TRADE POTENTIAL OF PAKISTAN
AN APPLICATION OF GRAVITY MODEL

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Abstract

This study attempts to estimate the trade potential of Pakistan by using the Gravity Model. The said model draws its foundations from the Newton's law of gravitation. The panel data for the period 1981-2005 across 42 countries including Pakistan has been employed in the analysis. The traditional Gravity Model has been augmented to incorporate other important explanatory variables, which are likely to affect international trade between partners. These include proxies for the common border, common language, trade openness, GDP per capita differentials etc. besides the traditional variables representing the sizes of the economies and the distance between trading partners. The coefficients obtained from the augmented model are then used to predict the trade potential of Pakistan world-wide as well as within the specific trading regions.

Most of the coefficients of the model are found to be statistically significant and having the expected signs. The estimations reveal that the magnitude of Pakistan's trade potential is maximum in case of Asia Pacific region (ASEAN) followed by the European Union (EU), Middle East, Latin Americas and North Americas (NAFTA) over the period 2001-05. In this regards, the maximum potential exists with countries like Japan, Sri Lanka, Bangladesh, Malaysia, Philippines, New Zealand, Norway, Sweden, Italy and Denmark. Therefore, Pakistan should explore ways and means to improve its trade relations further with these countries and also to concentrate on ASEAN, Middle East and European Union to capture its market share as far as possible. Pakistan will have to improve the quality of its exports according to international standards to compete and excel in the markets. In contrast, the volume of trade between Pakistan and members countries with SAARC and ECO is very low, with the exception of Sri Lanka, despite the existence of significant potential. The main obstacles to this end are the political and social tensions between the neighboring countries, particularly Pakistan and India, which are the main players of the regional association (SAARC). Unless these tensions are reduced and softened, a significant breakthrough in trade relations cannot be expected.

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Introduction

1.1. International Trade

International trade is an important stimulant of economic growth. It helps the countries concerned by providing them with an access to scarce resources and markets for their products world-wide on the one hand and by enabling them to promote and reward the leading sectors of their economies on the other. Since the great depression of 1930's, most of the industrial countries have experienced tremendous growth in international trade, which has been stimulated (partly) by a steady decline in trade barriers. All member countries (of UNO) have been negotiating to reduce tariffs on imported goods under the General Agreement on Tariffs and Trade (GATT). There have been eight rounds of regular negotiations for the purpose from 1948 to 1994 (Suranovic: 1997).

In 1994, the member countries extended the agreement to include liberalization promises in other sectors e.g. agriculture and service market. The World Trade Organization (WTO) was created in 1995 with the intention to mange this system of new agreements, to provide a forum for regular discussions on matters related to trade and to implement a well-defined process for settling of trade disputes that might arise among member countries. Similarly, the Regional Free Trade Agreement is another important leap forward for trade liberalization and greater economic cooperation. Presently, there are over 200 regional trade agreements around the world that have been notified to WTO. The countries concerned have negotiated these agreements with their major trading partners to boost up trade liberalization and to promote economic cooperation (Suranovic: 1997).

The regional economic cooperation among different countries has gained momentum during the last two decades. The countries are well aware of the fact that such economic co-operations will help them to foster their growth. Above all, regional integration has successfully brought the countries closer to one another in other prospects as well. The European Union and ASEAN are two classic examples of regional cooperation.

European Union is not merely an organization for promotion of trade; rather it comprises a complete socio-economic and political system; whose decisions bear significant impact on lives of the citizens of member countries. It has set an example for other regions of the world; it has not only taken a lead in liberalizing trade but has also demonstrated to promote the process of

economic and political integration. On the other hand, the ASEAN Free Trade Area (AFTA) aims in promoting the competitive advantage of the whole region as if it is working like a single enterprise or production unit. The elimination of tariff and non-tariff barriers among member countries is expected to promote further economic efficiency, productivity and competitiveness. Keeping in view the importance of regional integration, the South Asian nations have also progressively liberalized their economies in recent years. In an effort to integrate with the world economy, various steps have been taken to increase regional economic cooperation under the auspices of SAARC.

The primary purpose of the establishment of SAARC in December 1985 was to increase economic cooperation among the member countries: India, Pakistan, Bangladesh, Nepal, Bhutan, Srilanka, and Maldives. However, the underlying objective was to provide a platform for the people of South Asia to work together in a spirit of friendship, trust and understanding.

The organization was designed to improve both the economic and social progress of the member states (Thaper: 2006). The main objectives, as mentioned in Article I of SAARC charter are:-

- To improve the living standards of the people of the region, as most of the people in South Asian region are living below the poverty line,
- To implement such policies within the region under the platform of SAARC, which help member countries to speed up their economic growth,
- To promote mutual collaboration and assistance in various fields, e.g. economic, social, and scientific[1].

However, South Asia is the least integrated region in the world, if integration is measured by the volume of trade in goods, capital flow and transmission of ideas. Intraregional trade as a share of total trade of member countries is the lowest in South Asia. The countries of the region have realized the importance of regional as well as global trade since trade can promote economic efficiency, which in turn leads to improve the well being of masses. As a first step towards increasing the volume of trade within the region, the members formed a Preferential Trading Arrangement (SAPTA) in 1995 followed by a Free Trade Area (SAFTA) in 1997, although it

[1] http://www.saarc-sec.org/main.php?id=10&t=3.2

was signed in January 2004 (Kumar: 2006). Under this agreement, all member countries could promote trade with one another in all items, except those included in the negative (sensitive) list[2], which has already been announced and on which duties have not been reduced by the member countries.

According to Kumar (2006), SAFTA was seen as a step forward to change the scenario of SAARC. He is of the view that the region can have the free trade area; which will help improve the welfare of the region as a whole by removing all barriers to trade and other facilities under SAFTA agreement. India and Pakistan have to play a significant role in South Asia since both countries account for about 80% of the regional economy. However due to the severe political conflicts between them, the efforts to promote regional integration and economic co-operation have suffered a lot[3]. Anyhow, it is expected that SAFTA will help reduce conflicts, and promote political ties among neighbors, especially India and Pakistan.

1.2. Pakistan's Scenario

Pakistan has witnessed a strong export growth as a result of rapid improvement in international trading environment. During 2002-03 to 2005-06, Pakistan export growth on the average was almost 16 percent of GDP per annum, while import growth during this period remained 29.0 percent on the average. Pakistan has adopted an export led strategy in 2000 to boost up its growth. For a successful implementation of the strategy, Pakistan is required to have a greater market access for its exportable products. Therefore several bilateral and regional trading agreements have been negotiated by the government of Pakistan with neighboring countries as well as its major trading partners. Despite the importance of regional trade and the serious efforts on part of the government, the volume of Pakistan's trade within SAARC and ECO is not to the mark.

[2] The sensitive or negative list contains items which will not be subjected to duty cuts agreed under the FTA. (Amita Sen and Huma Siddiqui: 2006)

[3] World Bank report: 2006

The reasons for low trade are obviously the political and military tensions prevailing in the region and the protectionist policies adopted by nations concerned[4]. In case the members succeed in removing the tariff and non-tariff barriers as visualized by SAARC charter, all countries of the region including Pakistan will reap the benefits of intraregional trade. However, this is not an easy task and therefore demands solid measures to eliminate the very obstacles to trade.

During the past few years, a large number of studies have been conducted on estimating the trade potential for different regions of the world. However, the studies on SAARC are yet limited and leave ample scope for further investigation. The present study attempts to analyze the trade potential of Pakistan by using the Gravity Model approach. The study is expected to find out answers to the on going debate regarding the benefit and scope of the intra-regional and inter-regional trade for Pakistan.

1.3. Objective of the Study

Pakistan's exports are historically concentrated in few products and within few countries. This situation can lead to severe instability of the trading sector. Therefore, it is important to identify the countries with whom Pakistan has a high trade potential and hence deserve particular attention of the business community and policy makers.

Hence the main objective of this study is to estimate the trade potential of Pakistan with reference to its major (existing) trading partners and also with other important countries on the globe including India with whom the trading relationships are not encouraging. We intend to follow a comprehensive approach to analyze the trade potential of Pakistan with SAARC, ASEAN, ECO and EU. In addition, we would like to have a look at the existing level of integration particularly for Pakistan and generally for SAARC, by using the trade openness ratio. We will employ the gravity model approach to estimate the trade potential of Pakistan since this model has been applied progressively and reliably to various trade regimes.

[4] It is an economic policy that restrains trade between nations, through high tariffs, restrictive quotas, a variety of restrictive government regulations designed to discourage imports, and anti dumping laws in an attempt to protect domestic industries in a particular nation from foreign take-over or competition. (Wikipedia, the free encyclopedia).

1.4. Rationale /Relevance of the Study

Rehman (2003) has applied the gravity model to find out the determinants of bilateral trade of Bangladesh. Batra (2006) has applied such a model for India to find out its worlds trade potential. Similarly, Kalbasi (2001) has estimated the model for Iran. There are several other studies (to be discussed in the next chapter) in which the model has been successfully estimated. So far as Pakistan is concerned, we find very few studies in which Gravity Model has been used with limited scope. For instance, Khan (2000) has estimated the model to establish a relationship between bilateral trade and the economic, geographic and cultural factors. In a study conducted by the State Bank of Pakistan, the model has been estimated at sectoral level. Similarly in a recent study conducted by the World Bank (Baroncelli: 2007) the model has been applied to estimate the "peace dividend" from trade in case of Pakistan- India relations, where military confrontation has been the norm for the past 50 years. In these studies however, the analysis is conducted on a cross sectional data and for some specific sectors of the economy.

The present study is focused on estimating the overall trade potential of Pakistan with major trading partners and with other important countries, while following a comprehensive analysis by using a panel data approach. Further, keeping in view the importance of SAFTA implementation in 2006, the study attempts to analyze the extent of integration for SAARC into world economy in general and for Pakistan in particular.

Hopefully, the results of the study will provide useful insights into the trading capacity of Pakistan and help identify new areas for exploration and growth. As usual, every study has its potentials and limitations. The present study is based on empirical analysis and therefore relies heavily on the availability, completeness and authenticity of the data. Every effort has been made to ensure access to reliable sources and to employ the modern techniques of analysis. However, the final results are presented as they are and interpreted accordingly. Now it is up to the readers to evaluate our effort and to suggest for further improvement with useful comments.

1.5. Outline of the Study

Chapter 2 contains some discussion on Pakistan's trade performance during 2006-08 along with an over review of the Trade Policy 2007-08. We also discuss the structure of exports and imports and the efforts made by government towards trade promotion. Similarly we will discuss some of the important Bilateral and Regional free trade agreements in this chapter, which Pakistan has either concluded or still in process. Chapter 3 provides a general overview of the existing literature regarding our study. We review some important studies on trade potential and the impact of regional trading arrangements on trade flows.

Chapter 4 presents the model and methodology of research. We refer to two models that have been extensively applied for the purpose, namely the CGE model and the Gravity model of trade. We discuss several extensions of the Gravity model and rationalize its selection as a tool of analysis in our study. Chapter 5 and 6 enjoys the central position of this study that comprises analysis and results. As usual, Chapter 7 is reserved for conclusions and policy implications.

Chapter 2

Trade Performance & Trade Relations of Pakistan

2.1. Trade Performance: An Overview

Over the past six years (2003-08), Pakistan's economy has grown at an average rate of 6.6 percent per annum as a result of good fiscal and trade policies. Despite the adverse internal and external developments of an extra ordinary nature, it is claimed that Pakistan's economy has been put on solid foundations due to an improved business environment resulting into a marked improvement in public revenues, controlled fiscal deficit and debt position, and significantly improved export performance[1]. The export growth over the last four years (2002-03 to 2005-06) is almost 16 percent per annum on the average. This strong export growth may be attributed to rapid improvement in international trading environment[2] , which in turn resulted from the successful round of multilateral trade negotiations in Uruguay under the aegis of General Agreement on Tariffs and Trade (GATT). The negotiations are said to be successful in reducing the tariff barriers world wide. This reduction in tariffs is commercially beneficial for Pakistan in terms of access to markets of its existing trade partners or expected partners. In contrast to this impressive growth rate (16 %), Pakistan has experienced a sharp decline in exports around 4 percent during the first ten months of 2006-07. The decline in exports is attributed to serious structural issues in the textile industry, being the major exporting sector of Pakistan. These include[3]:

- Low value added and poor quality products, fetching low prices in international markets.
- The depreciation rate of machinery installed in Pakistan in recent years is much faster. These machines are power intensive, less productive and carry high maintenance cost.
- Industry is spending very meager resources on research and development.
- Export houses are lacking capacity to meet bulk orders as well as meeting requirements of consumers in term of fashion, design and delivery schedule.

On the other hand, Pakistan's trade deficit has slightly improved from 9.5 percent of GDP to 9.0 percent in 2006-07 as a result of slower growth in imports. During the last four years, the import growth remained 29.0 percent of GDP on the average. The stronger economic performance in terms of high growth rate pushed up the domestic (investment) demand which led to higher

[1] Economic Survey of Pakistan 2007-08, Growth and Investment Chapter 1.
[2] Economic Survey of Pakistan 2007-08.Trade and payments, Chapter 8.
[3] Economic Survey of Pakistan 2007-08,Pp:133

growth of imports[4]. However, as stated above, the import growth has reduced during 2006-07 despite the strong growth momentum. The pursuance of tight monetary policy, softening of international prices of oil and a decline in the imports of iron and steel[5] were some of the important reasons behind the slower growth in imports. Anyhow, this trend proved to be temporary and once again the imports registered a sharp rise on account of unprecedented increase in oil import bills during the current fiscal year (2007-08). As a result, Pakistan's trade and current account deficits have widened substantially this year, thereby contributing to serious macro economic imbalances[6].

In this chapter we briefly look at the trade pattern of Pakistan and analyze the structure of exports and imports. In order to analyze the trade performance of Pakistan, it seems important to have an overview of our Trade Policy. First we discuss the objectives of the trade policy, and then we look at the Export and Import strategy and its implementation.

2.2. Structure of Trade

In this section, we briefly discuss the structure of exports and imports of Pakistan.

2.2.1. Major Exports

Historically Pakistan's exports are highly concentrated in a few items namely; cotton, leather, rice, synthetic textiles and sports goods. For instance, these categories of goods account for 75.7 percent of total exports during the first nine months of 2006-07. Likewise, during the first nine months of the current fiscal year (2007-08) these five categories account for 72.4 percent of total exports, with cotton manufacturers alone contributing 54.7 percent, followed by rice (7.1 percent), leather (6.1 percent), synthetic textiles (2.9 percent) and sports goods (1.6 percent). The degree of concentration reflects only little change over the last decade. [See Table 2.1].

(i). Export of Textile Manufactures

By comparing the performance of current fiscal year (2007-08) with previous few years, it is clear that Pakistan is gradually moving towards higher value-added exports of textile sector. The said industry has imported new machinery worth of billion dollars for transition from primary to

[4] Economic Survey of Pakistan 2006-07, Pp: 131.
[5] Pakistan Steel (Karachi) resumed its normal production level.
[6] Economic Survey of Pakistan 2007-08.

value-added products[7]. The shares of bed wear, knitwear and towels (value-added exports) have generally increased over the last seven years. [See Table 2.2].

Table 2.1: Pakistan's Major Exports (Percentage Share)

Commodity	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
Cotton Manufactures	59.1	61.0	58.9	59.4	63.3	62.3	57.4	59.4	59.7	54.7
Leather	6.9	6.3	7.5	6.8	6.2	5.4	5.8	6.9	5.2	6.1
Rice	6.9	6.3	5.7	4.9	5.0	5.2	6.5	7.0	6.6	7.1
Synthetic Textiles	5.1	5.3	5.9	4.5	5.1	3.8	2.1	1.2	2.5	2.9
Sports Goods	3.3	3.3	2.9	3.3	3.0	2.6	2.1	2.1	1.	1.6
Sub Total	**81.3**	**82.2**	**80.9**	**78.9**	**82.6**	**79.3**	**73.9**	**76.6**	**75.7**	**72.4**
Others	18.7	17.8	19.1	21.1	17.4	20.7	26.1	23.4	24.3	27.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*July-March (provisional) Source: Ministry of Commerce & FBS.

Table 2.2: Export of Textile Manufactures. (Percentage Share)

Item	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
Cotton Yarn	18.7	16.1	12.9	14.0	12.7	13.7	13.6	12.4
Cotton Cloth	17.9	19.6	18.6	21.3	23.3	21.6	19.3	17.7
Knitwear	15.8	14.6	15.9	18.1	18.9	17.6	18.7	17.3
Bed wear	12.9	15.9	18.4	17.2	16.4	20.8	19.0	18.1
Towels	4.2	4.6	5.2	5.0	5.9	5.8	5.7	5.6
Tents, Canvas & Tarpaulin	0.9	0.9	1.0	0.9	0.8	0.3	0.7	0.7
Readymade Garments	14.4	15,1	15.1	12.4	12.9	13.9	13.2	14.1
Synthetic Textiles	9.5	7.1	7.9	5.9	3.5	2.0	4.0	5.1
Made up Articles	5.7	6.1	5.0	5.2	5.5	4.3	4.5	5.0
Others	----	----	----	----	0.1	0.1	1.3	4.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*July-March (Provisional) Source: FBS & Finance Division.

(ii). Direction of Exports

Pakistan's exports are highly concentrated in a few countries. These include USA, Germany, Japan, UK, Hong Kong, Dubai and Saudi Arabia. USA is the single largest export market for Pakistan, accounting for 26.4 percent of its exports followed by the United Kingdom and Germany. On the other hand, Japan is fast vanishing as Pakistan's export destination; its share in total exports has been on decline for one decade, from 5.7 percent in 1996-97 to less than 1

[7] Akmal, Ahadullah (2006): Pakistan's Trade Policy: Reflecting Human Development in Trade Initiatives

percent last year[8]. This is a serious matter and worth consideration. Pakistan is required to diversify its exports not only in terms of commodities but also in terms of markets for export stability. [See Table 2.3].

Table 2.3: Direction of Exports (Percentage Share)

Country	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
USA	21.8	24.8	24.4	24.7	23.5	23.9	23.9	25.5	24.6	26.4
Germany	6.6	6.0	5.3	4.9	5.2	4.9	4.8	4.2	4.1	4.3
Japan	3.5	3.1	2.1	1.8	1.3	1.1	1.1	0.8	0.7	0.8
UK	6.6	6.8	6.3	7.2	7.1	7.6	6.2	5.4	5.6	5.6
Hong Kong	7.1	6.1	5.5	4.8	4.6	4.7	3.9	4.1	3.9	4.0
Dubai	5.4	5.7	5.3	7.9	9.0	7.3	3.3	5.6	7.5	1.6
Saudi Arabia	2.4	2.5	2.9	3.6	4.3	2.8	2.5	2.0	1.7	1.7
Sub Total	**53.4**	**55.0**	**51.8**	**54.9**	**55.0**	**52.3**	**45.7**	**47.6**	**48.1**	**44.4**
Other Countries	46.6	45.0	48.2	45.1	45.0	47.7	54.3	52.4	51.9	55.6
Total Exports	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*July-November Source: Ministry of Commerce

2.2.2. Major Imports

During the past four years, Pakistan's import growth on average was at 29 percent per annum and as stated above it has slowed down to a moderate level in the current fiscal year (2007-08). Pakistan's imports are also highly concentrated in few items namely; machinery, petroleum and petroleum products, chemicals, transport equipments, edible oil, iron and steel, fertilizer and tea. These eight categories of imports account for 73.7 percent of total imports during the current fiscal year. In particular, machinery, petroleum products and chemicals accounted for 57.3 percent of total imports. Concentration of imports remained by and large unchanged over the last one decade with the exceptions of 2000-2001[9]. (Table: 2.4)

(i). Direction of Imports

USA, Japan, Kuwait, Saudi Arabia, Germany, UK and Malaysia are seven countries that contribute for about 40 percent of Pakistan's imports and have been the major sources of our imports over the last ten years. Saudi Arabia is emerging as a major supplier (of petroleum) to Pakistan followed by the USA and Japan (of machinery & equipment). [See Table 2.5]

[8]Economic Survey of Pakistan 2006-07.

[9] Economic Survey of Pakistan 2006-07 & 2007-08

Table 2.4: Pakistan's Major Imports. (Percentage Share)

Commodities	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
Machinery**	17.9	13.9	19.3	17.1	18.5	17.8	22.5	18.0	21.9	18.4
Petroleum Products	15.5	27.2	31.3	27.1	25.1	20.3	19.4	22.3	24.0	26.5
Chemical@	16.6	17.5	20.0	15.9	15.1	16.1	15.5	13.4	13.0	12.4
Transport Equipment	5.7	5.5	4.0	4.8	5.6	5.6	6.2	7.7	7.6	5.7
Edible Oil	8.7	4.0	3.1	3.8	4.8	4.2	3.7	2.7	3.1	4.2
Iron & Steel	3.1	3.0	2.6	3.3	3.3	3.3	4.3	5.1	4.9	3.3
Fertilizer	2.8	1.9	1.6	1.7	2.1	1.8	2.0	2.4	1.5	2.7
Tea	2.4	2.0	1.9	1.5	1.4	1.2	1.1	0.9	0.7	0.5
Sub Total	**72.7**	**75.0**	**83.8**	**75.2**	**75.9**	**70.3**	**74.7**	**72.5**	**76.7**	**73.7**
Others	27.3	25.0	16.2	24.1	24.1	29.7	25.3	27.5	23.3	26.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.1**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*July-March (Provisional) Source: Ministry of Commerce & FBS.

** Excluding Transport Equipments, @ Excluding Fertilizer

Table 2.5: Direction of Imports. (Percentage Share)

Country	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
USA	7.7	6.3	5.3	6.7	6.0	8.5	7.6	5.8	8.1	7.2
Japan	8.3	6.3	5.3	5.0	6.6	6.0	7.0	5.6	5.7	4.6
Kuwait	5.9	12.0	8.9	7.1	6.6	6.4	4.6	6.2	5.4	6.6
Saudi Arabia	6.8	9.0	11.7	11.6	10.7	11.4	12.0	11.2	11.5	11.7
Germany	4.1	4.1	3.5	4.3	4.6	3.9	4.4	4.7	4.1	3.2
U.K	4.3	3.4	3.2	3.4	2.9	2.8	2.6	2.8	2.3	2.0
Malaysia	6.7	4.3	3.9	4.4	4.6	3.9	2.6	3.0	3.0	3.9
Sub Total	43.8	45.4	41.8	42.5	42.0	42.9	40.8	39.3	40.1	38.5
Other Countries	56.2	54.6	58.2	57.5	58.0	57.1	59.2	60.7	59.9	61.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

*July-March Source: Ministry of Commerce

2.2.3. Trade Balance

The trade deficit continues to widen due to increase in imports and decrease in the value of exports. In 2000-2003 the merchandise trade deficit was in the range of $2 billion. It started deteriorating due to the strong domestic demand for imported goods (fueling non-oil imports) and deceleration in export growth. In addition, the continuous increase in global price of oil has

also increased the import bill thereby leading to an increased dependence on imported crude oil particularly in 2006-07[10].

The trade deficit increased from $1.1 billion in 2002-03 to $12 billion by 2005-06. It has been deteriorated over the last two years primarily due to the continued robust domestic demand and an extra ordinary rise in oil and food prices in the international markets. The deficit during the first ten months of the current fiscal year (2007-08) worsened sharply to $17 billion as compared to $11 billion in the same period last year (2006-07). If the current trend continues, the trade deficit is likely to touch a figure of $20.5 billion or 12.3 percent of GDP during 2007-08[11].

Table 2.6: Pakistan's Balance of Trade **(US $ million)**

Commodities	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08*
Exports	7.8	8.6	9.2	9.1	11.2	12.3	14.4	16.4	17.0	15.2
Imports	9.4	10.3	10.7	10.3	12.2	15.6	20.6	28.6	30.5	32.1
Trade Balance	-1.6	-1.7	-1.5	-1.2	-1.1	-3.3	-6.2	-12.1	-13.6	-16.8

*July-March (Provisional) Source: Economic Survey 2007-08.

2.3. An Overview of Pakistan's Trade Policy.

From 2000 to 2005, Pakistan's export grew from US $7.8 billion to US $14.4 billions. The Ministry of Commerce announced a Targeted "Rapid Export Growth Strategy" in 2005-06. As usual, it was hoped that successful implementation of this strategy would lead the country towards the sustainable economic growth, poverty eradication and hence achievement of higher employment. The Rapid Export Growth Strategy (REGS) was based on the following pillars[12]:

- Trade diplomacy to increase access to world markets.
- Diversification of export markets.
- Strengthening of trade promotion infrastructure.
- Skill development in export oriented industry.
- Early provision of modern infrastructure.

[10] Akmal, Ahadullah Pp.12
[11] Economic Survey of Pakistan 2007-08. Pp:145
[12] Trade Policy of Pakistan 2007-08

The targeted REGS focuses on selected sectors like engineering goods, pharmaceuticals and chemicals, towels, leather and leather products with the objective of pushing up their exports to the tune of US $1bilion in the next three years. It is claimed that Pakistan has made a significant progress in achieving the goals. To increase the market access through FTA's and PTA's, Pakistan is actively negotiating with different countries and regional blocks around the globe. Export promotion bureau (EPB) has been replaced by Trade Development Authority (TDAP), which seems to be a change of label only. It is also claimed (in official documents) that trade promotion infrastructure has been strengthened abroad.

During 2006-07, Pakistan's economy grew by 7 percent, which was mainly due to an increase in domestic consumption and the investments made in telecommunications, services and construction sectors. The higher growth level of the economy could only be sustained by a rapid growth in exports. An annual exports growth of 20-25 percent is required to maintain the GDP growth rate of 7-8 percent per annum. However, the ground reality is not encouraging. There are certain challenges that have affected the export growth momentum. These include[13]:

- Low competitiveness
- Lack of productive capacity
- Low end and low quality products
- Un organized and isolated export industries
- Unprecedented demand for energy /Petroleum products
- Difficulties in access to international markets
- Non-Compliance of our exportable with social, environmental and health standards
- Insufficient product diversification.

Other challenges on the internal front that made it difficult for exporters to fulfill their export orders on time and at a competitive price during the year included[14]:

- Power shortages and resultant load-shedding of electricity and natural gas.
- Impact of monetary and exchange rate policies, plus supply side constraints.
- Rising costs of salary bills and raw material, particularly raw cotton.

[13]Trade Policy 2007-08
[14] Trade Policy 2008-09

- Increasing competition in export markets,
- Long term structural issues such as labor skills deficiency and poor infrastructure.
- Non-cooperative attitude of advisories of foreign governments who discouraged their importers to continue sourcing from Pakistan.

In addition to above, there are some external factors that are affecting our export growth. The most important is the "stiff international competition in textile products" from China, India, Vietnam and Bangladesh in our traditional markets of US and the EU, NAFTA (North American free trade area), CAFTA (Central American free trade area) etc. These challenges are not difficult to cope with, as the current global trading environment under WTO is transforming the world into an integrated single market. Pakistan has an opportunity for market access that lies in the success of the current WTO Doha Round of negotiations (2001).

2.3.1. Institutional Reforms / Export Strategy

In order to boost up exports the ministry of commerce has initiated several long term institutional reforms over the past year (2007-08). These reforms are discussed below:

(i). Creation of TDAP

The Export Promotion Bureau has been replaced by Trade Development Authority of Pakistan (TDAP). The responsibilities of TDAP include:

a) Achieving synergy in development of exports at the national level.
b) Developing a sustainable result oriented export marketing plan.
c) Planning and taking initiatives for strengthening exporter's capabilities and capacities.
d) Promoting human resource development in the export sectors.

(ii). Revamping of Trade bodies

The trade organizations ordinance 1961 has been replaced with a new and progressive law. The objective is the development and efficient representation of trade, commerce and industry.

(iii). Tariff Rationalization Initiatives

Pakistan had a top rate of custom duty of 120 percent in 1980's. In 1990-91 the maximum rate of custom duty was 90 percent, which was further brought down to 25 percent in 2001. The maximum applied rate remained at 25 percent during 2001-06 and the number of slabs was

increased to 5. On the recommendation of the Ministry of Commerce, the top rate is retained at 25 percent while the number of slabs is enhanced to 6 during 2007-08.

(iv). Strengthening Domestic Trade/Commerce

In order to strengthen the domestic trade, the Ministry of Commerce has carried out detailed studies on the state of art that cover important components like competitiveness, protections, subsidies, market regulations, wholesale and retail market, transport and real estates.

(v). Indicators of Competitiveness in Trade

The major economic challenge faced by Pakistan in the trade sector is achievement of competitive advantage relative to its neighbors. The Ministry of Commerce has developed indicators for trade competitiveness to quantify and internationally benchmark the cost of doing business in Pakistan. The competitiveness indicators take into account the financial, economic and regulatory factors including interest and exchange rates, public service provisions, legal frame work, business environment, human resource and technological awareness. The concerned quarters are reviewing the indicators for meaningful policy recommendations and interventions.

(vi). Facilitating Transit Trade and Transport Logistics

An efficient mechanism for international logistics and transportation services plays important role in the development of trade. Therefore, the concerned ministry is working on the development of international freight forwarding logistics and transport industry. The objective is to establish and enable Pakistan as a gateway for the Central Asia and China's transit trade[15].

2.3.2. Institutional Reforms / Import Strategy

Import policy of Pakistan is based on the following three pillars;

- Liberalization
- Facilitation
- Deregulation.

The Government of Pakistan has announced the following measures for successful implementation of the import strategy[16]:

- Commercial importers are allowed to import machinery/equipment/specialized machinery (excluding dump trucks and mobile transit mixers) on their behalf.

[15] Trade Policy 2007-08
[16] Trade Policy 2007-08

- Construction companies (registered with Pakistan Engineering Council) can import second hand plants, machinery and equipment (PME) not more than ten years old.
- Import of motorized wheel chairs (new or used) is allowed, as donations and gifts to the charitable institutions and hospitals, in order to facilitate physically disabled persons.
- It has been decided to allow import of equipment and materials for mountaineering expeditions on import cum export basis.
- In order to facilitate the overseas Pakistanis, it has been decided that the 'authority of granting exemption from sales tax registration' will be delegated to the collector of customs concerned.
- Other measures include a strategy for switching over to CNG to reduce dependence on petroleum imports and reduction of tariffs on import of used cars.

2.4. Implementation of Trade Policy Initiatives

During the past four years (2003-04 to 2006-07), the Government has announced the following important initiatives and started their implementation:

(i). Reducing Cost of Business through

- Long term financing of export oriented projects.
- Reallocation of industries.
- Providing freight subsidy.
- Sales tax facilitation for export sectors.
- Incentives for priority sectors.

(ii). Marketing and Business Facilitations

- The Expo Pakistan- a mega international exhibition event for Pakistani products- will be held annually.
- Government is providing financial support to the companies who wish to open their own retail outlets abroad.
- TDAP is encouraging women entrepreneurs in international exhibitions by providing them with financial support.

(iii). Sectoral Development

- TDAP has carried out the industrial cluster development program. Clusters are being developed for gems and jewelry, leather, garments, fans and cutlery.
- Similarly export of pharmaceutical products has been facilitated by providing financial assistance to firms up to 50 percent for registration of their products in foreign countries.

(iv). Infrastructure Development

- Special export zone, a textile city is being set up in Karachi.
- Garment cities are being set up in Lahore, Faisalabad and Karachi.
- Pakistan horticulture development and export board (PHDEB) has been established to promote, regulate and enhance the export of horticulture products.

(v). Productivity and Quality Enhancement

- A Board has been established in the Ministry of Commerce for promotion of textiles and garments exports and skill development.
- A training institute is being established for training of farmers and ginners in production of cotton free from contaminations. The export development fund is providing necessary financial assistance.

2.5. Trade Diplomacy

The Ministry of Commerce has organized regional conferences of envoys and commercial officers in Africa, Central Asian countries, East European countries, Middle East and Latin Americas in collaboration with the Ministry of Foreign Affairs. Such trade diplomacy initiatives provide valuable inputs for export strategy[17].

(i). Promoting Exports

As mentioned earlier, the government has announced Rapid Export Growth Strategy (REGS) in 2005-06 to accelerate the export growth in selected sectors. In this regard, a long-term export plan has been prepared, which will provide broad based targets in terms of specific sectors. Similarly it will recommend specific actions to achieve exports of US $145 billion by 2013. This plan will also be used to increase the Export: GDP ratio to around 16 percent.

[17] Trade Policy 2007-08

(ii) Export Measures 2007-08

For a successful implementation of Export strategy, the following measures have been announced in trade policy 2007-08 to enhance competitiveness, productivity and export capacity.

(a). Long-Term Financing for Export Oriented Projects

Long-term, fixed rate, export projects financing schemes have been initiated to cover;

- Export oriented, core and developmental sectors,
- Purchase of locally manufactured machinery,
- Compact spinning.

(b). Establishment of Equity Fund

In trade policy 2007-08, it has been decided to establish an equity fund through pooling the resources of private and public sector organizations. This fund will be used for acquisition of overseas brands. Equity fund will also be used to encourage setting up of sanitary and phyto-sanitory (SPS) facilities and testing laboratories. It will increase the exports of fresh fruits and vegetables if SPS requirement are met.

(c). Sectoral Investment Incentives

The Government of Pakistan will allow first-year-allowance (FYA) on investment in plant machinery and equipment (PME). The objective is to encourage new investments particularly in high technology and value-added (developmental) products.

(d). Social, Environmental and Security Compliance

A social, environmental and security compliance Board will be set up in TDAP to educate, coordinate and monitor implementation of local laws relating to these standards. The Board will be supported by all the relevant government agencies and will interact with the buyers abroad.

(e). Skill Development

As a measure of export strategy, the establishment of Export Skills Development Council in TDAP has been decided. Similarly, transformation of the existing training institutes into technological and skill development resource centers (TSDCs) is also part of the plan. The Government of Pakistan has announced the following measures for facilitation and market support of our exports[18].

[18] Trade Policy 2007-08

- Hiring of consultants for selected companies in order to reach the international standards.
- Provision of around 50 percent subsidies for compliance certification (quality, environmental and social).
- Financial and legal assistance for opening of exporter's offices abroad.
- Support for marketing of branded products.
- Assistance in setting up overseas business support units to enhance market share abroad.
- Assistance to exporters in web development and training in internet marketing.
- To promote export of branded rice and food products to UK, 50 percent cost of British retail consortium (BRC) certification will be offered to exporters who have already established their brands.
- The FBR will announce a new scheme for temporary importation of raw materials, including fabrics to facilitate SME exporters.

(iii) Sectoral initiatives of Pakistan's Trade policy

- Export diversification.
- Export of gold, gems and jewelry.
- Value addition in carpet exports.
- Promoting engineering good exports.
- Development of women entrepreneurship in exports.
- Facilitation for exports of pharmaceutical products.
- Encouraging local footwear industry.
- Domestic commerce development schemes.

2.6. International Trade Relations of Pakistan

Being a member of the organization, Pakistan has been actively participating in all WTO ministerial level conferences. WTO is playing a positive role in promoting trade among the member countries. Pakistan wants to have a successful conclusion of "WTO Doha Development Agenda Negotiations[19]" since the multilateral proposals can lead Pakistan towards progressive trade liberalization. Pakistan has adopted a dual trade strategy i.e. Multilateralism and Regionalism. This is based on two fundamental ideas; that trade reforms are beneficial at any level and that each venue of trade liberalization offers unique opportunities (Burfisher: 2001). Multilateral agreements bind every country in a process of mutual trade reforms. On the other hand, the Regional agreements are exclusive and discriminatory but these are capable of much deeper trade reforms since their adherents are fewer, more like-minded and often linked geographically (Burfisher & Zahniser: 2001).

Free trade agreement between two or more countries involves a preferential treatment to be given to one another so far as market access is concerned. It is the legal binding on the countries concerned to liberalize trade and to facilitate the flow of goods and capital (investment) across borders (Kazmi: 2006). The very aim of FTA is to remove the barriers to trade and investment. Many countries are signing bilateral trade agreements now-a-days, which are variants of FTA. By negotiating such trading agreements, Pakistan can strengthen its trade relations with different countries in South and East Asia, South America and pacific. Pakistan has the following objectives in perusing bilateral and regional preferential free trade agreements (Kazmi: 2006):

- Seeking of better market access,
- Facilitation and promotion of trade and investment,
- Enhancing the comparative value of Pakistan's exports, and
- Building capacities in targeted areas through technical cooperation and collaboration.

Pakistan is one of the fast growing economies in Asia. This is revealed by the fact that our economy has been growing with an average rate of 6.6 percent over the past six years. Our foreign trade has been growing over and above 15 percent per annum, which has in turn given a

[19] WTO Development Round started in Doha, Qatar in November, 2001.The main objective of Doha round was to minimize the trade barriers around the world and to allow free trade between the countries of varying prosperity.

boost to government revenues as well. As stated above, Pakistan has adopted an export-led strategy, which demands a greater market access for its products abroad. In this connection, the Government of Pakistan has initiated negotiations with its trading partners on the global front. The present FTAs are not restricted only to liberalization of trade and market access measures, they also include the flow of investment, intellectual property rights, economic cooperation in science and technology, information, research and development and SME development etc.

2.6.1. Trade Agreements of Pakistan

Pakistan has already concluded some FTAs and PTAs with different countries and regions. Examples are Srilanka (June: 2005), China (July: 2007), SAFTA agreement (Jan: 2006), Early Harvest Program (a prelude to FTA) with Malaysia (Jan: 2006), PTA with Iran (Oct: 2006) and D-8 countries (July: 2007). The nature of these agreements is discussed briefly as under:

Pakistan has a full FTA with Srilanka, operational from June 12, 2005. Both countries are offering preferential market access to each other's exports by granting tariff concessions[20]. Presently the FTA between Pakistan and Srilanka comprises in goods, which will further be broadened to cover services and investment. Pakistan has very successful economic linkages with China. The bilateral free trade agreement between Pakistan and China includes trade in goods and investment. Pakistan negotiated an Early Harvest program with China, which was put into operation on 1st January 2006 and which evolved overtime into the bilateral free trade agreement. This agreement will enable Pakistan to get market access at zero duty on all items of export. China will also reduce its tariff by 50 percent on fish, dairy sectors, frozen orange juice, plastic products, rubber products, leather, knitwear and woven garments, etc[21].

Besides bilateral FTAs, Pakistan is also focusing on ASEAN countries for developing a strong economic relation. ASEAN Free Trade Agreement (AFTA) has proved to be the most successful in Asia. Therefore it is in the interest of Pakistan to pursue FTA with ASEAN and government of Pakistan has already initiated negotiations with Malaysia, Indonesia, Singapore and Laos for

[20] Free Trade Agreements between Pakistan and Srilanka, Regional/Bilateral Trade Agreements. Government of Pakistan, Ministry of Commerce.

[21] Free Trade Agreement between Pakistan and China. Ministry of Commerce, Government of Pakistan (2008)

bilateral FTAs. Malaysia has entered with Pakistan into a closer economic partnership agreement (MPCEPA) 2008-2014 from 1st January 2008[22] and it is the first full-fledged and comprehensive FTA between the two Muslim countries. Prior to this, the Early Harvest program was successfully negotiated and signed in December 2005 with Malaysia, which had provided market access to a limited number of products. The MPCEPA incorporates trade in goods and services along with investment and economic cooperation. Now Pakistan has eliminated tariff on 23 percent of the current imports from Malaysia whereas Malaysia has eliminated tariff on 78 percent of imports from Pakistan.

Middle East is another important region with whom Pakistan has a closer religion and cultural linkages. Our major imports of crude oil and petroleum products flow from these countries. A successful bilateral FTA with Middle East countries can play a significant role in the expansion of markets for Pakistan's exports[23]. The government is negotiating with Gulf Cooperation Council (GCC) for a bilateral FTA. These negotiations, when concluded, will be a great success for Pakistan, since GCC and EU are also negotiating an FTA and as such Pakistan can have an indirect link with EU. Pakistan has also concluded a PTA with Iran that is operational from September, 2006. Pakistan is also pursuing FTA with Iran, Afghanistan, Turkey and six Central Asian States under an ECO trade agreement.

Pakistan has also signed a framework agreement on trade with MERCOSUR[24] in July 2006[25]. Similarly FTA's with Jordan, Thailand, Singapore and Russia are in various stages of completion, whereas FTA with USA is linked with signing of the Bilateral Investment Treaty (BIT). However the negotiations on BIT between the two countries have been controversial due to some technical issues[26].

Pakistan is negotiating FTA under the auspices of D-8 countries, which include Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. These countries have signed PTA during the D-8 summit in Bali held in 2006.

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[22] www.bilateral.org

[23] Kazmi (2006)

[24] MERCOSUR is a Regional Trade Agreement (RTA) among Argentina, Brazil, Paraguay and Uruguay founded in 1991.

[25] www.bilateral.org, August: 2006

[26] The American Government is applying NAFTA standards to sign BIT with Pakistan and this is very unfavorable to Pakistan. (Kazmi: 2006).

Pakistan and Mauritius have decided to give each other preferential treatment under bilateral PTA effective from November 2007. PTA will apply to a large number of products traded between two countries. Pakistan has granted 50 percent margin of preferences in the existing tariff rates to 64 products and this will increase to 100 percent from November 30, 2008. The goods include flowers, fruits, tea, sugar, seafood and soap. In contrast, a preference margin from 35-50 percent will be granted on 66 textiles and readymade garments. In comparison, the reference margin given by Mauritius for Pakistani products is ranging from 15-30 percent for the first year of the PTA that will increase to 50-100 percent from November 30, 2008[27].

2.6.2. SAARC and Pakistan

The South Asian nations have progressively liberalized their economies in recent years in an effort to integrate with the world economy. These countries have initiated various steps to increase regional economic integration under the umbrella of South Asian Association for Regional Cooperation (SAARC). The ultimate goal was to form a free trade area. The Free Trade Agreement (SAFTA) was signed in January, 2004 by all SAARC member countries (Bangladesh, Pakistan, India, Srilanka, Bhutan, Nepal and Maldives). The proposal was formally approved and implemented with effect from January 1st, 2006.

Under Article 7 of the Agreement, tariff reduction modality is defined as Trade Liberalization Program (TLP). In the first phase, India, Pakistan and Sri Lanka will bring down their customs tariff to 20 percent by 1st January 2008. As far as other member states are concerned i.e. Bangladesh, Bhutan, Maldives and Nepal, they are obliged to reduce tariffs to 30 percent[28].

SAFTA can also help to switch trade from informal to formal channels (the bulk of India – Pakistan trade is routed through Dubai, which is costly). Thus SAFTA can lead toward closer regional cooperation and help eliminate the restrictions on trade, increase investment and growth by reducing the infrastructure constraints and transaction costs.

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[27] Pakistan and Mauritius signed FTA. www.bilateral.org

[28] Agreement on South Asian Free Trade Agreement (SAFTA).Ministry of Comerce.Pakistan

Besides the regional trade agreement: SAFTA, bilateral FTAs have also been negotiated by the countries of the region. As discussed above, Pakistan has concluded FTA with Srilanka. Simultaneously Pakistan is negotiating with Nepal and Bangladesh for bilateral FTA. Similar efforts are under way to improve bilateral relations with India. Over the past few years, bilateral trade relations between India and Pakistan have almost double crossed the one billion dollar mark in 2006. "The 400 million dollar increase in the year ending March 2006 was due to the launch of SAFTA and the opening of rail and roads links in 2005. The launch of SAFTA has brought changes in customs tariffs and reduced trade barriers, leading to restoration of direct trade linkages and reducing transaction costs"[29].

2.7. Trade Openness and Regional Integration

Trade-Openness is the key indicator of global and regional integration program. So far as Pakistan is concerned, this ratio has increased overtime since 2000 but still it is lower than certain progressive countries. For instance, Malaysia is currently one of the most open economies of the world. Pakistan is not in a position 'to do more' or to completely open its economy due to the large macroeconomic imbalances, domestic political instability, security concerns and regional tensions; and this is natural. However, as a result of some concrete measures taken by the government since 1998 in the area of reducing import quotas, surcharges and regulatory duties, Pakistan has gradually moved away from a protectionist, inward-oriented and import substitution trade regimes to a more liberalized country through tariff cuts and rationalization. (Sayal: 2007). For the sake of comparison, the Trade-GDP ratios within regional groups are depicted in Table 2.7 (next page).

[29] Pakistan Daily Times, March 20, 2006.

Table 2.7: Trade-GDP Ratio within Regional Groups

Year	1990	1995	2000	2004	2005
NAFTA					
Canada	52.01107	72.27872	86.41769	73.06872	..
USA	20.54297	23.3687	26.34053	25.44352	..
Mexico	38.30618	58.0658	63.87228	61.17028	61.4334
ASEAN					
Philippines	60.80027	80.53853	108.8999	105.5741	99.29116
Thailand	75.78236	90.42944	124.9223	136.384	148.8028
Indonesia	49.06189	53.95859	71.4369	59.51434	62.74977
Malaysia	146.9638	192.1141	228.8752	220.8627	223.248
SAARC					
Bangladesh	19.65268	28.20949	33.20734	36.27827	39.62709
India	15.70899	23.20566	28.36173	40.06462	44.71619
Srilanka	67.22667	81.62966	88.63646	81.89176	79.59537
Pakistan	38.9095	36.13276	28.3719	30.89115	35.20906
ECO					
Turkey	30.85341	44.24264	55.58025	63.5633	61.40018
Iran	37.65916	34.82447	40.13986	54.97549	68.95193
Pakistan	38.9095	36.13276	28.3719	30.89115	35.20906
EU					
Great Britain	50.62695	57.15057	58.09123	53.82498	56.12387
Italy	38.25208	47.67275	53.17582	49.97844	52.69181
France	44.02622	44.40292	56.22737	51.24634	53.14803
Norway	74.31367	69.70499	76.0516	71.17669	73.34898
Spain	35.50584	44.74828	61.19636	55.5691	56.01483
Sweden	59.48724	71.92499	85.98428	83.75571	89.46449
Switzerland	70.11357	65.71981	85.65366	85.08353	..
Greece	45.46082	42.11435	60.98021	50.54	48.82588
Austria	74.58194	70.41822	89.49306	97.09335	100.9945
Denmark	69.70766	71.18607	87.15266	85.55513	92.57381
Portugal	69.06725	63.60802	70.408	64.99649	65.93883
Germany	49.38534	47.44029	66.40145	71.1403	75.25629
Netherlands	108.308	112.1183	133.479	127.0312	134.2404
Belgium	136.9867	131.2467	166.353	163.6476	171.9437

Source: WDI 2007

The Trade-GDP ratio also indicates the degree of integration for a country within a regional block. According to this indicator, EU is the most integrated region in the world. The concerned ratio for all its member countries is high relative to other regional blocks including ASEAN and NAFTA. As far as SAARC is concerned, it is the least integrated region in the world. Although the member countries have made significant progress in integrating with the world economy, integration within the region, however, is still very limited. The South Asian countries have

maintained a higher level of protections within the region than with the rest of the world[30]. However, over the past few years, most of them have experienced high growth in an environment of declining trade barriers. Trade openness, reflected by the ratios of Export and Imports to GDP, has generally improved in SAARC countries over 1990-2005, with the exception of Pakistan, in which case the Export-GDP ratio remained more or less stagnant and the Import-GDP ratio has shown a little bit decline (Table 2.8).

Table: 2.8 – Trade Openness Indicators-SAARC

Year	1990	1995	2000	2004	2005
Export/GDP					
Bangladesh	6.1	10.9	13.1	15.5	16.6
India	7.1	11.0	13.8	18.4	20.5
Srilanka	29.2	35.6	39.0	36.4	33.1
Pakistan	15.5	16.7	13.5	15.1	15.3
Import/GDP					
Bangladesh	13.5	17.3	19.2	20.8	23.0
India	8.6	12.2	14.5	21.6	24.2
Srilanka	38.0	46.0	49.6	45.5	45.6
Pakistan	23.4	19.4	14.8	14.9	19.9

Source: WDI 2007

Despite the fact that import tariff in South Asian countries has been reduced significantly, however the magnitude of trade within the region is still lower as compared to other regional blocks like the EU and ASEAN. The transaction cost involved in meeting the procedural requirements for exporting and importing within SAARC is quite significant. So many documents are needed to be completed; a large number of signatures required to get permission for exports or imports, which wastes a lot of time. "On the average it takes more than 33 days to export from South Asia compared to 12 days from OECD countries and more than 46 days to import into South Asia compared to 14 days for OECD" (World Bank report:2007, pp.25).

We use the Trade-GDP ratio as proxy for 'Openness' in the following estimation, knowing that it may not be sufficient enough for the purpose. This may be supported by other indicators, like the tariff structure for instance, however due to data limitations; we rely on Trade-GDP ratios only.

[30] South Asia's Growth and Regional Integration: An Overview Pp: 1, Report based on first SAARC Business Leaders Conclave. The World Bank (2007).

2.8. Concluding Remarks

We have briefly discussed the trade structure of Pakistan along with the implementation of Trade Policy Initiatives taken during the last four years (2003-04 to 2006-07). We have also discussed various measures taken by the government to promote exports and curtail imports including various trade agreements. The government of Pakistan has adopted an Export-Led growth strategy and taken several measures in the right direction. As a result, the export sector has performed well and registered a growth of 13.23 percent during the current year (2007-08). However, the curtailment of imports and controlling of trade deficit are yet the big challenges for the government.

During the last year (2006-07), the export target of US $ 19.2 billion was achieved and surpassed as compared to US $ 17 billion achieved in 2006-07[31]. The total merchandise exports for the year 2007-08 were $ 19.22 billion, with a net increase of $ 2.246 billion over the year 2006-07. In addition, the exports of services (to the extent that they have been disaggregated in the national accounts) were $ 2.9 billion and defense related exports amounted to $ 63.9 million.

Our export growth is hampered due to lack of diversification in the products as well as markets. Our exports are concentrated in a few categories such as cotton manufactures and synthetic textiles, leather, rice and sports goods. In the first eleven months of 2007-08, they collectively accounted for around 72.4 percent of total exports. In terms of markets also, around 50 percent of our exports are traditionally directed to only seven countries namely USA, Germany, Japan, UK, Hong Kong, Dubai and Saudi Arabia. The trade policies have consistently suggested measures to promote diversification on both counts and now significant progress can be seen in this regard.

In order to improve the external trade sector, particularly to enhance the market access for our exports, the government has entered into a number of bilateral and multilateral trade agreements with different countries and economic forums. The government is providing incentives to the exporters in this regard for diversification and quality improvement. Pakistan is obliged to reduce custom duties gradually and to rationalize the tariff structure particularly for imports after signing the WTO constitution. There is some resistance from the domestic producers who want

[31] Trade Policy 2008-09

to continue refuge behind the infant industry argument. However, this is the era of stiff competition and no country can survive without efficiency and improved productivity, both in terms of quality and quantity. Pakistan has to rely heavily on the West for machinery and equipment and on the Middle East for oil imports However, there is much scope for Pakistan to enhance its exports and the government is doing its best to achieve the objective through trade negotiations.

Chapter 3

Literature Review

3.1. Theoretical Foundation of the Gravity Model

3.1.1 The Origin of Gravity Model

Gravity model is the popular empirical tool for evaluating the bilateral trade flows. Its origin lies in the Newton's Law of Universal Gravitation[1]. Gravity model is based on the idea that the quantum of trade between two countries, like the gravitational force, depends on the size of the trading partners as well as on the distance between them (to account for transportation cost).

The application of gravity concept to empirical analysis of international trade was first introduced by Tin Bergen (1962), Poyhonnen (1963) and Linneman (1966). The original model developed by Tin Bergen, and Poyhonnen, specified that the volume of trade between two countries is related positively to their size (measured by their national incomes) and negatively to the distance between their economic centers (as proxy for the cost of transportation).The model in linear form can be written as under:

$$\log\left(Trade_{ij}\right) = \alpha + \beta_1 \log\left(GDP_i . GDP_j\right) + \beta_2 \log\left(Distance_{ij}\right) + u_{ij}$$

Where $Trade_{ij}$ is the value of bilateral trade between the two countries, GDPi and GDPj is the national income of countries concerned, Distance measure the physical distance between them, α is the constant of proportionality and the error term (u) captures shocks and chance events that may affect bilateral trade. Linneman (1966) included an additional variable 'population' which is also the measure of country size besides the national income. Later on, the researchers included several other variables in the analysis like population, income per capita, price levels, tariffs, language (social) relationships, contiguity and colonial history etc. Thus the resulting specification is called the augmented gravity model.

Two models have been used extensively in the literature for estimating the trade potential and the impact of regional trading arrangements (RTA) on mutual trade flows, namely the Computable General Equilibrium Model (CGE) and the Gravity Model of Trade. However in most of the

[1] The force of attraction between two bodies is proportional directly to product of their masses and inversely to square of the distance between them. $F = G.m_1m_2/r^2$, where G is the gravitational constant.

studies, the Gravity Equation has been used as the tool of analysis, obviously for its simplicity, limited data requirement and reliability of results. We discuss some of the important studies.

Although, the gravity model of trade has been an empirical success, however its theoretical justification has been the subject of some dispute. Attempts have been made to explore its connections with the key elements of trade theory. These attempts are of more recent origin and we review here some of the endeavors.

The most classical application of the model is provided by Linnemann (1966). He added an additional variable to the model to reflect the commodity composition of the trade flows. The same variable has been added by Leamer (1974); however he modified the gravity equation for various 2-digit SITC commodity classifications. He also included separate measures of relative factor endowments as independent variables in order to incorporate income and population variables.

There are a number of studies in which gravity models have been derived from different theories of international trade. For instance, Leamer and Stern (1970) derive the gravity equation based on probability model. According to their findings the gravity models can be successful if they capture the most important determinants of aggregate demand and supply.

Anderson (1979) was the first to apply utility functions (Cobb-Douglas and CES) to derive the gravity model. He is of the view that consumer preferences differentiate according to the origin of goods. The gravity equation can be derived from the properties of expenditure systems. It is an alternative method of doing cross-section budget studies, and one with potentially important efficiency properties. Its use is limited to countries where the structure of traded-goods preference is very similar and subsidiary and where trade tax structures and transport cost structures are similar.

Bergstrand (1985) has applied CES preferences and generalized the gravity model by introducing prices. Bergstrand (1989) applied monopolistic competition model, and assumed that goods are differentiated among firms rather than countries. He offered an analytical framework for

understanding the gravity equations that is consistent with modern theories of inter-industry and intra-industry trade. A general equilibrium model of world trade with two differentiated product industries and two factors was developed to illustrate how the gravity equation, including exporter and importer populations as well as incomes, fits in with the Heckscher-Ohlin model of inter industry trade and the Helpman-Krugman-Markusen models of intra-industry trade. It may be noted that Helpman and Krugman (1985) derive the gravity model under the assumption of increasing returns to scale in production. Bergstrand (1990) further extends the micro-economic foundations for a generalized gravity model to incorporate relative factor-endowment differences and non-homothetic tastes. He incorporated the Linder hypothesis in his trade model.

Deordorff (1995) has derived the gravity equation for the value of bilateral trade originating from two extreme cases of the Heckscher-Ohlin model, both of which could also represent a variety of other models as well. First is the case of homogeneous products and frictionless trade, where the absence of all barriers causes producers and consumer to be indifferent among trading partners, including their own country. He has derived the expected trade flows that correspond exactly to the simple frictionless gravity equations whenever preferences are identical and homothetic. Second is the case of countries, each producing distinct goods, as in the H-O model with complete specialization or a variety of other models. Expressions are derived for bilateral trade, both with Cobb-Douglas and CES preferences. The assumption of the H-O model that prices of traded goods tend to be same in each country was proved to be imperfect due to "border effects". These effects require prices of traded goods to differ among the countries of the world.

Feenstra, et.al (1998 and 2001) have shown that the gravity equation can also be derived from "reciprocal dumping"[2] model of trade in homogeneous goods, in contrast to the fact that most existing theories for gravity equation depend on the assumption of differentiated products. They have provided the evidence for "Reciprocal Dumping" by assessing the "home market effect" in separate gravity equations for differentiated and homogeneous goods. Theoretically, the gravity equation should have lower domestic income elasticity for exports of homogeneous goods than

[2] In view of Krugman and Brander it is a model where rivalry of oligopolistic firms serves as an independent cause of international trade. The model shows how such rivalry naturally gives rise to "dumping" of output in foreign markets, and show such dumping can be reciprocal -- there may be two-way trade in the same product. Brander James. A and Krugman, Paul. (1992). A' Reciprocal Dumping Model of International Trade

of differentiated goods because of a 'home market' effect which depends on barriers to entry. They have quantified the home market effect empirically using cross-sectional gravity equations, and found that domestic income export elasticities are indeed substantially higher for differentiated goods than for homogeneous goods. There results match with the theoretical predictions of reciprocal dumping playing a significant role in homogeneous markets.

Anderson and Van win coop (2001) have provided a general understanding of how border barriers affect trade and welfare in the context of simple gravity model with gravitas framework developed in their previous work. They have derived the gravity equation using the properties of market clearance and the CES structure of demand.

3.2. Application of Gravity Model – an Overview.

(a) Single Equation Approach

Cernat (2001) has investigated the potential South-South RTA's on both intra and extra trade flows. He has used an expanded gravity model for estimating the impact of nine RTAs on trade patterns among themselves and between members and non-members. The coefficients, estimated by using OLS technique, have all the expected signs and are highly significant.

Soloaga and Winters (2001) have applied gravity model to the annual non-fuel import data for 58 countries, representing more than 70% of world imports. Dummies are used both to capture the effects of PTAs that reflect intra bloc trade as well as, bloc imports and bloc exports when considered separately. They have found convincing trade diversion for EU and EFTA.

Similarly Kalbasi (2001) has estimated the gravity model to analyze the volume and direction of trade for Iran and other 76 countries by using cross sectional analysis, with total trade as a dependant variable. His analysis is mainly concentrated on the issue as to why some countries are over or under traded relative to the predicted trade flows of the model. The results suggest that Iran is over traded with model industrial countries.

Greenway and Milner (2002) have reviewed literature on gravity modeling and regional trading arrangement. They have also reviewed the recent work on the theoretical foundation of the

gravity model and econometric issues associated with their implementation they have also analyzed the efficiency of gravity modeling by contrasting its results with alternative approaches, particularly Computable General Equilibrium modeling (CGE). They have found that the two approaches are complements rather than substitutes.

Paas (2002) has focused on the external aspects of the reintegration process in the context of EU eastward enlargement. He has explored bilateral trade flows between the countries involved in the EU eastward enlargement process, using a gravity model approach. His findings suggest that the behavior of bilateral trade flows within the countries in EU eastward enlargement accords to the normal rules of gravitation, having statistically significant spatial biases caused by the trade relations between the Baltic Sea Region (BSR bias), between the border countries (border bias) , between the EU members and candidate countries

Boris and Vedran (2002) have discussed the level of trade integration within the SEE[3] region, using the simple tools like the trade openness ratio and trade concentration indices. Since these control for the level to which a country is integrated into world economy. However, these tools cannot describe the level of trade creation and diversion as a result of forming the regional trading blocks. Therefore the gravity model approach is more appropriate as it takes care of some of these problems. The authors have concluded that the target trade potential for Croatia lies within EU and CEFTA[4] countries. Therefore any further trade liberalization of trade with the SEE countries should be accompanied by trade liberalization with EU and CEFTA countries.

Konkhartchank and Maurel (2003) have examined the impact of institutions on trade and attempt to estimate the potential of trade between CIS[5], Central Eastern European countries and EU. Trade potential is computed by using gravity equation. They have found that CIS trade is still characterized by a very large trade destruction effect, which implies that trade with EU countries, could increase in the long run if trade destruction effect is minimized. They have concluded that trade reinforcing/ trade openness will have an impact on growth only if institutions are such that

[3] South East Europe.
[4] Central Europe Free Trade Agreement
[5] Common Wealth Independent States consisting of 11 countries (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan).

trade is attractive and profitable for all parties, by creating the environment conducive to safe and secure exchange.

Hirantha (2003) has evaluated the progress of SAPTA and the prospects for SAFTA while using gravity model. He has shown that if tariff and other non-tariff barriers[6] to trade among members are reduced further, there would be a significant trade creation effect under SAPTA and further regional integration may bring about substantial benefits to SAARC region and SAFTA is most likely to promote intra-regional trade.

Subramanian (2003) has adopted the version of gravity model suggested by Anderson and Van-Win Coop (2003) that includes country fixed effects in the regression in order to find out the impact of GATT/WTO on trade. His robust finding is that WTO membership industrial countries are associated with greater trade.

Batra (2004) has analyzed the global trade potential for India by applying the augmented gravity model and using OLS techniques. The model has been estimated first to analyze international trade flows and then to estimate the trade potential of India with its partners. The model is augmented in the sense that several conditioning variables affecting trade have been included in addition to primary variables, income and distance. The study indicates that India has a maximum trade potential in Asia-pacific region followed by Western Europe and North America. It finds the highest potential for expansion of trade with China, United Kingdom, Italy and France if barriers and constraints are removed. Similarly the results indicate certain other countries with whom India can potentially attain ten times or more the level of the existing actual trade, and these include Georgia, Turkmenistan and Uzbekistan.

Helmers and Pasteels (2005) have used TradeSim (third version), a gravity model for the calculation of trade potentials for developing countries and economies in transition. They have shown how gravity models can be specifically designed and applied. TradeSim primarily calculates the export potential among other factors for countries.

[6] Trade barriers that restrict imports, but are not in a usual form of tariff.e.g. Antidumping measures and countervailing duties.

(b) The Panel Data Framework

Clarete et.al (2000) have used gravity model of bilateral trade in order to find out the effect of different PTAs (Preferential Trading Arrangements). They have used cross section and panel data estimation techniques. Besides estimating the basic determinants of gravity model such as GDP, Distance between capitals of trading partners, Population and Physical area, they have introduced two new dummy variables for measuring the impact of PTAs on the trades of countries in the Asian and Pacific region. One variable is designed to capture the effect of PTAs on Asia's imports. The other variable measures the impact of PTA on Asia's exports to the trade bloc. According to their findings, PTAs have contributed significantly to trade expansions both at the global and regional levels. The results obtained in this study provide evidence that PTAs can create rather than divert trade.

Carillo and Li (2002) have applied gravity model of bilateral trade flows while using panel data approach. They have examined the effects of Andean Community and Mercosur on both intra regional and intra industrial trade. Regional integration agreements between Andean Community and Mercosur have considerable impact on the dynamism of intra regional trade and on the surge of intra industrial trade. Besides the traditional explanatory variables like GDP, Distance, Dummies for Language, Border, Colonial, RTA etc., an additional dummy has been added to capture the effects of macroeconomic reforms and market deregulation policies on bilateral trade for the period 1990-1997. The coefficient has the expected sign and it is statistically significant.

Rehman (2003) has applied the generalized gravity model to analyze the Bangladesh's trade with its major trading partners. He has estimated the model by using panel data estimation technique. The Dependant variable is total trade. The results show that Bangladesh's trade is positively determined by the size of economies, per capita GNP differential of the countries involved and openness of the trading countries.

Soderling (2005) has analyzed export performance in the Middle East and North Africa (MENA) using a gravity model applied to panel data. The results show that several MENA countries are under exploiting the USA as an export market. The author has also analyzed the integration

effort with the EU since the mid 1990. His analysis shows that the impact of integration efforts with the EU has been moderate overall but significant in individual case.

Bussiere and Schnatz (2006) have used gravity model on two-step panel data frame work, which takes the country's heterogeneity properly into account. They have analyzed the overall degree of trade intensity of a large number of countries as well as the depth of bilateral trade linkages of China with major economies. Since the trade data is expressed in US dollar term, the real exchange rate of each country against USD is included to control for valuation effect. They have argued that the rise in trade flows between China and its trading partners should not come as a surprise, rather it reflects China's shift towards more market-oriented policies together with robust economic growth.

Simwaka (2006) has applied a gravity model to Malawi's trade with her major trading partners using the panel data estimation technique. Preliminary results show that the fixed effect model (FEM) is preferred to the Random effect gravity model. Malawi's trade is positively determined by the size of the economies (GDP of the importing country), and membership to regional integration agreement. As usual the transportation cost is found to have a negative influence on Malawi's trade. Therefore the results indicate that Malawi can do better if it trades more with its neighbors. Likewise the exchange rate volatility depresses Malawi's bilateral trade whereas regional economic groupings have insignificant effects on the bilateral trade flow.

Recently Rehman et.al (2006) have applied augmented gravity model in their study to identify trade creation and trade diversion effects originating from SAPTA and other nine RTA. While using panel data approach with country pair specific fixed effects and year specific fixed effects, they have found expected signs for all the usual gravity variables (i.e., GDP, population, Distance, Common border, Common language, Real Exchange rate and Import-GDP ratio and bilateral dummy variables). There is a significant intra-bloc export creation in SAPTA, however at the same time there is evidence of net export diversion as well. Results also show that Bangladesh, India and Pakistan are expected to gain from joining the RTA.

(c) Gravity Models for Pakistan

There are only few studies on Pakistan in which gravity model has been used.

Khan (2000) has estimated the gravity model to establish a relationship of bilateral trade volume of Pakistan to economic, geographic and cultural factors. The trade volume (exports and imports of ten major commodities) is taken as dependant variable. The explanatory variables are Real exchange rate, Tariffs, Distance, Product of GNPs, and Product of per capita GNPs, Official language (English), Border country and dummies to represent SAARC, ASEAN, NAFTA and EU. The model included 21 countries and data is taken for the years 1985, 1990 and 1994, covering ten commodities. The results show that all the variables are highly significant except the variable of border country, which is negative. This is due to the historical conflicts between India and Pakistan.

Another study conducted by the State Bank of Pakistan (2005), estimates a gravity model at sectoral level. This includes the value of Exports as dependant variable and Dummies for Common border, Tariffs, Common language, Conflict and Geographical location as control variables. The data set covers 15 sectors for the years 2002 and 2003 to see trade potential of Pakistan with selected trading partners. The results show that there is a significant scope for expanding trade between Pakistan and India. According to the report, the true trade potential would have been far greater had these countries not engaged in conflicts or tariff and non-Tariff barriers were low. The sectoral level analysis shows that there exist a very high trade potential in textiles, leather products, chemicals, food, beverages and tobacco products.

Similarly, in a study conducted by The World Bank, Baroncelli (2007) has applied the gravity model to estimate the "peace dividend" from trade in case of Pakistan- India relations, where military confrontation has been the norm for the past 50 years. The model has used bilateral trade data for 166 countries over the period 1948-2000 to estimate trade potential between two countries. Along with the PTA, another dummy variable has been included in the model to show the presence or absence of a significant militarized dispute between Pakistan and India in any given year. The estimated coefficients of both the variables explain the average effect of both trade agreements and war on trade flows between the two countries, after controlling for economic size, distance, etc. The results indicate that in the absence of war, trade would have

been $591 million in year 2000-a peace dividend of 4474 million, as against the recorded trade of $117 million for that year. Baroncelli has concluded that the link between conflict and trade is negative and significant. The study also confirms that the presence of systems of regional preferences induces higher flows of imports among partner countries and nonmembers. Looking at Pakistan - India trade in 2000, adding the peace dividend & RTA gains leads to potential trade of $683 million.

3.3. Gravity Model – Estimation Techniques

Harris and Matyas (1998) have reviewed the recent developments in the estimation methodology of gravity models. They have refined the estimation techniques to account for any possible simultaneity bias. Previously fixed-effects gravity model has been estimated, but this paper contains the first ever results of its random effects counterpart. Results suggest that it is important to properly specify the model in terms of source, target, and business cycle effects. If these effects are not taken care of, the affect of other important driving factors (e.g. population) will be wrongly estimated and the implied policy conclusions will be misguided.

Keith (2000) has provided a detail introduction to the concept of the gravity model of bilateral trade. Besides an overview of the development and use of this equation, the paper indicates some practical tips for researchers who want to use the equation in their work. From a beginner's point of view, the paper has provided the background of gravity model from physics and derivation of the relevant formulas.

Benedicts and Vicarelli (2004) have examined the results of a gravity model in terms of a potential trade index. They have showed that when the gravity equation is estimated through a dynamic estimator instead of static one, generally better result can be obtained in term of standard error of regression and the fitted values are more close to historical values.

3.4. Final Remarks

In the above paragraphs we have reviewed some of the important studies in which the gravity model of trade has been used to estimate the trade potential of countries concerned and the impact of different regional trading arrangements on the trade flows. On the basis of the results

from gravity model, these studies have focused on how the countries or regions can take advantage of their trade potentials. For instance, the study conducted on transitional economies with focus on Croatia, it is pointed out that its target trade potential lies within EU and CEFTA countries. Therefore any further liberalization of trade with the SEE countries should be accompanied by trade liberalization with the EU and CEFTA countries. Similarly if barriers and constraints are removed, the countries can expand their trade considerably.

The analysis for south Asian region shows that member countries of the region may gain much more from unilateral trade liberalization than from current SAPTA or proposed SAFTA. However if tariff and non-tariff barriers to trade among members is reduced further, then countries in South Asia may experience some welfare gains from bilateral trade liberalization with Asian trading partner. This will have a significant trade creation effect under SAPTA. The SAARC region can have a substantial benefit from regional integration and SAFTA which is most likely to promote intra-regional trade.

Besides reducing trade barriers and joining RTA's, the market oriented policies have also played an important role in expanding the trade of countries with their partners. The expansion of trade flows between China and its trading partners reflects that China has shifted towards more market oriented policies together with its robust economic growth.

Chapter 4

Analytical Framework

Methodology & Data Consideration

4.1. Analytical Framework

As discussed earlier, the main objective of this study is to estimate the trade potential of Pakistan. The testable hypothesis is whether the trade potential is high within the region or outside the region. For this purpose we will use the Augmented Gravity Model as the tool of analysis. This will help us to evaluate the importance of 'SAFTA' for the region as also the extent of integration for 'SAARC' into world economy in general and for Pakistan in particular.

We have also pointed out that two models have traditionally been used to study the trade potential of different countries and to analyze the impact of regional trade agreements. These are the Computable General Equilibrium (CGE) Model and the Gravity Model of Trade. The former is very comprehensive and needs extensive data on important sectors of all countries, which is beyond the scope of the present study. In contrast, the Gravity Model is comparatively simple in application and data requirements. Thus it is the most popular empirical tool to estimate the trade effects and relationships between countries and geographical entities. It has been applied in most of the studies on trade with reliable results for policy analysis.

4.1.1. The Basic Model

Gravity Model is based on Newton's Law of Universal Gravitation. According to the gravity concept, trade between two countries, like the gravitational force between two objects, depends directly on the product of the countries mass (Population size and/or GDP) and inversely on the distance between them (as a proxy for transportation costs). As discussed earlier, Tin Bergen (1962) and Poyhonen (1963) were the pioneers in making use of the concept by specifying the model in the following manner.

$$Trade_{ij} = \alpha . \frac{GDP_i . GDP_j}{Distance_{ij}} \qquad (1)$$

The variables used in the above relation have their usual meaning:

$Trade_{ij}$ = Value of bilateral trade between country i and country j.

GDP_iGDP_j = Product of national incomes of country i and j.

$Distance_{ij}$ = Measure of the distance between capital cities or economic centers of two countries.

α = Constant of proportionality

The above equation can be written in linear form by taking logs of both sides.

$$\log(Trade_{ij}) = \alpha + \beta_1 \log(GDP_i.GDP_j) + \beta_2 \log(Distance_{ij}) + u_{ij} \qquad (2)$$

The model in its rudimentary form explains that the volume (value/quantum) of trade between two countries is proportional directly to the product of their GDP and inversely proportional to the distance between the economic centers of two countries.

4.1.2. The Augmented Gravity Model

In addition to the traditional variables, several other conditioning variables can be added to the gravity model to account for other factors affecting bilateral trade. For instance, the basic model may include GDP per capita in the partner countries as argument.

$$\log(Trade_{ij}) = \alpha + \beta_1 \log(GDP_i GDP_j) + \beta_2 \log(PCGDP_i.PCGDP_j) + \beta_3 \log(Distance_{ij}) + u_{ij} \quad (3)$$

More complicated augmented gravity models may contain other explanatory variable like the absolute value of per capita income differentials and dummies for common border, common language and common socio-economic region etc. A representative equation may be as under:

$$\begin{aligned} \log(Trade_{ij}) = \alpha + \beta_1 \log(GDP_i GDP_j) + \beta_2 \log(PCGDP_i.PCGDP_j) + \beta_3 \log(Distance_{ij}) \\ + \beta_4 (BORDER_{ij}) + \beta_5 (LANG_{ij}) + \beta_6 (REGL) + \beta_7 (PCGDPD) + u_{ij} \end{aligned} \qquad (4)$$

The symbols have the following interpretation:

PCGDPD = absolute value of per capita GDP differential between the partners.

BORDERij = 1 , if countries share a common border.

= 0 , otherwise.

LANGij = 1 , if countries have a common language (proxy for common culture).

= 0 , otherwise.

REGL = 1 , if both countries belong to the same regional-trading group.

= 0 , otherwise,

We intend to use the above equation/s in our analysis with the exception that we include two dummies for regional groups i.e. SAARC and ECO.

4.1.3. Definition of Variables

The variables included in the above specifications are defined as follows.

(i). Trade

Trade in goods and services, between two countries, is the dependent variable. It is the sum of exports and imports between the two partner countries (in value terms).

(ii). Gross Domestic Product (GDP)

GDP and Population are two standard proxies used for measuring the size of an economy. GDP is positively related with trade, the higher GDP, the higher will be trade (Rehman: 2006). Therefore we expect a positive sign for the coefficient of GDP. In the gravity model the product of GDP's of two countries is used as proxy for economic/market size and productive capacities of the two countries. A positive sign is expected between trade and GDP.

(iii). Per Capita GDP (PCGDP)

The variable is precisely equivalent, whether we express the explanatory variables either as GDP or Population separately or express as GDP per capita to account for two in one. Most often, the GDP per capita has been used in the gravity model estimation since it is also a good proxy for the level of development. GDP per capita describes the link between the level of trade and the stage of development of a country. The more developed the countries are, the more likely is the level of trade between the pair of countries. Therefore a positive sign is expected between trade and per capita GDP. We have included this variable in preliminary test only.

(iv). [Absolute] Per Capita GDP Differential (PCGDPD)

According to the prediction of standard gravity model, the countries with similar levels of GDP per capita will trade more than countries with dissimilar levels. The Helpman-Krugman theory also predicts that the volume of trade should increase with increasingly equal distribution of national income (Batra: 2006). The Hecksher-Ohlin theory of trade however, contradicts this opinion and holds that countries with dissimilar levels of output will trade more than countries with similar levels.

According to the Linder hypothesis, countries with similar levels of per capita income will have similar preferences and similar but differentiated products; therefore they should trade more with each other. "This hypothesis is often viewed as similar to the Helpman-Krugman theory in its

prediction. However, the later theory (H-K) predicts that the sum of logs of income per capita of both countries will have a positive effect on the log of trade, while the Linder hypothesis is associated with the prediction that the absolute value of the difference between per capita incomes will have a negative effect on trade. A positive value falls in the category of Hecksher-Ohlin theory". (Batra: 2006).

Although our objective is not to test the Linder hypothesis against H-O theory per se, since our focus is on the trade potential; however, we include this variable to see the by-product of our analysis in terms of the two contrasting hypotheses. The negative sign of the coefficient will support the Linder hypothesis, while the positive sign will support the Hecksher-Ohlin hypothesis.

(v). Distance

Distance is a proxy for transportation cost. The distance between the trading countries is often measured using the great circle formula (Head: 2000), which takes into account the longitude and latitude of the capital or "economic centre" of each country. Greater distances not only indicate larger transportation costs but are also correlated with larger cultural differences, which retard transfer of information and establishment of trust. Therefore we expect a negative sign in the gravity equation for the distance variable.

Besides the primary variables mentioned above, some dummies are also included by the researchers to capture the impact of geographical factors and historical ties between countries on bilateral trade. These are explained as follows:

(vi). Border/Adjacency

Two countries adjacent to each other or sharing a common border are likely to trade more due to stronger social and economic relations among their masses. To capture this feature, a dummy is often included in the gravity model. This dummy is in addition to the primary variable of centre-to-centre physical distance and it accounts for the effective distance between neighboring countries, which are likely to be engaged in mutual trade more frequently (Head: 2000). The coefficient of border dummy is expected to be positively related with trade.

(vii). Language

People of two countries who speak common language (common culture and traditions) may be involved in higher trade as compared to those who do not share characteristics. The common medium of communication is expected to reduce transaction costs as it helps facilitate trade negotiations. (Batra: 2006). Therefore trade and language are expected to be positively related. Keeping in view its importance, a dummy for common language is often included in the model.

(viii). Regional Trading Arrangements

In order to facilitate international trade, countries on the globe often enter into bilateral and regional trading agreements. These arrangements have shown a positive effect on the volume of trade. To capture the impact of such contracts, one or more dummy variables are often added to the model, taking a symbolic value of unity if both countries belong to the same economic/trading community and zero otherwise. The estimated coefficient describes the weight that can be attributed to a special regional effect. In many studies, it has been found that the trade between partner countries has enhanced three fold if they are members of the same RTA. This dummy variable also helps to analyze the trade diversion and trade creation effect. As noted above, we intend to include two dummies for RTA i.e. SAARC and ECO.

(xi). Trade Openness

The more open is a country, the more would be its involvement in trade. The proportion of customs to total tax revenues or the Trade-GDP ratio may be used as proxies for Openness. So we expect a positive sign for this variable.

(x). Exchange Rate

In some studies the Real exchange rate is used as explanatory variable and as proxy for prices. It is computed as local currency per unit of foreign currency adjusted for domestic and foreign inflation. Some times the exchange rate adjusted for purchasing power parity may be used.

4.2. The Panel Data Framework

Generally the classical gravity models use cross-section data to estimate the trade flows between the pair of countries for a particular time period, i.e. one year. However the recently developed Panel data framework provides more useful information as compared to the single equation approach. It is becoming increasingly popular since it makes possible the study of a particular issue at multiple sites with periodical observations over a defined time frame. Thus it encompasses both the cross-section and time series data.

According to Baltagi (2000), following are some advantages of using panel data approach:

- Since Panel data relate to individuals, firms, states, countries etc overtime, these entities are bound to have heterogeneity. Hence panel data estimation takes into account such heterogeneity by taking into account the individual specific impacts.
- It gives more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency.
- It can better detect and measure the effects that cannot be observed in pure cross-section or pure time series data.
- The panel data is available for several thousand units; hence it can minimize the bias that might result if we aggregate individuals or firms into broad aggregates.

There are several estimation techniques using the panel data approach. The following two are most prominent:

1. The Fixed Effect Model (FEM)
2. The Random Effect Model (REM) or Error components model (ECM).

In FEM the intercept in the regression is allowed to differ among individual units in recognition of the fact that each cross sectional unit may have some special characteristics of its own. Thus the model can be written as under:

$$Y_{it} = \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + u_{it} \qquad (5.a)$$

The subscript i to the intercept term suggest that the intercepts across the individuals are different, but each individual intercept does not vary overtime. FEM is appropriate in situations where the individual specific intercept may be correlated with one or more regressors (Gujrati:

2003). To take into account the differing intercepts, one can use dummy variables and such a specification is known as the Least-Squares dummy variable (LSDV) model. Thus the model may be written as under:

$$Y_{it} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \beta_2 X_{2it} + \beta_{3it} + u_{it} \qquad (5.b)$$

However, there is a disadvantage of LSDV in that it consumes a lot of degrees of freedom when the number of cross-sectional units is very large since in this case one has to introduce N dummies (but suppress the common intercept).

In contrast, REM assumes that intercept of an individual unit is a random drawing from a much larger population with a constant mean (Gujrati: 2003). The individual intercept is then expressed as deviation from this constant mean value. The REM enjoys an advantage over FEM in that it is economical in the degrees of freedom, since we do not have to estimate N cross-sectional intercepts. REM is appropriate in situations where the random intercept of each cross-sectional unit is uncorrelated with the regressors. The basic idea is to start with equation (5.a), however, instead of treating β_{1i} as fixed, it is assumed to be a random variable with a mean value of β_1. Then the value of the intercept for individual entity can be expressed as:

$$\beta_{1i} = \beta_1 + \varepsilon_i \quad \text{where } i = 1, 2, \ldots\ldots\ldots\ldots, n \qquad (5.c)$$

The random error term is assumed to be distributed with zero mean and constant variance:
Substituting (5.c) into (5.a), the model can be written as:

$$\begin{aligned} Y_{it} &= \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_i + u_{it} \\ &= \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + w_{it} \end{aligned} \qquad (5.d)$$

The composite error term $w_{it} = \varepsilon_i + u_{it}$ consists of two components, ε_i is the cross-section or individual-specific error component, and u_{it} is the combined time series and cross-section error component (Gujrati: 2003). For the panel econometric projection of potential bilateral trade, the researchers have concentrated on the random effect model (REM), which requires the following assumptions (Egger: 2002):

$\varepsilon_i \sim (0, \sigma^2_\varepsilon)$, $u_{it} \sim (0, \sigma^2_u)$, where ε_i are independent of the u_{it}. Moreover the explanatory variables have to be independent of the ε_i and u_{it} for all cross section (ij) and time periods (t).

In order to estimate the trade potential of Pakistan, we intend to use REM of the panel data framework. For this purpose, we will proceed in three steps. First, we will estimate the basic gravity model to analyze Pakistan's trade flow with its trading partners for the time span 1981-2005. Next, we will estimate the augmented gravity model by including some other variables so as to evaluate their impact on trade. Finally, the estimated coefficients will be used to estimate Pakistan's trade potential in general but particularly in the presence of some other regional groups like SAARC, ECO, ASEAN, EU and NAFTA.

4.3. Sample Size and Data

We intend to include 42 countries from within different regional groups to analyze the trade potential of Pakistan. The list is given in Table: 4.1 at the end of this chapter. The countries have been chosen keeping in view the importance of their trading relationships with Pakistan as well as the availability of the data. We select three countries from SAARC: Bangladesh, India and Srilanka; four countries from ASEAN: Indonesia, Malaysia, Philippines and Thailand; two countries from NAFTA: Canada, and USA; and almost all countries from EU group namely Belgium, France, Germany, Denmark, Italy, Sweden, Switzerland, Greece, Netherlands, Portugal, Spain and United Kingdom. Likewise, we include countries like Egypt, Iran, Kuwait and Saudi Arabia from the Middle East and Australia, New Zealand, Japan, China and Hong Kong from the Far East in our analysis. As far South America is concerned we have included Argentina, Brazil, Chilie, and Mexico.

Annual data for the period 1981-2005, i.e. 25 years has been considered over a cross section of 42 countries. Data on Pakistan's exports of goods and services to all trading partners, and Pakistan's imports from all other countries are obtained from the Direction of Trade Statistics year book (various issues) published by IMF. Data on GDP, GDP per capita, Exchange rate, total imports and total exports are obtained from World Development Indicator (WDI: 2007). Likewise, the data on CPI have been obtained from International Financial Statistics (IFS). Data on Distance (Km) between Islamabad (capital of Pakistan) and capital cities of other countries are obtained from www.indo.com/distance. The detailed positions of variables and data sources are shown in Table: 4.2 at the end of this chapter.

Appendix

Table: 4.1 - Countries included in the sample

ARG	Argentina	JPN	Japan
AUS	Australia	KEN	Kenya
AUT	Austria	KOR	Korea
BEL	Belgium	KWT	Kuwait
BGD	Bangladesh	LKA	Srilanka
BRA	Brazil	MAR	Morocco
CAN	Canada	MEX	Mexico
CHL	Chili	MYS	Malaysia
CHN	China	NGA	Nigeria
DEU	Germany	NLD	Netherlands
DNK	Denmark	NOR	Norway
EGY	Egypt	NZL	New Zealand
ESP	Spain	PAK	Pakistan
FRA	France	PHL	Philippines
GBR	Great Britain	PRT	Portugal
GRC	Greece	SAU	Saudi Arabia
HKG	Hong Kong	SWE	Sweden
IDN	Indonesia	SWT	Switzerland
IND	India	THA	Thailand
IRN	Iran	TUR	Turkey
ITA	Italy	USA	United States

Table 4.2: Variables and Data Sources

S.No	Variables	Description	Source
1	$Trade_{ij}$ (Dependent)	Bilateral Trade in goods & services between country i and j. $Exports_{ij}$ + $Imports_{ij}$ i = Pakistan j = partner countries	Direction of Trade Statistics (Various Issues) IMF.
2	GDP	Constant at 2000	World Development Indicator (WDI:2007)
3	Per Capita GDP	Constant at 2000	World Development Indicator (WDI:2007)
4	Distance	Bilateral distance between the capitals of country i and j.	www.indo.com/distance
5	Border	Dummy 1: if country i and j share a common border. 0 = otherwise.	www.cepii.fr
6	Language	Dummy 1: if country i and j share a common language. 0: otherwise.	www.cepii.fr
8	Real Exchange Rate	To calculate the RER: • Official Exchange Rate. • CPI It is a bilateral RER, for which we have divided the RER of Pakistan by RER of every country included in our sample.	World Development Indicator (WDI:2007) IFS
9	Trade Openness	To calculate the TOR : • Imports (Current US $) • Exports (Current US $) • GDP (Current) TOR = (Imports + Exports)/GDP	World Development Indicator (WDI:2007)

Note: All the variables in the Gravity Model are in Log form except the Dummy variable.
In the final analysis, we will therefore use the exponent of the coefficients of dummy variables.

Chapter 5

Results of the Gravity Model

Discussion & Analysis

5.1. The Basic Gravity Model

We have applied the basic gravity model to the panel data consisting of Pakistan's bilateral trade relationship with its partners. To be specific, we have estimated the following equation for the time period: t = 1981-2005 and a cross section of: i = 42 countries including Pakistan (the jth country), which implies 41 pairs of cross observations for Pakistan's trade.

$$\log(Trade_{ij})_t = \beta_1 + \beta_2 \log(GDP_i.GDP_j)_t + \beta_3 \log(Distance_{ij})_t + \omega_{ijt}$$

The results are reported in the Table: 5.1 below.

Table 5.1: Basic Gravity Model

Independent Variables	Coefficients	Std.Error*	t-Statistics*
Constant	-5.09	5.56	-0.92
Product of GDP	0.96	0.04	22.06
Distance	-1.45	0.67	-2.17
Adjusted R-squared	0.50	-	-

*The standard errors and t-statistics are hetroskedasticity robust (White 1980).

Both the traditional variables (product of GDP and distance) are found to be significant. They carry the expected signs and are of reasonable magnitude. We may deduce that Pakistan's bilateral trade with the countries concerned will increase by 0.95 percent as the product of GDP's increases by 1 percent. The distance variable is significant at 5 percent and value of the coefficient is -1.44 which implies that when distance between Pakistan and trading partner increases by 1 percent, the bilateral trade between the two countries decreases by 1.44 percent. Hence both the variables are theoretically consistent for Pakistan with the basic hypothesis of gravity model that the trade is directly related to economic size and inversely related to the distance between the partners.

We also made an attempt to estimate the model by adding the product of per capita GDP of the trading partners as explanatory variable along with the primary variables of distance and GDP; however the results were not encouraging. Although all the three variables were statistically significant and had the anticipated signs, but the value of the coefficient of GDP was much smaller than that in the original model (i.e. in the absence of per capita GDP). The reason is

obvious. Multicollinearity was likely to exist between the two explanatory variables, i.e. GDP gross and GDP per capita. Hence we have dropped the modified model with per capita GDP as additional argument from further analysis. The results are however reported in Table: 5.2.

Table 5.2

Independent Variables	Coefficients	Std.Error	t-Statistics
Constant	-3.81	5.19	-0.73
Product of GDP	0.57	0.10	5.54
Distance	-1.81	0.67	-2.70
Product of Per Capita GDP	0.74	0.21	3.56
Adjusted R-squared	0.52	-	-

5.2. The Augmented Gravity Model

Next we estimate the augmented gravity model for Pakistan. In addition to the traditional variables, the model incorporates the per Capita Differential and several other dummies to capture the impact of certain important factors on bilateral trade. The model employed is:

$$\log Trade_{it} = \beta_1 + \beta_2 \log X_{2it} + ... + \delta_1 D_{1t} + \delta_{2t} D_{2t} + ... + \omega_{it}$$

The symbols X's stand for quantitative/ordinary variables and D's for qualitative/binary variables (dummies). The results are presented in Table 5.3 and a brief discussion follows:

Table 5.3: Augmented Gravity Model

Explanatory Variables	Coefficients	Std. Error*	t-Statistics*
Constant	-0.92	6.02	-0.15
Product of GDP	0.92	0.05	18.93
Distance	-1.95	0.73	-2.67
Border	-1.51	0.65	-2.33
Language	0.86	0.34	2.55
SAARC	-0.19	0.49	-0.39
ECO	0.52	0.56	0.92
Per Capita GDP Differential	0.11	0.05	2.32
Adjusted R-Squared	0.50	-	-

*The standard errors and t-statistics are hetroskedasticity robust (white 1980).

The coefficient of the product of GDP is statistically significant at 1 percent level and carries the expected sign. It reveals that Pakistan's bilateral trade increases by 0.92 percent as GDP increases by 1 percent. The coefficient of distance variable is negative and is statistically significant at 5 percent level. It implies that a 1 percent increase in distance lead to 1.95 percent reduction in trade between Pakistan and its trading partners.

We discuss the impact of other variables as under:

(i) To control for adjacency, we have included the border dummy variable. Interestingly, the coefficient of this variable has a negative (-1.51) but statistically significant at 5 percent. As the model is specified in log form, so we have to interpret the coefficient by taking the exponent. The projected results [exp (-1.508914)-1 = - 0.78] imply that trade of Pakistan with its neighboring countries sharing a common border is 78 percent lower than expected. Apparently the results contradict with theory/common wisdom. However, the reasons are obvious; only two countries India and Iran (included in the analysis) are sharing common border with Pakistan. However, trade with these partners, particularly India, is restricted due to political conflict. Further, much of the border trade between Pakistan-Iran and Pakistan-India is underground and never recorded. Likewise, lower skills and similar products, the low level of industrialization in the region, more or less same level of technical progress and development are also the main causes due to which Pakistan's trade with its neighboring countries is not that much high as one would expect.

(ii) The dummy for common language is statistically significant at 5 percent and has an expected positive sign. The coefficient value 1.35 [exp (0.856285)-1 =1.35] indicates that trade between Pakistan and those countries with whom it shares a common language or culture will be higher by 135 percent.

(iii) The dummy for SAARC is not showing any significant impact on Pakistan's trade. The coefficient of SAARC dummy itself is -0.17 [exp (-0.19)-1 = -0.17]. It shows that trade of Pakistan with SAARC countries is 17 percent lower as compared to rest of the world. Hence there is a trade diverting effect within the region. Mutual trade within the region as a share of total trade is the lowest in South Asia. The Trade-GDP ratio is decreasing within SAARC, but increasing among countries outside the SAARC. As we have discussed above, the low level of trade within the SAARC region is mainly due to political disputes between

the major players Pakistan and India. Similarly, the low level of industrialization, similar products and similar tastes of the citizens may also contribute to lower trade. India and Pakistan have a significant role to play in the success of SAARC. Both countries account for four-fifth (80%) of the regional economy. However the efforts to promote regional integration and co-operation through SAARC have suffered a lot due to tensions and conflicts in the region (World Bank: 2006)

(iv) Likewise, the model couldn't establish a significant relationship between Pakistan and ECO. Hence it can be concluded that both the regional groups are not playing any significant role in boosting the trade flows among the member countries. In contrast, all SAARC and ECO countries are involved in high trade out side these 'nominal' regional trading arrangements.

(v) We have included the absolute difference in GDP per capita for pair of countries as explanatory variable in the model so as to test for the relative strength of the Linder hypothesis vis-à-vis the H-O hypothesis. The coefficient of the variable concerned is positive and significant at 5 percent. The estimated value is 0.11, which implies that bilateral trade increases as the difference between the per capita GDP of Pakistan and its trading partners increases, however less than proportionately. Thus the resent results support the H-O hypothesis (differences in factor endowments) in case of Pakistan.

5.3. Further Augmentation

We have tried to re-estimate the model by incorporating certain other explanatory variables, which seem to be important in the international trade analysis. In particular, we emphasize the trade-GDP ratio and the real exchange rate. The inclusion of these variables will provide a test for sensitivity of the model and its robustness. As discussed in the previous chapter, either the proportion of customs to total tax revenues or the trade –GDP ratio can be used as proxies for openness. The researchers have often preferred to use trade-GDP ratio as a proxy for openness. For instance, Guttmann and Richards ( ) have used this variable in the gravity model in order to analyze the trade openness of Australia. Similarly Rahman ( ) has used trade-GDP ratio in the gravity model to analyze the trade flows between Bangladesh and trading partners. Hence we are using this variable as a proxy for openness primarily because the data is available for all the countries included in the analysis. We have tried our best to retrieve data on customs and total revenues of the countries concerned, however complete data could not be available. Thus we

ignore this proxy for trade openness and rely on trade-GDP ratio only. The results are reported in Table: 5.4.

The enhanced model shows some improvement over its counterpart in terms of goodness of fit. The coefficients for the primary variables, i.e. GDP/size of the economy and distance between economic centers are significant and have the expected signs. Thus the enhanced model supports the former results or the theory of Gravity. It is interesting to note that all the dummies in the enhanced model carry the same signs and significance levels as depicted in the original model. In particular, the common border stands again in contrast with the common wisdom. All the variables are statistically significant with the exception of the ECO and SAARC dummies. The coefficient for the GDP differential is positive and significant, so our results support the H-O hypothesis, as explained earlier. The real exchange rate is statistically significant at 1 percent level, which implies that currency depreciation has a positive impact on Pakistan's trade.

Table: 5.4

Explanatory Variables	**Coefficients**	**Std.Error***	**t-Statistic***
Constant	-0.88	6.29	-0.14
Product of GDP	0.89	0.04	19.84
Distance	-1.69	0.71	-2.40
Border	-1.10	0.52	-2.12
Language	0.79	0.45	1.74
SAARC	0.28	0.54	0.51
ECO	1.00	0.73	1.36
Per Capita GDP Differential	0.13	0.04	3.06
Real Exchange Rate	0.04	0.02	2.33
Trade openness (partner country)	0.41	0.14	2.85
Trade openness (Pakistan)	1.45	0.29	4.93
Adjusted R-Squared	0.53		

*The standard errors and t-statistics are hetroskedasticity robust (white 1980).

However, we are more interested in the response of the variable Trade-GDP ratio, which is added as an indicator for trade openness. We have estimated the model by including the variable

concerned for Pakistan and its trading partners separately. According to the results, the variable concerned (trade openness) for partner countries is significant at 5 percent level and has the expected positive sign. This implies that Pakistan's trade with all partners under reference is likely to improve considerably with liberalization of trade and removal of barriers in these countries. The result implies that one percent improvement in trade openness in partner countries could increase Pakistan's trade by 0.41 percent. Similarly, the coefficient of trade openness for Pakistan itself is also significant. It indicates that one percent improvement in domestic openness could increase Pakistan's trade by as much as 1.45 percent. However, this result should be taken with caution. Incase Pakistan reduces the trade barriers and opens its markets completely as required by WTO, nothing but the volume of imports will increase which may lead to further deterioration of the balance of trade. On the other hand, an improvement in the 'openness' of other countries is not likely to increase Pakistan's exports significantly due to tough competition in the markets.

5.4. The Segmented Gravity Model

In this section we report the results of the gravity model when the countries concerned are segmented into different regional blocks i.e. EU, SAARC, ECO, ASEAN, NAFTA, countries of the Middle East, Far-East and Latin Americas. The objective is to compare the results with those obtained from the grand model and to have a deeper insight into the relative significance of the regional groups for Pakistan. The total number of countries remains the same, however now distributed into smaller groups in the cross section. Again, the data remains unchanged, i.e. the regression is run for the years 1981-2005, however only three variables are included this time in each case, namely the product of GDP, distance and trade-GDP ratio as proxy for openness. This is to avoid the identification problem. The distribution of regional groups is as under, Pakistan is an integral part of each group of course:

EU (European Union) to include Austria, Belgium, Denmark, France, Greece, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and UK (14 countries).
ASEAN to include Indonesia, Malaysia, Philippines and Thailand (4 countries).
SAARC & ECO combined to include India, Bangladesh, Srilanka, Iran and Turkey (5 countries).
Middle East to include Saudi Arabia, Kuwait, Egypt, Morocco, Kenya and Nigeria (6 countries).
Far East to include China, Japan, Korea, Hong Kong, Australia and New Zealand (6 countries).

NAFTA & Latin Americas to include Canada, United States, Mexico, Argentina, Brazil, Chili (6 countries).

Next we discuss the results of our estimations:

(i) EUROPEAN UNION **Table: 5.5**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	-25.21	7.58	-3.33
Product of GDP	0.97	0.06	15.22
Distance	-0.82	1.00	0.83
Trade openness	-0.54	0.17	-3.24
Adjusted R-Square	0.68		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

For EU countries, the coefficient of the product of GDP has the expected positive sign as usual and is statistically significant. In contrast, the Distance variable is insignificant; however it carries the expected sign. It means that although high distance reflects higher transportation cost, yet other factors responsible for higher trade between Pakistan and EU can easily overcome the distance factor. Anyhow, a one percent decrease in transportation cost will definitely increase the trade between Pakistan and its partners in EU by 0.82 percent. Another contrasting result is shown by the coefficient for trade openness, which has a negative sign and also statistically significant. The results imply that as the EU countries become more and more open, the trade between these countries and Pakistan is likely to decrease by 0.54 percent. Thus Pakistan has to prepare for a tough competition in the Western markets for its exports, which are mostly textiles, leather and garments etc.

(ii) ASEAN **Table: 5.6**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	-2.45	2.40	-1.02
Product of GDP	0.65	0.06	11.07
Distance	-0.81	0.24	-3.40
Trade openness	1.31	0.16	8.26
Adjusted R-Square	0.51		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

Both the coefficients of Distance and GDP are highly significant in this case and have the expected signs. The coefficient of GDP is positive and implies that Pakistan's bilateral trade with ASEAN increases by 0.65 percent as the product of GDP increase by 1 percent. Similarly the distance variable is significant at 1 percent level. The negative value of coefficient implies that a 1 percent reduction in distance (transportation cost) is likely to increase the trade between Pakistan and ASEAN countries by 0.81 percent. As far as trade openness is concerned, the coefficient is significant at 1 percent level and carries a positive sign. The trade of Pakistan with ASEAN is likely to improve significantly with the liberalization of trade and removal of barriers in these countries, since a 1 percent increase in trade openness in ASEAN countries may increase Pakistan's trade by 1.31 percent. This is an important signal for Pakistan and we should take advantage of the new avenues lying there in these brethren countries.

(iii) SAARC & ECO **Table: 5.7**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	-10.85	5.92	-1.83
Product of GDP	0.61	0.13	4.56
Distance	-0.35	0.44	0.81
Trade openness	0.25	0.33	0.87
Adjusted R-Square	0.54		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

Pakistan is a founder member of both the organizations, SAARC and ECO. However, no significant progress has been made so far to transform these into really free trade unions for obvious reasons. The coefficient for the size of economies (product of GDP) is statistically significant and carries the expected sign. In contrast, the coefficient for the distance variable is insignificant, although it carries the expected sign. The reasons for its insignificance can be easily explained keeping in view other factors that affect trade. Anyhow, the results indicate that trade will increase by 0.35 percent if distance (or transportation cost) decreases by 1 percent. Likewise, the coefficient of trade openness is not statistically significant, although the sign is positive. It shows that as trade openness in these countries increases by 1 percent, then trade between Pakistan and its partners in SAARC and ECO is likely to increase by 0.29 percent, which is a meager value.

(iv) MIDDLE-EAST **Table: 5.8(A)**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	49.98	11.84	4.22
Product of GDP	0.92	0.07	12.58
Distance	-7.99	1.48	-5.38
Trade openness	1.03	0.51	2.02
Adjusted R-Square	0.39		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

As discussed above, we have merged together Kenya and Nigeria with other countries of the Middle East, namely Kuwait, Saudi Arabia, Egypt and Morroco. The Islamic countries in the Middle East are the major trading partners of Pakistan. The results indicate that all the coefficients are statistically significant and have the expected signs. The coefficient of GDP shows that trade between Pakistan and Middle East countries will increase by 0.92 percent, if product of GDP increases by 1 percent. Similarly the distance variable has an expected negative sign. That indicates that the trade will increase by 7.99 percent if distance or transportation cost between Pakistan and its partners in the Middle East decreases by 1 percent. Likewise, the coefficient of trade openness implies that as trade becomes more open in these countries, Pakistan will surely benefit up to an extent of 1.03 percent.

We have replicated the regression for a second time to include the two member countries of ECO, namely Iran and Turkey with three major trade partners of the Pakistan in the Middle East (Kuwait, Saudi Arabia and Egypt). The three countries of Africa are excluded this time. The results are reported in table 5.7 (B):

Table: 5.8 (B)

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	18.81	13.71	1.37
Product of GDP	1.06	0.07	14.47
Distance	-4.66	1.70	-2.74
Trade openness	0.07	0.18	0.38
Adjusted R-Square	0.53		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

The results indicate that all the coefficients are statistically significant except the coefficient of trade-openness. The coefficient of GDP shows that trade between Pakistan and Middle East countries will increase by 1.06 percent, if product of GDP increases by 1 percent. Similarly the distance variable has an expected negative sign. It shows that the trade will increase by 4.66 percent if distance or transportation cost between Pakistan and its partners in the Middle East decreases by 1 percent. Likewise, the coefficient of trade openness is not statistically significant, although the sign is positive. It shows that as trade openness in these countries increases by 1 percent, the trade between Pakistan and its partners in Middle East and ECO is likely to increase by 0.07 percent only. Thus the results reported in table 5.10 (B) are much improved after replacing the African countries with ECO

(v) FAR-EAST **Table: 5.9**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	-3.07	2.69	-1.14
Product of GDP	0.66	0.06	11.79
Distance	-0.77	0.19	-3.95
Trade openness	0.17	0.12	1.41
Adjusted R-Square	0.72		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

As discussed above, this group includes China, Japan, Korea, Hong Kong, Australia and New Zealand. The results depict the expected signs for all the coefficients. The coefficient for product of GDP is significant. Likewise, the coefficient for distance is statistically significant at 1 percent level and indicates that trade between Pakistan and Far-East countries increases by 0.77 percent if distance or transportation cost is reduced by 1 percent. The expansion and further improvement of the KKH (Karakuram Highway) will surely reduce transportation cost between China and Pakistan. The coefficient of trade openness has the expected sign but it is not significant. It indicates that if trade becomes more open in these countries by 1 percent, then trade between Pakistan and Far East will increase only by 0.17 percent.

(vi) NAFTA & Latin Americas **Table: 5.10**

Independent Variable	Coefficients	Std error*	t-statistics*
Constant	-53.60	35.99	-1.49
Product of GDP	1.65	0.17	9.77
Distance	-1.93	3.72	0.52
Trade openness	0.16	0.30	0.53
Adjusted R-Square	0.61		

*The standard errors and t-statistics are hetroscadasticity robust (White 1980).

As noted above, this group comprises three countries from NAFTA and three from Latin Americas. The countries were merged in a single group to facilitate estimation. However, the results are not much encouraging. Both the coefficients of distance and trade openness are statistically insignificant and only the coefficient of product of GDP is significant. The reason is obvious; trade of Pakistan with all these countries, particularly the Latin Americans, is not up to

the mark. The only exception is the United States, in which case the dependence of Pakistan is very high. The very size of US economy is very high which obscures all other variables.

5.5. The Gravity Models-Comparative Position

We have made attempts to apply the Gravity model in different ways to the bilateral trade data of Pakistan from 1981 to 2005 with its major trading partners comprising 41 countries. The objective was to see if the Gravity theory explains the trade statistics of Pakistan and to what extent. In this section, we want to compare the results of the overall augmented model to the segregated models to see the robustness of the specification so that the results could be used for further analysis, particularly in estimating the trade potential of Pakistan, which is subject matter of the next chapter. Here we take into account the variables that are common to all the models so as to facilitate comparison. Table 5.13 provides a comprehensive picture of different estimations discussed earlier. All the coefficients have the expected signs with only a few exceptions. For instance, the constant term in case of Middle East countries is positive with a larger value, which encompasses the impact of other factors on trade not included in the model. Pakistan should therefore explore and exploit those factors.

Table: 5.11: Comparative Position

Models ↓ Variables →	Constant	Product of GDP	Distance	Trade/GDP (Partner)	R-Square adjusted
Pak-versus-All Countries	-0.88 (6.29)	0.89 (0.04)	-1.69 (0.71)	0.41 (0.14)	0.53
Pak-versus-EU	-25.21 (7.58)	0.97 (0.06)	-0.82 (1.00)	-0.54 (0.17)	0.68
Pak-versus-ASEAN	-2.45 (2.40)	0.65 (0.06)	-0.81 (0.24)	1.31 (0.16)	0.51
Pak-versus-SAARC-ECO	-10.85 (5.92)	0.61 (0.13)	-0.35 (0.44)	0.25 (0.33)	0.54
Pak-versus-Middle East and Africa	49.98 (11.84)	0.92 (0.07)	-7.99 (1.48)	1.03 (0.51)	0.39
Pak-versus-Middle East and ECO	18.81 (13.71)	1.06 (0.07)	-4.66 (1.70)	0.07 (0.18)	0.53
Pak-versus-Far East	-3.07 (2.69)	0.66 (0.06)	-0.77 (0.19)	0.17 (0.12)	0.72
Pak-versus-NAFTA-L.America	-53.6 (36.0)	1.65 (0.17)	-1.93 (3.72)	0.16 (0.30)	0.61
The standard errors are given in parentheses and these are hetroskedasticity robust (White 1980).					

The coefficients of the 'Size' variable (product of GDP) are of the same order except in the case of NAFTA, which is very large due to the presence of a very large economy (USA). The distance coefficients show varying magnitudes and significance. Although the signs are according to expectations, yet the values are insignificant in many cases. The coefficients for the trade-openness variables show interesting trends. With the exception of EU countries, all values are positive thereby indicating potential for Pakistan's trade for expansion if the countries concerned become more open or Pakistan enters into some sort of agreement with these groups/countries. The European Union block is considerably open to international trade and Pakistan has to face tough competition in the European markets in the time to come.

We will use the results of the Gravity model discussed above to explore the trade potential of Pakistan in the next chapter. As discussed above, the results obtained are fairly reliable keeping in view the data limitations arising from the quantum of underground trade, particularly across the territorial borders.

Chapter 6

Trade Potential of Pakistan

6.1 Trade Potential- Introduction

In this chapter we discuss the trade potential of Pakistan with reference to its major trading partners. The estimated Gravity model, discussed in the previous chapter, will be used to for the purpose. The concept of trade potential has been extensively used by the researchers in studying international trade relations, particularly for Eastern European countries. The methodology consists of selecting a sample of countries for which the trade is supposed to have reached its potential. A Gravity equation is then estimated to explain bilateral trade within the sample. The estimated coefficients given by the equation are used in simulations to predict the volume of trade between any pair of countries, given that data on GDP, distance and population etc. are systematically available. The simulated or predicted value of bilateral trade is then compared with the observed values to infer bilateral trade potentials. As noted by Helmers et al (2005), this methodology can be applied either at the aggregate or industry level. In the present study, we intend to carry out the analysis at the aggregate level.

Two main strategies are often followed to estimate the trade potential. The first involves out-of-sample trade potential estimates. It borrows the estimated coefficients or parameters (arrived at via the Gravity model) from a sample of highly integrated countries like the EU or OECD and then to use these coefficients for projection of the 'natural trade' relations between EU and other countries out of the union, say Central and East European countries (CEECs). The difference between the predicted and observed trade flows should represent the unexhausted trade potential. The second strategy derives the in-sample trade potential estimates, which means that the countries concerned are included in the regression analysis (Gravity model) and the residuals of the estimated equation should represent the difference between potential and actual trade relations (Bendictis & Vicarelli: 2004). In simple words, the predicted or estimated value of trade between a pair of countries within the sample is compared with the actual trade to evaluate trade potential.

We have estimated the augmented Gravity model for Pakistan vis-à-vis 41 countries including the EU countries for a fairly long period (1981-2005). It is therefore logical to use the in-sample approach for evaluating the trade potential of Pakistan. We will use the ratio (P/A) of predicted trade (P) arrived at by the estimated value of the dependent variable and the actual trade (A) of Pakistan with the partner concerned to evaluate the trade potential and to forecast the future trade direction. If the value of P/A exceeds unity, this implies that Pakistan has potential expansion of

trade with the respective country. Similarly the absolute difference between the potential and actual level of trade (P-A) can be equally used for the purpose. A positive value implies the possibilities of trade expansion in future while negative value shows that Pakistan has exceeded its trade potential with a particular country. By using either the ratio or the difference indicators, we can classify the countries with which Pakistan has potential for expansion of trade or otherwise.

As noted above, we have used the data for the years 1981-2005 to estimate the Gravity model. For the sake of simplicity we divide the entire time span into five sub-periods to calculate the average values of predicted (P) and actual trade (A). We intend to use the coefficients estimates for the purpose of evaluating trade potential, both from the overall (general-augmented) as well as the regional (segregated) models. Finally, we have to compare the results from both sets of estimates.

6.2. Trade Potential of Pakistan (Overall)

The trade potential results, based on the coefficients of the aggregate (augmented) model shown in Table 5.6 are reported in Tables I – IV given in the appendix to this chapter. In this section we discuss the results for the most recent period 2001-05 in some detail. According to our estimation (summary Table 6.1), Pakistan possess sufficient potential (on the average) for trade expansion with Australia, Austria, Bangladesh, Canada, China, Germany, Denmark, Spain, France, Great Britain, Japan, Hong Kong, Italy, Iran, Korea, Kuwait, Sri Lanka, Malaysia, New Zealand, Philippines, Sweden, and Switzerland. However, the maximum trade potential exists with Norway and Brazil since the (P/A) ratio is considerably high. The (P/A) ratio equals unity (or nearly so) in case of Netherlands and Thailand, which implies that the actual trade of Pakistan with these countries has reached the potential level. In contrast, the actual trade of Pakistan has exceeded the predicted level for many countries (P/A <1), for instance Chili and Mexico.

Table 6.1 –Trade Potential: Pakistan versus Countries

Indicator	P/A	Indicator	P/A
Countries	2001-2005	Countries	2001-2005
Australia	1.02	Italy	1.05
Austria	1.04	Japan	1.09
Bangladesh	1.06	Korea	1.06
Brazil *	1.13	Kuwait	1.03
Canada	1.02	Sri Lanka	1.09
China	1.04	Malaysia	1.08
Germany	1.04	Netherlands	1.00
Denmark	1.06	Norway *	1.14
Spain	1.02	New Zealand	1.06
France	1.06	Philippines	1.06
Great Britain	1.02	Sweden	1.08
Hong Kong	1.02	Switzerland	1.03
Iran	1.06	Thailand	1.01
Argentina	0.989	Morocco	0.761
Belgium	0.973	Mexico **	0.699
Chili **	0.701	Nigeria	0.712
Egypt	0.787	Portugal	0.989
Greece	0.965	Saudi Arabia	0.960
Indonesia	0.959	Turkey	0.958
India	0.949	USA	0.987
Kenya	0.991	********	********

* Indicates high trade potential ** Indicates exhausted trade potential

According to the distribution of Pakistan's trade across different geographic regions, the maximum potential for 2001-2005 is indicated for Asia-Pacific region, followed by Western Europe, Middle East, Latin America and North America. In the Asian-Pacific region Pakistan has a maximum trade potential with Japan, Sri Lanka, Bangladesh, Malaysia, Philippines and New Zealand, while in EU region the maximum potential for expanding trade exist with Norway, Italy, France, Sweden and Denmark.

In Middle East countries, Pakistan has a maximum potential for expansion of trade only with Iran. Likewise Pakistan has higher trade potential with Mexico (within the Latin American region). Although, our trade potential is not high with North American region, still a small magnitude for future trade expansion exists with Canada. We further explore the trade potential of Pakistan within the regional groups in the next section.

6.3. Trade Potential across Socio-Economic Regions

In this section we will use the results of the segmented Gravity model to analyze the trade potential of Pakistan. This is to be recalled that we have used only three explanatory variables (most important), namely the Product of GDP, Distance and Trade/GDP ratio as proxy for Trade Openness in all the regressions and have omitted all other variables and dummies. Specifically, we use the results obtained and reported in Tables 5.7 to 5.12 for estimating the trade potential for the sets of countries, either members of various preferential trading arrangements that are in operation or situated in specific geographic regions, if not members. These comprise the EU and ASEAN as the well-known trading blocks. Likewise, we have combined ECO with SAARC for data scarcity and merged the Latin American countries with NAFTA. The independent countries are merged in regional groups like the FAR EAST and the MIDDLE EAST including some African countries. As mentioned earlier, we are analyzing the case of those countries in our study with which Pakistan has significant trade relations and for whom data is easily available. We will also compare the results obtained from the segmented and the overall model (augmented) regarding the trade potential of Pakistan with these countries.

6.3.1 Pakistan versus SAARC and ECO

We have selected only three countries from SAARC and two countries from ECO region in our analysis because of the non-availability of the required data for rest of the member countries. Therefore, we have merged together all the five countries in the segmented model to facilitate regression.

Pakistan has a high trade potential for the period 2001-2005 on the average with Sri Lanka and Bangladesh. Both the models confirm this result, of course, with variations in the intensity. Likewise, Pakistan has exceeded its trade potential in case of India and Turkey by 2005 and both the models indicate similar findings. However, the two models give contrasting results in case of Iran. Where the segmented model shows exhausted trade potential with Iran, the overall (augmented) model gives a positive indication. This contradiction can be explained easily. The segmented model considers only five countries in the panel but to estimate four coefficients including the constant term (please refer to Table 5.7). In contrast, the degrees of freedom in the augmented model are fairly high; since the number of countries is 41 whereas the number of coefficients is 10. Further, the impact of the variable 'common border' might be significant but the dummy concerned has been dropped in the segmented model.

Table 6.2 –Trade Potential of Pakistan: SAARC & ECO – 2001-05

Segmented Model				Augmented Model			
SAARC	P/A	ECO	P/A	SAARC	P/A	ECO	P/A
Sri Lanka[1]	2.90	Iran	0.49	Sri Lanka[1]	1.097	Iran	1.06
Bangladesh[1]	1.34	Turkey[2]	0.67	Bangladesh[1]	1.06	Turkey[2]	0.96
India[2]	0.69			India[2]	0.95		

1. Potential for Expansion.
2. Overtraded

We have already discussed that a full FTA between Pakistan and Sri Lanka is operational from June 12, 2005. In order to give further boost to trade, both the countries are offering preferential market access to each other's exports by granting tariff concession. Pakistan is also negotiating with Bangladesh for bilateral FTA.

Interestingly, our results indicate that actual trade between India and Pakistan during this period is more than the predicted level. Although during 1991-1995 the actual trade was lower than potential, however it began to increase gradually thereafter. In 2005, the total trade between India and Pakistan was worth $914.79 million, which was recorded to be the highest during the past 25 years. As already discussed, India has granted the status of most favored nation (MFN) to Pakistan, even then Pakistan could not exploit this opportunity to expand its export significantly for obvious reasons. Historical figures of trade also confirm the lower trade magnitude, thus currently the trade potential is exhausted. There fore it can be said that the existing results for Pak- India trade are not unwarranted. However, it doesn't imply that there is no trade potential in future between the two countries. But this is conditional upon some political advancement to resolve the basic issue of conflict (Jammu & Kashmir) between the two countries. Mere removal of the tariff and non-tariff commercial barriers may not be sufficient in this regard. It is therefore hard to predict trade potential on the basis of historical data. The actual trade must be higher than the potential level if the underground trade is also taken into account.

The actual trade of Pakistan with ECO countries is exceeded over the potential level. We have included only Iran and Turkey in our sample because both the countries are amongst the major trading partner of Pakistan. Further, the data for other countries was not available. e of both Iran and Turkey. The border trade with Iran, mostly unrecorded, also constraints the data and the implied results. Pakistan's trade with other ECO countries is very low. Achakzai (2006) has discussed that although the trade flows between Pakistan and ECO countries has grown in the

recent years, primarily due to the increase of exports from Pakistan, still it is not more than 6 percent of our total exports in 2005. His results also confirm the findings of our estimation that Pakistan trade (exports) has exceeded the potential with Turkey and possibly with Iran.

6.3.2 Pakistan versus ASEAN

From the ASEAN group, we have included 4 countries (Indonesia, Malaysia, Philippines and Thailand) in our sample. Indonesia and Malaysia are the major trading partners of Pakistan. The total percentage share of Pakistan's trade with ASEAN countries in 2005 was 7.08. Our results from both the models show that there exists higher trade potential for Pakistan with Malaysia and Philippines. So far as Indonesia is concerned, the actual trade has increased from predicted level during 2001-2005. Although, there is difference in the intensity of results obtained from the segregated and overall models, however the implied direction is same. The problem occurs in the segregated model due to scanty degrees of freedom.

Table 6.3 –Trade Potential of Pakistan: ASEAN – 2001-05

Segmented Model		Augmented Model	
Countries	**P/A**	**Countries**	**P/A**
Philippines[1]	5.16	Philippines[1]	1.06
Thailand[1]	1.51	Thailand[1]	1.01
Malaysia[1]	1.02	Malaysia[1]	1.08
Indonesia[2]	0.38	Indonesia[2]	0.96

1. Potential for Expansion of Trade

2. Overtraded.

During the last few years, Pakistan has started focusing on ASEAN region both in economic cooperation and trading terms. Since 1996 Pakistan is the fourth largest trading partner of Malaysia in OIC, yet the total trade between the two countries in 2005 was lower i.e. to the tune of $ 798 million only. The export range between the two countries has not been up to the mark and further efforts are required to enhance the trade base (Syal: 2007). So far as Indonesia is concerned, the actual trade has increased from predicted level during 2001-2005 by 62 percentage points.

6.3.3 Pakistan versus EUROPEAN UNION

All countries of the European Union are the important trade partners of Pakistan. The Pakistan's potential for trade expansion is high with Norway followed by Sweden, France and Italy among the EU countries during 2001-2005. The EU region as a whole contains the largest share of

Pakistan's total trade. In 2005 Pakistan's percentage share of trade with EU region was 26.8[1]. Our results from the segregated model also confirm the results of the aggregate sample with the exception that there is a little bit difference in case of Spain, Netherlands and Portugal. Pakistan's exports to EU countries expanded to € 3.4 billions in 2007[2]. Our major exports to EU comprise the textile and ready-made garments that are over 70 percent of our total exports, whereas the major imports from EU are machinery and equipment, chemical and pharmaceuticals.

Table 6.4 –Trade Potential of Pakistan: EU – 2001-05

Segmented Model		Augmented Model	
Countries	**P/A**	**Countries**	**P/A**
Norway[1]	1.51	Norway[1]	1.14
Sweden[1]	1.32	Sweden[1]	1.08
Denmark[1]	1.13	Denmark[1]	1.06
France[1]	1.28	France[1]	1.06
Italy[1]	1.35	Italy[1]	1.05
Germany[1]	1.14	Germany[1]	1.04
Austria[1]	1.05	Austria[1]	1.04
Switzerland[1]	1.13	Switzerland[1]	1.03
Great Britain[1]	1.02	Great Britain[1]	1.02
Spain[2]	0.95	Spain[1]	1.02
Netherlands[2]	0.89	Netherlands[1]	1.00
Portugal[1]	1.04	Portugal[2]	0.99
Belgium[2]	0.75	Belgium[2]	0.97
Greece[2]	0.82	Greece[2]	0.96

1. Potential for Expansion of Trade
2. Overtraded

Due to existence of higher trade potential in EU region, Pakistan is required to diversify its trade in other areas as well. Pakistan ought to concentrate on quality and standards to ensure competition in the European market. As already discussed, Pakistan is negotiating with Gulf Cooperation Council (GCC) for a bilateral FTA. These negotiations, if concluded, will lead to substantial advantage for Pakistan, as GCC and EU are negotiating an FTA and Pakistan can be linked indirectly with EU in due course.

6.3.4. Pakistan versus Middle East & Africa

The results of segmented gravity model show that Pakistan's has significant trade potential with Kuwait and Saudi Arabia among Middle East countries. Similar result is also confirmed by the aggregate model except for Saudi Arabia; in which case the actual trade of Pakistan exceeds the

[1] The percentage is calculated only for those countries, which are included in our sample.
[2] http://ec.europa.eu/trade/issues/bilateral/countries/pakistan/index_en.htm

predicted level. In fact, our trade with Saudi Arabia is quite enormous; particularly the main source of our petroleum imports is that brother country. However, there is room for Pakistan to concentrate on exports. So far as African countries are concerned, we have included only Kenya and Nigeria in the analysis. The results of both the regressions indicate that actual trade of Pakistan has exceeded the predicted level. Same is the case with Morocco and Egypt within the Middle East.

Table 6.5-Trade Potential of Pakistan: MIDDLE EAST & AFRICA – 2001-05

Segmented Model				Augmented Model			
Countries	**P/A**	**Countries**	**P/A**	**Countries**	**P/A**	**Countries**	**P/A**
Kuwait[1]	1.88	Kenya[2]	0.905	Kuwait[1]	1.03	Kenya[2]	0.991
Saudi Arabia[1]	1.63	Nigeria[2]	0.417	Saudi Arabia[2]	0.960	Nigeria[2]	0.712
Morroco[2]	0.506			Morocco[2]	0.761		
Egypt[2]	0.667			Egypt[2]	0.787		

1. Potential for Expansion of Trade
2. Overtraded

6.3.5. Pakistan versus Middle East & ECO

We have merged the two countries from ECO, namely Iran and Turkey with Kuwait, Saudi Arabia and Egypt to constitute a group of five countries whose trade with Pakistan is significant. The results this time are more in line with those obtained from the general augmented model as compared to the case of Middle East plus African group. The reason is obvious; exclusion of the three countries from the sample has improved the results. These countries, namely Morocco, Kenya and Nigeria, were otherwise not very significant so far as foreign trade of Pakistan is concerned. The results are shown in Table 6.6. Accordingly, Pakistan has significant trade potential with Kuwait, Iran and Saudi Arabia among the Middle East countries. Only the results obtained for Saudi Arabia in the segmented model differ from those obtained in the overall augmented model. The results of both the regressions for Turkey and Egypt indicate that actual trade of Pakistan has exceeded the predicted level.

Table 6.6-Trade Potential of Pakistan: MIDDLE EAST & ECO – 2001-05

Segmented Model				Augmented Model			
Countries	**P/A**	**Countries**	**P/A**	**Countries**	**P/A**	**Countries**	**P/A**
Kuwait[1]	1.88	Egypt[2]	0.667	Kuwait[1]	1.03	Egypt[2]	0.787
Iran[1]	1.71			Iran	1.06		
Saudi Arabia[1]	1.63			Saudi Arabia[2]	0.960		
Turkey[2]	0.88			Turkey[2]	0.96		

1. Potential for Expansion of Trade
2. Overtraded

6.3.6. Pakistan versus Far East & China

For the FAR-EAST countries, the results of both the regressions indicate high trade potential of Pakistan with Japan followed by Korea and New Zealand. In contrast, the models show somewhat different results in case of China, Australia and Hong Kong. The aggregate model shows somewhat potential for Pakistan to expand trade with these countries whereas the segmented models indicate overtrading or approximately exhausted trade potential. This difference in results is obviously due to smaller sample size in case of segmented model. The case of trade with China may however be seen from somewhat different angle. China is a close friend of Pakistan and a neighboring country. Some border (also barter) trade has taking place between the two countries since long. Pakistan used to exchange cotton, hides, wool and rice with coal, cement, steel manufacturers and other goods from China. Both the countries are directly connected via the Karakorum Highway (KKH), which was initially constructed by the Govt. of Pakistan in 1960's and further expanded with the technical and financial support of China during 1970's. The KKH provides an easy access for Chinese huge exports to rest of the world via Bin Qasim/ Karachi port.

Table 6.7 –Trade Potential of Pakistan: FAR EAST & CHINA – 2001-05

Segmented Model		Augmented Model	
Countries	**P/A**	**Countries**	**P/A**
Japan[1]	1.62	Japan[1]	1.09
Korea[1]	1.08	Korea[1]	1.06
New Zealand[1]	1.07	New Zealand[1]	1.06
China[2]	0.89	China[1]	1.04
Australia[2]	0.91	Australia[1]	1.02
Hong Kong[2]	0.89	Hong Kong[1]	1.02

1. Potential for Expansion of Trade
2. Overtraded

In 1963, both China and Pakistan granted MFN status to each other but even today, the Sino-Pakistan economic relationship is far lesser than expected. The 'official or recorded' volume of trade between the two countries has not been that much high. China's share in Pakistan's external trade was less than 6 percent till 2000, which has crossed only 10 percent in 2005. In view of Kumar (2006), the relatively inferior quality of Chinese goods as compared to Japan and Korea, the demand in Pakistan for these goods is not very high. However, the ground realities do not support this view. The main reason for low figures of the 'official trade' between the two countries is that a significant quantity of informal trade is carried out through Afghanistan and Northern Areas of Pakistan. The demand for Chinese goods is continuously increasing

worldwide and also in Pakistan due to their cheapness and being within reach of the common man. The quality of Chinese exports has also improved gradually overtime. Therefore, the actual volume of trade is likely to be much greater than the predicted level as indicated by the segmented Gravity model.

6.3.7. Pakistan versus NAFTA & Latin Americas

Pakistan's trade potential across NAFTA countries exists only with Canada, which is confirmed by both the segregated and overall models. On the other hand, the actual trade of Pakistan has exceeded the potential in case of Mexico. Pakistan has the largest trade potential with Brazil and Argentina. In fact, all the South American countries are yet un-explored for Pakistan.

Table 6.8-Trade Potential of Pakistan: NAFTA & LATIN AMERICAS – 2001-05

Segmented Model				Augmented Model			
NAFTA	P/A	L. AMR	P/A	NAFTA	P/A	L.AMR	P/A
Canada[1]	1.88	Brazil[1]	1.96	Canada[1]	1.02	Brazil[1]	1.13
USA[1]	1.63	Argentina[1]	1.40	USA[2]	0.99	Argentina[2]	0.99
Mexico[2]	0.50	Chili[2]	0.65	Mexico[2]	0.70	Chili[2]	0.70

1. Potential for Expansion of Trade
2. Overtraded

So far as USA is concerned, the segregated model indicates high potential for expansion of trade whereas the overall model shows that the existing trade is approximately equal to potential level. While for USA and Mexico, the actual trade has exceeded the potential. During 2001-2005 the percentage share of Pakistan's trade with NAFTA region was 18.97 percent of which USA is the major trading partner of Pakistan. Currently United States is the single largest export market, accounting for 28.4 percent of Pakistan's exports. So far as imports are concerned, United States is the second largest supplier to Pakistan after Saudi Arabia. Pakistan is dependent on USA for defense equipment and on Saudi Arabia for petroleum products. In 2005, Pakistan's total trade with USA was worth of $5510.6 million. As compared to other countries, this was the highest volume of trade. Since our exports to USA are concentrated in a few goods, Pakistan is required to diversify its exports not only in terms of commodities but also in terms of markets. This is utmost essential since high concentration of trade along limited commodities and within a few markets can lead to the instability of Pakistani exports.

6.4. Concluding Remarks

We have made an attempt to explore the trade potential of Pakistan on the basis of Gravity model. The predicted level of trade between two countries (Pakistan and its partner) given by the coefficients of the model is compared with the actual volume of trade taking place during a given period (average of five years duration) to evaluate the potential or capacity for further expansion of trade or otherwise. The accuracy of signals may be constrained by the reliability of the available data. A significant quantum of trade remains obscure due to underground activities taking place across the borders and never recorded. Anyhow, estimation of the exact value of potential is not the prime objective of this exercise. On the contrary, the available information, despite the drawbacks and limitations, is sufficient enough to guide us in our future line of action. Pakistan should concentrate on the countries and socio-economic regions where the scope is clear and chances of trade expansion are obvious. No doubt that Pakistan should endeavor for improvement of trade relationships within SAARC, but it should focus primarily on other areas like the Middle East, ASEAN and EU where the chances are brilliant. In any case, Pakistani traders will have to improve the quality of the exportable according to the international standards and enable themselves for tough competition to gain ground in the markets. The golden age of protection behind the high tariff walls is gone for ever.

Appendix: Trade Potential of Pakistan (Overall)

Table I: Countries with whom Pakistan has a Potential for Expansion of Trade

Indicator	P/A	P/A	P/A	P/A	P/A
Countries	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
Australia	0.987807	1.006984	1.002350	0.976296	1.019392
Austria	1.020216	0.913717	0.928857	1.113564	1.043261
Bangladesh	0	0.904346	0.964926	1.055630	1.063008
Brazil	0.704448	0.955113	0.942580	1.055182	1.135071
Canada	0.963942	1.004363	0.988498	1.020242	1.017025
China	0	0.968496	0.991877	1.030409	1.042315
Germany	0.982393	0.970114	0.975568	1.024253	1.043572
Denmark	1.000686	0.971761	0.947643	1.020916	1.061137
Spain	0.996741	0.972349	0.993170	1.010794	1.020093
France	1.007440	0.979509	0.941483	1.017949	1.056386
Great Britain	0.963554	0.994847	0.992713	1.020753	1.024415
Hong Kong	1.009422	1.047872	0.968451	0.961235	1.025583
Iran	0.864536	0.947372	1.027135	1.088937	1.063372
Italy	0.964299	0.959695	0.975110	1.041652	1.050654
Japan	0.935945	0.951772	0.973588	1.048072	1.090864
Korea	0.983764	0.958836	0.963877	1.019454	1.059754
Kuwait	0.918818	0.989479	1.123642	1.013630	1.031012
Srilanka	0.896914	0.902143	1.016087	1.052375	1.097329
Malaysia	0.890703	0.990856	0.975157	1.033744	1.078544
Netherlands	1.040937	0.990802	0.983002	0.994745	1.001742
Norway	0.919394	0.868431	0.992859	1.078576	1.143315
New Zealand	0.948895	0.930460	0.997818	1.032990	1.065682
Philippines	1.159868	0.858587	0.959451	1.024688	1.063852
Sweden	0.969832	0.960548	0.951934	1.037285	1.076830
Switzerland	1.022602	0.999433	0.989270	0.958783	1.032698
Thailand	1.032784	0.870258	1.054206	1.037856	1.008648

P – Predicted Trade A – Actual level of trade.

Table II: Countries with whom Pakistan has exceeded its Trade Potential by 2005

Indicator	P/A	P/A	P/A	P/A	P/A
Countries	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
Argentina	1.039448	1.598482	0.886612	0.832340	0.989561
Belgium	1.050188	1.024373	0.986528	0.979599	0.973522
Chili	-0.992120	-4.236570	0.856029	0.619649	0.701454
Egypt	2.167789	1.760523	0.910669	0.770319	0.787597
Greece	1.126787	0.984882	1.069323	0.921356	0.965833
Indonesia	0.967483	1.050675	1.031292	0.989131	0.959071
India	0.978872	1.088846	1.047280	0.980618	0.949263
Kenya	1.000836	0.988388	1.024692	0.976068	0.991494
Morocco	-9.145880	1.328307	0.946906	0.762457	0.760918
Mexico	-1.971100	1.213400	0.916616	0.774724	0.699782
Nigeria	0.919757	2.258793	1.323212	0.888188	0.711915
Portugal	1.473655	0.901950	0.964633	0.909544	0.989794
Saudi Arabia	0.930882	1.040741	1.054994	1.016400	0.960106
Turkey	1.072415	1.058522	0.951905	1.003680	0.958160
USA	0.996086	1.005870	1.011281	0.998562	0.987697

Table III: Countries with whom Pakistan has a Potential for Expansion of Trade

Indicator	P-A	P-A	P-A	P-A	P-A
Countries	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
Australia	- 0.057490	0.036172	0.013236	- 0.144060	0.117215
Austria	0.055540	- 0.311210	- 0.283680	0.404473	0.177821
Bangladesh	- 4.739690	- 0.458740	- 0.177560	0.277394	0.333054
Brazil	- 1.159290	- 0.180560	- 0.263290	0.236585	0.579120
Canada	- 0.166260	0.021674	- 0.062520	0.111929	0.098900
China	- 5.599820	- 0.180340	- 0.050330	0.198346	0.304864
Germany	- 0.108020	- 0.200400	- 0.173990	0.169185	0.309356
Denmark	0.002338	- 0.111980	- 0.232500	0.090651	0.268507
Spain	- 0.013510	- 0.132250	- 0.034940	0.058437	0.116093
France	0.038416	- 0.118500	- 0.375350	0.110418	0.348670
Great Britain	- 0.226110	- 0.033700	- 0.050280	0.143989	0.174115
Hong Kong	0.043786	0.250956	- 0.198070	- 0.253720	0.165624
Iran	- 0.740120	- 0.272370	0.147998	0.468472	0.369896
Italy	- 0.197090	- 0.242480	- 0.157180	0.258513	0.329772
Japan	- 0.441280	- 0.348180	- 0.197080	0.340344	0.633368
Korea	- 0.077120	- 0.234240	- 0.227360	0.123475	0.385336
Kuwait	- 0.507310	- 0.065120	0.694404	0.091781	0.213616
Srilanka	- 0.423180	- 0.451300	0.075132	0.254664	0.480059
Malaysia	- 0.586060	- 0.049930	- 0.158910	0.217930	0.507666
Netherlands	0.192009	- 0.049640	- 0.099460	- 0.031900	0.010841
Norway	- 0.253320	- 0.510620	- 0.027090	0.293441	0.529039
New Zealand	- 0.153630	- 0.242070	- 0.007930	0.122903	0.252537
Philippines	0.311237	- 0.449580	- 0.136790	0.087358	0.233022
Sweden	- 0.128050	- 0.188750	- 0.246670	0.184822	0.385355
Switzerland	0.104919	- 0.002970	- 0.060150	- 0.244760	0.186455
Thailand	0.112902	- 0.655380	0.270081	0.202428	0.050525

P – Predicted Trade A – Actual level of trade.

Table IV: Countries with whom Pakistan has exceeded its Trade Potential by 2005

Indicator	P-A	P-A	P-A	P-A	P-A
Countries	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
Argentina	0.102920	1.155600	-0.457720	-0.790650	-0.043810
Belgium	0.220855	0.121292	-0.074710	-0.119250	-0.164680
Chili	1.213840	1.626143	-0.327220	-1.414940	-1.119310
Egypt	1.159969	1.134038	-0.305410	-0.977330	-0.977450
Greece	0.314211	-0.049090	0.227136	-0.317690	-0.151090
Indonesia	-0.131390	0.217994	0.160571	-0.061720	-0.247150
India	-0.082090	0.356186	0.227847	-0.106490	-0.304970
Kenya	0.003227	-0.048670	0.118503	-0.123220	-0.045560
Morocco	1.942150	0.571083	-0.152920	-0.914710	-1.024240
Mexico	1.907987	0.310395	-0.203440	-0.757920	-1.207690
Nigeria	-0.108570	1.092672	0.648201	-0.357110	-1.260900
Portugal	0.947788	-0.376140	-0.140850	-0.412610	-0.046140
Saudi Arabia	-0.467920	0.254546	0.363187	0.113720	-0.303980
Turkey	0.244642	0.229373	-0.234490	0.018450	-0.231870
USA	-0.026150	0.042195	0.085401	-0.011420	-0.101540

Table V: Countries with whom Pakistan has a Potential for Expansion of Trade by 2005

Indicator	P/A	P/A	P/A	P/A	P/A
Countries	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
	European Union				
Austria	1.137352578	0.811927666	0.837542096	1.427747973	1.053899939
Germany	0.956291131	0.911936573	0.917830342	1.120323297	1.139212626
Denmark	1.046771846	0.979300659	0.893445106	1.068050660	1.129264459
France	1.075278625	0.965303431	0.760671856	1.080802043	1.280537206
Great Britain	0.842590010	1.035062240	1.037817813	1.074609098	1.023935000
Italy	0.813051700	0.848087550	0.916447295	1.250994954	1.349956933
Norway	0.817569979	0.666465863	1.078590371	1.237761598	1.508518330
Portugal	1.999916579	0.720611725	1.110029763	0.753606950	1.042883248
Sweden	0.908778030	0.891899212	0.909363766	1.146664050	1.319481570
Switzerland	1.067237488	1.008497426	1.039562245	0.791418017	1.135657813
	SAARC & ECO				
Bangladesh	0.651011679	0.867632977	0.958304783	1.374974463	1.343115692
Srilanka	2.366959506	1.563167369	2.443460076	2.193996173	2.900584151
	ASEAN				
Malaysia	0.321026926	0.492811044	0.444019338	0.780458303	1.018108863
Philippines	4.571064951	1.814009985	2.544464428	5.190650879	5.155422358
Thailand	1.204476902	0.614190674	1.271517063	1.423270454	1.509532946
	Far East				
Japan	0.769718288	0.794378051	0.835171339	1.301768109	1.618099785
Korea	1.326792678	0.934921894	0.806914572	0.964802323	1.082680788
New Zealand	1.085576993	0.909940355	1.031804338	1.042268727	1.074953076
	Middle-East & Africa				
Kuwait	1.051205780	1.252295152	1.860353828	1.423054533	1.46985046
	Middle-East & ECO				
Iran	0.523481128	0.853901156	1.182475844	2.212496279	1.715455747
Kuwait	0.476750335	0.618405824	1.178113114	1.094131244	1.308258676
	NAFTA & Latin America				
USA	0.593728446	0.814288330	1.037956884	1.337217831	1.62904177
Argentina	0.771210421	2.765037236	0.689690668	0.623510706	1.39733281
Brazil	0.387620692	0.787571107	0.762031679	2.084614484	3.96390995
Canada	0.525346794	0.794414999	0.854818865	1.408449260	1.88920301

Table VI: Countries with whom Pakistan has exceeded its Trade Potential by 2005

Indicator	P/A	P/A	P/A	P/A	P/A
Years	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005
European Union					
Belgium	1.260169467	1.19074882	1.002600752	0.842884658	0.753486494
Spain	1.097231991	1.013923649	1.0798564	0.954338095	0.952616063
Greece	1.367883153	1.047312378	1.482724998	0.719981764	0.825343529
Netherlands	1.264944669	1.051757815	0.987359263	0.873005253	0.889590229
SAARC & ECO					
India	1.26796084	1.581028029	1.153707044	0.785906964	0.689285169
Iran	0.263669565	0.450555685	0.516876316	0.836204633	0.490156948
Turkey	1.980332393	1.704443021	0.806042676	0.909256822	0.666102253
ASEAN					
Indonesia	0.620632473	0.615405727	0.482319405	0.492536709	0.377061895
Far-East					
Australia	1.241984129	1.155999625	1.022908234	0.774045953	0.909932908
China	0.668249316	1.137310498	1.297735683	1.253607609	0.94242452
Hong Kong	1.547684528	1.486066886	0.801636384	0.668638696	0.892766943
Middle-East & Africa					
Saudi Arabia	0.546601356	1.252716664	1.097234411	0.998447416	0.52637379
Egypt	2.954937604	3.708859830	0.498773969	0.317076989	0.24784587
Morocco	13.89190531	3.105595225	0	0.356611370	0.27012479
Kenya	1.108987311	1.268670782	1.034720320	0.757206628	0.90028363
Nigeria	1.076680337	2.757395352	1.989090417	0.791530685	0.41467701
Middle-East & ECO					
Egypt	2.982303776	3.314692612	0.769305621	0.451042419	0.486558988
Saudi Arabia	0.519078093	1.056457151	1.312033304	1.253256645	0.885965264
Turkey	1.261087539	1.439277996	0.812185409	1.052418036	0.884906846
NAFTA & Latin America					
Chili	4.091255652	3.712814729	0.759661858	0.373914032	0.65177942
Mexico	6.329781561	1.210942339	0.828703073	0.591419281	0.50868432

Chapter 7

Summary & Conclusions

7.1 Summary

We have tried in this study to estimate the trade potential of Pakistan, while using the augmented Gravity model approach. The panel data for the year 1981-2005 has been applied across 42 countries including Pakistan. The Gravity models are less complex to implement as compared to the alternative CGE models used for similar purposes. The classical Gravity models use cross-section data for a particular period in order to analyze the trade flows between the pair of countries. However the panel data framework provides more comprehensive information since it facilitates the use of time series and cross section data simultaneously. It also allows for heterogeneity in terms of individual-specific effects. Therefore, this framework is considered superior to the ordinary L.S. (single equation) estimation technique. There are several panel data estimation techniques available in the literature, but we have preferred to use the Random Effect Model (REM) for estimating the Gravity equation in our analysis. This framework (REM) is preferred over the Fixed Effect Model (FEM) to economize on the degrees of freedom as the number of cross sectional units increases. As pointed out by Egger (2002), the researchers have most often concentrated on REM approach for the panel econometric projection of potential bilateral trade.

We have applied the Gravity model for Pakistan in a number of ways, starting from the basic classical version to the most sophisticated framework of augmentation and segregation. Besides the traditional explanatory variables, i.e. size of the economies concerned and the distance between them, we have also included certain dummies to capture the impacts of qualitative factors like common border, language and association with socio-economic and regional groups. Similarly, we have used proxies for variables like the GDP for size and Trade-GDP ratio for openness of the economies concerned. We could not use the custom to total tax revenues for openness due to the non availability of data for all countries included in the sample.

Most of the coefficients have their expected (theoretically supported) signs and they are statistically significant. However, in specific cases, the coefficients of certain dummies either deviate from the expectations so far as signs are concerned or they turn out to be

insignificant, obviously due to the fact that other factors not included in the model may be stronger. For instance, the coefficient of border dummy is empirically inconsistent and carries a negative sign. This is due to the fact that trade between Pakistan and its neighboring countries, particularly India, is governed by political rather than purely economic and commercial considerations. The low level of industrialization in the region and low level of skills are also responsible for lower volume of trade in the region despite the common border and comparatively smaller distance. Both the countries produce/export/import more or less the same goods with least disparity.

We have included two regional dummies for SAARC and ECO in the augmented model to test the significance of these Regional Trade Agreements (RTA's) for Pakistan. Unfortunately, both of the variables turn out to be insignificant. However, this represents the factual picture in that both the regional trading arrangements are not playing their due role in boosting up trade within the region as well as on the global level as was expected at the times of their establishments. In fact, the two organizations are dormant and exist only nominally like the OIC. In particular, the existence and prevalence of tariff and non-tariff barriers as well as political conflicts between India and Pakistan have made SAARC to be merely a nominal body in the South Asian region.

To analyze the impact of regional economic associations, we have estimated the Gravity model for Pakistan vis-à-vis the segregated regional blocks. For this purpose, we have included the Trade-GDP ratio in the model as proxy for Trade-Openness, which is a key indicator of a global integration. The results confirm that EU is the highly integrated economic region in the world followed by ASEAN, whereas SAARC is the least integrated region. This is due to the fact that a high level of protection in terms of tariffs and quotas is maintained by the member countries within the South Asian region than with the rest of the world.

Finally, we have used the estimated model (coefficients of different variable) to evaluate the trade potential of Pakistan with different countries. The actual volume of trade (value of both exports and imports) is compared with the predicted value, either as a difference

or as a ratio between the two. The resulting figures give an indication of the trade potential. In most of the cases, there exists considerable potential for Pakistan to expand its trade and therefore to take necessary measures in the right direction. In fact, the crux of the Gravity model analysis is to evaluate the trade potential and we have tried our best to concentrate on this aspect, given the limitations of data and scope of the model.

7.2 Conclusions

The Gravity model of international trade has its strengths as well as limitations. It is natural that trade relations between different countries are stronger if they are comparatively nearer, have common borders, common language and close social relations. The political relations, conflicts and friendships are some times more powerful than the economic and commercial considerations. Likewise, econometric analysis has its own limitations and the researcher is often constrained by the non-availability of data on the variables concerned and/or finding proper proxies for the purpose. In particular, the volume of underground trade between countries sharing a common border is often sizable as compared to the recorded data.

Our results of Gravity model validate the very fact that Pakistan's trade within the SAARC region is very low, particularly with India. However, some improvement has been observed in the recent past as indicated by our results for the period 2001-2005, in which case the actual trade of Pakistan has slightly surpassed the predicted level. This is the period during which the former government of Pakistan showed 'more than enough' flexibility towards India. However, the magnitude of trade with India is still lower as compared to other countries. The reasons are both economic and political. The tensions between the two countries do persist, which can continue to hamper the trade prospects even in the future. Further, both the countries are more or less in the same phase of development process, with similar products and productive skills, and hence do not fulfill the needs of each other even if trade barriers are removed.

Our estimations reveal that the magnitude of Pakistan's trade potential is maximum in case of Asian Pacific region (ASEAN) followed by Western Europe, Middle East, Latin Americas and North Americas for 2001-2005. The maximum trade potential is shown for

Japan, Srilanka, Bangladesh, Malaysia, Philippines, New Zealand, Norway, Italy, Sweden and Denmark. Therefore Pakistan should explore ways and means to enhance its trade relationships with countries in the ASEAN, Middle East and the EU. In any case, Pakistan will have to improve the quality of its exports and to minimize the cost of production to enable them compete well in the international markets.

7.3. Policy Implications/Recommendations

As noted above, our results indicate that Pakistan has exceeded its trade potential with India during 2001-2005. However, this result should be interpreted with caution since it could be the outcome of high variations in the sample. As a matter of fact, there are high trade restrictions between the two countries that may be attributed to political distance and thereby responsible for huge variations in the data. In the past, the magnitude of trade between India and Pakistan has been traditionally very low and one cannot expect much progress in this regards unless the political conflicts are resolved. This is despite the fact that India has granted the status of most favored nation (MFN) to Pakistan, even then Pakistan is not in a position to export significantly to India. Hence the currently existing trade potential is already exhausted and we cannot claim that the results of our model for India are unwarranted. Of course, it does not imply that there is no trade potential in future between the two countries, however this will be conditional upon some sort of political advancement to remove the very root of conflict. Although the launch of SAFTA in 2006 has resulted significant changes in custom tariff and reduced trade related barriers, but still there is room for further trade liberalization in the region.

In order to promote regional integration and stronger cooperation among member countries in South Asia, several efforts have been made. One such effort is the implementation of South Asian Free Trade Agreement (SAFTA) under the umbrella of SAARC. Although our results from Gravity model have indicated that SAARC has not played any significant role in the region, it is hoped that it will help reduce the conflicts and promote better political relations among the neighbors after the conclusion of the SAFTA agreement, in the same way as that of the European Union, which has transformed bitter enemies of the past (France, Germany and Great Britain) into neighbors with somehow workable relationships and a tight economic union.

The implications of this study for policy purpose can be enumerated. First, all kinds of barriers to trade must be reduced so as to enhance Pakistan's trade. However, this depends on the behavior of the trading partners of Pakistan, particularly in the West who most often impose restrictions on our products due to other socio-political reasons. Second, one of the main problems of South Asian trade is transport and infrastructure network. Improvement in infrastructure may be a pre-requisite for successful trade flows within South Asian region. Third, the propensity to export and import of all partners must be taken into account adequately when trade policy is set since Pakistan's trade is not sufficiently independent of the country-specific effects. Fourth, the regional economic groupings, particularly SAARC and ECO, have shown insignificant effect on the flow of bilateral trade. The trade in the region is constrained by problems like restrictive rule and regulations, extensive sensitive lists and uncoordinated efforts. All these factors currently threaten to limit the trade potential of Pakistan within South Asian region. Addressing these problems will depend on the extent to which South Asian leaders are ready to overcome past constraints and adopt new approaches. Fifth, special attention is required to improve the quality of exports to gain ground in competitive world markets. Extensive efforts are needed not only to retain the existing markets but also to find new markets. For this purpose, both the private and public sectors should join hands. In particular, Pakistan ought to focus on ASEAN and the MIDDLE EAST.

Reference:

Achakzai, Jahangir.K. (2006). Intra-ECO Trade: A Potential Region for Pakistan's Future trade. The Pakistan Development Review, 45(3), 425-437.

Anderson, James.E ., & Van, Eric. Win coop. (2001). Border, Trade & Welfare. Boston College Working Paper in Economics from Boston College Department of Economics. Working Paper no.508.

Anderson, James.E. (1979). A Theoretical Foundation for the Gravity Equation. The American Economic Review, 69(1), 106-116.

Bergstrand, Jeffrey. H. (1985) .The gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence. The Review of Economics and Statistics, 67(3), 474-481.

Bergstrand, Jeffrey. H. (1989). The Generalized Gravity Equation, Monopolistic Competition and the factor-Proportions Theory in International Trade. The Review of Economics and Statistics, 71(1), 143-153.

Bergstrand, Jeffrey.H. (1990).The Heckscher-Ohlin-Samuelson Model, the Linder Hypothesis and the Determinants of Bilateral Intra-Industry Trade. Economic Journal, 100(403), 1216-29.

Baltagi, B.H. (2000). Econometric Analysis of Panel Data. Chap: 14, Prentice-Hall, Englewood Cliffs, N.J.

Burfisher, Mary. E., & Steven, Zahniser. (2001). Multilateralism and Regionalism: Dual Strategies for Trade Reform. Agricultural Policy Reform in the WTO-The Road Ahead, edited by Mary E.Burfisher, AER-802, USDA/ERS.

Boris, Vujcic., and Sosic, Vedran. (2002). SEE and the Trade Potential of Croatia. www.wiiw.ac.at/balkan/files/Vujcic+Sosic.pdf

Benedictis, Luca.De., & Claudio, Vicarelli. (2004). Trade Potential in Gravity Panel Data Models. The Berkeley Electronic Journal of Economic Analysis & Policy, 5 (1).

Bussiere, Matthieu., and Bernd, Schnatz. (2006).Evaluating China's Integration in World Trade with a Gravity Model Based Benchmark. European Central Bank Working Paper No.693.

Batra, Amita. (2006). India's Global Trade Potential: The Gravity Model Approach. Global Economic Review, 35(3), 327-361.

Baroncelli, Eugenia. (2007). The "Peace Dividend," SAFTA and Pakistan-India Trade. The Challenges and Potential of Pakistan–India Trade. The World Bank. Chapter 4, 59-67.

Cernat, Lucian. (2001). Assessing Regional Trade Arrangements: Are South-South RTAs More Trade Diverting? Policy Issues in International Trade and Commodities, Study Series No.16. Division on International Trade in Goods and Services, and Commodities, United Nations Conference on Trade and Development (UNCTAD) Geneva, Switzerland.

Carrillo, Carlos., and Carmen, A.Li. (2002). Trade Blocks and the Gravity Model: Evidence from Latin American Countries. University of Essex, Department of Economics. Economics Discussion Papers 542.

Clarete, Ramon., Christopher, Edmonda., and Jessica, S.Wallack. (2002). Asian Regionalism and Its Effects on Trade in the 1980s and 1990s. Economics and Research Department. Asian Development Bank. ERD Working Paper Series No.30.

Charter of the South Asian Association for Regional Cooperation: (http://www.saarc-sec.org/main.php?id=10&t=3.2)

Deordorff, Alan.V. (1995). Determinants of Bilateral Trade. Does Gravity Work in a Neo-Classical World? NBER Working Paper, No. W5377.

Edward, E Stern,.Leamer., and Robert, M, Stern. (1970). Quantitative International Economics: Journal of International Economics, 1971, 1(3), 359-361.

Edward, E.Leamer. (1974). The Commodity Composition of International Trade in Manufactures: An Empirical Analysis. Oxford Economic Papers 26, November: 1974, 350-374.

Egger, Peter. (2002). An Econometric View on the Estimation of Gravity Models and the Calculation of Trade Potentials. The World Economy, 25, 297-312.

Economic Survey of Pakistan 2006-07 & 2007-08

Feenstra, Robert.C., James.R Markusen., and Andrew.K, Rose. (1998). Understanding the Home Market Effect and the Gravity Equation: The Role of Differentiated Goods. NBER Working Paper No.6804, NBER Program (S): ITI.

Greenaway, David., and Chris Milner. (2002). Regionalism and Gravity. Scottish Journal of Political Economy, 49, 574-585.

Gujrati, N.Damodar. (2003) Panel Data Regression Models. Basic Econometrics 4th edition. Chapter: 16, Pp.652.

Guttmann, Simon & Anthony Richards. (2004). Trade Openness: An Australian Perspective. Australian Economic Papers.

Helpman, Elhanan., and Paul. R, Krugman. (1985). Market Structure and Foreign Trade: Increasing Returns, Imperfect competition, and the International Economy, Cambridge: MIT Press.

Harris, N.Mark., & Laszlo, Matyas. (1998). The econometrics of gravity models. Melbourne Institute of Applied Economic and Social Research. The University of Melbourne, Working Paper No.5

Head, Keith. (2000). Gravity for Beginners. Faculty of Commerce, University of British Columbia.

H.Khan, Ashfaq ., and & Zafar, Mahmood. (2000).Pakistan and Emerging Global Trading Environment. An Application of the Gravity Model. Vanguard Books Lahore.

Hirantha, Seekkuwa.Wasam. (2003).From SAPTA to SAFTA: Gravity Analysis of South Asian Free Trade. Department of Commerce, Faculty of Management Studies and Commerce, University of SriJayewardenepura, Srilanka.

Helmers, Christian., and Jean-Michel, Pasteels. (2005). TradeSim (third version), A Gravity Model for the Calculation of Trade Potentials for Developing Countries and Economies in Transition.ITC Working Paper. Market Analysis Section, International Trade Centre. Geneva, Switzerland

IMF DOT (Various issues).

Kalbasi, Hassan. (2001). The Gravity Model and Global Trade Flows. University of Isfahan, Department of Economics, 81744.Isfahan, Iran.

Koukhartchouk, Oxana .,and Mathilde, Mauref. (2003). Accession to the WTO and EU Enlargement: What Potential for Trade Increase? University of Paris I-CNRS-ROSES, Centre for Economic Policy Research (CEPR); Discussion Paper No.3944.

Kumar, Anand. (2006). Pakistan and Bangladesh delay SAFTA take off. South Asian Analysis Group, Paper no.1891

Kazmi, Sajid. (2006). Market Access Through Free Trade Agreements: Pakistan's Experience. SDPI Research and News Bulletin. 13(4 & 5).

Kumar, Atul. (2006). China-Pakistan Economic Relations. Institute of Peace and Conflict Studies, IPCS Special Report 30.

Linnemann, H. (1966). Modeling international trade flows: An econometric approach, North-Holland, Amsterdam.

M.Rahman, Mohammad. (2003). A Panel Analysis of Bangladesh's Trade: The Gravity Model Approach. University of Sydney, NSW2006, Australia

Poyhonen, Pentti. (1963). A tentative model for the volume of trade between countries, Weltwirtschaftliches Archive 90.

Paas, Tiiu. (2002).Regional Integration of International Trade in the Context of EU Eastward Enlargement.Ezoneplus News Letter, Issue 6th, Hamburg: HWWA Discussion Paper 218.

Rahman, Mustafizur et.al. (2006).Trade Potential in SAFTA: An Application of Augmented Gravity Model. Paper 61. Centre for Policy Dialogue (CPD), Bangladesh

Soloaga, Isidro., and L.Alan, Winters. (2001) .Regionalism in the Nineties: What Effects on Trade? The North American Journal of Economics & Finance, 12(1), 1-29.

Soderling, Ludvig. (2005). Is the Middle East & North Africa Region Achieving its Trade Potential? IMF Working Paper, Middle East Asia Department.

Subramanian, Arvind .,and Shang-J, Wei. (2003).The WTO Promotes Trade, Strongly but Unevenly. International Monetary Fund (IMF)-Research Department, Centre for Economic Policy Research (CEPR), National Bureau of Economic Research (NBER), the Brookings Institution. CEPR Discussion Paper No.5122.

State bank of Pakistan (2005). Special Section 7.5: Pakistan's Export Potential: A Gravity Model Analysis, Balance of Payments, Annual Report, 2004-05.

Sen, Amita., and Huma, Siddiqui. (2006). India, Asean toiling for pact on negative items under FTA. Financial Express, India.
(http://www.bilaterals.org/article.php3?id_article=3850)

Simwaka, Kisu. (2006). Dynamics of Malawi's Trade Flows: A Gravity Model Approach. MPRA Paper, University Library of Munich, Germany.

Sayal, Huma.N. (2007). Pakistan and Malaysia Trade Relations.
http://www.issi.org.pk/journal/2007_files/no-1/article/al.htm.

South Asia's Growth and Regional Integration: An Overview Pp: 1
Report based on first SAARC Business Leaders Conclave. The World Bank.

Tin, Bergen, Jan .(1962). An analysis of world trade flows: in shaping the world economy, ed.by Jan Tin Bergen, New York, The twentieth Century Fund.

Thapar, Raghav. (2006). SAARC. Ineffective in promoting economic cooperation in South Asia. Stanford Journal of International Relations.

Trade Policy (various issues), Ministry of Commerce Government of Pakistan.

World Bank Report, (2006). South Asia: Growth and Regional Integration

WDI Indicator CD.2007

World Economy Gravity Models.4

Mason.gmu.edu/~kreinert/papers pdf/gravmod.pdf. 23/09/07

http://www.aseansec.org/64.htm