2014), and in the globalization of the world economy (Sgrignoli et.al, 2017). According to FDI and trade relationship, its divided into two main types, whether both are a substitute or complement. The complementary relationship between FDI and trade are also known as Vertical FDI (Helpman, 1984) and the substitute relationship between FDI and trade are also known as horizontal FDI (Markusen, 1984). Vertical FDI called when a firm combines their advanced technologies with cheaper resources in less developed economies also known as efficiency-seeking FDI (Kang,

2012). Therefore, such type of FDI is motivated by the cost consideration (Fonseca, Mendona and Passos, 2015). On the other hand, horizontal FDI called when a firm desires to invest in the same advanced economy (Kang, 2012). Notably, horizontal FDI refers to bilateral investment between developed economies, in addition, known as market-seeking FDI, as it is motivated by market consideration (Fonseca et al. 2015).

However, trade and FDI are typically discussed with respect to their complementary and substitute relationship. Correspondingly, established from the previous literature, that FDI tends to increase the trade volume of a particular country when both are a complement, whereas, when FDI cause to decrease the trade flows of a country, the relationship between them is called a substitute.

Consequently, in literature, many empirical studies explored the complementary or the substitute relationship between FDI and trade. For instance, Chang and Gayle (2009) conduct a research on sales of US companies for 56 countries between 1999 and 2004. The study concludes the substitute relationship exists between trade and FDI. It indicates that multinational companies prefer FDI over export. Furthermore, they argued that there are factors which affect their relationship, i.e. market demand growth, transportation costs, and start-up costs, but market demand volatility is an important factor that affects the relationship between trade and FDI. Similarly, Bhasin and Paul (2016) observe the relationship between trade and FDI for 10 countries from South-East Asia over the period 1991 to 2012. They confirmed the substitute relationship between trade and FDI in the selected countries of the regions. Moreover, Daniels and Ruhr (2014) explore the relationship between US trade and FDI between 1985 and 2010 across 53 countries. They also found a substitute relationship between FDI and trade.

On the other hand, numerous empirical studies also found the complementary relationship between FDI and trade. Goldar and Ishigami (1999) investigate the impact of Japanese FDI on bilateral trade of Asian countries. Their empirical results reveal that Japanese FDI promotes the host economy exports. Likewise, the same relationship found between FDI from the United Kingdom (UK), the United States (US), Germany and Japan to East and Southeast Asian countries trade,

using a data from 1998 to 2006 (Fung et.al, 2015). Moreover, they also argued that the impact of Japanese and Germany FDI is stronger with trade than that of the UK and US. Ajaero and Sluis (2016) discuss the relationship of export and FDI of U.S food processing industry with 10 highly income countries between 1982 and 2012 using panel data analysis. Their results suggest that FDI and trade have a complementary relationship to each other. Likewise, Marchant, Cornell, and Koo (2002) examine the US agricultural products trade and FDI relationship for East Asian countries using the data from 1989 to 1998. They found a complementary relationship between FDI and trade. To examine the effect of South-South FDI and the import on African export Amighini and Sanfilippo (2014) found that impact of South-South flows (FDI flows from developing countries to developing countries) is different from that of North-South flows (FDI flows from developed countries to developing countries) in the way that flows from the first one has the complementary relationship with trade. They further documented that it has strong potential to promote the African export mainly, in poor technological industries such as the agro and textile. Similarly, the above studies show the complementary relationship between trade and FDI, in addition, the following some empirical studies also evidenced the complementary relationship between FDI and trade (Boubacar, 2015; Krautheim, 2013; Kimura and Kiyota, 2006).

What is more, the other studies also provide mixed evidence in the literature about FDI and trade relationship, Such as Swenson (2004) relating trade and FDI using panel data from 1974 to 1994 found that the United States FDI and trade are a complement to each other. However, using disaggregate data they found the mixed result. At product as well as at industry level FDI shows substitute relationship with the trade but in case of overall manufacturing components, he evidenced that FDI and trade have a complementary relationship. Blonigen (2001) study the Japanese investment in automobiles and consumer sector in the US. His empirical results supported the complex relationship between trade and FDI. So that, in the case of production of Japanese automobile parts in the US, the study didnt come across any expansion in export volume from Japan. However, at the same time, FDI and export from Japan show the significant and positive relationship with

the US in automobile production. However, on the other side, Japanese consumer products demonstrate a negative relationship between FDI and trade in the US. In nutshell, the study reached ambiguous results. The mixed relationship evidenced in other studies for instance (Bedassa, 2003; Wang, 2007; Dauti, 2016).

1.2   Problem Statement

In literature, numerous studies are conducted regarding the relationship between foreign direct investment and trade for both developed and developing economies. However, problem is that the relationship between FDI and trade in many empirical studies is not distinguished between developed and developing economies. As the general relationship considering both developing and developed countries misrepresents the relationship between FDI and trade (Kang, 2012). Therefore, this study fills the gap by isolating the effect of South-South, and North-South trading and investment relationship. In other words, what is the impact of FDI of home[1] country on host[2] country trade if the home country is developed or developing country? We used the South Asian and East Asian countries for the empirical investigation to unearth the relationship between FDI and bilateral trade.

1.3   Research Questions

Theoretically, and empirically FDI and trade relationship should be substitute or complement or mixed. According to the previous work on the relationship between trade and FDI, if FDI cause to increase trade then the relationship is complementary and if FDI decreases or replace the trade then the relationship is a substitute. The present study has the aim to pose the following research question in the context of South Asians and East Asians countries.

(i) What is the relationship between foreign direct investment (developed and developing countries) with developing countries bilateral trade?

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[1]Home country: Investor country
[2]Host country: FDI beneficiary

(ii) What is the relationship between developed and developing countries FDI to the bilateral trade of developing countries?

1.4   Research Objectives

The present study has the following main objective:

1. To investigate the relationship of inward bilateral FDI on bilateral trade of East Asian and South Asian countries whether both are complementary or substitute.

2. To examine the effect of developed countries FDI on developing countries bilateral trade.

3. To examine the effect of developing countries FDI on developing countries bilateral trade.

1.5   Significance of the Study

The present study will investigate the relationship between FDI and trade. FDI influence mainly on the developing economies in four different ways (Ionascu and Zigic, 2004). First through FDI inflow, the demand for the capital resources should be increased for the improvement of various sectors of the economies in developing countries. The second, an important issue is unemployment and through the FDI inflow, this issue can be resolved at some extent through the establishment of new working areas. Third, the inflows of FDI increase the competition and in turn promote the productivity growth and finally, the introduction of higher quality products. The present study will provide an important insight into the policy makers to identify important drivers that can influence the relationship between FDI and trade. This will guide the developing countries to encourage the investment from the developed or developing countries that can further enhance the volume of bilateral trade.

1.6   Organization of the Study

The rest of the study is structured as follows; Chapter 2 of the current study consist of the recent global trends of FDI and trade. Chapter 3 consists of the previous literature regarding FDI and trade relationship. Chapter 4 describes the data and sources, model specification and research methodology. Chapter 5 explores the econometric results and discussion. And finally, Chapter 6 concludes with policy implications.

Chapter 2

Recent Trends

2.1   Trade and FDI Recent Global Trends

The study categorized the global economic activities into two major types that are, FDI and international trade (Wua, Mab and Zhuo, 2016). International trade and FDI are the major drivers of global technological advancement (Gong and Keller, 2003). Furthermore, they argued that technological advancement spreads across different economies through two basic mechanisms. 1) Know-how about the foreign technology. 2) The use of advanced and specialized products, which are invented in another country. Therefore, to take the maximum advantage of foreign technologies, the countries need to attract a significant proportion of FDI and further involve in international trade.

According to (UNCTAD, 2016) in 2015 the global FDI flows were grown dramatically to the highest level by 38 percent about USD 1.76 trillion, however, it could not get the 2007 FDI flows peak and it remains squeezed to 10 percent. This is the highest level since the 2008 financial crisis of FDI world flows. In 2015, FDI flows to developing Asia rose to a record level of 16 percent about USD 541 billion which make developing Asia the leading beneficiary of FDI flows. Figure 1 shows the FDI inflows to a different group of economies in the world from 2005 to 2016 US dollar in billions.

However, in 2016 the FDI flows become stagnant and decrease to about 2 percent to USD 1.75 trillion. Furthermore, the FDI flows to developing Asia decrease by 15 percent about USD 443 billion in 2016 (UNCTAD, 2017). Likewise, they also conducted a survey to find out the factors that affect the world FDI flows. Therefore, they found different geopolitical, and socio-economic factors responsible for the reduction in the global FDI flows namely geopolitical uncertainty, terrorism and social insecurity, exchange rate instability, increase in interest rate and increase in the debt level of emerging economies. Besides, another factor that has also a significant impact on FDI flows especially to developing Asia is diminishing prices of commodities.

However, the increase is expected in 2017 and 2018 in global FDI flows. A 5 percent increase is expected in 2017 almost USD1.8 trillion and the increase will continue in 2018 to USD1.85 trillion, means that it could not reach the peak of 2007 FDI flows.

After the global crisis of 2008-2009 the international trade expansion decreased sharply since 2011 and the trade level decrease reached to 11 per cent in 2015, which is almost the second highest fall since 1950 which occur during the global financial crisis (GFC) and trade level was decreased up to 23 per cent. Following, the world merchandise trade decreased sharply to 15 percent (USD 16 trillion) from previous year USD 19 trillion in 2014 (UNCTAD, 2016). The following table 1 shows the decrease in world trade year by year from 2009 to 2015.

There are a few key factors identified by different studies which cause the sharp decline in international trade growth. The fall in commodity prices and dollar appreciation were the major factors of 2015 trade decline, furthermore, fall in oil prices has also a key role in the decline of global trade which decreased from USD 100 per barrel in 2014 to USD 50 per barrel in 2015. Additionally, most of the world trade is done in US dollar and the US dollar appreciated about 15 percent between 2014 and 2015. Hence, the exchange rate also became the key factor in declining the world trade because in that case, one has to pay fewer amount dollars for the same quantity of goods.

One of the most important and major reasons behind the 2015 trade declining is the decrease in trade activities of East Asian countries with the world. These countries contributed in 2015 world trade more than one-third of the world exports in manufacturing goods. Furthermore, manufacturing goods decline up to 7 percent in 2015 international trade, a large share of which related to East Asian economies. East Asian countries' imports accounted for about 25 percent of the overall decline of manufacturing trade, a much higher share than the corresponding figure for exports (about 10 percent) (UNCTAD, 2016).

According to (World Bank, 2017) growth is expected in an international trade up to 4 percent in 2017. Additionally, the trade flows recovery in 2017 possibly will be supported by the greater demand for import from highly developed economies and increase in Chinese import and export.

2.2 FDI and Trade Recent Trends in East Asia

2.2.1 Trends in FDI

According to WIR (2014), the FDI inflows reached USD 221 billion which is 2 percent more than in 2012. China attracted USD 124 billion FDI in 2013 from rest of the world and ranked second highest beneficiary of FDI in the world after the United States. Similarly, in 2013 the FDI flows to the Republic of Korea rose to USD 12 billion. Hong Kong experienced a slow growth in FDI in 2013 and increase by 2 percent to USD 77 billion well below than that 2011 USD 96 billion. WIR (2015) in 2014 the FDI inflows to East Asia rose up to 12 percent amounted to USD 248 billion. The main recipients of FDI inflows were China and Hong Kong. The FDI inflows to China increased by 4 percent and reached USD 129 billion and China became the largest beneficiary of FDI in the world and surpassed the United States. Similarly, inflows to Hong Kong rose by 39 percent to USD 103 billion. In 2015 the FDI inflows to East Asia continue their growth and increased by 25 percent to USD 322 billion (WIR, 2016).

In 2016 the FDI inflows declined sharply to East Asia and decreased by 18 percent to USD 260 billion, especially, to Hong Kong from USD 174 billion to USD 108 billion (WIR, 2017). Moreover, the Republic of Korea received USD 11 billion in 2016, while, Mongolia recorded negative inflows of USD 4 billion. This is because of intercompany loans from multinational companies and it also experiences a decline in FDI since 2011.

2.2.2 Trends in International Trade

The east Asian region has continued their dominance over other developing economies trade flows. Particularly, in East Asia, China has become a most significant trading partner for many other developing countries of the world (UNCTADStat, 2013). Moreover, in recent years China is considered as the powerhouse of the world trade (TDR, 2013). Therefore, in 2011 the trade flows of East Asia about USD 4 trillion equal to the trade flows of the rest of the world developing countries (UNCTADStat, 2013). In 2013 East Asia expected the highest growth rate with the 6.1 percent because of the domestic demand (TDR, 2013). Hence, in 2013 the merchandise trade of East Asia reached USD 4.5 trillion (UNCTADStat, 2014). In 2014 the East Asia trade growth rate below than 4 percent and the main reason behind this was decelerated of Chinese international trade (TDR, 2015). However, in 2014 East Asian trade flows reached USD 4.7 trillion (UNCTADStat, 2015). As earlier is mentioned that China is the powerhouse of the world trade. Therefore, a slight change (positive or negative) in the Chinese economy has an effect on the whole region. In 2015 import of the China decrease by 2.2 percent and its exports also declined by 0.9 percent, as a result, the decline in Chinese trade affected the whole East Asian region (TDR, 2016). Accordingly, in 2015 due to the Chinese trade declined the regional trade flows decreased to USD 4.1 trillion from USD 4.7 trillion in 2014 (UNCTADStat, 2016).

Following the rebound of world trade in 2010 after the global financial crisis in 2008-2009 the international trade grow with a sluggish rate which turned to negative in 2015 dramatically and followed by 2016 (UNCTADStat, 2017). East Asia traded close to USD 3.79 trillion in 2016.

2.3 FDI and Trade Recent Trends in South Asia

South Asia faced a lot of challenges and opportunities to attract FDI and raised the FDI inflows by 10 percent to USD 36 billion in 2013 (WIR, 2014). The major beneficiary of FDI in South Asia is India. India has received USD 28 billion in 2013 by 17 percent increase in the FDI inflows of 2012. Bangladesh and Pakistan received USD 1.6 and USD 1.3 billion in 2013 respectively. Subsequently, WIR (2015) in 2014 the FDI flows to South Asia rose to USD 41 billion followed by an increase of 22 percent to USD 34 billion in FDI inflows to India and remain the largest beneficiary of the FDI in the region. Similarly, the FDI inflows to Bangladesh, Pakistan and Sri Lanka also increased. In 2015 the FDI inflows to South Asia rose by 22 percent to USD 50 billion. Moreover, in 2015 India became forth (4th) largest in developing Asia and tenth (10th) largest recipient of FDI in the world (WIR, 2016). Further, in 2016 the global FDI inflows decreased by 2 percent, however, South Asia, the only region which registered increase by 6 percent to USD 54 billion. The FDI flows to India increased by 1 percent to USD 44 billion. Pakistan and Bangladesh also recorded an increase in the FDI flows (WIR, 2017).

After the 2008 global financial crisis which shaken the world trade and affect the growth level of the world trade. So, it also affects the trade level of the South Asian region. The pre-crisis trade volume of USD 628 billion decreases to USD 558.11 billion. In the period 2010 and 2011 the world trade bounced back strongly after the world financial crisis (WTOStat, 2016) and South Asian international trade flow reached to USD 464.35 billion in 2010 which low from that of 2009 trade flows. In 2011 the trade flows reached to USD 944.68 billion. Moreover, the world trade turned down gradually during 2012 and 2014 (WTOStat, 2016). However, the overall trade flows of South Asian countries were high from that of 2011 which are about USD 977.80 billion, but the export flows of the region showed a decline. This was because of the decline in Indias export volume (2.5%) due to decelerating in the European economy (TDR, 2013). Although, the Indian export stabilized in 2013 through which the regional economic recovery was supported (TDR, 2014) and the regional trade flows reached to USD 977.80 billion. In 2014 the trade flows

decreased to USD 898.62 billion because of the low commodity prices experienced by the world trade in mid of the 2014 (TDR, 2015). In 2016 the world economic growth rate was well below than that of 2014 and 2015 (TDR, 2016). Furthermore, this was the sixth consecutive year of modest world economic growth. Moreover, a 4 percent growth rate in developing economies was recorded in 2016 more than that 1.6 percent of developed economies. The South Asian trade flows in 2016 was USD 724 billion.

According to World Bank press release, South Asia became the fastest growing region in the world in 2016 and 2017 with a growth rate of 7.1 and 7.3 percent respectively. They further argued that this is because of Indias strong economic growth.

South Asia has been resilient to global turbulence due to its limited exposure to slowdowns in other major economies coupled with the tailwinds of favorable oil prices, capital flows, and remittances, said Annette Dixon, World Bank South Asia Vice President.

Chapter 3

Literature Review

3.1   Foreign Direct Investment (FDI)

According to the previous literature foreign direct investment afterward (FDI) has an essential and leading role in the expansion of the economies of both developed and developing countries. FDI takes place when the possession of an asset acquired by an investor of one country (home country) in another country (host country) with the aim to manage that asset. Importantly, in FDI the management of the asset is the key distinctive characteristic that makes difference between FDI and other foreign investments like; investment in foreign portfolio stocks, bonds, and other financial instruments. As in most cases, the investor and the asset that it manages out of the country are considered business firms. Consequently, in this scenario, the investor is usually known as the parent firm and the asset that is managed by the investor (parent firm) known as the affiliate or subsidiary (WTO, 1996).

The concept of FDI is also well defined by OECD in (BMD4, 2008), as, the main objective of the definition is the establishment of the lasting interest of a foreign investor in the home country enterprise. From the term, lasting interest means the long-term relationship between the investor and the organization that has at least 10 percent voting power in ownership. Furthermore, it is important that the investor and the organization should be of different economies. Moreover,

according to this definition, the voting power of at least 10 percent shows the existence of the direct investment relationship.

Moreover, FDI is also called when a foreign corporation launches businesses abroad either by setting up their completely owned subsidiary, or by getting hold of host country firm, or forms a joint venture in the host country. Therefore, it indicates that FDI is a flow of funds across the world among the different countries (Lipsey, 2004). Furthermore, he argued that FDI comprises all those economic or operational activities which are carried out by a home country firms which have totally or partially control of host country firms. Additionally, he documented that these activities consist of production, employment, sales, the purchase and use of intermediate goods and fixed capital, and the caring out research as well. Moreover, firms that involve in foreign investments are also called a market seeker, as they seek to take advantage of low labor wages or resource abundance (Dunning and Lundan, 2008).

To sum up, the countries that succeed to attract substantial amount FDI, the major motive could be the host country friendly policies to foreign investment; such as, well-built property, accurate security, consistency in macro policies, satisfactory communications and transportations structure, and the regulatory environment should be unambiguous and competitive (Blonigen and Wang, 2004).

Furthermore, from the literature it is also clear that FDI is evenly important for both developed and developing economies. Thats the reason that developed as well as developing economies to attract more FDI, they try to reduce the hurdles and also offer special incentives. However, FDI is more important and attractive for developing countries for a reason that Fry, Claessens, Burridge and Blanchet (1995) increase in foreign investment have a tendency to decrease the host countries foreign borrowings. It means that when a host country does well for attraction and efficient utilization of FDI than it is beneficial to decrease the foreign borrowings and as a result, the financial costs (interest, foreign exchange etc.) will also have a tendency to decrease. Therefore, for developing economies FDI is the best choice to finance their projects against foreign bonds and borrowings or bank loans (Lizondo, 1991).

Furthermore, Botric and Skuflic (2006) investigated that domestic savings could also be enlarged by the use of foreign capital and through this way a country can increase the capital accumulation. They further added that through various types of foreign investment, managerial skills and technological competence could also be transferred from country to country. Further, Borensztein, Gregorio, and Lee (1998) acknowledged that FDI is more fertile and rewarding then domestic investment for host country economic development. As, the domestic firms have enhanced knowledge and access to the local market as compared to the foreign firms, therefore, the foreign investors utilize and compensate with the host country firms advantages, their knowledge and access of the local markets and combine these advantages with their highly developed managerial skills and advanced technologies to get improved outcomes (Garaham and Krugman 1993). Thats why; the foreign investments have an edge over domestic investment in the growth and strength of the countrys economy.

Moreover, Borensztein, Gregorio, and Lee (1998) FDI is the best source of transferring advanced technologies and highly developed decision-making capabilities to the developing countries. Consequently, the developed and developing countries try to make FDI friendly environment and policies to attract more of FDI Lonascu and Zigic (2004) in order to get the advantage of foreigner managerial skills and capabilities and technological advancement to develop the economic condition of the country. Hence, from the above work about the foreign investment indicates that FDI has a crucial role in the economic development, technology transfer and management skills and abilities to developing and developed countries worldwide. So, it implies that FDI enables the developing and developed economies to have access to the global markets, advanced technology and highly developed managerial skills and abilities.

3.2   Trade

Here, in the present study, the word trade means, the trade activities between the countries not between the domestic markets. Barker (1997) argued that in the

post-war era the broad expansion of world production and trade excel have two main features. First, the world trade has grown extensively as compared to the world production. Second, the developed countries trade grown more extensively as compared to the developing economies. International trade plays a key role in the development of the world economy and furthermore, also has a vital role in the endorsement of competition, specialization, and scale of economies across the borders globally (Wang, Wei and Liu, 2010).

International trade is also one of the fundamental sources of transferring knowledge across the border worldwide (Wei and Liu, 2006). Hence, it is concluded that international trade is an important source of transformation of advanced technologies, competition, specialization, the scale of economies and fundamental knowledge among the countries and these all have a key role in countrys economic development. Moreover, international trade is the source of advancement of skills by the way of importing and adopting the advanced and innovative technology and procedures for production processes (Belloumi, 2013). Subsequently, Amighini and Sanfilippo (2014) suggest that the use of imported goods also the best source of knowledge acquisition. Such as according to Ali, Cantner and Roy (2016) international trade is a key factor in transferring knowledge and advanced technologies across the different countries. International trade also facilitates the productivity level of a country through knowledge and technology transformation internationally (Ciruelosand Wang, 2005).

International trade makes it easy for local firms to be more effective to compete with foreign firms and also gain knowledge and adopt more advanced technology to be competitive in the market (Amighini and Sanfilippo, 2014). Furthermore, international trade encourages the communication among trading partners that can lead to learning about the advanced technologies, the materials they use and also manufacturing processes and managerial skills (Ali, 2016). International trade is an influential facilitator of economic enlargement globally. Additionally, countrys involvement in international trade helps them to boost their economy and they strive to achieve broader developmental goals like, poverty reduction, employment, food security, gender inclusiveness, health, and environmental sustainability

(UNCTAD, 2014).

3.3 The Relationship between Trade and FDI

An extensive work is done to observe the relationship between trade and FDI all over the globe. Fontagne (1999) their relationship is considered the main source of globalization. Furthermore, international trade plays the role of creator for FDI till the mid of the 1980s, nevertheless, after that the whole scenario changed dramatically with the influence of FDI on international trade. However, the researchers evidenced different type of results. They found a different type of factors that affect the relationship between trade and FDI. By reviewing the literature one can find three different kinds of relationships between trade and FDI. The relation between them can be complementary, substitute or some researchers found a mixed relationship between them. For each type of the relation between FDI and trade, the researchers gave theoretical and empirical evidence to support their results.

3.3.1 Substitute Relationship between Trade and FDI

The substitute relationship between FDI and trade is also termed as Horizontal direct investment, when a multinational corporation (MNC) in both home country and host countries with various plants incorporated to turn out same type of goods and services with same production processes (Fonseca, Mendona and Passos, 2016; Markusen and Maskus, 2002). Horizontal direct investment; the investment which takes place among the different countries whose per capita income, relative factor endowments and also the barriers to trade are less Markusen (1995). Furthermore, it is the most familiar type of FDI and it is also referred to as bilateral investments between the developed countries or it also known as market-seeking FDI due to market fruitfulness for the investment (Fonseca et. al 2016). In literature, most of the theories of FDI are horizontal rather than vertical. Furthermore, it is predicted that trade cost has an impact on FDI, trade relationship, such that, when trade

cost falls it discourage the horizontal FDI. He further argued that FDI and trade relationship has been substitute by trade liberalization when the multinational firms launch a plant in a country in order to serve the whole block by the export of products Neary (2008).

Markusen (1984) suggest a theory of substitution relationship between trade and FDI. His center of attention in the model is a horizontal investment. In this model, it is assumed that the FDI driven forces are the firm-level scale of economies. He also pointed out two types of activities; first, intangible activities and the second are manufacturing activities. The intangible activities (e.g. marketing, research, and development, etc.) centralized to headquarter, however, manufacturing activities; the activities are the activities that are geographically expanded over a number of countries. Furthermore, he also assumed that the factor of production and technology are identical and also the firm produces homogeneous products in both home and host county. Therefore, according to the proposed model, in such circumstances, where, in a home and host country the factor of production, technology, and the products are identical, the FDI will substitute the trade.

Similarly, Markusen and Maskus (2002) develop a model known as knowledge-capital model by combining of both vertical and horizontal models. They use the American multinational enterprise's data for the estimation of results. Furthermore, they distinguished the models in restricted and unrestricted models of multinational enterprises. They statistically proved that the horizontal model is more appropriate than that of vertical models of FDI in both restricted and unrestricted models. Finally, they suggest the horizontal model of FDI more appropriate than that of vertical FDI, which gives the clear indication that FDI substitutes the international trade activities.

Trade and FDI are a substitute when FDI tend to replace the trade in the host country (Ning and Reed, 1995). They further argued that when a firm enters an international market then both FDI and trade are come to compete with each other. Because the firms have, two choices either export to the country or to invest in the country. Hence, in both cases, the relationship between them is a substitute. Therefore, it means that substitute relationship between FDI and trade suggest

that they are opposite to each other if one increases the other one will decrease and vice versa.

In literature, therefore, the empirical evidence available about the substitute relationship between FDI and trade. Pain and Wakelin (1998) shows that not only FDI of just particular industry substitute trade but also all the outward FDI tend to substitute the export. They study 11 OECD (Organization for Economic Co-operation and Development) from 1971-92. Their results indicate that FDI and export substitution affect not similar for all countries. They examined improvement in export performance of Japan, Italy, and Denmark. Finland does not show any significant effect on their relationship while remaining all the firms shown a negative relationship between trade and FDI. Gopinath, Pick and Vasavada (1999) investigate the relationship between trade and FDI in the US food industry. A panel data technique is used for 10 developed countries from 1982-94. They found that foreign sales and export substitute each other in US food industry. Moreover, they also inspect that the protection policies of the host country have a significant influence on the decision of overseas investment.

Helpman, Melitz and Yeaple (2004) observe the relationship between exports and foreign sales of 52 US manufacturers across 38 countries. They represented that how the firms make a decision about to choose FDI or export according to the firm has output divergence. They assessed the effect of economies of scale, trade frictions, and with-in industry firm size on the relationship between trade and FDI. However, later on, they empirically show that the organizations with higher productivity prefer to go for FDI, whereas the organizations with low productivity prefer to exports. Therefore, it suggests that the organizations with higher proficiency give preference to FDI over trade, because the firm can get more through FDI with higher productivity for servicing the host country market. According to Helpman et al. (2004), the firm productivity level has also a significant role in explaining the association between trade and FDI.

Kimura and Kiyota (2006) conduct a research to study the relationship between trade and FDI on Japanese firms. They use the data from 1994 to 2000. They distinguished the firms according to their productivity level, as; firms with highest,

higher and least productivity level. They evidenced empirically that firms with higher productivity level prefer to FDI over trade, means, that it substitute the trade. They found the results that are consistent with Helpman et al. (2004) proposed a theoretical model. Furthermore, with an increase in productivity level, the firm engages in export and with further increase in productivity level, the firm prefers FDI. Although, the difference between their findings is that according to Kimura and Kiyota (2006) the firms with higher productivity engage in both export and FDI while medium-sized firms engage in either export or FDI. They further argued that trade and FDI come to compete with each other in medium-sized firms only.

Kimino, Saal, and Driffield (2007) conduct a research on Japanese firms taking data from 1989 to 2002 in order to study the macro determinants of FDI inflow to Japan. They show that the export performance of the host country firms has a substitute effect on horizontal FDI into Japan. They further investigate that strong export performance of the host country firms in Japan paying less attention to invest directly. Moreover, the business climate of Japan and source country has also a great impact on Japanese inward FDI flows. Similarly, they suggest that FDI inflows to Japan are market seeking rather than cost preferences. Furthermore, they found that the market size of source country, currency appreciation of source country, and labor cost differentials have a negative influence on Japanese FDI inflows. Chang and Gayle (2009) develop a simple model under demand uncertainty to see whether a firm tries to get to the foreign market via FDI or export. They further reveal that the choice of FDI or export could be affected by demand volatility alongside with market demand size and trade costs. They showed that if other things held constant, the choice between export and FDI depend on demand volatility.

To investigate the relationship between trade and FDI they use the US sales data to 56 countries from 1999 to 2004. They found that increasing demand volatility in foreign markets might cause the firms to choose FDI rather than export. The preference of FDI should be because of to smooth the uncertainty in market demand. It illustrates that FDI and export (trade) are a substitute for each other.

Daniels and Ruhr (2014) use the data of US FDI stocks of the manufacturing sector, an annual data from 1985 to 2010 across 53 countries. Their main focus is on the relationship to the distance between the countries (shipping costs), manufacturing FDI, and trade. They pointed out that there is a positive and significant association between shipping cost and US manufacturing FDI. Therefore, on behalf of their findings, they propose a substitute relationship between trade and FDI. Fonseca, Mendona and Passos (2016) study the Portuguese trade and FDI to examine the FDI-trade are complement or substitute, by employing the data from 1996 to 2011. They observe the FDI-trade relationship between Portugal and 28 countries. They employed a fixed effect panel data model for empirical analysis. They found a substitute relation between Portuguese FDI and trade for most of the countries of the sample such as European Union countries and China as well.

Moreover, Lankhuizen, de Groot and Linders (2011) observe the impact FDI flows on export from OECD countries to major countries of the world and between the OECD countries for the period 1984 to 1990. They employed the gravity model for empirical estimation. They find that the multinational firms will either export to the destination country or to serve that market the firm will set a local subsidiary through horizontal FDI.

Bhasin and Paul (2016) employ the data from 1991 to 2012 of South, East, and South-East Asia region to observe the association between trade and FDI. Their findings suggest that FDI and export have substitute relationship in long run. They reveal that there should be two reasons following their substitute relationship. First, could be demand market and the second reason could be transportation cost or domestic insufficiencies (as exchange rate volatility) or trade barriers. Kottaridi and Filippaios (2015) investigate the relationship between trade and FDI by using the data set of Central and Eastern European countries (CEEC) during the time period from 1992 to 2006. They divide the whole sample into three sub-periods, such as; pre-1997, 1997 to 2002 and post-2002 (2002 to 2006). They observe the relationship among different sectors of the selected sample countries. They found a substitute relationship between trade and FDI for the agricultural sector in CEE countries. Fung, Liu and wang (2013) investigate the question about

the effect of FDI in China in the parent country firms export that whether their relationship is complementary or substitute. For this study select the Taiwan data from the year 1992 to 2006. They observe that FDI in China reduces the parent firms exports (Taiwan) to China and supports the substitute relationship.

Subsequently, by observing the literature about the substitute relationship between FDI and trade, there different types of factors have identified by the researchers, which influence the relationship between trade and FDI. These factors impact on their relationship vary from country to country (developed and developing countries). For example, the factors identified and discussed in different ways by the researchers in literature are, factor endowment (labor and capital), natural factor endowment, free market, and technology advancement are the factors, which have a role in influencing the relationship between trade and FDI.

Fonseca, Mendona and Passos (2016) it has been made clear that the studies advocating a substitute relationship between FDI and trade are usually reflected by certain advantages possessed by an FDI source country over an FDI host country. These advantages include specifically technology and monopolistic power. MNCs are mostly motivated to get access to more markets and gain higher market shares, to minimize unit RandD costs, to acquire cheap labor and natural resources, or to avoid high tariffs. Therefore, a substitute relationship between FDI and trade often observed, where the home country is relatively developed and mature in FDI activities.

3.3.2 Complementary Relationship between Trade and FDI

The complementary relationship between trade and FDI Head and Ries (2001) expressed as that there is a large amount invested by the countries, industries, and companies to get access to the foreign markets globally and on the other hand, they also strive to become an extensive source of exports to the same countries. Therefore, whenever FDI causes to formulate trade opportunities among the economies, its the sign of complementary relationship. Not only the difference between factors endowment but there are some other factors that turn out to be

the basis to increase the trade activities which are; growing return to scale, imperfect market condition and technological differentiation between the home and host countries, in such cases FDI form a base for improvement of trade activities of a country (Markusen, 1983). There is extensive work done by the researchers in the field of economics about the relationship between trade and FDI, in form of theories and empirics. The researchers study the relationship on the basis of different factors i.e. regions, technology, factor endowment, distance etc.

Helpman (1984) propose a fundamental two-factor, two-product model, with similar preferences across different countries. The model suggests that in the two products one is a homogenous product and the other product is differentiated. The differentiated product involves two factors one is labor and the other is general purpose input (all inputs rather than labor), such as RandD, total production cost should be equal to total labor cost and RandD cost. This model explains the complementary relationship between trade and FDI. It explains only intra-industry investment flows between those countries which have a diverse proportion of factors.

Grossman and Helpman (1989) propose a dynamic framework model. The basic assumption of the dynamic framework model is that the MNCs continuously engaged in product development and research and development (RandD). Hence, when these firms engage continually in product development, so, the firm may also incur some costs associated with these developmental activities. Therefore, the firms are motivated to take part in both trade and FDI in order to indigenize the profit. As the MNCs home country usually capital affluent, so, the home country turn to as from net exporter to the net importer of differentiated products and also turn into a net exporter of headquarter services and intermediate products. Thus, from the dynamic model, it is concluded that product development and factor endowment are important factors in the relationship of FDI and trade and, hence, it is proved that both will lead to increase in the level of trade and FDI with the passage of time.

The relationship between trade and FDI has been explained empirically by researchers in different ways by using a different type of models, data, time periods

and methodologies. Li and Park (2016) study the relationship between trade and FDI by using Chines provincial and regional data and international trade from the year 1979 to 2014. They found a strong positive relationship between Chines provincial as well as regional trade and FDI. They further noticed that FDI inflows to China play a very critical role in both, bilateral trade enhancement between home and host country and it also play a critical role in the international trade of China with rest of the world.

Fontagne (1999) observe the FDI trade relationship by using the data of US multi-national firms and the whole sample data is divided into two sub-periods, first sub-period before the mid-1980s (trade influence FDI) and second sub-period after the mid-1980s (FDI influence trade). The results suggest that FDI and trade showed a complementary relationship at macro-level data, furthermore, it is also evidenced that FDI complements the international trade activities of the host country at the sectoral level. Popovici and Calin (2017) observe the relationship between FDI, export, and import in the eight newest European Union countries. They employed the dynamic panel data model to see their relationship statistically from 1999 to 2013. Their results evidenced the complementary relationship between FDI and trade. They further noted that the EU membership has a significant positive impact on trade activities of the member nations, however, less for import activities than export. Tham, Goh, Wong and Fadhli (2017) observe the Malaysian FDI, trade relationship in three subdivision namely, mining, manufacturing and services. They use the GMM model for estimation of data ranged from 2005 to 2013. They found a complementary relationship between outward and inward FDI and bilateral trade of Malaysia in the selected three sub-sectors. Bouras and Raggad (2015) distinguish the FDI in three different variables, total FDI, manufacturing FDI and non-manufacturing FDI for 10 countries for the time period ranged from 1988 to 2012. Their result supports the complementary relationship between FDI and trade in case of all three variables such as total FDI to trade, manufacturing FDI, and non-manufacturing FDI. Iqbal, Shaikh and Shar (2010) conduct a research to in Pakistan context to observe the FDI, trade relationship by using data from 1998 to 2009. They found a positive relation between FDI and trade in

Pakistan.

Nishitateno (2013) employed product level data of 32 different products and 49 countries over the time period of 1993 to 2008 and evidenced the complementary relationship between Japanese FDI and trade. To observe the impact of FDI on Vietnam export and import by Anwar and Nguyen (2011) employed a gravity model for the period 1990 to 2007. Furthermore, they divide the time period into three sub-periods. They found a complementary relationship between FDI and trade between 19 major trading partners. Filippaios and Kottaridi (2013) discussed the nexus between FDI and trade in 13 new European Union members countries over a period of 1992 to 2008. Furthermore, they also discuss to understand foreign investor behavior in the paper. Their results suggest a strong positive relation between FDI and trade. Moreover, they further noticed that the flow of FDI to the selected countries tripled after they become the part of the enlarged EU. Kiran (2011) conduct a research to study the relationship between FDI and trade in Turkey over a period of 1992:01 to 2008:04. Her results show a positive relationship between FDI and trade of Turkey.

Moreover, to investigate the relationship between FDI and trade Sharma and Kaur (2013) investigate China and India over the period 1976 to 2011. Their results suggest that there exist a unidirectional link between FDI and trade in China, while, the in case of India there exist a bidirectional link between FDI and trade. Similarly, Sinha, Bhar and Gole (2015) also found a complementary relationship between FDI and trade; they employed the data for the period of 1970 to 2013. Ajaero and Sluis (2016) discussed the relationship of export and FDI of U.S food processing industry with 10 highly income countries between 1982 and 2012 using panel data analysis. Their results enlighten that FDI and trade have a complementary relationship such that both have a positive effect on each other. Boubacar (2016) use the gravity model for analysis of U.S FDI data to 25 OECD countries employing the time period from 1999 to 2009 to observe the relationship between trade and FDI. He also investigated the third country effect of MNEs for location choice and spillover effect. The results suggest the complementary relationship between the export and U.S FDI. Krautheim (2013)

propose the model of trade, FDI and export-supporting FDI. He also reveals that ESFDI try to reduce the distribution cost of a multinational enterprise (MNEs) but the production will remain at home. As the ESFDI play twin role of trade and FDI both, so, the results suggest that the relationship between trade and FDI is complement at the aggregate level.

Kimura and Kiyota (2006) conduct a study to see the relationship between exports, FDI, and firm productivity and use longitudinal panel data from 1994 to 2004 on Japanese firms. Their result suggests that most productive firms engage in both FDI and exports, medium productive firms pursue FDI or exports and the least productive firms nor engage in exports and nor engage in FDI. Stone and Jeon (2000) investigate the relationship between trade and FDI in Asia Pacific countries. They use the gravity model for result estimation. They concluded that there exists a complementary relationship between trade and FDI. Camarero and Tamarit (2004) investigate the relationship between trade and FDI among EU members with Japan and the United States by using data from 1981: Q1 to 1998: Q3 for panel data analysis. The model employed in the study consist of all the important determinants of trade and also FDI stocks. They observe the long-run relationship between trade and FDI. Furthermore, they argued that there exists a complementary relationship between trade and FDI.

The effect of FDI on Asian countries (East and South-East Asia) trade is observed by Goldar and Ishigami (1999). Their main focus was the Japanese FDI flows to the Asian countries. They argued that Japanese FDI plays an important role in the selected countries trade. Furthermore, their results suggest that Japanese FDI tend to promote the trade flows of these countries. Similarly, Fung, Aminian and Iizaka (2015) observe the impact of FDI from Japan, US, UK and Germany, to the trade of East and Southeast Asian countries. They use gravity model for results estimation and take the data from 1998 to 2006. They examine that FDI from all these countries plays a crucial role in trade development of parts and components and trade in capital goods of the selected countries. Furthermore, they point out that Japanese FDI plays a more important role in the development of trade in Asian countries as compared to the US, UK, and Germany. Moreover, Yu and

Zhao (2008) examine the effect of Japanese FDI and Chinese trade for the period 1983 to 2006. They also found a strong positive relationship between Japanese FDI and Chinese trade.

Subsequently, Marchant, Cornell and Koo (2002) examine the US agricultural products trade and FDI relation into East Asian countries by employing the data from 1989 to 1998. They examined a complementary relationship between FDI and trade. To examine the effect of South-South FDI and import on African export Amighini and Sanfilippo (2014) found that impact of South-South flows are different from that of North-South flows in a way that flows from both has a positive effect on trade in the continent. However, the flows from the South has a great impact rather than flows from the North. They further documented that it has strong potential to promote the African export, especially, in poor technological industries such as agro and textile. Min (2003) studied the Japanese FDI impact on Malaysian international trade for the time period from 1988 to 1995. He categorized Japan as the most important source of the FDI for Malaysia. He found a positive relation between FDI and trade. Moreover, his results also evidenced that intro of FDI from large multinational corporations and countries FDI flows almost changed the pattern production and exports.

To study the nexus between trade and FDI in CEE countries Albulescu and Goyeau (2016) conduct a research by employing the data from 2000 to 2013. They apply the panel gravity model for the econometric results estimation. They argued that the nexus between trade and FDI in CEE countries is complementary, furthermore, they also documented that this relationship is stronger for the CEE countries that are historical partners in trade activities. Mohammed (2017) examined the Algerian FDI-trade relationship by using a gravity model. His results suggest a positive relationship between FDI and trade in Algeria. Martnez, Bengoa and Snchez-Robles (2012) capture two scenarios in their study, one is the intra-EU FDI and trade relationship and the other is the relation between EU trade and FDI from non-European members such as Korea, Japan, Norway, Switzerland and the United States for the time period from 1995 to 2006. They documented that there exist a positive correlation between FDI and trade in Europe. They further

argued that in Europe the cost consideration in FDI- trade nexus is not important because in Europe the FDI flows pattern is horizontal rather than vertical.

Pantulu and Poon (2003) conduct a research to analyze the relation of FDI and trade of Japan and US to 29 and 32 countries respectively for the time period of 1996 to 1999. They evidenced that Japan and US FDI are trade creating. Furthermore, they also reveal that effect of Japan and US FDI is different across the countries. For intense, the affect US FDI on Canadian trade is more than that of Japanese FDI, while in the case of Malaysia and Thailand the Japanese FDI dominance is more than that of US. Xuan and Xing (2008) study the relationship of Vietnam trade and FDI flows from 23 countries to Vietnam for the period 1990 to 2004. They employed the gravity model for statistical estimation. Their empirical results suggest that there exist a positive relationship between Vietnam trade and FDI flows to Vietnam. They further reveal that FDI inflow is a major determinant of Vietnam trade expansion.

From the above empirical work indicates that FDI and trade are complementary to each other. Their relationship is studied in different aspects like country wise, industry wise, product, region, firm wise etc... All the above studies results indicate the complementary relationship between trade and FDI. Therefore, it means that complementarity is the characteristic of the FDI that tend to expand the international trade activities of the target country.

3.3.3 Relationship between FDI and Trade with Mixed Evidence

As numerous studies in the literature about the relationship between trade and FDI investigate either complementary or substitute relationship between the two globally. On the other hand, literature also consists of the studies which show the complex relationship between trade and FDI. These studies explain that it is hard to explain that the relationship between trade and FDI complement and/or substitute. Because the mixed evidence studies examine a number of factors which affect the relationship between them and become hard to explain.

The rapid growth and development of MNCs and the globalization of the world economy make the relationship between trade and FDI more complex (Pantulu and Poon, 2003).

Numerous empirical studies observe that the relationship between trade and FDI is not clear or complex. Swenson (2004) observe the relation between trade and FDI using panel data from 1974 to 1994 and examine that at collective levels the US FDI and trade are a complementary. However, by dividing into different categories like; industry FDI, product FDI and overall manufacturing component FDI then, in that case, a varied result observed. At product and industry level FDI shows substitute relationship with trade, however, in case of overall manufacturing components FDI show complement relationship with the trade. Liu, Xu, Wang, Akamavi (2015) proposed pendulum gravity model to observe the relationship between trade and FDI by employing the data from 1999 to 2014. Their results evidenced mixed relationship between FDI-trade. They found that at first the FDI increases the trade level, however, they concluded that at maturity stage of FDI, the FDI substitute the trade, such as, the US FDI substitute its trade flows to developing countries. Similarly, Goldberg and Klein (1998) observe the relationship between trade and FDI in Latin America since 1978 to 1993 by using sector level data. They conclude that at sector level there is a weak relationship between trade and FDI in Latin America.

To observe the role of MNCs in economic development and also its effect on host country trade Lemi and Asefa (2003) investigate the relationship by using the US and developing economies as a sample. They concluded that FDI and trade relationship affected by different factors such as host country market, economic conditions, and improbability in policies and these factors have a different effect on their relationship. Moreover, they didnt find the complementary relationship between trade and FDI. Therefore, from this, it is concluded that the host country market, economic conditions, and foreign policies have a great role in trade and FDI relationship. If these factors are in favor of FDI then it complements trade otherwise the relationship between them become complex and difficult to explain. To examine the relationship between trade and FDI of Japanese investment in the

automobile sector and consumer products in the US, Blonigen (2001) found that there is a complex relationship between trade and FDI. In the case of production of automobile parts in the US, he didnt found any expansion in export level from Japan. However, FDI and export from Japan show the significant and positive relationship in the US in automobile production. But, on the other hand, he concludes that Japanese consumer products demonstrate a negative relationship between trade and FDI in the US. Therefore, the relationship shows variation by varying the industry and the relationship between them is not clear.

Moreover, these results are further supported by Bedassa and Ryan (2004) who study the relationship between Japanese outward FDI and trade during the period of 1989 to 1999. He documented that maturity of the industry has a considerable role in FDI and trade relationship. He further notifies that relationship is complementary in industries like food, beverage, and tobacco while in industries like wood, furniture, and metal shows a substitute relationship. Wang (2007) review the practice in both developing and developed economies to observe the trade and FDI relationship, specifically examine the Chinese foreign investment and exports. He especially examines the relationship by using different industrial sectors level data of China. He argues that this relationship depends upon motivation, types, and the development of foreign investment of parent country/multinational corporation. Moreover, he concluded that the foreign investment effect on the international trade varies among different sectors of China. Hence, they concluded that the effect of overseas investment in global trade varies from industry to industry. Similarly, Pontes (2006) observe the relationship between Portugal trade and FDI. In the study, his main focus is on trade cost. He concluded that in the case of high trade cost the relationship between them is complementary and when the trade cost decreases they substitute each other. Therefore, the relationship between them is not clear that they really complement or substitute for each other. Moreover, in the case of intermediate goods and finished goods, the relation between them becomes unclear.

Keorite and Pan (2016) conducted a study between Thailand trade and FDI from

China from 1987 to 2013. They found a substitute relationship between intermediate goods export and FDI, while, complementary relationship between the export of finished goods and Chinese FDI. Therefore, for the same country, the relationship between them is difficult to understand. Dauti (2016) conduct a research for the years 1994-2010 among OECD-20 countries and SEE-5 and EU-NMS-10 countries to observe the relationship between trade and FDI. He concluded mixed evidence between trade and FDI relationship that both FDI and trade are a substitute in some cases, while in other the relation becomes complementary.

Therefore, from the literature, it is clear that trade and FDI relationship not merely the complementary or substitute but their relationship depends on several other factors. Factors like; factor endowment, technological advancement, market size and market openness etc. are the factors that influence the relationship between trade and FDI. That's why, that by varying the country or industry under the assessment, the results also change. Similarly, Dauti and Voka (2016) observe the relationship between trade and FDI among SEE-5, EU-14, and EU-NMS-10 countries by implying the data from 1994 to 2010. For results estimation, they employed the standard panel data approach. Their results support both types of FDI vertical and horizontal. Similarly, Head and Ries (2001) investigate the 932 Japanese manufacturing firms to observe the relation between FDI and trade over a period of 1960 to 1990. They evidenced mixed results of FDI and trade. They argued that aggregate level the FDI and trade are a complement to each other, whereas at the firm level they substitute for each other.

Subsequently, Chiappini (2015) conduct a research to examine the FDI, trade relationship by collecting Japanese sectoral data over a period of 2005 to 2011. He collected data from 9 sectors of Japanese industries for statistical analysis. He found mixed evidence of FDI-trade relationship. He evidenced that food and beverages, electric machinery, primary metals, and precision machinery sectors have a complementary relationship, while, in the chemical sector and general machinery the relationship between them is a substitute. Accordingly, Mitze, Alecke, and Untiedt (2010) found the same results as Chiappini (2015) by estimating the German firms data. They employed gravity model and use the time period from 1995

to 2005. They evidenced the substitute relationship at the aggregate level and at the firm level, their analysis supports the complementary relationship between FDI and trade.

The mixed results of the relationship between trade and FDI shows that in some circumstances FDI tends to create the trade activities, while, in some cases, the relation between them opposite means that it tries to replace the trade.

3.4   Hypothesis Development

The present study is aiming to investigate the relationship between trade and FDI in developing economies. From reviewing the literature about the relationship between trade and FDI there is pooled data analysis are used in most empirical studies for all countries either developed or developing. From reviewing the literature it observed that almost in all studies the relation between trade and FDI has been observed through the aggregate level data. So, the main objective of the present study to examine the effect of FDI on the trade of developing economies from developed economies and developing economies are separately investigated. Therefore, to examine the effect of FDI from developed economy to developing economy complement or substitute the developing country trade. Furthermore, also to examine the effect of FDI from developing the economy to developing economy complement or substitute the host country trade. Hence, in the light of the above literature and discussion, the present study will investigate the following two hypotheses.

H_{1a} Flows of FDI from Developed Countries complement the developing countries trade.

H_{1b} Flows of FDI from Developed Countries substitute the developing countries trade.

H_{2a} Flows of FDI from Developing Countries complement the developing countries trade.

H$_{2b}$ Flows of FDI from Developing Countries substitute the developing countries trade.

Chapter 4

Data Description and Methodology

4.1   Data Description

In the present study, the panel data approach is employed for South Asian and East Asian countries for the time period of 12 years to evaluate the nexus between trade and FDI. The time period employed is 2001 to 2012. The data has been taken from various sources such as bilateral trade (export and import) data taken from UN COMTRADE, the FDI data has been taken from UNCTAD; common colony, landlocked and distance these all variables have taken from The Centre d'tudes Prospectives et d'Informations Internationales (CEPII) database. Gross Domestic Product per capita (GDP) comes from World Development Indicators (WDI). WTO membership a dummy variable represents when both countries are the members. Trade freedom of host country (tfi) taken from the Heritage organization. Corruption perception index for host country (cpii) taken from Transparency International database. The free trade agreement is dummy variable (FTAij) for a bilateral free trade agreement. Table 3.1 and 3.2 shows the list of selected countries and variables description and sources which are used in the study.

Table 4.1: Variable description and sources

Variable	Description	Source
ltradeij	Bilateral trade flows (imports + exports) from countryi to countryj.	UN COMTRADE
lfdiij	Foreign direct investment flows from countryj to countryi.	UNCTAD
ldistij	The distance between the host and home countries capitals	CEPII
ldli	Landlocked host country	CEPII
ldlj	Landlocked home country	CEPII
comcolij	Countries have been belong to the same administrative colonial area	CEPII
cpii	Corruption perception index of the host country	Transparency International
tfi	Trade freedom host country	Heritage organization
wto2ij	Dummy variable equal to 1 if both countries are a member of WTO	World Bank
ftaij	Dummy variable equal to 1 if the host and home country have Bilateral free trade agreement	Asian Regional Integration Center

4.2   Model Specification

The present study is aiming to examine the relationship between trade and FDI across developing and developed economies. Hence, to examine their relationship in the current study gravity model is used for the empirical justification. Firstly the gravity model was used to explain the trade flows by Tinbergen (1962). Basically, the gravity model used to examine the pattern of trade flows and FDI was inspired by gravitation law of Newton, which states that the attraction forces between two bodies, direct proportion to their masses and indirect proportion to the distance between them. Therefore, on the basis of this statement, in economics the gravity model explains the flows of trade and FDI as; a mass of goods or labor or other factors of production supplied at origin i, Y_i, is attracted to a mass of demand for goods or labor at destination j, E_j, but the potential flow is reduced by the distance between them, D_{ij}. Strictly applying the analogy,

Xij = YiEj / D2ij

gives the predicted movement of goods or labor between i and j, Xij (Anderson, 2011: p. 3). The gravity model has been defined as the workhorse of international trade and has been considered as a fact of life in this field of research (Deardorff, 1998). The gravity equations ability to correctly approximate bilateral trade flows makes it one of the most stable model for empirical estimation of trade in economics (Leamer and Levinsohn 1995).

Moreover, through the gravity model, some other factors influence on trade flows of a country could be estimated (Chi and Kilduff, 2010). Hence, the factors which are included in gravity model variables are, gross domestic product (GDP), population, exchange rates, and trade union membership, these all could be included in gravity model (Helpman, et al., 2008; Gul and Yasin, 2011).

The gravity model faces criticism due to not have a strong theoretical background support. There are numerous studies are attempted by researchers to provide a theoretical background to the gravity model. For example, Anderson (1979) is first to provide a theoretical foundation for the gravity model. He explains the gravity model theoretical base on the basis of the assumption, that products are distinguished countrywide and the consumers have identical homothetic preferences. Additionally, further work is done on behalf of the gravity model theoretical foundation Anderson and Van Wincoop (2003) they formulate a theoretical foundation for gravity equation. They further found that national boundaries tend to diminish the trade flows level between industrialized countries up to 20-50 percent. So, it comprises that distance has an important role in trade flows between

countries and the increase in distance condenses the trade flows. Hence, after the few decades of developmental stages, the gravity model become one of most successful empirical analysis tool in economics with a strong theoretical background (Chi and Kilduff, 2010).

In empirical models of economics, the gravity model is the most successful model to estimate the trade and FDI flows globally (Anderson, 2011). Therefore, thats the key motive of widely accepted and extensively use of gravity model in world

business literature to explain the relationship between trade and FDI flows at country-level throughout the world (Zwinkels and Beugelsdijk, 2010). Due to the extremely explanatory nature, most of the researcher uses the gravity model for their empirical studies throughout the globe (Cheng and Wall, 2005).

The present study aim for the empirical justifications of the results, a panel data analysis has been used in the gravity model. Yu and Zhao (2008) notify that to examine the relationship between trade and FDI pooled datasets are extensively employed by researchers in the gravity model rather than a cross-sectional data. Because it is more beneficial to use panel data for the estimation of trade and FDI flows between countries against a single year data (Koo and Karemera, 1991). Moreover, Gul and Yasin (2011) documented that a single year data could not provide accurate information as compare to panel data set which can give adequate information over a period of time. Nowak-Lehmann et al. (2007) panel data have numerous advantages such as in panel data analysis there is the potential of capturing the time specific and individual effects between trading partners.

In the present study panel data is used for East Asian and South Asian countries over the period from 2001 to 2012. The basic gravity equation for the present study is following;

$$
\begin{aligned}
ltradeijt = \beta_o + \beta_1 lfdiijt + \beta_2 lgdpppit + \beta_3 lgdpppjt + \beta_4 ldistj + \\
\beta_5 comcolij + \beta_6 ldli + \beta_7 ldlj + \epsilon ijt
\end{aligned}
\tag{4.1}
$$

The baseline model extended by including additional policy variables, to see the impact of these variables on bilateral trade flows between the countries. These variables are trade freedom of the host economy (tfi), corruption perception index (cpii) of the host economy and WTO membership. The extended equation for the current study is following;

$$
\begin{aligned}
ltradeijt = \beta_o + \beta_1 lfdiijt + \beta_2 lgdpppit + \beta_3 lgdpppjt + \beta_4 ldistij + \\
\beta_5 comcolij + \beta_6 ldli + \beta_7 ldlj + \beta_8 tfit + \beta_9 cpiit + \beta_{10} wto2ij + \epsilon ijt
\end{aligned}
\tag{4.2}
$$

Next, to know the effect of Free Trade Agreements (FTA) on bilateral trade flows a dummy variable is used for FTAs in the extended model.

$$ltradeijt = \beta_o + \beta_1 lfdiijt + \beta_2 lgdpppit + \beta_3 lgdpppjt + \beta_4 ldistij + \beta_5 comcolij +$$
$$\beta_6 ldli + \beta_7 ldlj + \beta_8 tfit + \beta_9 cpiit + \beta_{10} wto2ij + \beta_{11} ftaij + \epsilon ijt$$

(4.3)

Where;

ln = denotes natural log

tradeij = bilateral trade flows(exports+imports) from country i to country j

gdpppi = GDP per capita at purchasing power parity of host country

gdpppj = GDP per capita at purchasing power parity of home country

distij = geographical distance between capitals of host and home country

fdiij = net inward investment in the host country (i) by home country (j)

tfi = trade freedom of host country

cpii = corruption perception index of host country

wto2ij = world trade organization membership

FTAij = free trade agreement between the host and home country

ϵij = error term

i = host country

j = home country

t=time period

4.3   Methodology

The main concern of the present study is to explore the relationship between trade and FDI between developing and developed economies. To know how the inward FDI flows from developing and developed economies affect the trade flows of the developing economies. The present study deals with a panel data approach; consequently, fixed effect afterward (FE) and random effect are employed. However, Hausman test indicates that the fixed effect is more appropriate the empirical analysis. The advantage of the FE model that it considering the specific effect of different countries (Kahouli and Maktouf, 2014). Besides, the FE estimates provide consistent estimates regardless of the correlation between specific effects and the explanatory variables. However, one of the drawbacks of the FE model that it omits the time-invariant variables. Although, the current study consists of some important variables which are time-invariant in nature like; geographical distance, landlocked etc. To overcome this issue, we used the Mundlak (1978) approach. The main feature of the Mundlak approach is that it use the averages of the time-variant variables as making the regression process to be able to control for unobserved heterogeneity that might be correlated with the time-invariant part of the error term and also it allows us to estimate the effect of the time-invariant variables (Bensassi, Mrquez-Ramos, Martnez-Zarzoso and Surez-Burguet, 2014). This approach is used as an alternative to the FE model in gravity type framework (Ahmed and Martinez-Zarzoso, 2016).

Chapter 5

Results and Discussion

5.1 Summary Statistics

In the table below, column 1 comprises the names of the variables employed in the research for the empirical analysis. The column shows the number of the observation of each variable. The column three shows the mean value of the variables. Mean is called the measure of the central tendency, moreover, considered as a powerful measure of central tendency (McHugh and HudsonBarr, 2003). The next column indicates the SD of each variable. SD is the deviation of the data from the center (mean). SD is the most important and reliable statistic (McHugh and HudsonBarr, 2003). Furthermore, the small value of SD shows that its tendency towards the mean.

The number of observation for some variables is in the observation column less which shows the missing variables. The mean of the ltradeij variable is 6.91 and its SD value is 2.83, thus, the small value of the SD indicates that the trade data used in the analysis close to the mean and data is not scattered. Its minimum and maximum values are -5.06673 and 13.09438 respectively. The mean value GDP per capita of the host country is 8.57826, SD is 1.32397, with the minimum and maximum value of 5.995706 and 11.75931 respectively. Home country GDP per capita average value is 10.1072, minimum and maximum values are 5.995706 and 11.80229 respectively, with the SD of 0.93375. The average of the distance

variable is 8.61006, its SD is 0.69651, with minimum and maximum values of 4.10711 and 9.57541 respectively. The mean value of the trade freedom variable is 61.6729, while SD is 17.0275 and its minimum and maximum values are 0 and 95 respectively. The mean value of corruption perception index is 3.57002, its SD is 1.48865, while its minimum and maximum values are 0.4 and 8.4 respectively.

The other variables like landlocked countries (home and host), WTO membership, FTAs, and common colony are dummy variables. Their mean values are basically the proportion of that observation which are coded as 1.

TABLE 5.1: Summary statistics of variables used in the analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
Ltradeij	2147	6.9187	2.835167	-5.06673	13.0944
Lfdiij	1934	3.78121	2.523927	-0.71335	11.1634
lgdpppi	2448	8.57826	1.32397	5.99571	11.7593
lgdpppj	2391	10.1072	0.933751	5.99571	11.8023
ldistij	2448	8.61006	0.696513	4.10711	9.57541
comcolij	2448	0.13726	0.344187	0	1
ldli	2448	0.13726	0.344187	0	1
ldlj	2448	0.08333	0.276442	0	1
tfi	2368	61.6729	17.02752	0	95
cpii	2305	3.57002	1.488649	0.4	8.4
wto2ij	2448	0.93628	0.244313	0	1
ftaij	2448	0.36275	0.48089	0	1

Table 5.1 shows the summary statistics of the variables used in the analysis. This includes the mean, standard deviation, and range of the variables. Mean shows the averages of the variables, standard deviation afterward (SD) describes the deviation of the variables from the mean, minimum and maximum shows the lowest and largest value in the data of each variable.

TABLE 5.2: Correlation matrix table of the variables used in the analysis

	lfdij	lgdpppi	lgdpppj	ldistij	comcolij	ldli	ldlj	Tfi	cpii	wto2ij	Ftaij
Lfdij	1										
Lgdpppi	0.2011	1									
Lgdpppj	0.2424	0.068	1								
Ldistij	-0.067	0.1586	0.2525	1							
Comcolij	-0.0082	-0.2732	-0.0714	-0.2893	1						
Ldli	-0.222	0.0012	0.0413	-0.06	-0.135	1					
Ldlj	-0.099	0.0483	0.1584	0.0838	-0.123	0.0018	1				
Tfi	0.1142	0.7085	0.0888	0.0804	-0.175	0.2316	0.0254	1			
Cpii	0.3106	0.8359	0.0263	0.1499	-0.183	-0.095	0.0066	0.5615	1		
wto2ij	0.0677	-0.097	-0.027	-0.142	-0.105	0.056	0.0592	-0.099	-0.107	1	
Ftaij	0.0911	0.1571	-0.214	-0.36	0.1256	-0.171	-0.099	0.0172	0.097	0.1118	1

Note: lfdiij, Foreign Direct Investment of country i into country j; lgdpppi, GDP per capita purchasing power parity host country; lgdpppj, GDP per capita purchasing power parity home country; ldistij, Geographical distance between the countries; comcolij, Colonial linkage; ldli, Landlocked host country; ldlj, Landlocked home country; tfi, Trade freedom host country; cpii, Corruption perception index host country; wto2ij, World Trade Organization membership; ftaij, Free Trade Agreement.

5.2   Correlation Matrix

Table 5.2 depicts the correlation of different explanatory variable used in the empirical analysis. It is important to check the collinearity between variables. The correlation coefficient ranges from -1 to +1, -1 indicating a perfect negative correlation, +1 indicating a perfect positive correlation, and 0 indicating no correlation at all. We didnt find any strong correlation between the variable, and conclude no multicollinearity between explanatory variables, and therefore could be used together in the model.

5.3   Results and Discussion

The empirical model is conducted in the following steps: Firstly, the baseline bilateral trade model is estimated for the whole sample and sub-sample. Secondly, the extended model is used with a few additional important control variable that influences the bilateral trade. Finally, the FTAs of different countries included in the empirical trade model. For the empirical analysis, the study employed the Mundlak approach.

Table 5.3 presents the empirical results for the baseline model. Table 5.3 consists of three different models. Model1 represent the whole sample of FDI flows to both developed and developing countries to host economies. However, Model 2 and 3 differentiate the FDI flows into developing and developed countries respectively. The coefficient of FDI is positive and significant at 5% level in Model 1 and Model 2. The result reveals that a 1% increase in FDI flows will increase 5% trade flows to the developing countries. Therefore, the results confirm the complementary relationship between trade and FDI into these countries. These results are consistent with the Chen (2010) discern the impact of Chinese FDI on Asian economies (Pakistan, Thailand, Singapore, Hong Kong, Macao, India, South Korea and Taiwan) trade and found a positive and significant relationship. Furthermore, the study documented two main reasons for enlargement of Chinese FDI inflows to Asian economies; first, the rapid growth of the Chinese economy and second, the

growing network of production activities among the Asian economies. Similarly, Chani, Azam, and Younas (2014) found a complementary relationship between FDI and trade in Pakistan context. They explained that the increase in the trade flows is the import of advanced technology and also the foreign investor take advantage of low labor and raw material cost; as a result, it increases the level of trade flows to Pakistan. The results are also consistent with other empirical studies of the instance (Kahouli and Omri (2017); Wang et al. (2010); Zwinkels and Beugelsdijk (2010); and Anwar and Nguyen (2011)).

The developed countries coefficient is insignificant, indicates no effect on trade flows. In contrast, the possible reason could be that its not necessarily important that FDI increase the trade flows with the same home country but it could enhance the trade flows with other countries (Lin, 1995).

In contrast, Keorite and Pan (2016) found the complementary relationship between bilateral trade and FDI using Taiwan bilateral trade and FDI data. In the case of developed countries, FDI to developing countries has an insignificant effect on bilateral trade of developing economies.

GDP per capita of home countries and host countries are estimated individually. Both have a positive and highly significant effect on trade flows in all three models. The results are consistent with the gravity model, that economic size of both partner countries enhances the bilateral trade volume. For instance, Gopinath and Echeverria (2004) they observe the relationship between bilateral trade and FDI using a gravity model. They found a positive relationship between trade and GDP per capita, as, it increases the level of trade. Likewise, Rauch (1997) observed a positive relationship between trade and GDP per capita. Furthermore, GDP per capita indicates the size market potential, increase in the potential market size will cause an increase in bilateral trade flows (Gopinath and Echeverria, 2004). Similarly, the GDP per capita results are also in line with Lankhuizen and Groot (2014) find a significant positive relationship between GDP per capita and trade flows. Therefore, it gives the indication that GDP per capita is an important determinant of bilateral trade in East and South Asian countries.

The geographical distance coefficient is negative and significant in Model 1 and 2, indicates that distance has a negative impact on bilateral trade flows of an economy. The results in line with the empirical literature. The geographical distance between home and host countries is considered as an important resistant factor for trade flows. It indicates that the distance between the countries increases the trade costs. Therefore, with an increase in the distance between trading partners the trading activities cost will increase. For example, Wang, Wei, and Liu (2010) show that the greater the geographic distance between trading partners, increase the cost of trading activities. The estimated result for the coefficient of distance variable is consistent with (Novy, 2013; Disdier and Head, 2008). However, the distance coefficient for developed countries has an insignificant effect on bilateral trade.

The colonial linkage effect is significant and negative. It illustrates that colonial tie has a negative impact on trade flows. The results corroborate with the finding of Harach and Rodriguez-Crespo (2014) shows the impact of FDI on trade in gravity framework, their results suggest that colonial linkage decrease the level of trade. Zhou (2010) studied trade gravity model with the extensions of cultural effects. The study reveals that colonial linkage has a significant negative effect on trade flows. They explained it that the relationship between colonial history and trade decreases with the passage of time. Also, the colonial effect is embedded in language and religion based civilization.

The landlocked coefficient of both host and home countries are significant and negative, that indicates a negative effect on trade flows between them. It means that the landlocked increases the trade cost and as a result tends to decrease the level of trade flows between the countries. The results are consistent with Limo and Venables (2001) they concluded that landlocked affects both the trade volume and the trade cost, as; it decreases the trade volume by 60 percent and increases the trade cost by 50 percent as compared to the coastal country. Although, they further suggest that the landlocked countries decrease these costs by improving the infrastructure of their own country as well as the transit country. Furthermore, they construct a table for landlocked countries, consist of percentages of improving

the infrastructure of own country and transit country. They further suggest that by improving own infrastructure to 25th among the landlocked countries than the cost could decrease to 41 percent and by improving transit country infrastructure, then the cost will decrease to 48 percent. Subsequently, by improving the infrastructure a country can decline the trade cost. Batra (2006) also found a negative impact on trade flows of landlocked economies.

The baseline model is extended with additional control variables. The variable tfi shows the trade freedom of the host country, cpii is the corruption perception index of the host country and wto2ij represents the World Trade Organization (WTO) membership. The trade freedom coefficient is positive and strongly significant. The results are in line with Bleaney and Neaves (2013) concluded a positive relationship between trade freedom and trade flows. The empirical results suggest that a 1 percent decrease in countries trade barriers will increase the trade flows by 10 percent. Barma (2017) has also found a positive impact of trade freedom in the Indian context. This implies that a decrease in trade barriers between two countries will enhance the bilateral trade flows, means that more freedom in trade more will be the trade volume between the two countries.

Corruption perception index of host country shows a positive and significant effect on bilateral trade flows. As per the definition of the corruption perception index, increase in the index means a decrease in the corruption level. Therefore, the results suggest that a 1% increase in the corruption index will increase the trade flows by 0.4 to 0.6 percent. Therefore, it shows that a decrease in corruption, result in an increase in bilateral trade flows. The results are in line with the findings of (Musila and Sigue, 2010; Jong and Bogmans, 2011; Voraveeravong, 2013). Therefore its suggested that countries should reduce corruption in order to increase the trade flows. Moreover, corruption acts as something like a tax on trade, so the countries need to decrease the level of corruption in order to increase the level of trade. However, it is not sufficient that the decrease in corruption level will increase the trade flows, but, a country also needs to decrease the other trade barrier (Dutt and Traca, 2010). The corruption perception variable becomes trivial when taking the sample for developed countries.

TABLE 5.3: Baseline Model: FDI and bilateral trade

VARIABLES	Model 1	Model 2	Model 3
lfdiij	0.0322**	0.0575**	0.011
	(0.0162)	(0.0245)	(0.0209)
lgdpppi	0.796***	0.939***	0.663***
	(0.104)	(0.19)	(0.0988)
lgdpppj	1.004***	0.735**	1.384***
	(0.221)	(0.317)	(0.203)
ldistij	-0.751*	-1.067*	0.27
	(0.406)	(0.646)	(0.383)
comcolij	-2.017***	-1.349**	-5.361***
	(0.581)	(0.675)	(0.27)
ldli	-3.283***	-3.449***	-2.534***
	(0.372)	(0.61)	(0.5)
ldlj	-2.302***	-1.414*	-1.564***
	(0.583)	(0.785)	(0.571)
LAfdiij	0.482***	0.312***	0.775***
	(0.0836)	(0.117)	(0.0829)
LAgdpppi	-0.672***	-0.616**	-0.791***
	(0.163)	(0.309)	(0.145)
LAgdpppj	-0.932***	-0.539	-3.239***
	(0.328)	(0.396)	(0.674)
Constant	10.45***	10.33**	22.74***
	(2.698)	(4.072)	(6.222)
Observations	1,706	766	940
Number of pan_id	202	94	108
Country FE	YES	YES	YES
Year FE	Yes	Yes	Yes

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

The wto2ij coefficient is also positive and significant in Model 1 and Model 2 at 1% level, which, indicates that when both countries are the member of WTO the trade between the countries will increase. The results are in line with (Liu, 2009; Helpman et al. 2008; Rasoulinezhad and Kang 2016) they found a strong relationship between bilateral trade and WTO membership. They argue that WTO membership effectively promotes the world trade. Since, the empirical literature suggests that the WTO membership promote the world trade considerably, as the principal objective of the WTO membership is to reduce the trade barriers between the member countries (Flento and Ponte, 2017). In the same way, the other reason could be the trade stability between WTO members, as it reduces the trading volatility, the WTO members enjoy more stable trading environment then non-members (Chowdhury, Liu, Wang and Wong, 2014). The result shows an insignificant effect of WTO membership on bilateral trade with developed countries.

TABLE 5.4: Extended Model: FDI and bilateral trade

VARIABLES	Model 1	Model 2	Model 3
lfdiij	0.0268*	0.0249	0.0266
	(0.014)	(0.0226)	(0.0177)
lgdpppi	0.743***	0.735***	0.686***
	(0.0928)	(0.172)	(0.0798)
lgdpppj	0.871***	0.625**	1.301***
	(0.23)	(0.315)	(0.229)
ldistij	-0.780**	-0.968*	0.037
	(0.366)	(0.536)	(0.38)
comcolij	-1.347***	-0.814*	-5.975***
	(0.441)	(0.492)	(0.574)
ldli	-3.020***	-2.990***	-2.378***
	(0.471)	(0.685)	(0.605)
ldlj	-2.617***	-2.127***	-1.619***
	(0.578)	(0.749)	(0.577)
tfi	0.00447***	0.00627***	0.00333**
	(0.00109)	(0.00176)	(0.00134)
cpii	0.149**	0.305***	0.00187
	(0.0621)	(0.112)	(0.0603)
wto2ij	3.239***	3.540***	-0.567
	(0.785)	(0.891)	(0.876)
LAfdiij	0.261***	0.0514	0.650***
	(0.0959)	(0.139)	(0.114)
LAgdpppi	-1.570***	-1.681***	-1.509***
	(0.305)	(0.58)	(0.318)
LAgdpppj	-0.635**	-0.182	-3.010***
	(0.315)	(0.363)	(0.783)
LAtfi	-1.17	-1.671	-0.418
	(0.942)	(1.463)	(1.009)
LAcpii	3.781***	4.480**	2.786**
	(1.128)	(1.808)	(1.393)
Constant	14.33***	15.76***	28.34***
	(3.956)	(5.468)	(8.819)
Observations	1,634	733	901
Number of pan_id	199	93	106
Country FE	YES	YES	YES
Year FE	Yes	Yes	Yes

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

Table 5.5 shows the results for free trade agreements (FTAs) for the selected coun-tries. The results of the model become very interesting by adding FTA variable into the equation. The coefficient of FTA is positive for all three models but sig-nificant in Model 1 and Model 2 at 5% level as it increases the trade volume by up to 84% and 154% respectively. Baier and Bergstrand (2006) found a positive relationship between trade and FTA. They suggest that with the passage of time the effect of FTA on trade increases, moreover, with elapse of 10 years the effect of FTA becomes double on bilateral trade between the trading countries. The results are also in line with that of (Caporale, Rault, Sova and Sova 2009). Subsequently, the distance coefficient becomes insignificant with the inclusion of FTA variable. It suggests that FTA declines the effect of distance on bilateral trade. Baier and Bergstrand (2009) and Freeman and Pienknagura (2016) observe that with the inclusion of FTA the log of bilateral distance between the countries decreases.

Furthermore, Freeman and Pienknagura (2016) study the effect of economic inte-gration agreements (EIAs) on the distance between two trading partners. However, they found that FTA diminishes the effect of distance on bilateral trade and it helps the trading partners to overcome this barrier. To conclude, overall the dis-tance coefficient is negative and significant, which indicates that distance reduces the trade volume. However, with the inclusion of FTA, The effect of distance weakens to influence the bilateral trade.

TABLE 5.5: an extended model with FTAs: FDI and bilateral trade

VARIABLES	Model 1	Model 2	Model 3
lfdiij	0.0270*	0.0251	0.0266
	(0.014)	(0.0226)	(0.0177)
lgdpppi	0.743***	0.736***	0.687***
	(0.0929)	(0.172)	(0.0799)
lgdpppj	0.870***	0.612*	1.302***
	(0.23)	(0.314)	(0.23)
ldistij	-0.582	-0.524	-0.066
	(0.357)	(0.502)	(0.4)
comcolij	-1.402***	-0.596	-5.866***
	(0.426)	(0.5)	(0.631)
ldli	-2.827***	-2.274***	-2.356***
	(0.475)	(0.719)	(0.607)
ldlj	-2.510***	-1.768***	-1.617***
	(0.58)	(0.479)	(0.582)
tfi	0.00450***	0.00625***	0.00336**
	(0.00109)	(0.00176)	(0.00134)
cpii	0.148**	0.312***	0.000732
	(0.0623)	(0.112)	(0.0604)
wto2ij	3.149***	3.374***	-0.813
	(0.763)	(0.825)	(0.896)
ftaij	0.841***	1.543***	0.675
	(0.305)	(0.471)	(0.455)
LAfdiij	0.242**	0.0136	0.637***
	(0.096)	(0.14)	(0.116)
LAgdpppi	-1.714***	-1.717***	-1.720***
	(0.317)	(0.56)	(0.377)
LAgdpppj	-0.559*	-0.0771	-2.935***
	(0.315)	(0.361)	(0.772)
LAtfi	-1.048	-1.339	-0.121
	(0.911)	(1.36)	(1.026)
LAcpii	4.055***	4.762***	3.042**
	(1.134)	(1.818)	(1.398)
Constant	12.10***	9.053	28.89***
	(3.813)	(5.591)	(8.555)
Observations	1,634	733	901
Number of pan_id	199	93	106
Country FE	YES	YES	YES
Year FE	Yes	Yes	Yes

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

Chapter 6

Conclusion and Policy Implication

The present study explores the relationship between FDI and bilateral trade flows in developing countries of Asia. The relationship between international trade and FDI got enormous attention from researchers and policymakers during the last decade. The empirical studies explored this relationship between different aspects, such as factor endowment, technological development, and globalization etc. In numerous empirical studies, the relationship the FDI flows are not distinguished for developed and developing economies. In particular, to isolate the effect of FDI on trade from developed countries and developing countries. Because of the reason that the developed countries are more competence and more advanced in technology. Hence, it is difficult to say that the impact of FDI from developed countries similar to the FDI from developing countries.

The present attempted to examine the impacts of FDI on bilateral trade in the context of South Asians and East Asians countries. More specifically, we attempted to discern to examine the association of bilateral trade and foreign direct investment whether both are substitute or complementary. Secondly, to distinguish whether the relationship would differ between FDI from developing and developed countries and the volume of trade to South and East Asian countries.

To answer these questions we used a bilateral data on trade and FDI over the period 2001 to 2012. For empirical analysis, the Mundlak approach applied to the gravity type trade model.

The results of the analysis revealed several interesting observations. An analysis for the overall sample countries strongly indicates that FDI flows positively influence the bilateral trade regardless with the inclusion of the other control variables. The finding corroborating with the previous empirical studies finds that both are complementary to each other. These findings based on the overall sample have to be modified, as the analyses for different sub-sample reveal different results based on the economic development in the countries. FDI flows from developing countries have positively influenced the bilateral trade with developing countries. However, it becomes insignificant when other variables included in the model.

Regarding the sub-sample of FDI flows from developed countries and their influence on bilateral trade with developing countries, we find a trivial relationship between FDI and bilateral trade. What is more, the natural logarithm of distance traditionally used as a proxy for transportation costs has a negative effect on bilateral trade. This indicates that shorter distance between the trading partner countries promotes bilateral trade, however, longer distance reduces the bilateral trade. In the same vein the FTA variable used for regional integration, the results obtained also show that the variable FTA is positive and significant, indicating that countries trade volume increase with free trade agreements. Subsequently, the distance variable becomes insignificant, when the FTA variable included in the model. Therefore, the result suggests that free trade agreement decrease the effect of distance on bilateral trade between the member countries. It indicates that once the trade agreement signed between the member countries, the effect of distance become unimportant.

The policymakers need to give greater emphasis to FDI from developing countries. In other words, the developing countries would encourage and liberalize the foreign investment from developing countries enhance the volume of bilateral trade, that can further promote the economic development in those countries.

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Appendix-A

Table A1: List of Host Countries

Bangladesh	Bhutan	China	Hong Kong	India	Macao
Mongolia	Nepal	Pakistan	South Korea	Sri Lanka	

Table A2: List of Home Countries

Australia	Finland	Libya	Samoa
Austria	France	Luxembourg	Saudi Arabia
Bahamas	Germany	Malaysia	Singapore
Bahrain	Greece	Malta	Spain
Belgium	Hungary	Mauritius	Sweden
Belize	Indonesia	Netherlands	Switzerland
Bermuda	Iran	New Zealand	Thailand
Br. Virgin Isds	Ireland	Nigeria	Turkey
Canada	Israel	Norway	UAE
Cayman Isds	Italy	Oman	United Kingdom
Cyprus	Japan	Panama	USA
Denmark	Jordan	Portugal	Vietnam
Egypt	Kuwait	Qatar	