An Analysis of Trade Flows Among ECO Member Countries and Potential for a Free Trade Area

By

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ABSTRACT

This thesis analyses the trade flows among the Economic Cooperation Organization (ECO) member countries themselves, and with the major trade partners of each ECO member country under reference (Pakistan, Iran, Turkey and Kazakhstan). This research seeks to identify the potential for expansion of trade flows and the potential for a Free Trade Area (FTA) among the ECO countries. The movement towards greater policy openness in the ECO region provides the context for this, under various ECO agreements.

The thesis reviews the theoretical and empirical literature on regional economic integration with special focus on the experience of regional integration arrangements in Europe and North America. It then undertakes a discussion of the economic structure and the trade patterns of Pakistan, Iran, Turkey and Kazakhstan, the four major countries of ECO, which constitute the focus of this thesis. This discussion leads to an examination of economic and political factors, which influence the potential for greater regional integration.

The comparative advantage and trade competitiveness of Pakistan, Iran, Turkey and Kazakhstan in four major commodity categories namely Textiles Fabric, Crude Oil, Natural Gas and Cereals, are examined. Based on data for the period 1990-2009, Balassa's revealed comparative advantage index and Vollrath's revealed competitive advantage indexes are used to analyse comparative advantage and competitiveness of the four countries under reference in the above mentioned commodities. Based on the results of comparative advantage analysis, an examination of trade complementarities and trade substitution reveals that it is natural for Pakistan and Turkey to export textile fabric to Iran and Kazakhstan. In return, Iran and Kazakhstan can be the sources of import of crude oil for Pakistan and Turkey. Kazakhstan, the only country rich in natural gas in the ECO region, can export this commodity to Pakistan, Iran and Turkey.

The trade Intensity Analysis is used to analyse the nature and evolution of trade links between the four major ECO countries, and between them and their other major trade partners such as the USA, UK, China and Germany. This analysis suggests that the

USA still continues to be the major trade partner of Pakistan. Similarly, the UK is the most important trade partner for Turkey. Within the ECO region, important trade partners of Turkey are Iran and Kazakhstan. The vacillating nature of US-Pakistan relations in the past has pushed Pakistan to strengthen its relations with the members of the ECO region in order to diversify its support base. The shift in Turkey's trade policies is discernible following the EU's refusal to admit Turkey as a full-fledged member. The recent past has seen Turkey constantly increasing its trade with other ECO member countries.

Based on the country-specific gravity trade model, the study's empirical analysis explores the potential for expansion of trade flows between Pakistan, Iran, Turkey and Kazakhstan in the future, and a possibility of Free Trade Area (FTA) among these countries. Through the incorporation of a number of policy-related variables, our model goes beyond previous studies. The estimated model showed that in addition to the conventional variables of export value, import value, Gross Domestic Product (GDP), per capita GDP and distance, the Consumer Price Index, Common border, Common Culture and the membership in a Preferential Trade Agreement (PTA) influences bilateral trade. The findings of the estimated export and import gravity models support the hypothesis that there is a potential for increases in bilateral trade flows and that there is a potential for an FTA among the ECO countries.

The ECO has a great potential and bright future in terms of economic integration and development if the present trade links are not only maintained but also further strengthened and if trade increases with consistency and the ECO countries independently make their economic, trade and foreign policies without third party influences.

DECLARATION

"I, Hussain Mohi-ud-Din Qadri, declare that the PhD thesis entitled ' An Analysis of trade flows among ECO countries and potential for a Free Trade Area' is no more than 100,000 words in length including quotations and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Hussain Mohi-ud-Din Qadri _____

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Despite the assistance received from various people and institutions, the entire content of the thesis is my responsibility.

Hussain Mohi-ud-Din Qadri
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ABBREVIATIONS

APEC	Asian Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
CEAO	West African Economic Community
CEI	Complete Economic Integration
CARICOM	Caribbean Common Market
CES	Constant Elasticity of Substitution
CEPGL	Common Community of Grand Lakes
CET	Common External Tariff
CM	Common Market
COMESA	Common Market for Eastern and Southern Africa
COMMTRADE	United Nations Trade Statistics databases
CPI	Consumer Price Index
CHCA	Council of Heads of Customs Administration
CU	Customs Union
CRTA	Committee on Regional Trade Agreements
EAEC	Eurasian Economic Community
EC	European Community
ECO	Economic Cooperation Organization
EFTA	European Free Trade Association
EGLS	Estimated Generalized Least Squares
EMU	Economic and Monetary Union
ECOTA	Economic Cooperation Organization Trade Agreement
EEC	European Economic Community
EPZ	Export Processing Zone
FEM	Fixed Effect Model
FIA	Federal Investigation Agency
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GMT	Gravity Model for Trade
GNI	Gross National Income

GNP	Gross National Product
HLEG	High Level Expert Group
IMF	International Monetary Fund
MFN	Most Favoured Nation
MNA	Monitored Natural Attenuation
MRTPO	Monopolies and Restrictive Trade Practices Ordinance
MT	Metric Ton
NAB	National Accountability Bureau
NAFTA	North America Free Trade Area
NIOC	National Iranian Oil Company
NTBs	Non-Tariff Barriers
OIC	Organization for Islamic Countries
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
PACER	Pacific Agreement on Closer Economic Relations
PTA	Preferential Trade Area
RCA	Revealed Comparative Advantage
RCD	Regional Cooperation for Development
REM	Random Effect Model
RIA	Regional Integration Arrangement
RTA	Regional Trade Agreement
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Area
SAPTA	South Asian Preferential Trade Area
SRO	Statutory Regulatory Orders
TBS	Tariff Based System
TD	Trade Diversion
TTRI	Tariff Trade Restrictive Index
TTA	Transit Trade Agreement

TTCC	Transit Transport Coordination Council
TTFA	Transit Transport Framework Agreement
WTO	World Trade Organization

CHAPTER 1 INTRODUCTION

1.1 The Context of the Study

It is said that the regional economic cooperation is one of the factors, which leads to economic growth and development of the nation. Generally, the rationale for the advancement of regional cooperation as a preferred policy is not merely economic; it is also political and socio-cultural. The economic factors such as the small size of domestic markets, economies of scale in production, and specialisation and utilisation of the underutilised potential in terms of human, technological and natural resources explain why regional cooperation is necessary. Regional cooperation enables the developing countries to not only expand their existing industries but also establish new ones based on dynamic comparative advantage, which helps them to broaden and diversify their industrial base.

In 1964, Pakistan[1], Iran and Turkey[2] established a regional grouping called Regional Cooperation for Development (RCD). For fifteen years (1964 -79) since its establishment, intra-regional trade did not register any increase and never exceeded the pre-RCD level of less than 2 percent of their aggregate GDP. Economic Cooperation Organisation (ECO), which succeeded the RCD, also inherited all of its problems. Iran, Pakistan and Turkey established the ECO, an inter-governmental regional organisation, in 1985. Its task was to promote economic, technical and cultural cooperation among the member states. The ECO is the successor organisation of RCD, which remained functional from 1964 to 1979 and its basic charter is enshrined in the Treaty of Izmir originally signed in 1977. 1992 was an important year, which saw the expansion of the organization with the inclusion of seven new members namely Afghanistan, Azerbaijan, Kazakhstan[3], Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

[1]Pakistan is also a part of SAARC, a preferential trade agreement between Pakistan, India, Sri Lanka and four other countries of South Asia. Establishing a Free trade Area and at later stage a Customs Union in the region, are the said objectives of this organization. No significant development is recorded in past several years so far.
[2]Presently Turkey is part of European Custom's Union and had been trying to become a full fledge member of European Union. Recently, Turkey has faced a strong opposition from other members of EU, which had a significant impact on the foreign policy of Turkey.
[3] Negotiations on the customs union between Belarus, Kazakhstan and Russia were also completed in 2010 and customs union has been in operation since 2011.

Figure: 1.1: ECO Member States Map

Figure 3: *ECO Member States* (ECO, 2009, ECO member states section).

In terms of its establishment and beginning, both the ECO and the Association of South-East Asian Nations (ASEAN) resembled each other as both regional bodies came into being due to geo-strategic considerations to which an economic dimension was added. The RCD/ECO failed to produce much of economic impact before its expansion in 1992 and even thereafter. The Treaty of Izmir (1977) lays down the following objectives of the ECO: Promotion of sustainable economic development of member states and raising the standard of living and quality of life of its people; Promotion of regional cooperation in economic, social, cultural, technical and scientific fields; Progressive removal of trade barriers and expansion of intra-regional trade; Development of transport and communication infrastructure among the member states; Human resource development; Development of the agricultural and industrial potential as well as human and natural resources of the region; Economic liberalisation and privatisation; and Utilisation of region's natural resources, in particular energy resources.

The peoples of the region comprising Economic Cooperation Organisation (ECO) member-countries are linked not only by natural geographic proximity but also enjoy centuries old historical, religious and cultural bonds. In pre-colonial times, trade flowed freely within the region and there was also free movement of labour. Colonialism and the advance of USSR served to disrupt their links, and isolated them completely. Since these states have achieved their independence and are fully sovereign, there is no reason why their centuries-old traditional cultural relations cannot be translated into regional grouping and joint efforts made to achieve prosperity and foster closer

understanding among the peoples of the region (Pervez, 2004).

The combined Gross Domestic Product of the ECO countries, which has a total population of about 417 million (7 precent of the world population), was in the neighbourhood of US$ 300 billion as their combined GDP, in 2010. This was only 1.4 percent of the world GDP. The region, twice the size of the European Union, is spread over an area of about 8 million square kilometres. In the year 2004, the production and absorption of world crude oil supply and demand by the member countries of the OIC was about 6.8 precent and about 3.7 respectively. The region exported more than 45 percent of the oil it produces, up from 40 percent during 1990s only.

The region is blessed with not only natural resources but also human capital. Despite being better endowed in natural resources, the economies of the region are confronted with serious problems such as external debt, unemployment and poverty. The countries like Turkey, Iran and Kazakhstan with per capita GDP of $ 14,517, $ 13,053 and $ 13,001, in the year 2011, respectively are included among the higher-income group. Others, such as Pakistan, Uzbekistan and Kyrgyzstan with per capita GDP of $ 2,787, $ 3,302 and $ 1,070, in the year 2011, respectively, are countries with low income.

The share of manufactures in exports is a more relevant indicator for regional cooperation. Here only Pakistan, Iran and Turkey figure prominently, having a high export concentration in automobile, industrial equipment, textiles and clothing industries (World Bank, 2005). Between 2008 and 2009, the total merchandise exports of the ECO member states reached the peak at US$ 289 billion. The region contributed 2 percent and 3 precent to the world merchandise exports and imports, respectively, in 2009.

The degree of economic integration can be categorised into six stages such as, preferential trade area (PTA), Free trade area (FTA), Customs union (CU), Common market (CM), Economic and monetary union (EMU) and complete economic integration (CEI). Balassa (1962) believed that supranational common markets, with their free movement of economic factors across national borders, naturally generate demand for further integration, not only economically (via monetary unions) but also politically--and, thus, that economic communities naturally evolve into political unions over time.

The member countries of Economic Cooperation Organization (ECO), i.e. Afghanistan,

Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Turkey, Tajikistan, Turkmenistan and Uzbekistan have started moving on the path of trade liberalisation through agreements such as the Preferential Trade Agreement (PTA) and the Economic Cooperation Organization Trade Agreement (ECOTA). During the ECO Summit held in March 2009, member states of the organisation have vowed to make ECO region a Free Trade Area (FTA) by 2015 (Premier News, March, 2009).

Over the past several years, the ECO member states have made concerted efforts to promote intra-regional trade. The steps taken by them include the improvement of regulatory frameworks and removal of tariff and non-tariff barriers in the region. Despite this, the scale of intra-regional trade within the ECO region remains far from satisfactory. In 2002, the intra-regional trade of the ECO accounted for 5.4 precent. The intra regional trade ratio of the ECO (excluding Afghanistan) in 2003 like the previous years could not cross the threshold of 6 precent. In fact, despite a high average rate of growth in merchandise exports (14.9 percent), the region's share in total merchandise exports of the world increased by only 0.2 percent between 2002 and 2003.
Total intra-regional trade volume of the ECO (excluding Afghanistan) in 2009 increased to 7% precent, as compared to the external trade of the ECO region.

In May 1991, the founding ECO members of Iran, Pakistan and Turkey signed a Protocol on Preferential Tariffs. The implementation process started in May 1993 after the commodity lists were prepared. However, this Protocol could not produce sufficient results as the lists drawn were very limited in nature and the products on which preferential tariff was offered were not traded, and a 10 precent margin could not have much impact.

In July 2003, the ten ECO countries signed a Trade Agreement, known as ECOTA. The Agreement represented a major step towards achieving the objective of removing the trade barriers and establishing a Free Trade Area (FTA) in ECO region by 2015. It is comprehensive in terms of commodity coverage. The Agreement, to be realised over a period of 8 years, by 2015 will reduce the tariff to a maximum of 15 percent on 80 percent of the goods traded. The three founding member states (Iran, Pakistan and Turkey) agreed to adopt a fast track approach for early implementation of ECOTA that aimed reducing maximum tariff to 10 percent within 5 years instead of 8 years (ECO, 2004; 2005).

The Conference of ECO member states, held in March 2009, has reiterated its commitment to the

goal of making ECO region a Free Trade Area (FTA) by 2015. This reiteration of ECO member countries betrays their resolve to work for economic integration of the region. Hence, this research seeks to provide an economic analysis of the potential for the expansion of trade flows and the potential for a Free Trade Area (FTA) in the ECO region.

1.2 **The Research Problem and Its Relevance**

Several empirical studies have been conducted on the ECO member countries and their bilateral trade relations with each other, as well as, with the rest of the world. Pomfret (1997, 1999) has discussed the prospect of regional integration within the Economic Cooperation Organization (ECO) focusing more on newly liberated central Asian States. He presented empirical evidence that the ECO region has good prospects for regional integration. The establishment of transport links would improve trade between the new landlocked ECO members and the three original members as previous distortions stand to be removed. The prospect of substantial intra-ECO trade is limited because of the similarity in the economies of seven new members of ECO. In his 1997 study, *ECO: Current Status and Future Prospects*, Pomfret (1997) has discussed pre-ECO trade patterns and organizational history in the light of goals set by RCD and ECO for regional cooperation. He has also analysed exports and imports among ECO member states and studied the growth and decline patterns in terms of percentages. The seven new members of ECO are the focus of his studies and not Pakistan, Iran and Turkey. In his 1999 study, *Central Asia Turns South*, Pomfret (1999) reviewed the political and economic history of each member state and their trade links with each other.

Pervez (1974) examined the available data on trade flows among RCD countries without applying any economic model. Much of his focus remains on the historical aspects of the organisation and its member states. He has underlined the areas of mutual cooperation in the ECO region and the benefits that would accrue to the region from the enhanced trade. In his 2004 Study, *Prospects of Economic Integration among ECO Countries*, Pervez (2004) concludes that there is no marked difference in the performance of the ECO region compared to pre- ECO period. If things remain the same, the fate of ECO will be no different from that of its predecessor organisation i.e. RCD. Orhan (2005) has mostly discussed the organisational setup of ECO and its member countries. Transport facilities, chambers of commerce and banks form the major areas highlighted by his study.

However, there is a paucity of studies that analyse the potential for economic integration among the

ECO countries in general and Pakistan, Iran, Turkey and Kazakhstan in particular. Even the studies referred above fall short of providing an analysis through the use of proper economic indicators or modelling. Even though Pakistan, Iran and Turkey have old trade relations, it was in 1992 that the ECO was expanded after the inclusion of new Central Asian states. ECO in its present shape is a new organisation as compared to other regional groupings, and has attracted a very limited number of empirical studies.

This study attempts to contribute to the body of available literature in relation to trade among the major ECO countries i.e. Pakistan, Iran, Turkey and Kazakhstan in several ways. The study will provide an up-to-date analysis of trade flows. It will also conduct the analyses of comparative advantage, inter- and intra-industry trade and trade intensities. Furthermore, the study will estimate gravity models of exports and imports and provide an analysis of the potential for an FTA among the ECO countries.

1.3 **Research Questions**

Based on the research problems identified in section 1.2, the specific research questions, which are to be addressed in the thesis, are listed below.

1. If the ECO region forms an FTA, would this be likely to result in greater intra-ECO trade?
2. What are the comparative advantage indicators, trade complementarities, and trade substitutes of the major ECO countries, Pakistan, Iran, Turkey and Kazakhstan for selected commodities?
3. What is the significance of trade flows among these ECO countries and which ECO countries are important trade partners of individual ECO countries as determined by trade intensity and gravity model analyses?
4. What is the potential for expansion of trade flows among these ECO member countries, as predicted by the results of trade intensity and gravity model?
5. Is there a potential for an FTA among the ECO countries, as indicated by the results of trade intensity analysis and gravity model analyses?

1.4 **Objectives of the Study**

This study seeks to examine the trade flows among the major four ECO member countries, which are Pakistan, Iran, Turkey and Kazakhstan. This is aimed at locating the major trade partners

of each country under focus with a view to identifying the potential for expansion of trade flows and the potential for an FTA among these ECO countries. The study aims to achieve its objective by developing a theoretical framework and applying it to: (i) analysing the existing inter- and intra-regional trade flows among the selected ECO countries; (ii) the estimation of comparative advantage indicators for these ECO countries in relation to selected commodities: and (iii) utilising trade intensity analysis and Country Specific-Gravity model estimations with appropriate modifications to identify important trade partners of these ECO countries and the potential for an FTA.

1.5 Contribution and Significance of the Study

The study will be a significant contribution to the available body of knowledge on the subject and will be aimed at the following:

1. Providing insights into various economic aspects of ECO region generally and Pakistan, Iran, Turkey and Kazakhstan specifically and exploring the potential for expansion of trade flows and an FTA among these ECO countries.
2. Providing a systematic analysis of ECO's inter- and intra- regional trade flows, major trading partners and trade intensity.
3. Examining the effects of trade liberalisation within the context of economic development in the region.
4. The study will contribute to the available literature of inter- and intra-regional trade flow analysis, comparative advantage analysis, trade intensity analysis and gravity model analysis, particularly in relation to potential modifications made to the research techniques.

The trade analysts, and policy makers of the countries concerned, for the formulation and development of the public policies and strategies aimed at enhancing trade among ECO countries and establishing an FTA among them may use the findings of this research study. In relation to this, a better understanding of inter- and intra- regional trade flows, comparative advantage, major trading partners and trade potential is an important prerequisite.

This study will be beneficial for the business community and companies and will enable them to expand and grow in the domestic and international markets; this will ultimately benefit the economic welfare of each country and the region at large. As FTA by 2015 stands high on the agenda of ECO countries, this study will prove to be timely and relevant.

1.6 **Outline of the Thesis**

Chapter 2 reviews the economic structure of Pakistan, Iran, Turkey and Kazakhstan as the four major ECO countries and their international trade. It will also analyse the composition of trade, and intra- and inter- regional, trade in ECO region.

Chapter 3 focuses on the main elements of the conceptual and theoretical literature of trade liberalisation related to Tariff and Non-Tariff barriers. It concludes with the discussion on trade policies of Pakistan, Iran, Turkey and Kazakhstan.

Chapter 4 reviews the theory of regional economic integration, and regional trade agreements. It further takes an account of historical experience of regionalism in developing and developed countries including reviewing the literature for Regional Trade Agreements (RTA) among ECO countries. It will conclude with discussion on Progress and limitations in relation to RTA among ECO countries.

Chapter 5 contains Comparative Advantage Analysis of four selected ECO countries under reference. Trade Complementarities, trade substitutes and implications for FTA of ECO countries are discussed and analysed in the light of theory of revealed comparative advantage and competitiveness models provided by Balassa and Vollrath.

Chapter 6 outlines the theory and models of trade intensity analysis, and contains the results of the analysis performed by using Frankel and Rose Model with Kim's modifications, for the implications for potential FTA among ECO countries.

In Chapter 7, we present what we believe the first quantitative study of bilateral and regional trade among ECO countries in general and Pakistan, Iran, Turkey and Kazakhstan specifically. It presents the 'country Specific gravity model' that incorporates, in addition to conventional variables, common culture, common border and preferential trade agreements (PTA) variables. This is estimated with 15 years of data from 1995 to 2009 for eight countries including Pakistan, Iran, Turkey and Kazakhstan from ECO region and other four non-ECO countries USA, UK, China and Germany. The residuals from export and import Gravity models are then used to estimate the trade potential among the ECO countries within

the prevailing policy context, and in the context of potential for a FTA among these ECO countries.

In the final chapter (chapter 8), a summary and conclusion of the study is presented, followed by a discussion of its main limitations, suggestions for future research and some discussion of policy implications.

CHAPTER 2 ECO Countries: Economic Structure and International Trade

2.1 Introduction

Two hundred and fifty Regional Trade Agreements (RTAs), according to a report of the World Trade Organization (WTO), have so far been formed after the notion of integration has gained currency, and many more are in the process of negotiation. Tossi, Moghaddasi, Yazdani and Ahmadian (2009) are of the view that Asia lags behind Europe and North America so far as the integration of world trade is concerned. The ECO, which was originally founded by Turkey, Iran and Pakistan in 1985, expanded when new states such as Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan, Kazakhstan, Azerbaijan and Afghanistan joined the organisation. The aim was to progressively review trade barriers, promote intra-regional trade, and gradually integrate the economies of its member States with the world economy.

This chapter discusses the basic economic structure of ECO and its member countries under reference and the existing trade between them. This overview will help us understand the background of the study in a better way. Sections 2.2 to 2.6 will review the economic and political structures, trade patterns, compositions and major trade partners of Pakistan, Iran, Turkey and Kazakhstan. The intra-regional trade of these countries is also reviewed in this section. The discussion is concluded in section 2.8 of this chapter.

2.2 Economic and Political Structures and International trade

The ECO member countries have different political and economic orientations. Although the governments of the ECO countries claim to be democratic and boast of participatory political systems, a closer look at them reveals details of these systems and structure of their societies. Different political systems are in operation in these countries ranging from military oversight in Turkey to social democracy in Kazakhstan, to theocracy in Iran to a weak and immature democracy in Pakistan. Similarly the economic systems operational in the region are ranging from Capitalistic system in Turkey, to mixed Economic system in Pakistan, to socialist Islamic Economic system in Iran. In short, despite some

apparent homogenous conditions among the ECO member states, there are vast and real differences in their political, economic and governance systems.

2.3 **Pakistan's Political and Economic Structure**

Following the establishment of Pakistan in 1947, those tasked with the running of the state could not exploit the full potential of available resources, which resulted in slowing down the pace of development. The absence of proactive economic policies and centralisation of the power structure served to delay the stage of quantum development in Pakistan.

Agriculture forms the mainstay of Pakistan's economy. Pakistan is also a primary cotton exporter in the world. About half of Pakistan's workforce especially those residing in the rural hinterland are associated with the agriculture field. Agriculture is also the source of Pakistan's major exports to the world. The 'twin deficits' of national budget and balance of payments is responsible for low economic growth of Pakistan in these areas. Pakistan has a liberal trade policy. Despite being a primary cotton exporter in Asia, it is economically vulnerable and is in acute need of policy attention from the government (ECO, Islamic Republic of Pakistan, General Information Section, 2009).

According to Pirzada (2005), there are ways by which the world economic architecture and the Pakistani economic system interact. However, due to the small size of its economy, Pakistan stands on the periphery of the world economic system and contributes little to the global economy. This position of Pakistan being a subsidiary of the world economic architecture owes itself to the dependency theory. According to this theory, the underdevelopment of the Third World is caused by the exploitative nature of global economic system. Global economic architecture is composed of multinational structure marked by capitalist economies whereby there is free flow and movement of capital in the world, however, the 'Dependency Theory' seeks to highlight the unilateral nature of relations between the core country and those that stand on the periphery. Pirzada (2005) further states, the best way to understand this phenomenon in the context of Pakistan is a condition where the expansion and development of one group of countries conditions the economies of another.

Before the partition of the Sub-Continent, unified India had a relationship of a client with the ruling British. Once the British left the sub-continent in 1947, Pakistan became an independent country along with India. Since all the structures in the newly independent country had a clear British signature, therefore, it was natural for Pakistan to continue with the same systems and procedures. This is how it got entrapped into global neo-colonialism. It continued this role even after "the so-called independence in the shape of allowing neo-colonial forces to penetrate into the country's economic structure" (Pirzada, 2005, p. 9). Once the indigenous bourgeois class failed to deliver and contribute productively to the economy, it paved the way for greater state intervention to assert its entrepreneurship. The pro-elite power structure composed of a military-bureaucratic combine afforded this privileged group an opportunity to penetrate the state entrepreneurship both directly and indirectly. Consequently corruption and nepotism began to be the norm.

Since these civil and military bureaucrats were trained in capitalistic countries such as the UK and USA, they brought a neo-capitalistic mindset to bear on the state enterprises. This is how the state's role in entrepreneurship began to consist of a form of "a new dependent development in the periphery of the world capitalist economy, which helped the Pakistani state to assert its strength even more vigorously with the help of the 'underdeveloped' state machinery in the shape of a so-called military-bureaucratic oligarchy" (Pirzada, 2005, p. 13). Thus by virtue of state capitalism being implemented as the main policy in Pakistan's economic structure, the country has not transformed itself from capitalism to socialism leaving its social relations of productions unaffected. The greater autonomous Pakistani state has in fact attempted to clear the way for the even functioning of neo-colonial forces. This explains how the state apparatus in Pakistan and the global economic system has interacted with each other to influence the process of capital accumulation for their mutual benefit.

Since Pakistan won the independence in 1947; its balance of trade was negative, apart from two fiscal years 1951-52 and 1972-73. Crude oil, which was the major import item, adversely impacted the balance of payments. The resultant deficit was bridged by external capital account borrowing which increased Pakistan's external debt burden. In order to meeting the international obligation of external debt payment, the successive governments have been forced to divert 40-45 precent of budget to debt servicing. Also with huge defence expenditure, little money is left for development of social sector in the country. Currently, Pakistan's external debt has crossed $50 billion mark and it is likely to increase as the

government fails to generate additional revenues through widening of tax base. Hence the state would be left with no option but to revert to IMF and other lending institutions to meet the burgeoning fiscal deficit, which would enormously add to the country's external debt. CPI (consumer price index i.e. inflation) has gone beyond 25%, making it difficult for 45% of population, who live below the poverty line, to make ends meet (Muhammad, 2010).

Looking at the demography of Pakistan, it becomes clear that in another 20 years time, Pakistan is likely to surpass Indonesia to become the fifth most populous country in the world with Muslims forming the majority. However, a major parts of Pakistan's population comprises of the youth who, if educated and productively employed, could provide its economy with a demographic dividend long after the youth bulges of China and India have aged and retired. Pakistan has a unique opportunity to leverage its large domestic consumer market to attract investment from the multinationals and build up economies of scale in industries such as food, electronics, autos and engineering for export purpose. The restoration of normalcy and peace in an otherwise turbulent South Asian region can provide Pakistan leverage in its geographical position and become a hub of trade and energy transit point.

However, a pessimistic look at the country's economy makes one feel that the country is caught up in a blind alley. Political instability marks the polity with never-ending military-civil rifts over a host of national and international issues. There are questions of credibility and transparency over state management, which discourage foreign investment. The state institutions are in a shambles with little capacity to rise to the dynamic challenges in the field of economy. The country's lack of focus on development of the social sector such as health and education etc. has the potential of pushing Pakistan even backwards with under-nourished and under-educated population having little stake in the state system and being vulnerable to the extremist ideologies. In the absence of correct priorities and sustained political focus on state building, even such dividends, as unique geographical location and demography would be of little help to the country. Rather an economic growth rate of 2.7% annually would make things even more complicated (Paris, 2010).

2.3.1 Pakistan's Exports and Imports

Pakistan's exports in 1950-51 were worth 1343 million rupees, which was equal to 5 million US dollars. However in 1950s, exports registered a considerable decrease by 43.18%. The policies worked out during the Decade of Development under President Ayub who

established new industries and changed the nature of trade and production. In 1960-61, Pakistan's exports reached a record high of Rs 540 million (which equals 2 million US dollars) only to show a marginal decline for a while. The momentum of exports regained its strength in 1962-63 as is indicative by a massive increase of exports by 161.88%.

Following the break-up of Pakistan into two states in 1971, the pace of economic development got affected significantly. Former East Pakistan (which was now Bangladesh) had contributed massively to the united country's trade and foreign exchange, was separated. However, during the ensuing decade of the 1990s, exports registered an upward trend and increased from 1998 million rupees to Rs. 29280 million and reached Rs. 138280 million in 1990-91 (which equals 100 million US dollars approximately) (Zaidi, 2000).

The export figure reached a new high in year 2001-2002 when goods worth Rs. 560947 million were exported. The momentum stayed intact and the country's exports were recorded to have touched US$10001.0 million, thereby showing an increase of 13.1% compared to the previous fiscal year (Government of Pakistan, 2003-2004).

Pakistan's imports in 2006 were worth 24, 647 million US dollars. The major items on the import list included electrical goods, grains, steel & products, transport equipment, edible oil, chemicals, petroleum & products, industrial equipment, vehicles, iron ore, wheat, tea, fertiliser and non-electrical machinery. Pakistan's exports during the same year stood at 16,388 million US dollars and the main items of exports were cotton, sugar, textile-goods, garments & hosiery, rice, leather items, carpets & rugs, sports goods, fruits, handicrafts, surgical instruments and electrical appliances and seafood (EC, Islamic Republic of Pakistan, General Information Section, 2009).

Pakistan has witnessed a significant increase in exports as a result of rapid improvement in the international trading environment. During 2002/2003 to 2005/2006, Pakistan's exports remained at 16 precent of gross domestic product (GDP) per annum, while imports remained at 29 precent of GDP on average. In the 2008/09 fiscal year, the trade volume decreased by 9% After having more than doubled between 2007 and 2008, Pakistani exports declined by 6% in 2008/09. Imports declined by 10.5% in 2008/09 compared to 2007/08. The fall in

imports led to a reduction of 17% on the trade deficit in 2008/09, compared to 2007/08. During the fiscal year 2009/2010, exports reached the amount of USD 15.9 billion.

Pakistan has adopted an export-led growth strategy since 2000/01 and the success of this strategy obviously requires that Pakistan have greater access to international market for its products which Pakistan lacks at significant level (Gul and Yasin, 2011). Table 2.1, provides an overview of total nominal exports and imports of Pakistan in recent years.

Table: 2.1 Historical Account of Pakistan's Trade

Exports			Imports		
Year	**Value (FOB $ Bn)**	**Change (%age)**	**Year**	**Value (FOB $ Bn)**	**Change (%age)**
2000-01	9.2	-	2000-01	10.7	-
2001-02	9.1	-0.7	2001-02	10.3	-3.6
2002-03	11.2	22.2	2002-03	12.2	18.2
2003-04	12.3	10.3	2003-04	15.6	27.6
2004-05	14.4	16.9	2004-05	20.6	32.1
2005-06	16.5	14.3	2005-06	28.6	38.8
2006-07	17	3.2	2006-07	30.5	6.9
2007-08	19.2	13.2	2007-08	40	30.9
2008-09	17.8	-6.7	2008-09	34.8	-13

Source: Annual report State bank of Pakistan (2008-09).

2.3.2 Pakistan's Composition of Trade

Over the years, the composition of the Pakistani exports underwent drastic changes, which were fuelled by steep fall in the shares of primary and semi-manufactured exports and equally sharp increase in the share of manufactured exports. In the early years, the share of primary goods was more than semi-manufactured and manufactured goods. In 1948-49, five primary commodities i.e. raw jute, raw cotton, raw wool, hides and tea dominated the Pakistani exports. Thus Pakistan fitted the classical case of an undeveloped and unindustrialised country in the early years and produced only primary products and was mainly dependent on adequate climatic conditions (Zaidi, 2000). Table 2.2 provides an overview of Pakistan's composition of trade in 2009, below:

Table: 2.2 Pakistan's Composition of Trade (2009)

Population	Total Imports	Total Exports	Major Exports	Major Imports
US 170.0 million	US $ 28.31 billions	US $17.87 billions	Wheat, cotton, rice, sugarcane, eggs, fruits, vegetables, milk, beef, mutton. Textiles & apparel, food processing, pharmaceuticals, construction materials, shrimp, fertilizer, and paper products.	Petroleum, petroleum products, machinery, plastics, paper and paper board, transportation equipment, edible oils, pulses, iron, steel and tea.

The concentration of Pakistani exports can be gauged from the fact that they were mainly confined to cotton, leather, rice and synthetic textiles and sports goods. These five categories of exports formed about 79.8% of the total export volume during 2003-2004. The individual share of each category in this composition was 62.5%, 5.3%, 5.2%, 4.2% and 2.6% for cotton, leather, rice, synthetic textile and sports goods respectively. In spite of Pakistan's trade relations with a large number of countries, its imports and exports were mainly concentrated to seven countries. The US, Hong Kong, Dubai, Japan, Germany, UK and Saudi Arabia were the recipient of above one half of its exports. Recent years have witnessed the diversity in the export composition of the country, which is evident from tables 2.3 and 2.4.

Table 2.3: Pakistan's Top Exports for 2008, US$ million

Cotton	3,597
Misc. textile articles	3,146
Cereals	2,508
Knitted apparel	1,888
Woven apparel	1,361
Mineral fuel, oil	1,230
Leather goods	767
Salt, sulphur, earth, stone	601
Raw hides and skins	383
Nuclear reactors, boilers, machinery	317
Total exports	20,279

Source: United Nations Commodity trade database

Table 2.4: Pakistan's Top Imports for 2008, US$ million

Mineral fuel, oil	1 4,054
Nuclear reactors, boilers, machinery	3,924
Electrical machinery	3,782
Fats and oils	1,880
Organic chemicals	1,761
Cereals	1,690
Iron and steel	1,629
Plastic	1,360
Cotton	1,209
Vehicles	1,184
Total imports	42,327

Source: United Nations Commodity trade database

2.3.3 Pakistan's Direction of Trade

Pakistan's three main export destinations are the United States, the United Arab Emirates and Afghanistan. Pakistan exports cotton, textiles, clothing, leather goods, sports goods, carpet, rugs and cereals to these countries. In the year 2010, Pakistan exports were of $20.29 billion worth out of which, 15.87% worth of goods were exported to U.S, 12.35% worth of goods were exported to U.A.E and 8.48% worth of goods were exported to Afghanistan.

Pakistan's main import sources are Saudi Arabia, the United Arab Emirates and China. Pakistan's major imports are fuels, vehicles, automobile equipment, machinery, iron, steel, plastic, paper products, and edible oils. In the year 2010, Pakistan's total imports were $32.71 billion out of which, 15.35% worth of goods were imported from China, 10.54% worth of goods were imported from Saudi Arabia, and 9.8% worth of goods were imported from U.A.E. Other major trade partners of Pakistan are U.K, Germany, France, Korea, Japan and Kuwait.

Principal trading partners in 2000 (in millions of US dollars) were as follows:

Table: 2.5 Principal Trade Partners of Pakistan in 2000

COUNTRY	EXPORTS	IMPORTS	BALANCE
United States	2,276	667	1,609
China (inc. Hong Kong)	788	550	238
United Kingdom	601	351	250
United Arab Emirates	574	1,191	-617
Germany	518	395	123
France	284	214	70
Korea	265	362	-97
Sa'udi Arabia	246	1,163	-917
Japan	238	618	-380
Kuwait	n.a.	1,293	n.a.

2.4 **Iran's Political and Economic Structure**

Iran seems all set on a high trajectory of growth and is knocking at the doors of the industrial era. The country's economy is characterised by "mixture of central planning, state ownership of oil and other large enterprises, village agriculture and small-scale private trading and service ventures" (Islamic Republic of Iran, 2007).

The state has a strong domination over the national economy and its major source of revenue is crude oil exports. There is very little space within which the private sector can engage itself in economic activity. However, the government has now engaged itself in some privatisation efforts.

The past several years have seen a shift in the economic orientation of the Iranian government whereby it has taken steps to liberalise the economy and reduce government intervention (Islamic Republic of Iran, 2007).

Before religious revolutionaries struck in 1979, there was a very robust and dynamic private sector in Iran. Following the revolution, major chunks of the private sector including companies and commercial were nationalised by the state and semi-state institutions. The change in the political situation also forced the flight of foreign investment. Thus foreign participation in Iran was prohibited.

Currently, the private sector is present in such fields as mining, small-scale manufacturing, trade and agriculture but has very limited role to play in economy at a broader level. July

2006 saw Iranian government launch major privatisation initiative in a bid to encourage private sector to play a robust role in national development. 80% shares in strategic institutions were allowed through the stock market, including downstream oil sector businesses, insurance, banks, utilities and transportation. Work is also underway to privatise the state-run oil and gas companies (Iran Treasury press release, 2007).

Since ancient times, Iran has been known for its trade merchants. Since the manufacturing sector was very small, goods were imported, marked up for profits and then sold by the merchants. For businesses to grow and fetch profits there has to be low cost of doing business which includes low transportation, low labour, low rents, free trade and minimal regulation. The business class has been averse to the oversized role of the government in the management of the economy. It was in favour of establishing trade relations with the foreign countries. However, it did not want foreign investment to come in because in a competitive environment, their businesses and companies stand to lose out (Katzman, 2006).

Iran has the world's third largest proven petroleum reserves and holds about 10% of total world oil reserves. 80% revenue of Iran comes from the export of Oil to the World. Most of Iran's crude oil reserves lie in the south-western region near the Iraqi borders. After Saudi Arabia, Iran is the second largest oil producer in the Organisation of the Petroleum Exporting Countries (OPEC). In 2008, Iran produced 3.8 million barrels of crude oil per day. Following the increase in oil prices, a trend seen during the last few years, there has been increased oil revenue. However, the production of its crude oil has essentially been flat.

A number of factors have constrained Iran's oil output. The Iranian oil industry is faced with a dual crisis; one is that of progressive, natural decline of developed oil fields and second is slowing oil recovery rates. Natural declines and damages to oil reservoirs are believed to cause a loss of millions of barrels of oil. Decaying technology and aging infrastructure have also been among the worst problems faced by Iran. The U.S. sanctions regarding Oil Exports and other industries have disallowed foreign investment in Iran, which constrained access to new technologies and structural upgrades such as natural gas injections and other enhanced oil recovery efforts. Though the U.S. law forbade American firms to invest in Iranian oil development ventures, but other foreign firms, until recently, have actively been investing in the development of the oil sector of Iran (EIA, 2010).

Likewise, according to EIA, 2010, Iran has the second largest natural gas reserves after Russia but it only started exporting gas as late as 2005 despite being a repository of vast gas resources. There are three-pronged uses of gas for Iran. Firstly it can be used for domestic consumption, secondly it can be exported to the European markets and Asia, and thirdly, it can be a major factor for development of the petrochemical industry of Iran (EIU, 2007). Iran has now invited the world community to invest in Iran to help it build its natural gas sector, but the sanctions imposed by the U.S. have not allowed Iran to have access to new foreign technologies, which are a must to develop liquefied natural gas plants (Ciszuk, 2008).

The manufacturing sector is now on Iran's agenda whereby it is working hard to build up and expand its industries such as steel, automotives, food products and petrochemicals. Following a surge in oil export revenues, which also increased Iran's exchange rates, there is a concern that the manufacturing sector would face decline and be less competitive in future (Economy & Dutch Disease, 2006).

International Sanctions have significantly hindered manufacturing activity because Iranian manufacturing units use imported goods and services from Europe. Access to imported goods was denied because European banks scaled down their financial transactions with Iranian businesses (Global Insights, 2008).

The structural weakness of Iran's economy is its sole dependence on the production and export of oil, which in turn is vulnerable to the nature of Tehran's relations with the outside world especially the US and Europe. Despite being blessed with vast petroleum reserves, Iran has to import gasoline and refining products to meet the domestic energy needs and other requirements. This has led Iran to open up its petroleum sector for investment. It has already finalised some deals. However, outside factors such as financial risks, reputational issues and the international political climate has been hindering in the full realization of those deals.

While the scope of Iran-US relations is very limited, the US has also brought its influence to bear on the European nations to lower down their relations with the Iranian regime. This has created space for other countries such as Russia and China to fill in the void and have forged partnerships with Iran. In order to offset the impact of sanctions imposed by the US and its allies, it has focused on establishing regional alliances with countries such as Turkey and Kazakhstan (Ilias, 2010).

2.4.1 Iran's Exports and Imports

International trade is a lynchpin of the Iranian economy. The years between 2004-2007 saw the total trade volume of Iran (both exports and imports) double, which reached about 147 billion US dollars in 2007. The decline of international oil prices brought down Iran's trade surplus from $32 billion in 2008 to $17 billion in 2009. Some analysts are of the view that the major reason behind Iran's higher trade with the world may have something to do with black market trade or transhipment (Global Insight, 2009).

Revenue receipts from oil are 80% of total export earnings. A persistent downward trend of global oil prices has forced Iran to look for economic relief from other sectors of its economy. A quarter of Iran's workforce is associated with the agricultural field that forms one-fifth of the Gross Domestic Product (GDP). Mining and manufacturing sectors account for one-sixth of the GDP. Despite possessing the largest Gross National Product (GNP) in the Middle East, the low productivity has brought down its estimated GNP per capita below average in the region (ECO, Islamic Republic of Iran, General Information section, 2009). Table 2.6, provides an overview of Iran's total exports and imports from 2006-2009 below:

Table 2.6: Iran's Merchandise Trade, 2006-2009 (millions of U.S. dollars)

Merchandise	2006	2007	2008	2009
Exports	**76,055**	**97,401**	**100,572**	**77,408**
Oil and gas	62,011	81,764	81,855	59,240
Non-oil and gas	14,044	15,637	18,717	18,168
Imports	**50,020**	**56,582**	**68,533**	**60,327**
Trade Balance	26,035	40,819	32,039	17,081
Total Trade	**126,075**	**153,983**	**169,105**	**137,735**

Sources: IMF, "Islamic Republic of Iran: 2008 Article IV Consultation," August 2008, IMF Country Report No. 08/284. IMF, "Islamic Republic of Iran: 2006 Article IV Consultation," March 2007, IMF Country Report No. 07/100.

Goods such as petrochemicals, carpets, fresh and dried fruits, oil and gas form Iran's major exports. UAE, Iraq, China, Japan and India are the major recipients of Iran's non-oil exports. Gasoline, refined petroleum products, industrial raw material, intermediate goods, which are used as manufacturing inputs, capital goods, food products and other consumer goods form the major imports of Iran.

2.4.1.1 **Iran's Oil Exports**

Iran is the fourth largest exporter of crude oil in the world. In 2008 alone, oil export from Iran stood at 2.5 million barrels per day; while Iran's net revenue from oil exports was $73 billion in that year (EIA, 2010).

Asian and European countries that are part of the OECD are the recipients of Iranian Oil exports. South Korea, Italy, China, India and Japan are the top destinations for Iranian exports. The Strait of Hormuz, which is close to Iran's border, is responsible for more than 40% of the world's oil trade. It is also considered as a global 'chokepoint' because of its importance in global energy security. A width of only 21 miles characterises this narrow channel at its widest point, through which large volumes of oil are shipped (EIA, 2010).

Oil export represents the most important source of precious foreign exchange for Iran. Since oil exports lead the Iranian total export goods, therefore, Iran is highly vulnerable to the fluctuations in the international oil prices. The quadrupling of global oil prices since 2002 supported Iran's economy to an extent by which it might have been hurt by international sanctions and its alleged domestic policy mismanagement. The structural weaknesses of Iranian economy have been exposed following volatility of global oil prices.

Raging debates have factored into the impact of low oil prices on the Iranian economy in the recent past. Reduced oil prices mean reduced revenue, which constrains the government to spend on the development of the social sector. This is how Iran becomes vulnerable to the imposition of sanctions due to its disputes over the political questions. The plunge in oil prices also dents Iran's importing capacity because the country imports a large number of items from abroad such as significant portion of its capital, and machinery goods. Reduced governmental spending and low revenue further ignite domestic tensions for the Iranian people who are already victims of unemployment and high inflation levels.

2.4.1.2 **Refined Petroleum Imports**

In order to meet its domestic consumption requirements, Iran has to import almost half of all the refined petroleum products despite possessing vast oil reserves. In the year

2009 Iran imported gasoline products up to about 130,000 barrels per day, which forms about 80% of its total imports (EIA, 2010).

Zhenua Oil (China), Total (France), Royal Dutch Shell, Reliance Industries Limited (RIL, India), Petronas (Malaysia), Litasco (Russia), Independent Petroleum Group (IPG, Kuwait), China National Petroleum Corporation (CNPC), Trafigura (Switzerland), Glencore (Switzerland) and Vitol (Switzerland) were the major suppliers of gasoline to Iran. Besides this, Venezuela has also been supporting Iran from time to time by providing gasoline in small quantities by way of demonstration of its solidarity with the Iranian regime. Both Iran and Venezuela have formed a strategic partnership to offset global sanctions imposed by the US and its allies and improve their standing in the comity of nations (PINR, 2007).

2.4.2 Iran's Composition of Trade

Along with oil exports, Iran is one of the major exporters of caviar and pistachio nuts as well. Its climate and geographical conditions are also hospitable for growth of tobacco, tea, wheat and barley in addition to other food commodities. Periodic droughts and erratic weather patterns have impacted upon agricultural production. A severe drought that hit Iran in 2008 is a case in point. Besides climate change, factors such as the 1979 revolution, war with Iraq etc. created setbacks for the agricultural sector. Additionally the agriculture sector is also threatened by environmental degradation and over-fishing. Table 2.7 provides an overview of Iran's composition of trade in 2010:

Table 2.7: Iran's Composition of Trade, 2010

Population	Total Imports	Total Exports	Major Exports	Major Imports
70.4 million	US $ 58.97 Billions	US $ 84.92 Billions	Petroleum, chemical and petrochemical products, carpets, fruits, nuts.	Industrial supplies, capital goods, foodstuffs and other consumer goods, technical services.

Revenues generated from exports of oil are usually spent for imports of agricultural products. Despite a surge in international oil prices in 2007, Iran's economy has come into a tight corner owing to the rising trend in international food prices coupled with an increase in its population (Blas, 2008).

In 2006, the total volume of the Iranian exports stood at $49,292 million dollars and the major items exported were petroleum gas and petrochemical products, mineral products, food products, carpet, pistachio, caviar, skin and leather, handicrafts, fresh and dried fruits, hides, iron and steel, chemicals, textiles and refined copper. The Iranian imported goods were worth 75,537 million US dollars during the same year. The major items of imports included road vehicles & machinery, base metals, chemicals products, iron, steel and manufactures, animals and vegetables fats, chemicals and pharmaceuticals, food and live animals, plastics, tobacco and technical services (ECO, Islamic Republic of Iran, General Information Section, 2009).

Iran ranks among the significant producers of steel worldwide besides being the largest producer in the Middle Eastern region as well. It is however a fact that despite being the largest producer, it still imports steel to meet its domestic needs. One reason why demand for steel has risen up manifold is the need for investment in building up energy infrastructures and simultaneous expansion of the construction business across the Middle East and china. Taking note of this trend, the Iranian Privatisation Organisation declared plans to privatise a large number of steel companies in the financial year 2010 (World Steel in Figures, 2009).

In the year 2008, Iran became the 14th largest motor vehicle producer in the world. Consequently, the vehicle production in both light and heavy areas went up by 5.4% in comparison to the previous year. Sapia and Iran Khodro are among the biggest auto-producers in Iran. However, Iranian auto plants depend upon the imports of auto parts and most often use old technology because of sanctions. This has resulted in the production of cars and other vehicles, which are not fuel-efficient and have regularly been contributing to pollution. Domestic demand for vehicles has been registering an upward trend gradually, high level of auto production notwithstanding. Thus Iran has to import vehicles from abroad to meet up the domestic shortage. Its auto imports include such vehicles as basic models, vehicles for construction and mining and luxury vehicles. In order to encourage imports of vehicles, the Iranian government reduced duty on imports in 2006. Similarly, the Iranian Privatisation Organisation offered the shares of Iran Khodro and Saipa to the public too (Ellis, 2006).

2.4.3 Iran's Direction of Trade

China topped the list of Iran's trading partners in 2009 followed by Japan, UAE, India and North Korea. China, Japan, India, and Turkey were the major destinations for the Iranian exports. However, China, UAE, Germany and South Korea were among the major importing countries to Iran (Table 2.8). However, the country's relations with the US have impacted Iran's economy and its European allies over the question of Tehran's nuclear program. Consequently, Iran shifted its economic focus from the developed world to the developing countries and established economic partnerships with the countries of the region. Table 2.8 below provides an overview of Iran's major export and import partners in 2009:

Table 2.8: Export Markets and Sources of Imports for Iran, 2009 (Millions $ U.S)

Country	Total Trade	Exports	Imports	Trade Balance
Argentina	1,197	7	1,190	-1,183
Brazil	1,264	17	1,247	-1,230
China	26,653	17,801	8,852	8,949
Taiwan	5,201	4,581	620	3,961
France	6,070	3,167	2,903	264
Germany	7,002	704	6,298	-5,594
India	13,941	12,061	1,880	10,181
Italy	8,775	5,269	3,506	1,763
Japan	18,687	16,587	2,100	14,487
Korea	12,253	7,476	4,777	2,699
Russia	4,032	364	3,668	-3,304
Singapore	1,923	1,450	473	977
Spain	4,822	4,069	753	3,316
South Africa	3,569	3,394	175	3,219
Turkey	9,687	7,454	2,233	5,221
UAE	14,177	978	13,199	-12,221

Source: IMF, *Direction of Trade Statistics*

Historically, some of the European countries, Germany being the most important among them all, have enjoyed long-standing economic ties with Iran. The US has brought a combination of pressure and influence to bear on Germany to scale down its relations with Iran. German export credits backing trade with Iran totalled about $186 million in 2008, about one-fourth of the value of German export credits for Iran in 2007 and one tenth in 2005 (Dempsey,

2010). Besides the decline in export credits, the repayment terms for export credits have reportedly been shortened. Iranian companies, which sought to import from Germany, can no longer receive credit guarantees for seven to ten years, typical for large scale infrastructure projects. Rather, they were required to pay-off their loans within 360 days (Dempsey, 2010). Germany has also undertaken extra scrutiny of export authorisation requests and evaluated the financial risks of doing business with Iran more closely (Benoit, 2008). Despite the scaling back of German official export credits for trade with Iran, German exports to Iran increased by about 22% from 2007 to 2008, while German imports from Iran increased by about 3% (Iran's Direction of Trade Statistics, 2010).

There has been a scaling down of trade relations between large European financial institutions and the Iranian bodies, which were sanctioned by the US. For example, Germany's Commerzbank and Deutsche Bank have reduced or halted their businesses with Iran. Likewise, the United Kingdom's HBSC and the Standard Chartered also lowered their business with Iran (Reuters News, 2008). Many European financial and banking institutions that have had to scale down their business have still left a modicum of their structures in case relations between Iran and the US improve (Ciszuk, 2008).

In order to compensate for the losses caused to straining of its relations with the Western world, Iran strengthened its relations with the Asian countries. This is reflected from the increase in trade volume between China and Iran, which grew nearly eight fold. China has replaced Germany as Tehran's biggest trading partner. It is Iran's biggest trading partner both in terms of imports and exports. The imports from China have low cost, which is beneficial for Iran. The major Iranian imports from China are mechanical, electrical equipment and arms. Iran's growing trade relations with China have also strategic reasons as China is one of the permanent five members of United Nation's Security Council (UNSC) and commands immense international political influence (Global Insight, 2008).

Iran has, of late, been trying to woo its Middle Eastern neighbours in a bid to improve its relations with them. Iran's trade volume with its Middle Eastern partners, which stood at 6% of its total trade volume, registered an increase by 13% in 2008. According to the Iran Customs Administration, Iraq, UAE and Afghanistan are some of the major destinations of the Iranian exports of natural gas condensates, industrial and agricultural products, minerals, carpets, handicrafts and petrochemicals. Arab nations might not approve of the Iran's nuclear program but they understand the benefit and primacy of establishing trade partnerships with

Iran due to economic dividends that such partnerships promise. There are strong hopes that strengthening of economic ties between Iran and the Middle Eastern countries can end international isolation of Iran and help it engage with the world.

Among the Arab world, UAE tops the list of trading partners of Iran with their mutual trade dominated by the UAE's exports to Iran. It is said that the majority of exports from UAE, which end up in Iran, are in fact imports from the other countries which are repackaged and exported to Iran from UAE (Plus News, Pakistan, 2009).

2.5 **Turkey's Political and Economic Structure**

The republic of Turkey boasts a complex economy whose key components are modern industry, commerce and traditional agriculture. Turkey presents a good example of public-private partnership whereby states own and run a number of basic industries including banking, transport and communication side by side with a robust private sector. Turkey's major exports consist of textiles and clothing. Its share of agriculture in the GDP is one-sixth and assimilates two-fifths of the workforce. The Manufacturing sector employs about one-seventh of the total workforce and its share in the GDP is one-fifth (ECO, Republic of Turkey, General Information Section, 2009). Constant economic growth has taken place because of wide-ranging economic reforms characterised by a policy of de-regulation, privatization and liberalisation since 1980s.

Turkey is said to be one of the developing countries, which is on a high trajectory of economic growth. The Turkish private sector is dynamic and robust and has its presence in almost all spheres of the national economy. Despite this, the state also plays a leading role in such sectors as communication, transport, banking and industry. The private sector is the major exporter of textiles and clothing, the primary and largest industry of Turkey. The economic reforms introduced from time to time have also played their role in driving Turkey economy towards a free market economy, i.e. open competition and minimal interference from the government. In spite of the recent global financial crisis, which has hit the world hard and political interests of the elite, Turkey's initiatives of privatising inefficient, non-productive and huge-sized public sector enterprises have been a noticeable aspect of the economic paradigm shift seen in recent decades.

In order to deal with the financial crisis, Turkey introduced structural reforms and macroeconomic policies, which helped its economy. Recover from its previous meltdown position in 2002. These reforms were later converted into a new three-year economic program. The year 2002 saw GNP rising by 7.8% with corresponding increase in the per capita income, which totalled up to 2608 US dollars. Other the sectors of economy such as agriculture, industry and services registered growth rates of 7.1%, 9.4% and 7.2% respectively. The Turkish economy also kept up its momentum of recovery in 2003 whereby value added in manufacturing, and energy sectors increased by 10.4% and 8% respectively. It was solely the mining sector, which registered a downward trend by 4.4% compared to 2002 (Republic of Turkey, 2005, p. 2).

Turkey's unique geographical location at the heart of Euro-Asia, its dynamic and growing economy, huge market and skilled workforce have made it an attractive place for investment from around the world. The country offers attractive rewards for investment for global investors. "Turkey is at the core of a new economic and political area known as 'Eurasia', where Europe, Central Asia and Middle East meet" (Republic of Turkey, Investment Overview, p.1, 2005). Turkey is an ideal investment location because of its market, which comprises of 900 million people and possesses huge energy reserves of the world. The intending investors have the added advantage of low cost to do business, low level regulations and legal protection extended to foreign capital and investments. The availability of skilled and qualified labour force in abundance is yet another advantage for foreign investors. Turkey's private sector is also dynamic and organized. It is no doubt among the fastest growing economies in the world today.

2.5.1 Turkey's Exports and Imports

The total volume of Turkey's foreign trade has increased by nearly 500% over the past 10 years, from $67 million to $334 million. The increase, however, has not been uniformly distributed among Turkey's top trading partners. Growth in trade with Russia, for example, has outpaced the growth in trade with the U.S. Turkey's Exports and Imports are shown in Table 2.9 below.

Total imports in 2006 were worth 138,290 million US dollars and the list of items imported includes mineral fuel-oil, gas, boilers, machinery and mechanical equipment, vehicles and parts, organic chemicals, plastic and products, cotton yarn, and fabrics, pharmaceutical products, optical parts and accessories, paper and paperboard, iron and steel products, aircraft and parts, tanning or dyeing extracts.

Table: 2.9 TURKEY'S FOREIGN TRADE BETWEEN 1997 and 2007

(Thousand $)					
Year	**Export**	**Import**	**Volume**	**Balance**	**Exp/Imp (%)**
1997	26.244.707	48.583.149	74.827.856	-22.338.442	54,02
1998	26.881.410	45.921.231	72.802.641	-19.039.821	58,54
1999	26.587.000	54.503.000	81.090.000	-27.916.000	65,4
2000	27.775.000	54.503.000	82.278.000	-26.728.000	51
2001	31.334.000	41.399.000	72.733.000	-10.065.000	75,7
2002	36.059.000	51.554.000	87.613.000	-15.495.000	69,9
2003	47.253.000	69.340.000	116.593.000	-22.087.000	68,1
2004	63.167.000	97.540.000	160.707.000	-34.373.000	64,8
2005	73.476.000	116.774.000	190.250.000	-43.298.000	62,9
2006	85.528.000	139.480.000	225.008.000	-53.952.000	61,3
2007	107.154.000	169.987.000	277.141.000	-54.041.000	63

Source: DTM, TUİK

85479 US dollars was the total worth of exports during the same year. The major items exported were textiles, cotton yarn & fabrics, iron, and steel products, electrical machinery and equipment, vehicles and parts, edible fruits, nuts, vegetables, salt, sulphur, earths and stone, plastic and rubber products, tobacco, glass and glass-water, ceramics (ECO, Republic of Turkey, General Information Section. 2009).

2.5.2 Turkey's Composition of Trade

As a result of the economic reforms carried out during 1980s and 1990s, both the volume and composition of the Turkish trade have radically changed. The volume of Turkish exports has increased more than 20 times. Moreover, the composition of Turkish export products has changed considerably. Raw materials and agricultural products dominated it. Now, industrial goods lead Turkish exports.

In recent years, efforts to alter the composition of exports towards high-tech, more value-added products have gained momentum. As regards to the long term export composition trends, the share of textiles products has been steadily decreasing in recent years. In line with the global trends, machines and automobile industry has become the top export sectors in Turkey. It is expected that the trend of increasing share of technological products will be underway for the years ahead.

The list of top 10 export items of Turkey were vehicles other than railway or tramway rolling stock is placed as the first with 12 percent share in total exports for the 2001-2006 period. It was followed by articles of apparel and clothing accessories knitted (10.5 percent), electrical machinery and equipment (7.6 percent), articles of apparel and clothing accessories not knitted (7.5 percent), and iron and steel items (7.1 percent). Even today, these items are proven to be very heterogeneous in terms of their growth rate, their factor content, intra-industry trade (IIT) index, and net trade balance. In this regard, raising the share of machinery, electronics and automotive sectors in exports is perceived as a priority. In the year 2010, the total exports motor vehicles and machinery exports increased by 12.8% to 13.8 billion dollars and 14.8% to 9.3 billion dollars respectively. Turkey's traditional export sectors of textiles and clothing and agriculture have also shown a positive performance, with reaching respectively to 21.8 and 12.0 billion exports value in 2010.

In the year 2008, the total trade volume was accounted for 333 billion dollars. As comparing to year 2007, the Export increased by % 23.1 up to 132 billion dollars, and import by % 18.7 to 201 billion dollars in 2008. Table 2.10 provides an overview of the trade composition of Turkey for the year 2010 below:

Table 2.10: Turkey's Composition of Trade 2010

Population	Total Imports	Total Exports	Major Exports	Major Imports
73.7 million	US $ 185.9 Billion	US $ 113.9 Billion	Textiles and apparel, industrial machinery, iron and steel, electronics, petroleum products, and motor vehicles.	Chemicals, petroleum, machinery, motor vehicles, electronics, iron, steel, plastics, precious metals.

In spite of dramatic rise in the overall trade volume, the Government is concerned about the increasing trade deficit, which reached 70 billion dollars in 2008 and remained significant in

2009 and 2010. The deficit accounted for % 5 of GDP in the year 2008. Analysts are of view that, the trade deficit is an outcome of rapid increase in demand for energy, raw and semi-processed materials in industry, and high level of consumption among Turkish people.

But, the economic recovery has been stronger than expected in 2010. In the period of January-December 2010 compared with the same period in 2009, exports and imports increased by 11.5% and 31.6% respectively. However, as happened in the previous recovery periods, trade deficit has steadily and remarkably grown reaching to 71.6 billion Dollars. The increasing energy and metal prices played an important role in widening trade deficit. For instance, trade balance excluding energy trade was -12.8 billion dollars in 2009 (Central Bank of Republic of Turkey (CBRT, 2012))

2.5.3 Turkey's Direction of Trade

Thanks largely to the EU-Turkey Customs Union; Turkey's main trade partner is EU member countries. EU share in Turkey's trade varies slightly from year to year, depending on numerous factors, including commodity price trends and exchange rate movements. All in all, almost half of Turkey's total trade has been with the EU for several years.

Between 1999 and 2003, trade with the EU-25 accounted for 53 precent of Turkey's exports and 51 percent of imports. Defining Europe to include countries that became members in 2004, and Bulgaria and Romania that joined in 2007, Europe's share of Turkish exports and imports in 2004 was 59 percent and 53 percent, respectively. With 49-percent share in imports at the end of 2005, EU remained the most important trade partner for Turkey. In the year 2009, Turkeys' exports to the EU dropped by 26% to 47 billion dollars, due to the global economic crisis. The trend was changed, as Turkeys' exports to and imports from the EU grew by 12.1% and 27.6% respectively in 2010. EU remains Turkeys' most significant trade partner, despite the rapid increase in imports from China since, 2000 where, the Chinese share in imports rose to 7.8% in 2007 from 2.2% in 2001.

Among Turkey's export partners, Germany, as suggested by 2007 indicators (Table 2.11), figures on the top of Turkey's export portfolio. The Turkish exports to Germany, which were 11% of its total export volume, stood at $11.6 billion in 2007. With an exports of $ 8.22 billion and $ 7.49 billion respectively, England and Italy were the second export destinations for Turkey. Turkey's total exports in 2007 to the EU when it is considered as a single bloc

were in the neighbourhood of 56.4% with an amount of $60.4 billion. Tables 2.11 and 2.12 provide an overview of Turkey's major trade partners in 2006 and 2007 below:

Table 2.11: Turkey's direction of trade 2007

Country	Volume (billion $)	% in total
Germany	11.69	11.01
England	8.22	7.74
Italy	7.49	7.06
France	5.9	5.56
Russia	4.75	4.47
Spain	4.56	4.30
Romania	3.505	3.30
U.S.A	4.01	3.78
Holland	2.98	2.81
China	0.87	0.82
Total Volume (billion $)	106.15	100

Source: Türkiye İhracatçılar Meclisi (www.tim.org.tr)

In 2010, again the top export destinations were Germany (11.5 billion dollars), UK (7.2 billion dollars), Italy (6.5 billion dollars), Iraq (6.0 billion dollars) and France (6.0 billion dollars).

The import statistics of 2007 (Table 2.12) revealed striking figures, which were the result of Turkey's imbalanced relations with Russia, China and Iran. Russia is an important import partner of Turkey and its imports from Russia were worth $ 23.5 billion. It was $17.8 billion dollars in 2006, which represents 32-percentage points change vis-à-vis last year. This is nearly the double of Turkey's total trade volume with France. In the year 2010, Turkey's import from Russian Federation worth, 21.6 billion dollars, Germany 17.5 billion dollars, China 17.2 billion dollars, USA (12.3 billion dollars) and Italy 10.2 billion dollars.

As I mentioned earlier, Russia is traditionally the main origin of Turkey's imports. Turkey's energy dependence significantly affects the import composition. For instance, Turkey imports huge amount of natural gas (15.5 billion dollars in 2008) from countries like Russia and Iran through pipelines. In this regard, mineral fuels alone had an import value of 38.5 billion

dollars, with an increase of 28.7% in 2010 (14.7 billion dollars of it was imported from Russia).

The imports except for energy illustrate a typical intra-industry trade pattern. Turkey largely imports intermediate goods, process them in industrial sectors and export to foreign markets. In this context, iron and steel, machinery and motor vehicles and articles thereof are the top items imported. As of 2010, iron and steel and non-electrical machinery imports amounted to 16.1 billion and 21.2 billion dollars with approximate growth rates of 42% and 24% respectively (CBRT, 2012).

However, Turkey-Russia trade relations at present are very asymmetric in nature due to Turkey's huge trade deficit against this country. In the year 2007 the trade deficit reached $18.85 billion, which is much more than Turkey's export to Germany.

Table: 2.12 Turkey Main Import Partners in 2006 and 2007

Turkey's Main Import Partners in 2006 and 2007				
Country	Volume in 2006 (billion $)	Volume in 2007 (billion $)	% in total	chg (%)
Russia	17,8	23,5	13,8	32,00
Germany	14,76	17,5	10,3	18,80
China	9,66	13,22	7,8	36,80
Italy	8,66	9,96	5,9	15,00
France	7,23	7,83	4,6	8,20
U.S.A	6,26	8,14	4,8	30,10
Iran	5,62	6,61	3,9	17,50
England	5,13	5,47	3,2	6,50
Spain	3,83	4,34	2,6	13,30
Japan	3,21	3,702	2,2	15,10
Total Volume (billion $)	139,57	169,98	100	21,8
Source: TUIK (www.tuik.gov.tr)				

Energy is the major import item on Turkey's import list. The Turkish foreign trade suffered on account of sharp increases in the prices of energy. In the year 2007 Turkey imported energy products of $33.8 billion. The export was 5.41 billion dollar, which means that Turkey's net energy import was $28.5 billion last year. This composes 45% of Turkey's total trade deficit, and 20% of its total import (Mustafa Kutlay, 2008).

Striking statistics appear about the bilateral relations between Turkey and France. Compared to 2006, the French export to Turkey registered an increase of just 8% in 2007. This is merely a small portion in the overall import volume of Turkey (21.8%). The EU's exports to Turkey saw an increase of more than 15% over the same time period. The partial reason of this

phenomenon may be termed as the “Sarkozy effect”. As it is a matter of public knowledge, Sarkozy, the former President of France, was a dogged opponent of Turkey’s quest for full membership of the EU. His consistent stand has been that “Turkey does belong to the Asia Minor” and “has no place within the EU”. The statements like this one, which represent a particular mindset, are in fact responsible for deterioration of Turkey-France economic relations. One of the factors may be “overvalued euro”. To top it all, economic relations have been vulnerable due to political factors and decisions taken on political grounds have affected economies. These repercussions may be costly in the sense that economic links are one of the fundamental determinants in international relations.

For instance, these political circumstances made Turkey to expand its efforts of market diversification and picked up the fruits of those efforts. For instance, Turkey’s exports to North African countries rose by 27.3% in the crisis year of 2009. In addition, Turkey’s exports to Asian and North American countries have shown an outstanding performance, with rising by 23.1% and 19.3% respectively in 2010.

The Turkish foreign policy is one of the main reasons that triggered the spectacular increase in total trade volume. The “energetic diplomacy” has produced spill over effects on the Turkish economy both in terms of foreign trade as well as Foreign Direct Investment. Turkey’s successful bid at reconfiguring relations with the countries of the Middle East and improving its relations with the EU at the same time, resulted in more integrated and balanced links with the rest of the world. In a span of seven years i.e. from 2000 to 2007, the trade volume with the Middle Eastern and Asian countries rapidly increased from $14 billion dollars to $60.5 billion in 2007. It meant an increase in Turkey’s trade volume from 17% to 24%. For the Gulf capital investors, Turkey became a well-known destination. This led to revision of the asset prices in Turkey. For example, the Arab capital pushed the asset prices too high in the privatisation process of Turk Telecom with the result that Telecom was sold at a high price, which otherwise would not have happened. In short, the dynamic and proactive foreign policy followed by Turkey has been instrumental in opening up new channels for the Turkish economy. Turkish trade volume is likely to cross $300 billion benchmark if the US economy overcomes the economic slowdown in a very short period of time (Mustafa Kutlay, 2008).

2.6 **Kazakhstan's Political and Economic Structure**

In the 18th century, the land of the Kazakhs was conquered by Russia; it underwent a period of profound Russification. The tribulation of the Kazakhs, as a people determined to remain independent but experience the benefits of modern living, is documented in *Abai's Path.* In 1916, led by Amangeldi Imanov, the Kazakhs rebelled against Imperial Russia, but were defeated. They rebelled again, in 1918-1921 (Alash Orda), against the Communists; they were defeated again in the early 1920's, this time by the Red Army.

Kazakhstan became a Soviet Republic, after a major purge, in 1936. Encouraged by the Soviet government, during the 1950's and 1960's, Kazakhstan became the centre of an agricultural experiment usually referred to as the "Virgin Lands" program. Soviet citizens from all around the nation helped transform Kazakhstan's northern pastures into wheat fields. In 1991, Kazakhstan became independent and joined the Commonwealth of Independent States (CIS). In 1992, Kazakhstan joined the United Nations.

Kazakhstan's economy is comprised of agriculture and industry. Agriculture subsumes a number of sectors most important among which are farming, animal husbandry, and fisheries. Similarly, industry comprises light industry (foods, textiles), chemical and steel plants, and non-ferrous metals. Other areas of the republic's life, i.e., banking, tourism, and exports and imports, as well as communication and transportation are also related to economy, although not directly. It should be added that Kazakhstan has a labour force of 8.4 million (1999), divided as follows: 30-percent industry, 20 precent agriculture, and 50 precent services. The unemployment rate in the republic is 8.8 precent. Kazakhstan's total revenue is estimated at $4.2 billion and total expenditure at $5.1 billion.

Following independence in 1991, Kazakhstan fall victim to economic instability and decline during the early years of its existence. The collapse of the USSR served to further dampen the Kazak economy as the demand for heavy industrial products, which were the traditional exports of Kazakhstan into the Soviet system, was reduced. Consequently, GDP fell by 12.6% in 1994, which speaks volumes of the deepest decline in economic activity. The subsequent economic upheavals forced the then government to think out of the box and bring about reforms to the economy to deal with the economic impasse and foster growth with a view to reducing poverty and creating employment opportunities. This explains the background and context in which such bold initiatives such as "Kazakhstan 2030: Prosperity,

security and improvement; improvement and welfare of the citizens of Kazakhstan" were launched.

The state re-prioritised its agenda and identified things to do on urgent basis to put economy back on the right track. These priorities included privatization of state-owned enterprises which were a drain on the exchequer; revision of laws that dealt with foreign investment, removal of restrictions on trade and foreign exchange transactions; increase in investment; improvement and modernisation of financial systems, revision of laws on labour force, corporate governance and transparency and revamping of tax and customs administrations.

A few years down the line since the independence, the demography of Kazakhstan underwent an important change when the ethnic Russians, who inhabited in Kazakhstan, chose to go back to Russia. Ethnic Kazakhs consequently immigrated to their motherland. It allowed Kazakhs to become half of the total population by mid-1990s while the share of Russians reduced to merely one-third in the overall percentage.

These reforms and changes led to significant improvement in the economic performance with the result that real economic recovery began in 2000. Kazakhstan achieved 7-8% growth of Gross Domestic Product for seven consecutive years with real GDP slightly above the average of other countries, which were in the transition period. GDP per capita almost doubled during that period. The budget balance stood at 0.2% of GDP in 2006 (Rakhmatulina, 2006).

Kazakhstan's geographical location is a constraining factor for the country to become a successful trading nation. The economic downside of Kazakhstan is that it is land-locked, located far away from the global markets and surrounded by developing nations that have poor road and telecommunication infrastructures and dubious economic performance. Despite all this, the recent economic prosperity experienced by Kazakhstan owes itself to growing foreign direct investment and trade. It is the gradual economic integration with the outside world, which has made the country able enough to achieve stellar economic development.

Going by foreign exchange policy and external trade, Kazakhstan appears to be far better placed than other countries in the region. Kazakhstan won 3.7 points out of 4 at the hands of European Bank for Reconstruction and Development (EBRD) in 2007 in terms of its

transition indicators. This represented a clear departure from the bottom of the scale where the country found itself ten years ago (Eventt and Braga, 2006).

However, the transition from a stagnant economy to a reasonably pro-growth one has not been without its snags. Tariff revenues have been volatile. They were reduced during the early years of reforms only to show a possible upswing in the beginning of 2006. Since trade policy is much more than merely tariffs, the reform process was marked by the persistence of non-tariff barriers. Factors such as non-transparent regulations and standards, service market access barriers, import licensing requirements, opaque government procurement, weak enforcement of intellectual property rights, customs inefficiency and complexity have had a hindering influence impeding trade from realizing its true potential and are responsible for Kazakhstan's low performance on trade freedom.

Kazakhstan launched a privatisation process during the 1990s to get rid of inefficient state-owned industries. In order to further give an impetus to economic recovery, three important countries of the Central Asian region namely Kazakhstan, Uzbekistan and Kyrgyzstan established a regional grouping, which resulted in enhanced economic coordination, productive policies and it facilitated the free movement of labour and capital among these countries.

Kazakhstan in 1993 entered into a deal with the Chevron Corporation to explore and exploit the huge untapped reserves of the Tengiz oil field, which is one of the world's largest reserves. Mid-1990s also saw signing of agreements with foreign investors for the development of oil and natural gas from the Tengiz, Zhusan, Temir and Karachaganak wells. However, the establishment of new pipelines was identified as a major factor responsible for increasing the profits and productivity of these ventures (Republic of Kazakhstan, Economy section, p. 3, 2008).

A similar pattern of change, success and problems informs the economic architecture of Kazakhstan. Oil and extractive industry sectors, which are major exports of the country, led the economic growth. According to an assessment carried by US Central Intelligence Agency, the share of agriculture, industry and services stood at 5.7%, 39.4% and 54.4% of the GDP respectively.

There has been significant increase in the industrial production since 1996 and it has had an overall positive impact in Kazakhstan. There has also been marked increase in the average monthly incomes, which grew by 20.4% in 2006. Unemployment was reduced from 12.8% in 2000 to 7.8% at the end of 2006 (Rakhmatulina, 2006).

2.6.1 Kazakhstan's Exports and Imports

Nearly one half of the population of Kazakhstan is Russian. They are the descendants of the émigrés who moved into the region soon after serfdom was abolished in Russia. The establishment of trade relations between Kazakhstan and Russia, therefore, is easier than with most other states. No new funds are required for construction of pipelines, rails, or roads. Additionally, as a legacy of the Soviet economy, the Kazakh and Russian economies complement each other. Neither are language and culture barriers able to keep the two populations separate. Besides, Russia can assist Kazakhstan, a member of the CIS, in security matters, drug traffic, and acquisition of international prestige.

The total trade volume of exports in 2006 was 236,769 million US dollars and the major items exported were oil, ferrous and non-ferrous metals, chemicals, grain, wool and meat. The total imports of Kazakhstan stood at 238; 2503 million US dollars and the major items that were imported were machinery and parts, industrial materials, oil, natural gas, and consumer goods (ECO, Republic of Kazakhstan, General Information Section, 2009).

2.6.2 Kazakhstan's Composition of Trade

Kazakhstan, the second largest state of former USSR in terms of territory, is blessed with immense unexplored fossil-fuel reserves with an abundance of other minerals, metals as well as considerable agricultural potential. Livestock and grain production are some of the defining characteristics of the economy. Kazakhstan's industrial sector is supported by a large building sector, extraction and processing of these natural resources (ECO, Republic of Kazakhstan, 2009) Tables 2.12, 2.13 and 2.14 below, provide an overview of Kazakhstan's composition of trade for the years 2006 and 2007:

Table 2.13: Kazakhstan's Composition of Trade 2007

Population	Total Imports	Total Exports	Major Exports	Major Imports
15.6 million	US $ 29.91 Billion	US $ 44.88 Billion	Grain, mostly spring wheat, cotton; wool, meat Oil, coal, manganese, chromite, lead, zinc, copper, titanium, bauxite, gold, silver, phosphates, sulfur, iron and steel, non-ferrous metal,	tractors and other agricultural machinery, electric motors, construction materials

Table 2.14: Kazakhstan's exports in 2006

Products (2006)	% of total exports
Mineral products	71.9
Metals	16.1
Chemicals	4.2
Food products	2.8
Machinery and equipment	1.8
Other	3.2

Source: The Economist Intelligence Unit (2008).

Table 2.15: Kazakhstan's Imports in 2006

Products	% of total imports
Machinery and equipment	45.2
Mineral products	14.3
Metals	13.3
Chemicals	10.8
Food products	7.0
Other	9.4

Source: The Economist Intelligence Unit (2008).

Kazakhstan's major exports include: fuel, oil products; ferrous metals; copper and copper products; inorganic chemicals; cotton; precious and semiprecious stones and other non-precious metals; zinc and zinc products; ores, slag and cinders; and reactors and machinery. In 2000, there was a rise in the export of minerals, food and engineering products; but a decline in the export of metallurgic, chemical and textile products. Kazakhstan's major export in 2000 is estimated at $8.8 billion, 10.5 billion in 2002.

Kazakhstan's major imports include: machinery and parts, industrial materials, oil and gas, and vehicles. Kazakhstan's import partners are mostly from among its export partners with the addition of Turkey. Kazakhstan's total import for 2000 is estimated at $6.9 billion, 8.2 billion for 2001 (Kazakhstan: an overview, 2004).

2.6.3 Kazakhstan's Direction of Trade

Kazakhstan's economic development has been driven by oil and minerals during the last one and a half decade, wherein its import and export patterns have been unsurprising. The services sector has emerged as a promising sector. However, oil extraction and oil related construction, transportation and processing form the vast majority of exports. The government has emphasised the fact that its major economic priority lies in diversifying and reducing dependence on the energy sector. Kazakhstan's export partners are Russia, Bermuda, Italy, China, and Germany. Where as Russia, Bermuda Islands, Virgin Islands, Italy, China, Germany, Switzerland, the Netherlands, Ukraine, U.S.A., Uzbekistan, and Great Britain are among the major importers of Kazakh products Table 2.15 provides an overview of the major trade partners of Kazakhstan (Kazakhstan: an overview, 2009).

Table 2.16: Kazakhstan's trading partners for the year 2006

Rank	Trading partner	Trade share - %
1	European Union	36.1
2	Russia	23.5
3	China	15
4	Turkey	2.9
5	USA	2.8
6	Romania	2.7
7	Iran	2.0
8	Ukraine	2.0
9	Korea	1.1
10	Uzbekistan	1.1

Source: European Commission, DG Trade

2.7 Conclusion

Given above is the background of the countries of the ECO region, their political and economic structures and trade patterns which, explains the reasons and factors responsible for the insignificant progress in the region, in terms of economic integration and Socio-Political

development. This writer is of considered opinion that, there is a need for these countries to identify and look into the core issues for the better future of the region. There is an immediate need to unearth the structural loopholes and hurdles, which have failed the countries of the ECO region to tap into their trade potential among each other and with rest of the world.

Taking the review of the historical context of the region further ahead; chapter 3 will review the trade policies of the ECO region in general and those of Pakistan, Iran, Turkey and Kazakhstan specifically. The review would be undertaken, in the light of the countries policies regarding trade liberalisation and trade barriers; which, comes following an extensive literature review exploring the theory of RTAs and trade liberalisation along with the practice of economic integration in developed and developing countries.

CHAPTER 3 ECO Countries: Trade Policies and Trade Liberalisation

3.1 Introduction

Economists tend to differ over the definition of the term "Liberalisation" as well as over the measures employed to gauge the character and extent of liberalisation (Dean, et al., 1994:3). Generally speaking, liberalisation is characterised by the policy reforms that allow market forces to determine its own price mechanism with a minimum level of state involvement, controls and interventions. In terms of trade policy, an economy is said to be liberal, which has its 'outward orientation' wherein trade reforms so employed seek to bring neutrality or openness to the trade regime (Samaratunga, 1999).

A significant discussion on the theory of trade liberalisation and the trade policy of each of the ECO country in historical context is undertaken in this chapter to understand the importance of trade liberalisation in nation's economic development. This discussion will further strengthen our arguments while analysing the intra-regional trade of ECO countries in the later chapters of this thesis. This chapter is divided into following sections: Section 3.2 will review literature on "Trade Liberalisation in the context of developing countries" and then proceed with analysis of the pattern of trade liberalisation, coupled with trade policies of each country under focus. Section 3.3 highlights various evolutionary stages of trade regimes: from closed regimes to more open regimes in ECO region. It further looks at the evolution of trade policies at a regional level and is followed by some country- specific details in regards to the trade barriers the in the policy context of the ECO region. Chapter concludes the discussion in section 3.4.

3.2 Trade Policy Liberalisation

The trend of global economic integration, which is registering an upward trajectory, is not something, which has hit the world all of a sudden. The civilisations of past interacted with one another since times immemorial and have had a relationship marked by communication and trade amongst themselves. Since the times when Marco Polo undertook his travels, global economic integration was characterised by communication of economically useful knowledge and technology, trade and factor movements. The process of economic

globalisation routinely faced challenges as well as occasional interruptions. The period following the collapse of the Roman Empire or the 20th century inter-war period can be referred to as an example. All of those affected did not benefit from it. Nevertheless, the process of integration in the economic domain has had phased the regular development around the globe. The past half-century has been quite significant in the sense that it saw economic globalisation grow at a fast pace. (Mussa, 2000)

The process of economic globalisation is influenced by three fundamental factors and these factors are said to be playing a key role in shaping its future prospects. The first factor relates to creative innovations in technology and improvements in communication, which brought down the costs of transporting goods, services, and factors of production. It has also facilitated the communication of economically useful knowledge and technology. Secondly, individuals and societies have fully exploited the vistas of opportunities made possible by reduced costs of transportation and communication and it has led to the strengthening of economic integration. Third but an equally important factor affecting the process of economic integration has been the role of policies in the public domain, that have had an impact on direction, pace and character of the integration process (Mussa, 2000). Other than these three fundamental factors stated above, variables such as human migration, trade in goods and services and movements of capital and integration of financial markets also affected the important aspects of the pattern and pace of economic integration.

Trade liberalisation was gradually let by the GATT formation in the year 1947 but the existing phenomenon of Globalisation has swept through the world since the early 1980s enveloping the developing countries in its fold who joined the phenomenon either out of conviction or external pressure. Among other things, globalisation is driven by trade liberation. This has led the global community to reduce controls on trade through the removal of or conversion to tariffs of import quotas, import licensing and other quantitative restrictions, the reduction in the level and variability of taxes on trade, adjustment of the real exchange rate, export promotion incentives and other complementary macroeconomic policies (World Bank, 1994).

The relationship between trade and development remains controversial among researchers in spite of political pronouncements that take this nexus as given. Pascal Lamy (2006), Robert Portman (2006) and Susan Schwab (2006), recent U.S Trade Representatives, have all argued

that failure to conclude the Doha Development Agenda negotiations would be a serious lost opportunity to foster more rapid development in third world countries. In contrast, academic studies take both sides of this question, with many arguing that the evidence at hand does not support the assertions that trade liberalisation fosters more rapid growth and development (Abbott et al., 2008).

The centrality and primacy of trade policy reform in trade adjustment programs is informed by the consideration of the fact that the trade regime has a crucial impact on economic performance (World Bank, 1987:78). There is a contention in the adjustment literature that the developing countries, which have had protectionist and inward-looking trade regimes, are a major hurdle in the fair competition through introduction of distortions in both factor and product markets. Such countries provide shelter to domestic producers and pave the way for inefficiencies, rent seeking and wastage with negative consequences for growth and development. Reforms in trade policy are geared towards reducing distortions in the structure of relative prices, fostering greater competition, more efficient resource allocation and use, providing access to better inputs and technologies, greater technological dynamism and higher rates of growth. These reforms also facilitate the development through improving country's comparative advantage (Michaely et al., 1991; Thomas and Nash, 1992; World Bank, 1994).

The existing studies investigating the effect of trade liberalisation on performance fall into three main categories. First, set of studies applying cross-sectional data on a number of countries contains World Bank (1990) and Mosley et al. (1991a, b). Second set of studies uses time series analysis to examine the effect of trade liberalisation, normally focusing on a single country (see for example Papageorgiou et al., 1991; Greenaway & Sapsford, 1994; Onafowora et al., 1996; Greenaway et al., 1997 and Narayan and Smyth, 2005). Most of the cross-sectional and time series studies have found, at best, mixed support for the hypothesis that trade liberalisation promotes growth. Third set of studies has applied panel data methods (Greenaway et al., 1998, 2002 and Parikh and Stribu, 2004). These studies suggest, in contrast to much of the cross-sectional and time series literature, that liberalisation might have a positive effect on growth in real GDP.

According to the studies undertaken by the World Bank, 1987; 88; 90, Helleiner, 1990; and Pack, (1993), the relationship between trade policy reform and economic performance is

highly contentious. While to the more ardent advocates, the relevance, and indeed the need of restructuring a trade regime along more open, and outward-oriented strategy is unquestionable (Bhagwati, 1988; Dornbusch, 1992; Havrylyshn, 1990), the critics have put a question mark both on its theoretical and empirical relevance to the developing world (Rodrik, 1992; Taylor, 1988; Lall, 1994; Lall and Stewart, 1995, Stein, 1992; Mosley and Weeks, 1994). The case of trade reform, it is maintained, hinges on the premise of perfect competition, which is not in keeping with the realities of imperfections and distortions that characterise the majority of the developing world. Serious reservations and questions are expressed on the ability and capacity of the domestic producers in the developing countries to cater to the competitive pressures generated by over emphasis on trade reforms. The capability of developing countries is constrained by various internal and external factors, which are seen to be crippling their capacity to respond to the new relative price.

It is on the basis of the above mentioned constraints that some critics have been led to argue that unrestrained rush to push trade liberalisation in developing countries, especially in the south and central Asian region, which is characterised by its weak industrial base, may result in significant loss of output, reduction of employment and investment (de-industrialisation) and the stunted growth of new industries (Singh, 1986; Stein, 1992; Mkandawire, 1988; Lall and Stewart, 1995).

However, the advocates of trade reforms have addressed these concerns by arguing that opening up of trade regimes would enable developing countries to realise the gains from trade liberalisation, these constraints notwithstanding (World Bank, 1994). They contend that trade reforms would, no doubt, end up in the closing down of some inefficient businesses and firms, but this would be a short-term loss. In the longer run, these reforms will be instrumental in the emergence of more efficient and dynamic industries that will result in the maximisation of output (Dornbusch, 1992).

A great amount of empirical literature on the subject aims at establishing the relationship between trade reforms and economic performance (Papageorgiou et al, eds. 1991). Some inter-country studies (Harrison, 1991; Edwards 1992; Michaely et al., 1991) undertaken to find an association between trade liberalisation and enhanced economic performance have noted statistics that measure the co-relationship between both i.e. trade reforms and

improvement in economic performance through productive efficiency; export growth and higher capacity utilisation rates.

However, some other studies, notably by Pack (1988; 1993) and Taylor (1993), have failed to establish statistically firm and robust relationships between trade reforms and economic performance. Even when the results tend to be positive, there has been a marked lack of agreement over the extent and capacity of reforms to generate resulting gains in enhanced performance through competitive pressure. Some studies have concluded that while competitive pressure that is the essence of trade liberalisation does influence performance, it is not the sole factor responsible for improved economic output. Other variables such as the level of technological advancement, macroeconomic stability and the depth of infrastructural base are equally important in bringing about improvement in the economy (Lall and Stewart, 1995).

In the context of macroeconomic crises, there is a raging debate over the sequencing, timing and speed of liberalisation especially and whether political liberalisation is essential for enduring reforms. Some scholars have suggested that in order for trade reforms to achieve success, emphasis on a more pro-industry, selective interventionist policy, increased governmental expenditure on infrastructure, human capital and building of supporting institutions coupled with sound macroeconomic policies is required in the form of complementary measures (Lall and Stewart, 1995; Kirkpatrick and Maharaj, 1992). However, in sum, a review of the literature demonstrates a mixed result regarding the impact of trade liberalisation on trade performance in developing countries.

3.2.1 Closed and Open Trade Regimes

The international trade theory espouses open trade regimes. A question arises, why have so many countries remained wedded to the notion of a protectionist and closed trade regime for such a long time? The reason for this lay in political doctrines taking the better of economic realities. It, still, is interesting to observe as to how large the economic gap was allowed to become between the Organisation for Economic Co-operation and Development (OECD)-area on one side and the Eastern European countries, the Soviet Union and China on the other, before the latter opened up for market-based global trade. The performance of the

small East Asian NICs with export-oriented and open economies has outshone most African and South American import-dependent countries during the last 30 years. It is only recently that African and South American countries have tried to take a leaf from the East Asian countries in an attempt to catch up on the economic ladder. A growing body of literature tends to look at the delayed economic reforms based on "war-of-attrition" and "uncertainty-about individual-gain" arguments (Drazen, 1996).[4] The literature further contains discussion on import restriction policies, which are based on infant industry arguments (Edwards, 1993).

Productivity and growth are essential aspects of all open trade regimes, and the economies characterised with liberal trade policies have tended to grow at a higher pace than is the case with countries having more closed economies. This is also in consonance with the findings of Sachs and Warner (1995), who conclude that with trade liberalisation comes higher productivity and growth. The countries whose economies are driven by free trade patterns are likelier to have knowledge spill over's, which is not the case with countries marked by inward-looking economies. However, international productivity growth does not follow a deterministic process, but is subordinate to fluctuations overtime. However, regardless of the nature of trade regimes, the countries are vulnerable to instability spurred on by both internal and external factors with international productivity growth getting affected in the process. Such is the co-relationship between politics and economics at both national and international levels.

When there is change in the trade regime, the industry structure of the economy also changes correspondingly. This is also accompanied by costs attached with structural change. One may dislike free trade for economic reasons or on a pure ideological basis. For example, communist leaders avoided depending on trade with OECD countries and hence consequent slow economic prosperity not because of costs related to trade, but mainly due to the contempt for the capitalistic system. A number of African countries have also demonstrated their dislike for free international trade during the recent decades. The Latin American experience and evidence point towards the notion of ideology being the chief characteristic of the attitude towards different trade regimes. A number of authors, e.g. Rajapatirana et al. (1997), point out that ideology has strongly influenced the trade policy of nations.

[4] War of attrition is a struggle in which you harm your opponent in a lot of small ways, so that they become gradually weaker.

3.2.2 Non-Tariff Barriers

Eight rounds of multilateral liberalisation under the General Agreement on Tariffs and Trade (GATT) were instrumental into substantially lower tariff rates. The past two decades have seen the applied tariffs being halved on average globally. Policy-makers, during the same period, have begun to grasp the "front-stage" importance of non-tariff barriers (UNCTAD, 2005).

However, as has been argued by Baldwin (2000), economic analysis does not inform the ongoing liberalisation policy efforts, which seek to eliminate the restrictive effects of NTBs. For instance, one liberalisation strategy, which enjoys the support of the developed countries among themselves, is mutual recognition. Such a strategy can produce two-tier market access, with the result that most developing countries fall in the second tier but still face non-tariff barriers in the markets of the developed country. Substantial amounts of literature exist on individual types of NTBs, and in some instances sophisticated empirical analysis of their effect (e.g. for anti-dumping), but this information is likely to be instrument, industry or country-specific (UNCTAD, 2005).

There are good reasons to suggest as to why global analysis of NTBs across sectors and countries is found wanting and not up to the challenge. NTBs bracket together a vast array of potentially trade distorting policy instruments under a common denomination. The UNCTAD classification of NTBs – the Trade Control Measures Coding System – identifies at its most detailed level over 100 instruments grouped in six categories. Unlike tariffs, NTBs are not straightforwardly quantifiable and not necessarily easy to model, and information about them is hard to collect (UNCTAD, 2005).

3.2.3 Tariff Barriers

Tariffs, which are taxes on imports of commodities into a country or region, are among the oldest forms of government intervention in economic activity. They are implemented for two clear economic purposes. First, they provide revenue for the government. Second, they improve economic returns to firms and suppliers of resources to domestic industry that face competition from foreign imports.

Tariffs are widely used to protect domestic producers' incomes from foreign competition. This protection comes at an economic cost to domestic consumers who pay higher prices for import competing goods and to the economy as a whole through the inefficient allocation of resources to the import competing domestic industry. Therefore, since 1948, when average tariffs on manufactured goods exceeded 30 percent in most developed economies, those economies have sought to reduce tariffs on manufactured goods through several rounds of negotiations under the General Agreement on Tariffs Trade (GATT). Only in the most recent Uruguay Round of negotiations were trade and tariff restrictions in agriculture addressed. In the past, and even under GATT, tariffs levied on some agricultural commodities by some countries have been very large (Cross, 1996).

When coupled with other barriers to trade they have often constituted formidable barriers to market access from foreign producers. In fact, tariffs that are set high enough can block all trade and act just like import bans. A tariff-rate quota (TRQ) combines the idea of a tariff with that of a quota. The typical TRQ will set a low tariff for imports of a fixed quantity and a higher tariff for any imports that exceed that initial quantity.

In a legal sense and at the WTO, countries are allowed to combine the use of two tariffs in the form of a TRQ, even when they have agreed not to use strict import quotas. In the United States, important TRQ schedules are set for beef, sugar, peanuts, and many dairy products. In each case, the initial tariff rate is quite low, but the over-quota tariff is prohibitive or close to prohibitive for most normal trade. Explicit import quotas used to be quite common in agricultural trade. They allowed governments to strictly limit the amount of imports of a commodity and thus to plan on a particular import quantity in setting domestic commodity programs (Carbaugh, 1995).

3.3 ECO Trade Policy Context

3.3.1 Pakistan

From 1959 to 1971, Pakistan's trade policies have had a somewhat different pattern with the result that the country became increasingly inward-oriented and protectionist. Pakistan's economy, during its early phase, was marked by a weak industrial base,

dominance of the agriculture sector, lack of well-organised infrastructure and above all recurring bouts of political instability, which impacted quite adversely upon economic performance. The policies of this era were geared to strengthen the industrial base by giving concessions to the wealthy business class. To achieve this end, Pakistan as a matter of policy adopted a restricted trade regime and protected its domestic industries by putting in place high tariff and non-tariff barriers. The period of the sixties saw the industrial base being laid down which resulted in the rapid expansion of large scale manufacturing industries; while the highly protected trade regime remained effective during this period.

But between 1972 and 1976, the first democratic government, which came into power on a popular reform agenda and pro-poor initiatives, undertook a series of liberalisation measures that opened up the economy and made it more outward-oriented. The government devalued the currency, lowered import tariff rates on intermediate and capital goods, and placed all permissible goods of imports under either the 'Free List' or the 'Tied List' (import tied to aid, barter trade, state import monopolies). The export bonus scheme was also abolished, and other export subsidies were withdrawn (Mahmood and Qasim 1992).

But 1976 saw the reversal of this policy as the liberalisation strategy was abandoned in most respects. Export subsidies and quantitative import controls were introduced to manage the trade balance. Different duty rates on imports were again imposed for commercial and industrial users, and licensing, import surcharges, and other administrative restrictions came back. On the other hand, the policies of this period were instrumental in bringing about certain structural adjustments in several sectors, and in relation to trade policy regime with support from the World Bank between 1980-1985 periods. They had some limited successes (McGillivray and white, 1999). From January 1982, important policy change took place when Pakistan shifted to a managed float exchange rate policy regime, which involved pegging the currency to a basket of currencies (with the US dollar as the intervention currency) and adjusting the nominal exchange rate to maintain international competitiveness. As a result of this policy change, currency over-valuation is said to have declined from 20 percent to 10 percent in the 1980s (Burney and Akhtar, 1992).

Pakistan is one of the founding-members of the WTO that came into operation in 1995, and also took active part in its predecessor organization i.e. the GATT. The emphasis of policies during 2000-2003 was on the promotion of liberalisation, deregulation, privatisation and the

reduction in the cost of doing business with a view to encourage foreign and domestic investors to invest their capital in the country with a reduced role for the officialdom. These policies also addressed such issues as a stable macro-economic framework in terms of inflation, interest and exchange rates.

Further, export of services, which did not receive proportional policy attention in the past, was not only given due importance but also promoted. In fact, the overall trade policy paradigm was characterised by the promotion of services as its integral component. The process of greater openness of the economy boosted trade as measured by the sum of imports and exports especially during 1990s.

However, trade performance of the country is not as impressive when compared to that of other developing Asian economies. Since 1990, the ratio of increase in trade-to-GDP has been counted at 0.4 percentage points per annum in Pakistan. However, its rate of increase has been recorded at 0.8 percentage points per annum in India, 1 percentage point per annum in South Korea, for example. The world average growth of trade as a share of GDP, at 1 percent per annum, has also been higher than that of Pakistan.

Pakistan has keenly been interested in liberalising and enhancing its trade. It has been acting upon the policy of liberalisation, deregulation and privatisation in order to achieve this objective. This is evident from the following regional and bilateral agreements that it concluded with various countries:

- Agreement on South Asian Free Trade Area,
- Preferential Trade Agreement with Iran,
- Free Trade Agreement with Sri Lanka,
- Early Harvest Programme with Malaysia,
- Early Harvest Program with China,
- Free Trade Agreement with Malaysia,
- Free Trade Agreement with China,
- Preferential Trade Agreement with Mauritius,
- Economic Cooperation Organization Trade Agreement,
- Framework Agreement on Trade (Xenia, 2009)

3.3.1.1 Trade Barriers and Trade Liberalisation

Pakistan's average applied tariff was recorded at 14.5 precent, with 14 different *ad valorem* duties that ranged from 0 percent to 90 percent for 2007-08. Budget 2008-09 placed specific rates of duty on 44 products. The government of Pakistan increased duties on 300 non-essential and luxury items from the 15-*percent* to 25-percent range and between 30 percent and 35 precent. The items so taxed were cosmetics, many domestic appliances, luxury food items and cigarettes. The rate of customs duty on cars with 1800cc engine capacity and even beyond was raised from 90 percent to 100 precent. Likewise, vehicles with engines smaller than 850cc engine capacity was imposed a 5-percent duty. An assessment of $3.70 duty is underway on imported cell phone handsets. Dimple average applied tariff by Pakistan was 13.1 percent in FY 2008.

The rate of duty on imported automotive parts, which are manufactured domestically, is 55% and a 35-percent duty on those automotive parts that are not manufactured domestically. In order to forestall the possibility of smuggling through the elimination of an incentive system, the country cut down duties on instant print film and instant print cameras to 5 percent from the prior 30-percent to 200 percent range.

Invoking Statutory Regulatory Orders (SROs), the government of Pakistan is entitled to grant sector-specific duty exemptions, concessions, and protections. The government in 2006 from its General Sales Tax exempted all domestically produced and imported pharmaceutical-related inputs. Pharmaceutical products were exempt from the General Sales Tax through an SRO in August 2002. The recent years have seen the minimum use of SROs though.

Through measures such as tariff concessions on imported inputs, income and sales tax concessions, Pakistan has actively been seeking to promote the export of its goods in the international market. As government sources revealed that subsidies offered by the government were mostly dedicated to wheat in the 2008 fiscal year and totalled roughly $7.6 million. Freight subsidy did not exist in FY 2008. The textile sector got $239 million as the Research and Development subsidy in FY 2008.

The first Export Processing Zone (EPZ) was established by Pakistan in Karachi in 1989. Special fiscal and institutional incentives were available to encourage the establishment of

exclusively export-oriented industries. The additional EPZs established by the government were located in Risalpur, Gujranwala, and Sialkot in Punjab Province, and Saindak and Duddar in Balochistan Province. Principal incentives offered by the government for EPZ investors included an exemption from all federal, provincial, and municipal taxes for production dedicated to exports; exemption from all taxes and duties on equipment, machinery, and materials (including components, spare parts and packing material); indefinite loss carry-forward; and access to Export Processing Zone Authority One Window services, including facilitated issuance of import permits and export authorizations (Ustr, Gov, 2010).

The services sector is the favourite destination of investment in Pakistan, subject to certain provisions, including a minimum initial capital investment of $150,000 for most sectors, except banking for which special rules have been described below. Foreign investors may hold up to a 100-percent equity stake and are allowed 100-percent repatriation of profits in most sectors. The requirement that foreign investors accumulate 40-percent local equity within 5 years of an initial investment has been eliminated and the cap on repatriation of profits at a maximum of 60 percent of total equity or profits has been abolished.

Subject to certain conditions, foreign investors in services and other non-manufacturing sectors (including international food franchises) are allowed to remit royalties and technical fees. Though the manufacturing sector has been exempted from payment of royalties and technical fees, some limitations have been placed on the non-manufacturing sector, including limiting initial royalty payments to $100,000 and capping subsequent royalty payments at 5 percent of net sales for five years. In information technology services, including software development, foreign investors are not subject to requirements for minimum initial investment.

The government of Pakistan has eliminated all local content requirements including those in the automobile sector. Until 2006, the so-called deletion program that mandated the use of domestic inputs was imposed on the automobile sector, which was subsequently replaced with the "Tariff-Based System" (TBS) in the same year. Under the TBS, higher tariffs have been imposed on imported automotive parts, which are also manufactured domestically. Likewise, it provides for lower tariffs on imported automotive parts that are not also manufactured in Pakistan.

In order to develop a new competition policy in concurrence with all stakeholders, the government of Pakistan launched a program as a key "second generation reform" initiative. Towards this end, the Ministry of Finance and the Monopoly Control Authority collaborated with the World Bank and the UK Department for International Development. As a result, the 2007 Competition Ordinance replaced the Monopolies and Restrictive Trade Practices (Control and Prevention) Ordinance (MRTPO) and established the Competition Commission of Pakistan.

The Competition Commission of Pakistan, a relatively young watchdog body, is in the process of building up its institutional capacity and is on its way to carve out a niche for itself through its proactive approach and timely interventions. The new competition law covers the entire ambit of commercial activity taking place in Pakistan, including, for the first time, all public sector organizations. The government's role in the power and telecommunications sectors stands reduced due to privatisation of major state assets during the last few years. The state, however, continues to hold important equity stakes in the oil and gas, civil aviation, electric power, and steel sectors. The business community has expressed interest in the government of Pakistan's expanding competition in international trucking services. The government of Pakistan has also licensed two private airlines to compete with the state-owned Pakistan International Airlines (PIA). In retail food sales, the government has used below market prices in its chain of several hundred Utility Stores to create price competition in essential foodstuffs such as flour, rice, and lentils.

3.3.2 Iran

The 1979 Islamic revolution was the most important development in that it completely overhauled the orientation of Iranian political, social and economic life, and architecture and changed the course of history. Led by Ayatollah Ruhollah Khomeini and his ideological successors, new Iranian polity underwent a complete change: it was transformed from being a liberal polity into a conservative state. Consequently, Iran's economy came to be dominated by the public sector with increasing isolation internationally.

The eight years of Iran's war with Iraq (1980- 1988) were very destructive for its economy as its growth rates fell, causing declines in oil production and revenues, and higher levels of

inflation. This was a representation of a reversal of economic prosperity the Iranian people witnessed in the 1960s and 1970s. This was the time when Iran's economy registered real economic growth rates nearing 10%, one of the world's highest, along with increase in per capita income and low inflation levels (Jbili, Kramarenko and Bailén, 2007).

Iran undertook a number of reforms during the 1990s, aimed at rebuilding war-torn local production, attracting international investment, improving foreign relations and liberalising trade. It embarked upon an arduous task of redistributing wealth under a series of five-year economic plans more recently. Post-war economic growth was fuelled mainly by enhancement in oil output. The country's upward economic journey, however, was severely hampered in the latter part of the decade due to a drop in the international oil prices.

Since the 1979 U.S. embassy hostage crisis in Tehran, relations between Iran and U.S have only gone from bad to worse with Iran being subjected to various U.S. economic sanctions.[5] The situation further worsened overtime by the global community's concerns regarding Iran's nuclear program. More recently, the United States has focused on targeted financial measures to isolate Iran from the U.S. financial and commercial system. Sanctions have been imposed in order to browbeat the Iranian government into submission with respect to its nuclear program. Iran's petroleum sector has been the major victim of sanctions imposed by the United States with a view to causing financial loss to Iran. The United States also brought its diplomatic pressure to bear upon foreign countries and companies to reduce their business with Iran. Following the U.S., some of the European Union states and other countries have also been quick in imposing sanctions on Iran using the umbrella of the United Nations (Jbili, Kramarenko and Bailén, 2007).

The Khatemi administration (1997-2005) presided over significant and far-reaching measures that were instrumental in greater trade liberalisation, economic diversification, and privatisation. In order to facilitate Iran's integration in the world market and attract foreign investment, the government brought about some structural reforms i.e. tax policy changes and adoption of new foreign investment laws. In the year 2002, Iran adopted a unified managed float exchange rate system. However in the past, Iran has been having different combinations of exchange rates, which included official, export, parallel market, and Tehran stock market

[5] Pakistan and Iran gas line project has also been affected due to the U.S imposed sanctions. Both countries initiated this project in 2010 and 2011.

versions. It has been argued that the reform in exchange rate has improved Iran's trading environment besides modestly enhancing public sector transparency (EIU, 2008).

Iran's foreign trade has a limitation of mono product exports and is heavily dependent on oil revenues. Its exports can roughly be divided into two parts, oil exports and non-oil exports. Oil export constitutes a large volume of goods and services. The annual average of oil export share out of total exports has been more than 80 per cent during the last two decades of development.

On the other hand non-oil exports of the country registered an increase from 1043.9 million dollars in 1989 to 3746.8 million dollars in 1993 but there was a declining trend in the next few years till 1998. After 1999, the non-oil export acquired an upward trend and exports grew by $ 6383.7 million in 2004 (Alavinasab and Jandaghi, 2010).

After attaining the status of a WTO observer state in 1995, Iran has been endeavouring hard to become a permanent WTO member. Accession to the WTO is the stated priority of the Iranian government. Iran cites the more favourable treatment that WTO members give to one another and competition from Asian countries in textiles and manufactures as important challenges to Iranian exports (IMF Country Report No. 07/100, 2007).

The United States has repeatedly hindered Iran's efforts to join the WTO. On the other hand, Iran has had the broad support of many European Union countries and the developing countries in its bid for accession. Iran like many other countries has held that WTO membership should be offered to countries objectively on economic reasons and politics should not have anything to do with it (Ilias, 2010). However, Iran has not been successful in attaining the membership of the WTO owing to varying levels of political opposition from the U.S. and its allies over a whole host of issues. Since the WTO accession process is quite complex and lengthy, Iranian authorities have voiced concern over the fact that domestic momentum for the reforms necessary for accession is likely to fade out. Iran, along with Russia, now remains as the two largest economies outside the ambit of the WTO (IMF Country Report No. 08/284, 2008).

3.3.2.1 **Trade Barriers and Trade Liberalisation**

If one judges trade regimes of the Islamic Republic of Iran by the latest available MFN Tariff Trade Restrictive Index (TTRI) of 13.1 precent, it appears to be more restrictive than that of an average country in the Middle East and North Africa (11.9 precent) or lower-middle-income (8.4 precent) country. Compared to the countries in its comparative groups, which have higher trade barriers for agricultural than for non-agricultural products, Iran has reduced its agricultural TTRI of 7.1 precent than its non-agricultural TTRI of 14.6 precent.

One can find the Islamic Republic of Iran ranked 110th out of 125 countries (where 1st is least restrictive) on the basis of these data. Simple average of the MFN applied tariff of 25.6 precent tells a similar story that the country's trading regime is more restrictive and overly protective than that of its comparators. Exclusive of alcohol and tobacco, its 400-percent maximum most favoured nation (MFN) applied tariff, which is applied to opium, turns out to be the highest in the region. The share of tariff lines has also been recorded at 46.1 precent with duties higher than 15 precent (international peaks). The domestic industry is given protection through implicit energy subsidies, which if defined as domestic energy consumption is multiplied by the differential between global and domestic energy prices. This gave domestic firms a huge price advantage over their competitors in the production of any energy-intensive outputs and was about 20 percent of GDP in 2008, (IMF, 2008).

Since domestic demand of the Islamic Republic of Iran is far higher than its refining capacity, so it gives explicit subsidies to imported gasoline by compensating the National Iranian Oil Company (NIOC) for the difference between the import cost and the domestic price (IMF, 2008).

In order to make up for domestic food shortage, and also in response to high food prices and scarce export financing, the Islamic Republic of Iran gave oil to Thailand in October 2008 in exchange for rice (World Bank, 2009). Given the trend of high fuel prices, the Islamic Republic of Iran increased its domestic gasoline prices in June 2007 to US$0.11 per litre, and introduced the concept of fuel rationing. The ration was increased in March 2008 due to the development of a black market, with the result that gasoline prices over and above the quota were increased to US$0.45 per litre (IMF, 2008).

The Islamic Republic of Iran like other oil exporting countries does not have to face too many barriers to its exports. Compared to the average country in the Monitored Natural Attenuation (MNA) region (2.1 percent) or in the lower-middle-income group (2.3 percent), its exports, have better and increased access to international markets with a Market Access TTRI (including preferences) of 1.9 precent. However, due to its lingering dispute with the US in particular and the West in general over the nuclear program, the Iranian government is often subjected to international trade sanctions that reduce its export access to markets and cause huge financial loss to her.

The simple average of the overall global tariff (including preferences) faced by Iran's exports falls at 10.5 precent. The trade flows of the country suggest that Iran has good access to the international markets in terms of its exports, since the weighted tariff of the world (including preferences) stands at 1.1 precent, corresponding to 5.4 percent for agricultural products and 1.0 precent for non-agricultural products. Three anti-dumping investigations were carried out in 2008 and the Islamic Republic of Iran was on their receiving end. India initiated two of them about the exports of hot rolled steel and carbon black used in rubber manufacturing and Turkey carried out one on exports of certain fabrics.

However, the fact remains that oil forms the major chunk of Iran's major exports (about 80%), while the share of non-oil products is less than 20 percent in the country's total export volume (CBI, 2009). The year 2008 witnessed the Iranian rival getting appreciated by 12.3 percent in real terms, which made its exporters less competitive in the global markets.

When it came to judging the business-friendly and institutional environment, the Islamic Republic of Iran was placed in the bottom 30 percent, and was ranked 137th out of 183 countries as assessed by Ease of Doing Business index 2010. According to its Logistics Performance Index score, which demonstrates the extent and nature of trade facilitation in the country, Iran stands above the regional income group averages, which is a sign of a more conducive and friendly climate for trade. This is manifest from the country's score of 2.51 on a scale of 1 to 5, where 5 is the highest score. The regional and income group averages, on the other hand, are 2.42 and 2.47, respectively. Iran is 78th out of 150 ranked countries and 4th in the MNA region. This is strongly indicated by the costs of domestic logistics, while there is an immense need to bring about improvement in its ability to track and trace shipments (IMF, 2008).

3.3.3 Turkey

Modern Turkish Republic sought to initially follow relatively liberal economic policies after it came into being in 1923. However, things did not go the way as planned due to the Great Depression in 1929. Consequently, the government launched an economic recovery by promoting a doctrine known as etatism in the early 1930s. Turkey′s trade policies during the recovery period involved interventions and protections. It experienced growth rates of up to 6 per cent of Gross Domestic Product in the late 1930s. However, the Second World War caused the growth rates to fall in all sectors. Trade policies in the 1950′s again were highly restrictive. There were constantly changing controls, regulations, and multiple exchange rate regimes during this period. Thus, the trade policy of the time was bereft of any long-term aim or strategy. After 1950, the country was afflicted with various economic disruptions about once in a decade. Turkey was faced with three major crises before 1980. The reasons behind each crisis were almost similar such as inflationary pressures caused by aggregate demand shocks, the supply shocks from the oil crises and inconsistent and irrational economic policies (Schmusch, 2008).

The liberalisation of foreign trade in Turkey started after the structural reforms in 1980 following the severe balance of payment crisis in the late 1970s. In the early years of the program (1980-1983) exports were encouraged through various direct and indirect measures such as export tax rebates, preferential export credits, foreign exchange allocations and the duty-free access to imports. During this period, the total subsidy rate received by manufactured goods exporters reached 20-23 precent of export value (Milanovic, 1986).

As a result of embankment upon trade liberalisation, import quotas were vanished, the Turkish lira (local currency) was made convertible, and tariffs were generally kept lower. Those changes coupled with remaining export subsidies have removed anti-export bias from Turkey's external incentive regime (Glenn, Thomas and David, 1992).

Elimination of import barriers gained momentum after 1984. First, quantitative restrictions were rapidly phased out (Togan 1994), and a large number of commodities were allowed to be imported without any prior permission. Second, there were significant reductions in tariff rates, especially on imports of intermediate and capital goods in the late 1980s and early

1990s. Though tariffs on certain goods (for example, consumer goods) were increased temporarily after the elimination of quantitative restrictions, this did not lead to an increase in overall nominal protection rates, because imports of the goods in these categories were severely restricted before 1984. The output-weighted average nominal tariff rate for the manufacturing industry declined to 40 percent in 1990 and to 20.7 percent in 1994 from 76.9 percent in 1984.

The most important change in the trade regime of Turkey in the 1990s was initiated by the customs union between the EU and Turkey, which came into effect on January 1st of 1996. The customs union was one of the steps that had been foreseen in the 1963 Ankara Agreement between the European Union and Turkey before Turkey was expected to become a full member.

Customs Union (CU) constituted an important step in Turkey's efforts to join the European Union. The Ankara Association Agreement in 1963 established the institutions of the Association and started the first phase of the Customs Union. Additional Protocol (1970) initiated the 2nd phase of the Customs Union. The European Countries eliminated all duties and other restrictive regulations of commerce with respect to all the trade in industrial products and processed agricultural products. Turkey in return had an adaptation period of 12 years to meet its obligations stemming from the CU and a transition period of 22 years for its sensitive industrial products. The decision 1/95 of the EC-Turkey Association Council Customs Union introduced the final phase in which Turkey also reduced its tariffs.

The Turkish government also worked out a strategy for the privatisation of distribution facilities and as per this strategy, the process for privatisation of generation facilities were to begin by the end of 2009. However, the global financial crunch delayed this ambitious schedule due to limited access to credit. Few sectors have been privatised already in the line of above-mentioned strategy, for example:

The law was made to provide for a liberalised energy market with equal opportunities for the private sector whereby private firms were granted the permission to develop projects after obtaining a license from the Energy Market Regulatory Authority, an independent regulatory body. The state electricity utility was divided into power generation, transmission,

distribution, and trading companies, and after years of delays, the privatisation of the first four electricity distribution regions took place in 2008.

Another issue faced by Turkey is the restrictions, which are in place in various sectors such as financial services, the petroleum sector and broadcasting. For example, In order to practice as an accountant or certified public accountant, or to represent clients in Turkish courts as an attorney, having Turkish citizenship is mandatory. Parliament has yet to approve a legislative measure, which would allow non-Turkish people to work in Turkey.

Turkey also faces the existence of noticeable level of corruption; the government has passed an implementing legislation, which renders bribery of foreign and domestic officials illegal and no longer tax-deductible. Despite efforts to bring about transparency in the system, foreign investors and companies dub politicians and officials to be part of the problem and a means of discouragement. There is also a perception that the Turkish judicial system is vulnerable to political influences and biased against foreigners (Ustr, Gov, 2010).

3.3.3.1 **Trade Barriers and Trade Liberalisation**

As a result of the Customs Union between Turkey and Europe, there was a small decline in import tax revenues as Turkey lowered tariffs for imports from the EU. According to calculations reported in Togan (1997), the unweighted average tariff for the manufacturing industry decreased from 13.5 percent in 1995 to 3.6 percent in 1996. Import tariff revenues fell from 2.8 percent of total tax revenues in 1995 to an average of 1.1 percent over the period 2001–05. The decline in tax revenues, however, is too small to be blamed for the large budget deficits.

Non-agricultural imports from the third-country (including from the United States) have the application of the European Union's common external customs tariff. Turkey also imposes no duty on non-agricultural items from the countries falling in the European Union and the European Free Trade Association (EFTA). There was a 5-percent average tariff rate applied by Turkey in 2007 for non-agricultural product. However, the World Trade Organisation (WTO) tariff schedule contains only 36 percent of Turkey's non-agricultural tariff lines, whereas 100 precent of Turkish agricultural tariff categories are bound as part of Turkey's WTO commitments. Ankara has applied high tariff rates (an average 28.3 precent Most

Favoured Nation rate) on many food and agricultural product imports, which according to the U.S. companies' estimate, cost over $500 million per year in lost trade. From 15.4 percent to 145.8 precent is the range of duties on fresh fruits.

Tariffs applied on processed fruit, fruit juice, and vegetables fall between the range of 19.5 percent and 130 precent. Imported alcoholic beverages have high duties, excise taxes and other domestic charges that hike the wholesale price by more than 200 precent. The valuation of products such as rice, dried beans, wheat, barley, rye, oats, corn, and hazelnuts has evoked concerns and US exporters expressed apprehensions at the valuation system used by the Turkish customs authorities. The exporters have estimated losses between $10 million and $25 million per year following the lack of certainty and transparency with regard to Turkish requirements in this area.

There is a need to seek import licenses for products, which require after-sales service (e.g., photocopiers, advanced data processing equipment, and diesel generators), distilled spirits, and agricultural products. Costly delays, demurrage charges, and other uncertainties that impede trade are caused by lack of transparency in Turkey's import licensing system. Obtaining licenses has been termed by the U.S. producers as an intricate and difficult process during the harvest season for domestically produced food (such as pulses, nuts, and dried fruits); Quotas for some crops like wheat limits imports. Additionally, U.S. companies are of the considered view that Turkish documentation requirements are inconsistent, non-transparent, which do not comply with standard international practices. These requirements also affect all food imports on these counts. The complex and cumbersome certification process often causes shipments to be held up at port. The cost of this delay has been estimated between $100 million and $500 million (Ustr. Gov, 2010).

Turkey has introduced a number of incentives to foster exports, although it has scaled back programs in recent years in order to comply with the EU's directives and WTO's commitments. 16 agricultural or processed agricultural product categories get export subsidies. Between the range of 10 percent and 20 percent of export values are granted in the form of tax credits and debt forgiveness programs. These are paid for by taxes on exports of primary products such as hazelnuts and leather. The Turkish Grain Board sells domestic wheat at the global price level to Turkish flour and pasta manufacturers; in quantities based upon their exports of flour and pasta. These prices are well below the domestic prices.

Similarly, under Turkish Sugar Law, a certain amount of domestic sugar ("C quota") can be sold at global prices for use in the products that will be exported. The current price for this C quota sugar is $390 per metric ton (MT); while the normal domestic selling price is $1,370/MT. Exporters has also been exempted from the payment of import duties on the amount of sugar that is imported for utilization in their exported products. The impact of this subsidy on U.S. exports to Turkey is estimated at about $10 million.

Taxation on all cola drinks, which was increased to 47.5 percent in 2002 under Turkey's "Special Consumption Tax", is a discouraging factor for major U.S. coal producers. Turkey has imposed a special consumption tax of 27 percent to 50 percent on all motor vehicles based on engine size, which has a discouraging and disproportionate affect on automobiles, which are imported from the United States.

Foreign ownership of real estate in Turkey has long been a disputed issue as well. The portions of the Foreign Direct Investment Law and the Title Deed Law were suspended by two verdicts of the Constitutional Court in early 2008. These Laws permitted foreign individuals and companies to purchase real estate in Turkey. Government has passed a new legislation in response, which has allowed foreigners to do these purchases again. But it put an upper limit cap on the amount of land to be owned by foreign individuals. According to this measure, no foreign individual could own more than 2.5 acres and all foreign individuals together can own no more than 10 percent of the land in any given development zone. Since data on the land currently owned by foreigners is not tabulated and readily available in any development zone, there is a possibility that those investors who seek to own land in Turkey might come across legal problems and challenges in the future. However, foreign companies with a legal presence in Turkey, that use land in accordance with established procedures and for their business activities, have no limits on the amount of land owned by them. (Ustr, Gov, 2010).

3.3.4 Kazakhstan

Before Kazakhstan achieved independence, Russia was its biggest trading partner as 90% of its trade took place with Russia. After independence, the government embarked upon the task of integrating its economy into the international market. Steps taken in this regard

included price liberalisation through reduction of subsidies. Deregulation of prices as well as government budget marked by increases in taxes and cuts in government spending.

The government implemented a tight monetary policy, which was evident from its consistent increase of the interest rates. It also created an investment- friendly environment by encouraging trade liberalisation and removing import and export licenses. It gave permission to all firms to engage in foreign trade, and lifted tariffs. Kazakhstan also devalued the domestic currency to bring it down to the domestic market rate, and privatised and restructured state enterprises with a view to curtail the government's expenditure. The government undertook various legislative measures and regulatory reform in the banking, capital markets, civil and contract law, and dispute adjudication to create a competitive environment. In order to cushion the social impact of these sweeping economic structural transformations, the government developed a social safety net (WTO, 2002).

As a result of these reforms, Kazakhstan has become a relatively open economy. This is manifest from the fact that in 1999, the share of imports and exports in terms of GDP stood at 38 per cent and 35 per cent respectively, which reflected a favourable trade balance. In the same year, exports stood at US$5.2 billion while imports were US$4.8 billion. The country has the trade structure of a primary commodity supplier. In 1999 oil, gas, and minerals accounted for 78 percent of exports. In contrast, the consumer products dominated imports (United Nations, Monthly Bulletin of Statistics (September 2000).

3.3.4.1 **Trade Barriers and Trade Liberalisation**

Along with Russia, Kyrgyzstan, Belarus, Tajikistan, and Uzbekistan, Kazakhstan is a member of the Eurasian Economic Community (EAEC). Ukraine, Armenia, and Moldova currently enjoy observer status in the body. Five of the EAEC members (all but Uzbekistan) have entered into a free trade agreement with one another. In 2006, Kazakhstan, Russia, and Belarus declared the establishment of a three-party Customs Union. Significant ground was covered in 2008 with regard to formulating the underlying legal basis for the customs union. October 2008 saw some movement forward that included the Russian Duma's ratification of a free trade agreement, and the clinching of agreements on the establishment of both regulatory and dispute resolution. The Kazakhstani Parliament ratified the Agreements on common measures for nontariff regulation regarding third countries, and on common customs

and tariff regulation in the same month. Negotiations on the customs union between Belarus, Kazakhstan, and Russia were completed in 2010 and the customs union has been operational since 2011. The customs union is far from being fully developed into a coherent organisation and aims to bring about coordinated customs procedures and a high degree of uniformity in its members' external tariffs.

The import of equipment and spare parts were exempted from the customs duty following the enactment of the Law on Investments in January 2003 but only if Kazakhstan-produced stocks are unavailable in the market or did not match international standards.

According to the U.S. exporters, the need to get a "transaction passport" (detailing information on, inter alia, the importer, contract details, local bank of importer/exporter, and a foreign partner) to clear goods has been highlighted consistently, which is marked as a significant impediment in the way of trade. The purpose of obtaining transaction passports is to stop the flight of capital and eliminate possibilities for money laundering by making importers show documents that verify the pricing of import/export transactions. In order to address the concerns of investors on the harshness of "transaction passport", the National Bank of Kazakhstan (NBK) introduced new regulations in July 2006, which retained but simplified the transaction passport requirement. The elimination of the trade distorting maximum financing term of 180 days for imported goods, and transfer of the authority to issue transaction passports from customs to the NBK and commercial banks, were the principal changes brought about by the NBK. According to Kazakhstani regulations, the usefulness of transaction passports cannot be over-emphasised as it contains concise information on trade partners and includes a unique transaction code; specific payment information such as currency, means, and deadlines for payment; and complete contact information for contracting parties. Amendments to the Law on Currency Control, which seek to raise the ceiling on transactions requiring passports from $10,000 to $50, 000, are currently under the consideration of the NBK. (Ustr. Gov, 2010).

12.5 precent and 7.1 precent was Kazakhstan's 2007 average MFN applied agricultural tariff rate and the average MFN applied industrial tariff rate in 2007 respectively. The import tariff rates for beef, pork, lamb and mutton, horsemeat, bovine tongues and the government of Kazakhstan in April 2007 increased livers, poultry meat, eggs, and rice. These tariff increases are in violation of the spirit of WTO accession (trade liberalisation) and under the United

States bilateral market access agreement with Kazakhstan, they will be subject to negotiation. The Ministry of Agriculture banned the import of poultry from Arkansas in August 2008 after a low-pathogenic (H7N3) avian influenza was detected. The ban was lifted in early October 2008. Due to the detection of low pathogenic (H7N3) avian influenza, the Ministry of Agriculture banned the import of poultry from Idaho in September 2008. Thanks to partly to the rising global food costs; Kazakhstan introduced a quota on refined sugar imports in March 2008, which was extended until July 1, 2009. Cooking oil has been exempt from import tariffs since 2007.

Despite the efforts of Kazakhstani officials to diligently address the structural problems of Kazakhstan's Customs Control Agencies, the experts have identified the customs administration and procedural implementation as the major barriers to trade. Summoned at the behest of the Prime Minister, the Kazakhstani Customs Control Committee since August 2008 has been involved in a parliamentary working group to develop a new Customs Code. This new draft of the Custom Code was due to be put forward to the Prime Minister by June 2009.

Work continues on the amendments to the existing Customs Code, being currently considered by the parliament. The purpose of these amendments to the existing laws is to bring Kazakhstan's legislation into compliance with WTO standards and remove several identified barriers to trade. First among these is an amendment, which deals with consolidating and streamlining the functions of five separate entities, which currently participate in border and customs control activities (i.e., Ministries of Transport and Communication, Health, and Agriculture; Customs; and Border Guard Service of the KNB.) The objective of consolidation of paperwork is to shorten the time-period from 60 days to 10 days for some imported goods to receive required licenses, and the creation of a single Operational Management Centre with a view to monitoring internal cargo shipments. The second amendment currently being considered by multiple governmental agencies seeks to meet up the standards required for WTO accession and that includes declaration rights for foreign citizens (bypassing the current legal requirement for the participation of domestic brokers), ex officio rights for customs agents, and standardized guidelines for the valuation of goods. The work on amending the existing Customs Code has been slowed by development of a new Customs Code.

Foreign companies and individuals can own up to 20 percent of individual mass media outlets including news agencies. The condition of joint ventures with Kazakhstan's companies has limitised the operations of foreign banks and insurance companies. Certain professional services such as auditing, architectural, urban planning, engineering, integrated engineering, and veterinary services, commercial presence have been permitted only in the form of a juridical person. The foreign ownership of the telecommunication services may not go beyond 49 %.

It is the oil and gas sector, which gets the vast majority of foreign investment in Kazakhstan. The government is eager to engage international companies in business but has impressed upon them the need and the importance of "local content" in purchases of goods and services for petroleum operations. For example, the new draft Law on Subsoil and Subsoil Use, which was adopted in 2009, detailed the explicit requirements about the local purchase of goods and services and the hiring of Kazakhstani nationals for all investments in offshore oil and gas exploration and production. The draft Law also requires that Kaz Munay Gas, the national oil company, retains a minimum 51 percent share in all new exploration and production contracts and it establishes a procedure by which the national oil company may obtain field rights outside of a tender process. Taken together, these clauses make it binding upon foreign companies to take Kaz Munay Gas as a necessary partner for investment in Kazakhstan.

Investment in Kazakhstan also faces other structural barriers such as an unwieldy government bureaucracy, a lack of an effective judicial system for breach of contract resolution and a weak system of business law. The fact that the cost of doing business in Kazakhstan is quite high both in monetary and structural terms is manifest from the reporting of significant logistical difficulties by foreign companies as well as a burdensome tax monitoring system.

In order to deal with the cumbersome tax system and frequent inspections, many companies have resorted to maintaining excessively large personnel in Kazakhstan. Companies doing business in Kazakhstan can face actions by tax and various other regulatory authorities, as well as actions to enforce environmental regulations on an unpredictable basis. On failure to comply with the official regulations, the local employees working in the foreign companies have, on occasion, faced criminal cases at the hands of the government. The foreign company's contract with the government often includes willingness and commitment from the company to contribute to social programs for local communities as a part of social

responsibility. The phenomenon of corruption, which is rampant and widespread at all levels of government, has been termed as an effective barrier to trade and investment in Kazakhstan. The impact of this single variable i.e. corruption is all pervasive as it reportedly affects nearly all aspects of doing business in Kazakhstan, including customs clearance, registration, employment of locals and foreigners, payment of taxes, and the judicial system (Ustr, Gov, 2010).

3.4 **Conclusion**

Some critics have been led to argue that unrestrained rush to push trade liberalisation in developing countries, especially in the south and central Asian region, which is characterised by its weak industrial base, may result in significant loss of output, reduction of employment and investment (de-industrialisation) and the stunted growth of new industries (Singh, 1986; Stein, 1992; Mkandawire, 1988; Lall and Stewart, 1995).

However, the advocates of trade reforms have addressed these concerns by arguing that opening up of trade regimes would enable developing countries to realise the gains from trade liberalisation, these constraints notwithstanding (World Bank, 1994). They contend that trade reforms would, no doubt, end up in the closing down of some inefficient businesses and firms, but this would be a short-term loss. In the longer run, these reforms will be instrumental in the emergence of more efficient and dynamic industries that will result in the maximisation of output (Dornbusch, 1992).

Looking at the Economic Structure, barriers and liberalisation in policy context of the ECO region, we have noticed that, Pakistan's economy, during its early phase, was marked by a weak industrial base, dominance of the agriculture sector, lack of well-organised infrastructure and above all recurring bouts of political instability; But between 1972 and 1976, the first democratic government, which came into power on a popular reform agenda and pro-poor initiatives, undertook a series of liberalisation measures that opened up the economy and made it more outward-oriented. Pakistan is also one of the founding-members of the WTO that came into operation in 1995, and also took active part in its predecessor organization i.e. the GATT.

On other hand, the 1979 Islamic revolution was the most important development in that it completely overhauled the orientation of Iranian political, social and economic life and The eight years of Iran's war with Iraq (1980- 1988) were also very destructive for its economy as its growth rates fell, causing declines in oil production and revenues, and higher levels of inflation. This was a representation of a reversal of economic prosperity the Iranian people witnessed in the 1960s and 1970s. This was the time when Iran's economy registered real economic growth rates nearing 10%, one of the world's highest, along with increase in per capita income and low inflation levels (Jbili, Kramarenko and Bailén, 2007).

Turkey embarked upon a major liberalisation of trade policy in the 1980s. As a result, import quotas vanished, the Turkish lira (local currency) was made convertible, and tariffs were generally kept lower. Those changes coupled with remaining export subsidies have removed anti-export bias from Turkey's external incentive regime (Glenn, Thomas and David, 1992).
One of the few serious issues, which are hurdle in the way of progress, is, the restrictions, which, are in place in various sectors such as financial services, the petroleum sector and broadcasting. For example, In order to practice as an accountant or certified public accountant, or to represent clients in Turkish courts as an attorney, having Turkish citizenship is mandatory. Parliament has yet to approve a legislative measure, which would allow non-Turkish people to work in Turkey.

Before Kazakhstan achieved independence, Russia was its biggest trading partner as 90% of its trade took place with Russia. After independence, the government embarked upon the task of integrating its economy into the international market. Steps taken in this regard included price liberalisation through reduction of subsidies. Deregulation of prices as well as government budget marked by increases in taxes and cuts in government spending. As a result of these reforms, today, Kazakhstan has become a relatively open economy.

We see some dis-connectivity between the notions that (today ECO have highly open trade regimes) and the evidence of double-digit average tariffs and common NTBs of individual countries. This issue could be resolved by following up on the earlier mentioned point that there are several ways to measure "openness"; all four countries under analysis are open in the sense of having high trade/GDP ratios even if they have restrictive trade policies.
We can conclude that all these countries have a history of Open and closed trade regimes but, today they all have realised the importance of trade liberalisation and globalisation, which,

has let these countries to form RTAs like ECO. In next Chapter we will discuss, how far this realisation has taken ECO countries in regards to regional trade integration? This discussion would be undertaken in the light of the theory of RTAs, various forms and Practices related to RTAs in developed and developing countries.

CHAPTER 4 Regional Trade Arrangements of ECO Countries

4.1 Introduction

The promotion of economic, technical, and cultural cooperation among its member states has been the stated goal of the Economic Cooperation Organisation (ECO). The ECO was a successor of its forerunner the Regional Cooperation for Development (RCD), which was established in 1964, and had similar goals and working procedures. The functions of ECO have been organised through the following eight working groups, which are also termed as technical committees in the fields of: Economic and commercial cooperation, transport and communications, agriculture, energy, infrastructure and public works, narcotics, educational, Scientific and cultural matters.

The member countries of the 1992 ECO summit agreed to a very limited system of tariff preferences, which ended up establishing a 10% reduction on specific tariff lines. The initial period of agreement was four years, which was to be automatically extended for a period of another two years each. The establishment of the ECO Development Bank was the outcome of the ECO summit held in 1993, which also established a joint insurance company for shipping and airlines (Kirmani & Calika, 1994, p. 129).

Before we proceed towards the comparative advantage analysis, trade intensity analysis and gravity trade analysis to explore the potential for an FTA among ECO countries, it was necessary to discuss, where at present, ECO member countries stand in terms of trade liberalisation in the light of theory and Practices related to Economic integration around the world.

Section 4.2 of this chapter discusses the meaning of trade integration and its various forms. Section 4.3 reviews the theory of regional trade agreement (RTA) in an extensive manner. It is followed by the detailed discussion on the types of RTAs in section 4.4. Section 4.5 provides a broad picture of the experience of RTAs in developed and developing countries, which, is followed by a detailed discussion on the developments in ECO region, and the evolution of trade liberalisation and agreements in section 4.6. It presents the basic information on the nature of changes in economic structure and trade patterns of the world generally and ECO region specifically, it also contains an extensive literature review on the history of economic integration and RTA attempts in the region. Sections 4.7 and 4.8 contain

detailed discussion on the advantages and disadvantages of existing infrastructure and facilities and limitations in regards to the progress of RTA in the region. Chapter is concluded in section 4.9.

4.2 **Meaning of Trade Integration**

'Economic integration' has been defined by the Business Dictionary.com (2009) simply as "elimination of tariff and non-tariff barriers to the flow of goods, services, and factors of production between a group of nations, or different parts of the same nation".

There are two ways to interpret the term 'economic integration'. The first is related to the process by which the member states form economic integration in a phased manner through elimination of economic frontiers among themselves; ...e.g., seeking an end to individual and national discrimination with the previously disconnected national economic entities choosing to merge into a larger but collective whole slowly and progressively. In another sense i.e. static sense, "it represents a situation in which individual national parts of a larger economic area/zone join one another and function as one entity" (Molle 2006, p. 4).

Economies of states function as one entity because of the economic frontiers between independent states. Hence, economic integration does not serve as an objective by itself. Instead, it is instrumental into advancing a higher objective; both economically as well as politically (Molle, 2006).

Molle (2006) lists the following factors, which have potential impact on the process of economic integration:

- Economic welfare: If countries remove their inefficiencies through specialisation of production and extend cooperation in the area of policymaking, they cannot only achieve but also enhance their prosperity. Specialisation of production and cooperation in policy making are two basic elements of economic integration.

- Peace and security: Economic integration creates peace constituencies in the respective societies of each country and the stakes are so high that any possibility of outbreak of hostilities or armed conflict becomes a non-starter. Economic interdependence is a key to a peaceful and harmonious world.

- Democracy: Economic integration also serves the cause of democracy by encouraging participation of member countries into the mainstream. Member countries in a regional grouping derive economic benefits through their collaboration, which is made conditional upon the existence of a parliamentary form of democracy. In this case, chances of an overthrow of system through any unconstitutional means are minimal.

- Human rights: The cause of human rights may be advanced and its abuses contained if those countries seeking to join any economic grouping are required to make sure that human rights are not violated within their territories either at the level of the government or individual groups. Respect for rule of law may be a necessary building block for creating a society where human rights are respected without any kind of discrimination. (Molle, 2006, p. 4)

Economic integration is generally an outcome of an evolutionary process of regional cooperation. The most outstanding and immediate example, which comes to mind, is that of European Union (EU). It is seriously discussing the prospects of forming a political union after its experiment of near-complete economic union has been such a resounding success.[6] Another, important regional grouping in the Americas is the North America Free Trade Area (NAFTA). In Asia, the Association of South East Asian Nations (ASEAN) happens to be the most successful economic integration model.

By forming economic groupings, member countries have maximised the chances of exploiting opportunities that have been thrown up by the rapid globalisation of the world economy. Compared to their economic standing, non-member countries have fared far less. The World Trade Organisation (WTO) postulates these Regional Trading Arrangements (RTAs) as complementary to multilateral free trade arrangement. Under Article XXIV of General Agreement of Tariff and Trade (GATT), regional economic integration agreements are can be allowed provided that the consequent liberalisation of trade among the countries in the group takes place without raising the pre-existing tariffs against non-member countries (Pervez, 1974; 2004).

[6] Recently, the discussion has claimed space in the media and research articles, on the prospects of disintegration of European Union. It is because of the financial crises and economic disability of number of European countries.

Virtually all economists think free trade is desirable, they differ on how best to make the transition from tariffs and quotas to free trade. The three basic approaches to trade reform are unilateral, bilateral, multilateral and regional trade agreements.

4.2.1 Unilateral Trade Agreements

A trade agreement unilaterally imposed by one country on another tends to benefit only one nation. Many smaller, developing nations are apprehensive of the intentions of the developed world and are fearful of trade agreements with them because of the imbalance of power. They are of the view that such agreements are designed to unilaterally benefit the developed nations. Thus no country would willingly enter a unilateral trade agreement. This fear is mainly responsible for scuttling many negotiations between the developed and developing worlds on opening up the latter's trade regimes (Amadeo, 2010).

Some countries, such as Britain in the nineteenth century and Chile and China in recent decades, have undertaken unilateral tariff reductions; reductions made independently and without reciprocal action by other countries. The advantage of unilateral free trade is that a country can reap the benefits of free trade immediately. Countries that lower trade barriers by themselves do not have to postpone reform while they try to persuade other nations to follow suit. The gains from such trade liberalisation are substantial: several studies have shown that income grows more rapidly in countries open to international trade than in those more closed to trade. Dramatic illustrations of this phenomenon include China’s rapid growth after 1978 and India’s after 1991, those dates indicating when major trade reforms took place.

For many countries, unilateral reforms are the only effective way to reduce domestic trade barriers. However, multilateral and bilateral approaches dismantling trade barriers in concert with other countries have two advantages over unilateral approaches. First, the economic gains from international trade are reinforced and enhanced when many countries or regions agree to a mutual reduction in trade barriers. By broadening markets, concerted liberalisation of trade increases competition and specialisation among countries, thus giving a bigger boost to efficiency and consumer incomes (Douglas, 1996).

4.2.2 Bilateral Trade Agreements

Trade Agreements concluded by two nations for mutual benefit are called bilateral trade agreements. These are pretty easy to negotiate because of the involvement of mutual benefit and favoured trading status between the signing countries. Countries prefer to enter into a series of bilateral agreements in the absence of a successful multilateral trade agreement. In a way, bilateral agreements are a stepping-stone for a moral broad-based global trade regime (Amadeo, 2010).

The advantage of such bilateral arrangements is that they promote greater trade among the parties to the agreement. They may also hasten global trade liberalisation if multilateral negotiations run into difficulties. Recalcitrant countries excluded from bilateral agreements, and hence not sharing in the increased trade these bring, may then be induced to join and reduce their own barriers to trade. Proponents of these agreements have called this process "competitive liberalisation," wherein countries are challenged to reduce trade barriers to keep up with other countries. For example, shortly after NAFTA was implemented, the EU sought and eventually signed a free-trade agreement with Mexico to ensure that European goods would not be at a competitive disadvantage in the Mexican market as a result of NAFTA. Another, popular example of bilateral trade agreement is United States bilateral agreements with Israel, Jordan, Singapore, and Australia (Douglas, 1996).

4.2.3 Multilateral Trade Agreements

Multilateral trade agreements are those, which are concluded amongst many nations at the same time. Because of multi-party participation with differing expectations, such agreements are very complicated in nature and difficult to negotiate. Once all parties sign the agreement after a protracted process of negotiation, the benefits accruing from them are long-term in nature binding the world in a single thread of economics. The equality in treatment is the primary benefit of multilateral agreements through the provision of a level-playing field, especially for poorer nations that are less competitive by nature. The Doha round of trade agreements represents an example of a multilateral trade agreement among all 149 members of the World Trade Organization (Amadeo, 2010).

The economists are of opinion that, multilateral reductions in trade barriers may reduce political opposition to free trade in each of the countries involved. That is because groups that otherwise would oppose or be indifferent to trade reform might join the campaign for free trade if they see opportunities for exporting to the other countries in the trade agreement. Consequently, free trade agreements between countries or regions are a useful strategy for liberalising world trade.

The best possible outcome of trade negotiations is a multilateral agreement that includes all major trading countries. Then, free trade is widened to allow many participants to achieve the greatest possible gains from trade. After World War II, the United States helped found the General Agreement on Tariffs and Trade (GATT), which quickly became the world's most important multilateral trade arrangement (Douglas, 1996).

4.2.4 Regional Trade Agreements

The sudden upsurge of regionalism that characterised the world in the second half of the 1980s and early 1990s was followed by the formulation of several theories of regionalism in the 1990s. Some of these theories highlighted the welfare effects of regionalism, while others tried to pinpoint the political economy rationale for such moves. These theoretical developments were spawned by the amazing success that marked the working of the European Union (EU), the oldest regional grouping and the bilateral relations between the US and the EU. However, the studies on actual cases of integration have been few and far between. This is particularly more so in case of regionalism among small countries. The possible motivation for these countries to enter into South-South regional integration agreements (RIAs) in the 1990s has received very little attention. Yet this kind of regionalism is on the upward trajectory once again and, contrary to the frustrating experience of South-South regionalism in the 1970s, it appears to be succeeding.

A Regional Trade Agreement (RTA) refers to a trade agreement whereby two or more than two countries which belong to a certain region strike an agreement to reduce tariffs and restrictions on trade between themselves. Regional trading agreements are pursued for a variety of reasons. A motivation of virtually every regional trade agreement has been the prospect of enhanced economic growth. An expanded regional market can allow economies of large-scale production, foster specialisation and learning-by-doing, and attract foreign

investment. Regional initiatives can also foster a variety of noneconomic objectives, such as managing immigration flows and promoting regional security. Moreover, regionalism may enhance and solidify domestic economic reforms. East European nations, for example, have viewed their regional initiatives with European Union as a meaning of locking in their domestic policy shifts towards privatisation and market oriented reforms.

Smaller nations may seek safe-haven trading arrangements with larger nations when future access to the larger nations' markets appears uncertain. This kind of access was an apparent motivation for the formation of NAFTA. In North America, Mexico was motivated to join NAFTA partially by fear of changes in U.S trade policy towards a more managed or strategic trade orientation. Canada's pursuit of a free-trade agreement was significantly motivated by desire to discipline the use of countervailing and antidumping duties by the United States.

As new regional trading agreements are formed or existing ones are expanded or deepened, the opportunity cost of remaining outside an agreement increases. Non-member exporters could realise costly decreases in market share if their sales are diverted to companies of the member nations. This prospect may be sufficient to tip the political balance in favour of becoming a member of a regional trade agreement (RTA) (Carbaugh, 2007).

Since the early 1990s, the number of Regional Trade Agreements (RTAs) has registered phenomenal increase with some 421 RTAs notified to the GATT/WTO up to December 2008. At that same date, 230 agreements were in force (WTO 2009a). If one taking into account all kinds of RTAs such as those in force but not notified yet, those signed but not yet in force, those currently being negotiated, and those in the proposal stage, they are in the neighbourhood of 400 RTAs, which were set to be implemented by late 2010. This would lead to a significant increase in trade flows in the following decades. It is an average rate of 12% that the world aggregate trade has been increasing since 2000 (WTO 2009b), which is further expected to stay on the course of growth in the years ahead as a result of these new agreements. (WTO, retrieved on 17th, June 2010).

4.3 **Theory of Regional Trade Agreements (RTA's)**

The gains and losses of RTA's are determined by orthodox theory of economic integration (Viner, 1950; Meade, 1955; Lipsey, 1957), which judges the relative strengths of *trade creation* and *trade diversion* effects arising from economic integration.

Viner delineates the theoretical benefits and costs of RTAs from two perspectives. First are the static effects of economic integration on productive efficiency and consumer welfare. Second are the dynamic effects of economic integration, which relate to member nations' long-term rates of growth. Because a small change in the growth rate can lead to a substantial cumulative effect on national output, the dynamic effect of trade-policy changes can yield substantially larger magnitudes than those based on static models. Combined, these static and dynamic effects determine the overall welfare gains or losses associated with the formation of a regional trade agreement.

The movement towards freer trade under a customs union affects would welfare in two opposing ways: a welfare-increasing trade-creation effect and welfare reducing trade diversion effect. When the member countries in an economic union produce low-cost products compared to high-cost products, the shift is known as *Trade creation*. This shift is characterised by a combination of effects such as production effect and a consumption effect. The former is instrumental in saving the real cost of domestic production because of reduction in the production from an increase in the import of those goods, that a member-country can produce at a lower cost. In the latter case, consumer satisfaction gets enhanced thanks to increased consumption of those goods, which are now imported at a lower price but were previously produced domestically at higher costs.

An influential approach to measure the welfare effects of trade diversion and creation was developed by Krishna (2003). He analysed a simple three-country model with perfect competition, where each country produces only one good and all countries consume all goods. He showed that if the sum of a country's total imports, which are weighted by the appropriate initial tariffs, goes up, then the benefits of trade creation dominates the costs of trade diversion. Richardson (1994), Ornelas (2004) and Limao (2005), on the other hand, focus on the effect of regional trade agreements on the multilateral process.

Richardson (1994) and Ornelas (2005) show, in different models, that providing a tariff preference to one country can provide a strong incentive to reduce tariff to all other countries since doing so alleviates the inefficiencies created by trade diversion. In contrast, Limao (2005) claims that regional agreements can prevent the progress of multilateral liberalisation. According to his argument, reducing a tariff against one country's products but not any other country's products create an income-generating opportunity for the country receiving the tariff reduction and the value of this benefit is reduced if multilateral tariffs are reduced. Since in principle this rent can be shared with tariff reducing country, there is an incentive for this country to keep its most favoured nation (MFN) tariffs high.

Trade diversion is marked by a shift in the source of imports. As a result of economic integration, a shift takes place from lower-cost external sources to higher-cost member-country sources. The aggregate result appears in the increase in the cost of imports following the shift from foreign to member-country sources and a loss of consumers' surplus emerging from the replacement of lower-cost goods by higher-cost goods (Carbaugh, 2007).

Although an RTA may add to world welfare by the way of trade creation, its trade-diversion effect generally implies a welfare loss. This diversion suggests that world production is reorganised less efficiently. That is way, RTAs represent violations to WTO's non-discrimination principle because, the basic principle is defined in the Most-Favoured-Nation (MFN) rule, obligates a member country to extend to all WTO members the privileges that it grants to one contracting party. However, WTO looks favourably at RTAs and supports the formation of free trade areas and customs unions.

In order to ensure that the process of global trade liberalisation is not compromised when RTAs facilitate regional trade liberalisation, Article 24 of GATT regulates that RTAs should trade more freely among their member countries and that they should not raise barriers on trade towards the outside world. Besides this, a Committee on Regional Trade Agreements (CRTA) established by the WTO General Council was tasked to examine regional groups and to assess whether their operations are consistent with WTO rules.

The major countries of the world set up the GATT in reaction to the waves of the protectionism that crippled world trade during, and helped extend the great depression of the 1930s. In successive negotiating "rounds," the GATT substantially reduced the tariff barriers on manufactured goods in the industrial countries. Since the GATT began in 1947, average

tariffs set by industrial countries have fallen from about 40 percent to about 5 percent today. These tariff reductions helped promote the tremendous expansion of world trade after World War II and the concomitant rise in real per capita incomes among developed and developing nations alike. The annual gain from removal of tariff and nontariff barriers to trade as a result of the Uruguay Round Agreement (negotiated under the auspices of the GATT between 1986 and 1993) has been put at about $96 billion, or 0.4 percent of world GDP.

Article XXIV of GATT and article V of GATS lay the legal foundation of RTAs, to cover trade in goods and services. The "enabling clause," adopted in 1979, "provides for the mutual reduction of tariffs on trade in goods among developing countries" (WTO, Regional cooperation, 2006).

In 1995, the GATT became the World Trade Organization (WTO), which now has more than 149 member countries. The WTO oversees four international trade agreements: the GATT, the General Agreement on Trade in Services (GATS), and agreements on trade related intellectual property rights and trade related investment (TRIPS and TRIMS, respectively). The WTO is now considered the most affective forum for members to negotiate reductions in trade barriers (Romain and Welch, 2003).

Critics of bilateral and regional approaches to trade liberalisation have many arguments. They suggest that these approaches may undermine and supplant, instead of support and complement, the multilateral WTO approach, which is to be preferred for operating globally on a non-discriminatory basis. Hence, the long-term result of bilateralism could be a deterioration of the world trading system into competing, discriminatory regional trading blocs, resulting in added complexity that complicates the smooth flow of goods between countries. Furthermore, the reform of such issues as agricultural export subsidies cannot be dealt with effectively at the bilateral or regional level.

Despite possible tensions between the two approaches, it appears that both multilateral and bilateral/regional trade agreements will remain features of the world economy. Both the WTO and agreements such as NAFTA, however, have become controversial among groups such as anti-globalisation protesters, who argue that such agreements serve the interests of multinational cooperation and not workers, even though freer trade has been a time proven method of improving economic performance and raising overall incomes. To accommodate this opposition, there has been pressure to include labour and environmental standards in

these trade agreements. Labour standards include provisions for minimum wage and working conditions, while environmental standards would prevent trade if environmental damage was feared (Douglas, 2004).

4.4 Types of Regional Trade Agreements (RTA's)

Depending upon the level of integration amongst participating nation-states, RTAs can be divided into the following categories: Firstly, trade barriers are lowered when the countries conclude Preferential Trading Agreements (PTAs) at the most basic level. Such preferential trade is usually limited to the portion of actual trade flows from LDCs, and is often non-reciprocal in nature. Papua New Guinea - Australia Trade represents an example of such an agreement. Commercial Relations Agreement (PATCRA II), another example, has been in force since it was originally concluded in 1977.

Second, when two countries strike a bilateral trade agreement whereby trade barriers i.e. tariffs are abolished among the participating countries; such an arrangement is called Free Trade Agreement/Area (FTA). However, each member is free to formulate its external trade policies against the countries, which are not part of FTA. Under this arrangement, barriers to trade are reduced gradually over a period of time but it does not mean that all trade has become completely free of national barriers, which at times stay intact. A prominent example of an FTA is the North American Free Trade Agreement (NAFTA).

The formation of the Customs Union comes at the third level of economic integration. Customs Union is a stage where trade barriers among the member countries are abolished and a common external trade policy is adopted by the member nations (e.g. Common External Tariff regime or CET), vis-à-vis non-members. A Customs Union can be likened to an FTA, which is accompanied by a common external trade policy. The Customs Union of the Southern Cone -Mercosur- can be referred to as an example in this regard.

The Common Market represents the fourth level in the process of economic integration. A Common Market is established when the member countries facilitate movement of both goods and factors by removing all trade barriers. They also continue to retain the common external trade policy. It can be likened to a Customs Union plus free mobility of factors of production. The relevant example of a common market is the Common Market for Eastern and Southern Africa (COMESA).

Economic Union is the climactic point and the last level of economic integration. The participating countries pursue common macroeconomic policies in an Economic Union and also allow free movement of goods and factor movements. An example of Economic Union is manifestly the European Union (EU) (Jovanović, 1998).

4.5 Experience of RTA in Developed and Developing Countries

Regional cooperation among the developed and developing countries produces dynamic impacts that appear in the form of technical change and economic restructuring, which is contrary to the phenomenon of comparative advantage. The benefits arising from the opportunities convince them of the need to extend cooperation with one another. New forms of protectionism such as anti-dumping duties and environmental and social standards are the challenges produced by the post – 1995 World Trade Organisation (WTO) era, which are better managed by a regional bloc rather than by divisive individualism.

Since 1947 when the signing of the General Agreement on Tariffs and Trade (GATT) took place, three waves of regionalism swept through the world trading system. The period between 1950s and 1960s was marked by the "rush to discrimination" led by Western Europe, which founded the only substantial new customs union of the second half of the twentieth century. It also entered into a complex network of preferential arrangements with other trade partners. The developing countries in Africa, the Caribbean, Central America, and South America treated the European Customs Union as a model. But even the most promising of these arrangements, such as the East African Community and the Central American Common Market failed and finally collapsed during the 1970s.

The customs unions agreed to by the developing countries could not succeed and the reason of their failure lay in the regional form of import substitution, which inevitably led to conflict. Each member sought a regional market for its own inefficient industries but was not ready to reciprocate and buy the expensive or poor-quality import-substitutes, which were produced by their trading partners. Similar strains also emerged within the European customs union. But for most goods (except farm products) the least-cost supplier within the union was globally competitive. There was a greater political will on display, which supported greater economic union against the perceived costs even for large net economic losers such as the United Kingdom, which joined it in 1973.

When the United States departed from the GATT non-discrimination principle in the first half of the 1980s, the second wave of regionalism struck the world, which further peaked with the North American Free Trade Agreement (NAFTA) negotiations in the early 1990s. These negotiations coincided with the European Union's 1992 project aimed at completing the internal EU market. Despite NAFTA being signed and implemented, the EU countries stood their ground and completed its 1992 program. Australia and New Zealand rendered their free trade area into the Closer Economic Relations. With the successful conclusion of 1986 to 1994 Uruguay Round of multilateral trade negotiations and the establishment of the World Trade Organisation (WTO) as the successor to the GATT in 1995, the major trading nations reaffirmed their commitment to the non-discrimination principle.

The first wave had a deep impact on the developing world and made them realise the importance and the need of establishing and strengthening their own regional groupings. The geographical scope was wider than in the first wave as Asian Regional Organisations joined Latin American regional arrangements such as Mercosur and African customs union in various overlapping incarnations. These RTAs produced minimal practical outcomes for much the same reasons as in the foreign policy (some were preludes to membership, others such as the Yaoundé/Lomé/Cotonou Conventions retained special relationships with former colonies and similar African, South-Asian, Caribbean and Pacific economies).

The US abandonment of the non-discrimination principle owed itself to these Preferential Trade Agreements (PTAs). Consequently, it concluded its own PTAs with favoured clients in the Caribbean and Israel. The opposition of the poor countries against multilateral trade liberalisation could erode their preferences' value, but in themselves they are not of great significance for the global trading system.

The early years of the twenty-first century saw emergence of a third wave of RTAs, which was led by Asian countries. These countries were previously the strongest bulwarks of non-discrimination. The emergence of Asian regionalism can be traced back to the aftermath of the 1997 Asian Crisis. It partly grew as a reaction to the dissatisfaction with the role of the Bretton Woods institutions. There were strong calls for the establishment of an Asian Monetary Fund or even monetary union. The 2000 Chiang Mai Initiative was the ultimate outcome, which provided (limited) stand-by swap facilities for countries facing currency crises (Pomfret, 2005a).

However, the voices were raised for new approaches to trade liberalisation in Asia-Pacific region after the 1999 WTO meetings in Seattle failed and the role of Asia Pacific Economic Cooperation (APEC) was diminished. The negotiations commenced in 1999/2000 by Japan with Singapore, South Korea, Canada and Mexico, by South Korea with Chile and New Zealand as well as with Japan, and by Singapore with New Zealand, Australia, the USA, Canada and other countries. The third wave of regionalism gave a birth to Association of South-east Asian Nations (ASEAN) and Asia-pacific Economic Cooperation (APEC). These RTAs have proved to be success in Asia-pacific so far.

The push for striking these agreements got an impetus by the administration of G.W. Bush. The US entered into bilateral trade pacts with friendly countries such as Jordan, Morocco and Australia. As these examples make it manifestly clear, though the third wave is seen as a recrudescence of regionalism, many of the bilateral pacts are not regional arrangements. In areas of double taxation or investment treaties, bilateral agreements have long existed without being labelled as a type of RTA.

In the early part of 2000s, the number of RTAs, which were notified to the WTO, peaked, which meant that regionalism, was a strong dominant force in that year. Crawford and Fiorentino (2005) states in the opening paragraph of their survey of RTAs: "Between January 2004 and February 2005 alone, 43 RTAs have been notified to the WTO, making this the most prolific RTA period in recorded history".

One reason as to why 1990s registered a rapid increase in the number of RTAs was the proliferation of bilateral and plurilateral free trade agreements among countries of the former Council for Mutual Economic Assistance. These primarily represented a response to regional disintegration and it was not a trend towards regionalism in Central and Eastern Europe. The joining of EU by eight eastern countries of Eastern Europe on 1st May 2004 rendered the web of bilateral trading arrangements and preferential agreements among the accession countries and the EU redundant. However, the addition of eight more countries to the EU customs union increased the degree of regionalism. According to Crawford and Fiorentino (2005, p.21), as a result of this development, 65 RTAs notified to the WTO stood abrogated on that date. The net RTA formation went into minus between January 2004 and February 2005 and was minus 22, which meant that 2004 saw the biggest retreat from RTAs in recorded history.

An examination of the twenty RTAs, which were notified to the WTO in the first half of 2005, laid bare the problems of simple counting. Six were bilateral arrangements were counted doubly such as (Australia-Thailand, Japan-Mexico, and Panama-El Salvador) because they are under GATT Article XXIV and GATS Article V. Twelve were of bilateral nature, which involved pairs of eastern European countries (mostly among regions of former Yugoslavia, i.e. reflecting regional disintegration). The other two were an EFTA-Tunisia agreement and an Israel-Romania agreement. These twenty agreements could not have a significant impact on world trade or even on the trade of the signatory parties. The contention of these arguments is not to downplay the importance of RTAs. RTAs such as – the EU, NAFTA, Mercosur and some others are obviously very vital. This was in fact meant to caution against simplistic claims that regionalism was proliferating and becoming a dominant feature of the world trade.

On the other hand, it can be said that, despite regional arrangements being the talk of the town among economic policy makers, the hold of multilateralism remains stronger than ever before. With lower trade barriers and stronger trade dispute settlement procedures in place, all trading nations have now acceded practically to the WTO. Perceptions of WTO weakness are to be found in the way news reporting is carried out which highlights conflict rather than accord to stay in the news business. The end of the Multifiber Arrangement in December 2004 marked a monumental step in global non-discriminatory trade liberalisation, which holds positive prospects for global resource allocation. The press coverage in early 2005 highlighted negative effects on countries suffering from preference erosion (such as Bangladesh) and the impact on producers in powerful nations.

Following the surge of clothing imports from China, when the USA and EU negotiated safeguard measures, the fact that these were legal under China's WTO accession accord but limited in duration to 2008 was totally ignored. The ability of small countries to win cases against major trading nations (and have the offending policies modified) and the willingness of the US Congress to amend US tax law to comply with a WTO judgement are some striking examples of the increased rule of law in international trade since WTO came into effect.

Several studies undertaken on major trade agreements in the developing world analyse their general implications. The past has seen a number of papers that discuss specific aspects of trade facilitation. Most of the papers either deal with the economic impact of trade

facilitation, such as expected costs and benefits, or they are case studies that tend to analyse the trade facilitation capacity building needs and initiatives of particular countries.

A review of the economic literature by Engman, (2005) dilates on the quantitative impact of trade facilitation on trade flows, investment and government revenue. He has relied on surveys of business people and, for the trade effects, on a series of papers by Wilson, Mann and Otsuki (2003a; 2003b; 2004). These findings are based on incorporation of country-specific measures of trade facilitation (port efficiency, customs environment, regulatory environment, and e-business) and rendered into a gravity model. Studies of the Organisation for Economic Cooperation and Development (OECD) place these estimates in a general equilibrium context using the Global Trade Analysis Project (GTAP) framework. They estimate that a reduction in transactions costs equal to one percent of the value of world trade would produce cumulative welfare gains of about US$ 40 billion.

Feridhanusetyawan (2005) provides a useful overview on the recent proliferation of Preferential Trade Agreements (PTAs) in the Asia-Pacific region and discusses key characteristics of some of these PTAs. However, he generally deals with trade facilitation and his observations do not include Pacific Agreement on Closer Economic Relations (PACER) or South Asian Free Trade Area (SAFTA).

Analysing relationship between RTAs and the Multilateral Trading System regarding trade facilitation, Moise (2002) finds that various factors, such as the date of the conclusion of the agreement, the relative level of development of participating countries and the type of agreement affect the degree of facilitation in RTAs. As measured by some empirical studies, time delays adversely affect RTA. Hummels (2001) estimated that each day saved in shipping time is equivalent to about a 0.8% reduction in ad valorem tariffs. Such work only shows that customs clearance measures and other trade facilitation initiatives have obvious time implications but does not address the utility of specific trade facilitation measures.

APEC has produced a number of publications, which discuss the legal framework and the scope of the APEC trade facilitation measures. Similarly several other works also address some trade facilitation initiatives in South Asia. Scant literature exists which may analyse how trade facilitation is addressed in the context of PACER.

4.6 Experience of RTA Attempts of ECO Countries

As we are aware, the expansion of ECO took place about two decades ago. Retrospectively speaking, these two decades since the enlargement can be divided into two periods: Basic documents of ECO were signed and major agreements and plans of actions were launched during the first phase between 1992 and 1997. The second period of 1997–2002 saw major restructuring taking place within the ECO wherein sectoral directorates were established at the place of the previous system of technical committees to boost cooperation on major areas of cooperation in a more systematic manner. Both periods complement each other because projects/programmes, which were chalked out during the first period, were implemented during the second period through carefully formulated action strategies. Therefore, it is pertinent to refer to the latter period as the *exploratory stage*, which sought to initiate the relevant actions.

Newly independent countries of Central Asia were offered a regional trading arrangement from the Economic Cooperation Organisation (ECO). This gave an opportunity to promote a southward reorientation of their trade away from the patterns imposed within the Soviet economy. Treaty of Izmir, which was signed by Iran, Pakistan and Turkey in 1977, was the founding document of ECO. However, the organization remained inert between the 1979 Iranian revolution and 1985. By offering preferential tariff treatment to one another, the three founding countries then made an effort at reinvigorating the organisation but the list of eligible products was kept extremely limited. At the occasion of eighth ECO summit, which was held in Dushanbe in September 2004, Iran put forward a proposal of making ECO a free trade zone by 2015 but little headway was made in terms of rendering this idea into practical shape.

An expansion of the ECO took place in 1992 when five Central Asian countries, together with Afghanistan and Azerbaijan joined the ECO. The total population of all member countries of the enlarged organization was well over 350 million people and the ECO had a representation of all non-Arab Islamic countries to the west of India. United Nations General Assembly gave an observer status to the ECO in 1993 and the World Trade Organization followed suit when it accorded the same status later on. In order to give a boost to the working of ECO, the Council of Ministers approved of a restructuring plan of the organization including the establishment of a permanent ECO Secretariat in Tehran.

The eight regional institutions were established by the ECO members, which included a trade and development bank, an insurance institute, a shipping company, an airline, a reinsurance company, a chamber of commerce, a science foundation, and a cultural/educational institute. It was decided that the bank would be set up in Istanbul in 1995 and subsequently a statement of intent issued by ECO declared that the insurance company would be located in Pakistan. As the bickering over location and funding continued, the result was that the implementation of these decisions suffered badly. The shipping company operated two leased multi-purpose cargo vessels in the Persian Gulf and some ships plying the Caspian Sea. However, the shipping line suffered losses despite being the sole profitable project of ECO because some member countries failed to make their contributions to the capitalisation fund (Afrasiabi, 2000).

Notwithstanding the fact that there have been frequent meetings between the ECO heads of states since 1992 and the summits typically churned out grand declarations, the implementation record paints a picture to the contrary with no corresponding results. The history of the ECO transit agreements proves this point. Eight countries only signed the 1995 transit trade agreement while the two non-signatories, Afghanistan and Uzbekistan, straddle some of the most important routes in the region. It was in December 1997 that the agreement officially came into effect but the ratification process was slow as only five national governments ratified the agreement by early 1999. Azerbaijan and Tajikistan, whose geographical location reduces them to a status of marginal countries to an ECO-wide transit agreement, approved the modified and much watered-down 1998 transit agreement and that too by mid-2000.

What hinders the agreement on the ECO transit trade agreement is the unwillingness of key member countries that are not ready to accept the principle of unimpeded passage of goods in transit. ECO has failed to register a noticeable impact, as is the case with the Central Asian Cooperation Organisation (CACO). The major roadblock in the realisation of the dream of regional integration in both organisations is the uniformity of member country economies, all of who tend to be specialised on a small group of primary products (oil, gas, minerals, and cotton). Trade between the five Central Asian countries and their southern neighbours has registered a slow expansion since 1992, admittedly from a low base, contrary to what many observers expected. What has made this possible is the grant of a non-discriminatory Most Favoured Nation (MFN) status to one another rather than within a regional trading

arrangement such as one which the ECO founding members envisaged in the early 1990s (Pomfret, 2005).

4.6.1 Promotion of Trade and Investment among ECO countries

Promotion of trade and investment is one of the primary objectives of the ECO member countries. In order to be able to achieve this objective, necessary regulatory framework was developed by ECO, which sought to enhance investment opportunities. It also employed and initiated specific measures, which were aimed at progressively removing barriers to trade and investment in relation to intra - and inter-regional trade and investment trends. The following strategy is being followed by ECO while making an effort for liberalisation and promotion of trade and investment among the member countries, (Directorate of ECO, 2009).

- The member countries seek to remove tariff and non-tariff barriers in the region by providing a regulatory framework and enabling environment for growth of trade.

- They are focusing on the development of a favourable regulatory investment framework for optimum utilisation of economic resources.

- They are encouraging the participation of and interaction with the private sector.

With a view to progressively and gradually remove non-tariff and tariff barriers, the ECO launched the Economic Cooperation Organisation Trade Agreement (ECOTA). ECOTA represents a step forward towards the establishment of a Free Trade Area in the region by 2015. It is also considered as the primary instrument for the removal of trade barriers (Directorate of ECO, 2009, p2).

ECOTA, which has been regarded comprehensive agreement in terms of commodity coverage, will be implemented gradually over a period of eight years; thereby reducing tariffs to a maximum of 15% over 80% of the goods traded. In January 2004, a meeting of the new high level expert group (HLEG) on trade, investment, and other related matters was held in Ankara where the participants showed their agreement on a resolution meant to prepare a protocol on a Fast Track Approach to implement ECOTA early through reduction of the highest tariff slab from 15% to 10% over five years rather than eight years. The second

meeting of HLEG was held in Islamabad in March 2005 to discuss matters on trade, investment, and other related matters in order to finalise the draft text of the said protocol. The third HLEG meeting held in Istanbul in July 2005 identified some reservations/principles, which dissuaded the member states from signing the said protocol. Three member states failed to finalise a new formulation for principles on the protocol of Fast Track Approach in the 4th HLEG meeting held during November 2005 in Kabul, owing to differences of opinion (Directorate of ECO, 2009, p.5). Despite being in the midst of these challenges, which it should surmount, ECO continues to:

"Foster partnership and strengthen its relations with relevant international and regional organisations to secure technical and financial assistance for its endeavours in the field of trade and investment. These organisations, among others, include ADB, ASEAN, ESCAP, ITC, OIC/IDB, UNCTAD, UNDP, UNECE, UNIDO, WCO and WTO. Moreover, implementation of the decisions/agreements reached and the MOUs with international organisations are now closely being reviewed and updated in line with ECO's new and emerging needs and requirements. ECO is also being granted observer status by the high profile regional and international organisations." (Directorate of ECO, 2009, p. 21)

Several empirical studies that deal with ECO member countries, their bilateral trade relations with one another as well as with the rest of the world, have been conducted. In a study undertaken by Achakzai (2010, 2006) on the subject of "Unilateral Liberalisation versus Regional Integration: the case of ECO member countries" the author is of the opinion that the present level of intra-ECO trade is attributed to regional agreements rather than unilateral liberalisation, suggesting the scope of greater regional cooperation among ECO countries. Another study undertaken by Tossi, Moghaddasi, Yazdani, and Ahmadian (2009) on the subject of "Regionalism and its effects on Iranian agricultural exports: The case of Economic Cooperation Organization," utilised a gravity model for the purpose of assessing the impact of Iran's membership of the ECO on agricultural exports. These authors are of the view that expansion of intra-regional trade as well as trade of the region with the rest of the world is one of the objectives behind the establishment of the ECO.

A view on ways by which economic integration affects the economic structure, particularly commodity trade by the region's members is vital to accomplish the objective. ECO possesses the potential to positively affect Iran's agricultural trade either directly or indirectly. "Indirectly, because similarity degree between Iran and the other ECO members in religion,

border, ethnicity and language is very high in relation to the other chosen trade partners of Iran. As a result, by gradually reducing trade barriers in the ECO region and the use of these ECO member similarities, Iran would be positioned to expand its agricultural exports" (Tossi, Moghaddasi, Yazdani, and Ahmadian, 2000).

In a study entitled "Production and trade of animal products in selected ECO countries," undertaken by Mirzaei and Heidelbach (2006) investigates the performance of livestock production and exports by selected ECO member countries besides examining the comparative advantage indices such as Domestic Resource Cost (DRC) and Revealed Comparative Advantage (RCA). These authors explain that economies of the ECO countries have the agricultural sector as a primary contributor. According to Food and Agricultural Organization (FAO) estimates, in 2002 "agriculture generated 25.2 percent of Gross Domestic Product (GDP) and employed 42 percent of the economically-active population in the ECO region" (Mirzaei & Heidelbach, 2006).

Despite having considerable inter-country variations, the agricultural sector has a major share in the GDPs of the economies of ECO countries and also employs large chunks of their populations. Thus it is of vital importance to the economies of the ECO region. 2003 registered agricultural share of total GDP ranging from more than 47% in Afghanistan to less than 8% in Kazakhstan. It ranged between 10-20% and between 20 in Iran, Turkey and Azerbaijan, while it was 35% in the remaining five ECO countries. During 2003, 42% of the total labour force of the region was associated with the agricultural sector. In addition to being a source of food production as well as feed materials, the sector is a provider of high quality fibber, silk, honey, fruits and vegetables, and wool products.

The countries and the region as a whole are confronted with the following issues and constraints in the process of agricultural reform and livestock sector in ECO countries:

- The reform policies are marked by lack of an adequate institutional framework for implementation;
- Policy analysis has extremely limited capacity to provide technical support in policy-related decision-making.
- Macro-economic constraints

- Farm-level decisions on production and marketing fronts are hampered by limited availability of information, especially on cost of production of crops and livestock.
- The long-term efficiency of resource use and comparative advantage in the production of different commodities are affected by existing food security policies, which are aimed at enhancing self-sufficiency (Pervez, 2004).

Without applying any economic model, Pervez (2004, 1974) analysed the available data on trade flows among the RCD countries. He particularly dwelt on exploring the historical aspects of the organisation as well as of its member states. In his study, he identified the areas of cooperation in the ECO region and also listed the benefits that might accrue to the region. In his 2004 study titled as, "Prospects of Economic Integration among ECO Countries", (Pervez 2004) concluded that the performance of the member countries after the establishment of ECO was not very different from pre-ECO period. Without bringing about fundamental reforms within the structure and operations of ECO, the organisation will not be able to break any new ground and would be a replica of its predecessor organisation i.e. RCD. Orhan (2005) deals with the organizational setup of ECO and its member countries. His study took into account transport facilities, chambers of commerce and banks.

The study by Bahaee and Saremi (2002), "Assessing Economic Cooperation Organization (ECO) Performance: 1992-1997" presents a preliminary assessment of ECO performance for the period of 1992-1997 based on reported data, as well as the opinion survey of small group of business people and government officials. Authors are of view that the ECO performance, as far as its stated objective of increasing intra-regional trade in concerned, has been very poor.

Pomfret (1997, 1999) discussed the prospects for regional integration within the Economic Cooperation Organisation (ECO). He focused more on newly liberated central Asian States. According to him, the ECO region has good prospects for regional integration. With previous distortions removed, the trade between new landlocked ECO members and the three original members would get a boost with the establishment of transport links. Because of the uniformity of the economies of the seven new ECO member countries, there are little prospects for expansion in substantial intra-ECO trade. Pomfret (1997) examined pre-ECO trade patterns and the organisational history in the light of goals contained in RCD and ECO charters for regional cooperation. He has also investigated the nature of exports and imports

among ECO member countries besides measuring their growth and decline in terms of percentage. He has focused on the new seven members of ECO and not Pakistan, Iran and Turkey. Pomfret (1999) reviewed the political and economic history of each member state and their trade links with each other.

The number of studies that deal with the possible economic integration among ECO countries generally and Pakistan, Iran and Turkey particularly are few and far between. Even the studies mentioned above fall short of systematically analysing economic indicators using appropriate models. Even though Pakistan, Iran and Turkey have age old trade relations, with the induction of new Central Asian Republics, ECO became a complete body in 1992. Compared to other regional groupings, ECO is a relatively new organisation and this accounts for a very limited number of empirical studies undertaken on the ECO.

4.6.2 Intra-Regional Trade

Since WTO/GATT 94 provides "the common institutional framework for the conduct of trade relations and the forum for negotiations among its members" (UNCTAD-UNDP, 2004, p. 9), it has laid down the foundation of a development-oriented Global Trading system. The following three basic principles underline the functioning of the WTO/GATT system:

- The Most-Favoured Nation
- National Treatment on international taxation and regulation
- General elimination of quantitative restrictions (UNCTAD-UNDP, 2004, p. 9)

The region, which now comprises of ECO countries, has been known for close trade relations whereby caravans which carried goods from Indus to Persia, and Central Asia and brought consumable goods to this area in return. This fact proves that the region had excellent trade relations in the past.

The industrial products are the major import and exports for the member countries of the ECO. Stagnation characterised the bilateral trade for a long time. Likewise, the share of intra-regional trade also remained more or less stagnant. It was 6% in the year 2005. The intra-regional trade continues to retain a marginal character in the ECO (ACHAKZAI, 2006).

4.7 Progress towards Trade Liberalisation in the ECO

4.7.1 ECO Trade Agreement (ECOTA)

Reduction of tariffs and the removal of non-tariff barriers in the ECO region has been the main thrust of the work done in the field of trade liberalisation. The Importance of development investments at large scale stays intact while trade takes place. However, the economic growth within the ECO region can be bolstered by an open and equitable trading system accompanied by adequate political support. If trade has to grow in the region, implementation of ECOTA and other relevant trade facilitation programs is the way to achieve it. The ECO countries have been making efforts to remove barriers in the way of market access and phasing out trade-barriers in the region to pave the way for a free-trade area.

4.7.2 Transit Trade Agreement (TTA) and Transit Transport Framework Agreement (TTFA)

All member states (except Afghanistan and Uzbekistan) not only signed the Transit Trade Agreement (TTA) in 1995 and but also ratified it. It has not been fully implemented. In the beginning, in view of difficulties faced by the new ECO member states in their efforts to become a party and implement the TIR Convention, TA sought to facilitate trade between two member states by using the transit route of other member states. It applies to road, railway, sea, air or any combination of them. Goods transported under the Agreement are exempt from import/export duties and taxes.

En route, goods shall be exempt from Customs examination. It will be binding upon the customs offices to accept the validity of ECO Passage Document in order to avail facilities envisaged in the Agreement. A Transit Trade Committee consisting of one representative from each signatory member state will be responsible for working out procedures, resolving any disputes arising out of the operation and implementing them. All member countries except Azerbaijan and Turkmenistan have made nominations for Guaranteeing Associations. The member countries finalised the ECO Passage Document (except Authorisation for Natural and Legal Persons to utilise EPD). The member states have approved technical

standards of vehicles and have also prepared ECO Road and Railway maps which are yet to be approved by the member states.

TTA faces the following prospects and challenges: (i) minimum conditions and requirements (i.e. authorisation) for natural and legal persons to utilise EPD shall be adopted by the member states; (ii) printing, distribution, and monitoring of EPD; (iii) establishment of a Regional Guarantee System which will ensure that all duties and taxes are covered either by the transport operator or by the national guarantee associations of the Member States; (iv) capacity building in Guaranteeing Associations; (v) activation of TTC for monitoring the Agreement; (vi) collecting data on transit volume, clearance time and problems; (vii) involving freight forwarders and transporters and ECO Chambers in implementation of the Agreement.

The summary of other physical and regulatory requirements can be put thus: (i) improvement of facilities and infrastructure in border crossings; (ii) alignment of working hours in border crossings; (iii) simplification of customs transit procedures; (iv) harmonisation of technical requirements of vehicles; (v) reducing high and diverse transit charges; (vi) making transit rules and procedures transparent and stable.

Another important issue is the implementation of Transit Transport Framework Agreement (TTFA) that was signed in 1998. TTFA is in line with current developments and more and more ECO member states are ready to become a party to the TIR convention. TTFA has gained an upper hand over TTA over a period of time and the member states are agreed to its early implementation. However TTA has not been abandoned as yet, that will happen once the TTFA is fully adopted. TTFA is comprehensive in its coverage of all modes of transportation, which include insurance and other related issues. The Secretariat has, time and again, urged the member countries to make early ratification of this agreement. So far, five member countries namely Azerbaijan, Kazakhstan, Kyrgyzstan, Pakistan and Tajikistan have ratified it. Afghanistan has hinted at ratification of TTFA through unofficial contact with the secretariat. Additionally, the secretariat has also impressed upon the member states to make nominations for the Transit Transport Coordination Council (TTCC), which will be responsible for monitoring and following up the process of implementation of the TTFA. Azerbaijan has offered to serve as coordinator to oversee the implementation of TTFA (Isik, 2005). International border crossings, Visa fee's and structure and transport volume in ECO region is described in Appendix I tables 4.1 to 4.7.

4.7.3 ECO Customs Cooperation

Cooperation among the ECO member countries in the areas of Customs and transit trade is a key to increased economic cooperation in the region. The text of the draft agreement on the establishment and operation of the ECO Smuggling and Customs Offences Data Bank was finalised at the 4th meeting of the ECO Council of Heads of Customs Administration (CHCA), held in Baku, Republic of Azerbaijan, on May 16-18, 2005. The Member States put their seal of approval on the said agreement and Afghanistan, Pakistan, and Turkey signed it initially during the 3rd Ministerial Meeting on Commerce and Foreign Trade. Recently, Kyrgyzstan has demonstrated its willingness to sign the said agreement. Once four ECO member states sign and ratify the agreement, it will come into force forthwith. In order to operationalise the Data Bank, an action plan will be formulated in coordination with Turkey, the host country of Data Bank.

The UNDP Consultant's report on simplification and harmonisation of customs procedures was reviewed in the 4th meeting of ECO-CHCA, which also agreed to form a working group of experts in order to explore actions on the recommendations of the Consultant. The meeting also reviewed cooperation with WCO within the framework of MOU signed between ECO and WCO, cooperation with ADB and customs cooperation among the ECO Member States. For publication in the ECO Customs Newsletter, Member States were asked to supply their customs-related news/material to Islamic Republic of Iran Customs Administration (IRICA) on a regular basis. The Council as its Chairman and Vice-Chairman elected the Head of Turkish Customs Administration and the First Deputy Chairman of State Customs Committee of Azerbaijan respectively.

Special significance has been accorded to exchange of updated data/information, which relates to trade and investment among the ECO Member States. Several seminars have been held under the banner of ECO in this regard. One of these seminars was the 3rd ECO Seminar on Trade and Investment Information Networking. It was held in Karachi, Pakistan on 31st January-01 February 2005. This seminar drew an active participation of ECO Member States who agreed to identify fresh focal points on trade and investment for the purpose of prompt exchange and presentation of relevant data/information. An interactive ECO Web portal (www.tradeeco.org) was developed with the financial assistance of UNDP. Based on the recommendations given by the ITC expert who was a participant in the above-mentioned

seminar, the Web portal is being upgraded from time to time. Moreover, utilisation of the ECO Feasibility Fund is being proposed to the Council of the Permanent Representatives (CPR) for this purpose.

Effective implementation and expansion of the agreement's scope on simplification of visa procedures is urgently needed to facilitate and strengthen the interaction among the businesspersons of the member states. It was approved by the CPR that being a coordinator, the Islamic Republic of Iran would host the 1st Experts Group Meeting (EGM) in order to revise the Agreement on Simplification of Visa Procedures for businessmen of ECO member states.

4.7.4 Harmonisation, Standardisation and Recognition

The ECO Plan of Action for Industrial Cooperation lists the priority area regarding the enforcement of industrial standards in the region in line with international standards and seeks improvement in the quality management systems as per International Standards Systems (ISS). On 25-26 August 2004, Republic of Turkey organised a workshop on Standardisation, Conformity Assessment, and Accreditation for ECO Member States in collaboration with the ECO Secretariat. Held in July 2005 in Istanbul, the First Expert Group Meeting on Standardisation, Conformity Assessment, Accreditation, and Metrology finalised the draft Statute of the ECO Regional Organisation for Standardisation, Conformity Assessment, Accreditation and Metrology (ROSCAM). It also included the draft Regional Cooperation Strategy for ROSCAM. The above-mentioned Statute and Strategy was considered in the First Meeting of the Heads of Standardisation Organisations, which was held in 2005 in Tehran.

4.7.5 ECO/ITC Project for Trade Promotion

A joint project, which sought to expand intra-regional trade, was launched jointly by the ECO/ITC. Identification of trade opportunities in the regional creation of an enabling environment was the primary area of focus, which was meant for their ultimate realisation by bringing together buyers and sellers of selected product groups. The first cycle of the project was completed by ECO/ITC. It carried out a Trade Flow Analysis, held a Product Selection Workshop, prepared a priority list of products, conducted Supply and Demand Surveys in respect of the selected product, held three Buyers/Sellers Meetings and organised a Business

Forum. The 2nd phase of the project will also commence in the near future. The utilisation of US$ 50,000 out of ECO Feasibility Fund has been endorsed by member states including the contribution of other donors for the said project. The 2nd phase of the project will devise a regional trade and investment strategy and capacity building of ECO-CCI (Isik, 2005).

4.7.6 ECO Chamber of Commerce and Industry

The Afghan Chamber of Commerce and Industry (ACCI) has been retaining ECO-CCI's Chairmanship since April 2004. This is aimed to render ECO-CCI into an effectively functional body of ECO through reactivation of ACCI with the technical support of Member States. A meeting of the Trade and Investment Conference, 10th Executive Committee Meeting of ECO-CCI, and ECO-CCI Trade Fair was held in Kabul, Afghanistan on 9-10 November 2005. The ECO-CCI, Afghanistan Investment Support Agency (AISA) and Ministry of Commerce of the Islamic Republic of Afghanistan worked efficiently for the arrangement of these moots in a befitting manner. The Afghan government was fully assisted by the Kabul-based international agencies/organizations.

It was in October 2002 that the meeting of the First ECO Business Forum was held in Istanbul. Given its importance for promotion of trade and business activities in the region, the meetings of the Business Forum will be held on a regular and rotational basis and it would be institutionalised to make it more effective.

4.7.7 Investment Promotion

It needs to be stressed that ECO countries, particularly the landlocked member states, are faced with supply-side problems. These countries rely on a few commodity products and trade routes. These supply-side problems are explained in the capacity of landlocked countries to diversify exports, a vulnerability to price fluctuations and a decline in terms of trade. Therefore, development of trade competitiveness is possible by implementing the recently finalised ECO Agreement on Promotion and Protection of Investment among member states. This step will promote investment projects in sectoral productivity, particularly trade-related infrastructure, and competitive export industries. Encouragement of diversification and reduction of vulnerability to commodity price fluctuations is necessary to provide necessary support to these initiatives.

The main theme of the ECO Trade and Investment Conference, which was held in Kabul, Afghanistan on 9-10 November 2005, was "Private Sector Promotion in Afghanistan and Regional Development". Besides the delegations from member states, the representatives of ITC, ADB, IDB, UNDP, UNCTAD, UNESCAP, and other relevant regional/international organizations participated in the Conference.

4.7.8 ECO Trade and Development Bank & ECO Reinsurance Company

Iran, Pakistan, and Turkey have signed an agreement for the establishment of the ECO Trade and Development Bank (ECO-TDB). The Iranian parliament recently ratified the said agreement. Thus, once the ratification process is complete after three member states sign it; the said Bank would be established. The announcements regarding the 1st Meeting of the Board of Governors, payment of the initial instalments of the bank's capital, appointment of the president and directors of the Bank and the preparation of the Business Plan were expected.

Memorandum of Understanding on the establishment of the ECO Reinsurance Company Iran has been signed by Pakistan, and Turkey but the Articles of Agreement of the Re-insurance Company are yet to be signed. Joint Trilateral Interim Committee (TCI) meeting, which was held at the ECO Secretariat, Tehran, on February 17, 2005, pointed out and considered the lacunae identified by the Islamic Republic of Pakistan and Republic of Turkey in the Draft Articles of Agreement, which dealt with the establishment of ECO Reinsurance Company. After discussion, most of them were removed (Isik, 2005).

4.8 Infrastructural Limitations and progress for RTA among ECO Countries

The Globalisation has influenced inter and intra-regional trade, necessitating an imperative for the development of infrastructure, creating new financing challenges, and increasing the focus of the governments on efficiency and integration of all transport modes. The development of transport and communication infrastructure is of vital importance to promote regional economic integration. It can be described as follows.

The ECO member states have been making collaborative efforts over the past 18 years to speed up the pace of regional development. The countries have had age-old shared cultural

and historic affinities. In order to achieve the objective accelerated development and further fortify the mutually beneficial relations, they have focused on the development of infrastructural and business links.

The salient achievements made by ECO during are the completion of some border crossing facilities, establishment of road and railway connections, mapping of ECO road and railway network, operationalising the Almaty-Tashkent-Ashgabat-Tehran-Istanbul passenger train, initiation of container trains on regular basis from Almaty to Turkey via Iran, institutionalisation of cooperation among the concerned authorities such as holding of ministerial meetings in the fields of energy, trade, agriculture and transportation, establishment of cooperative relations with relevant international organisations and the joint launch on several projects in the areas of energy, trade, transportation, agriculture, drug control, and capacity building (ECO decade of progress, 2002).

A three-pronged methodology was used to attain the ECO objectives in the area of infrastructural development for the purpose of better economic cooperation and integration. The first was an attempt at identifying the missing road and rail links to build adequate infrastructure. In order to finance the projects, the member states embarked on completing the missing links through their respective financial contributions, as the ECO Secretariat did not possess financial resources to fund such capital-intensive projects. There was an agreement among the member countries that the ECO priorities would be given a preference over national development planning of the respective countries. Secondly, the workshops and expert level groups were held to give a push to accession to international agreements and treaties. This was aimed at harmonising rules/regulations, building a common rail tariff policy and initiating seamless passenger and container trains etc.

Logistic, administrative and legal impediments were faced at border points and the objective was largely to remove them. The member states took measures to strengthen institutional capacity both at the Secretariat and within the member countries. These measures were meant to benefit from international rail and road associations as well as UNCTAD and UNESCAP (ECO prospects and challenges 2002).

4.8.1 Transportation Facilities and ECO Region

About half i.e. 9 out of 20 of the world's poorest countries are landlocked. Economic Cooperation Organisation ECO is of the view that the landlocked countries are a major hurdle in the expansion and diversification of economic growth because of their geographical location and this handicap stunts economic growth.

The ongoing process of integration between world economies into a unified whole confronted the ECO region with a challenge of finding new ways to trade with the rest of the world. The geographical constraints the landlocked countries suffered from makes them bear high transport costs in international trade. These constraints are also responsible for putting these countries at an economically disadvantageous position, which slows down the realisation of economic development. The seven land-locked countries are Afghanistan, Kazakhstan, Tajikistan, Azerbaijan, Kyrgyzstan, Turkmenistan and Uzbekistan (ECO, presentation to secretariat, 2009).

Efficient but cheap transport system is a key to fostering international trade. In order for transport to play its optimal role, it is doubly important to eliminate barriers to trade in the transport sector. Firstly, the transport sector is in itself a significant producer of economic activity, and the services sector will get a tremendous boost through liberalisation in the area of transport. Secondly, the reforms in the transport sector will be instrumental in enhancing efficiency and reducing the costs of trade in goods. The freer and more open markets will be established by the removal of barriers in the transport sector, facilitating the trading of physical goods and movement of natural persons.

The dream of expansion of trade and economic integration cannot be realised without putting in place an effective modern transportation and communication network. Transport and communication represent an immense potential area for forging cooperation among the member countries of ECO. This has particular significance in view of the fact that seven out of ten member states are land-locked i.e. Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Tajikistan and Turkmenistan.

Facilitation of transit trade links is possible through exploitation of the location of these countries. The inability to fully realise the potential of the Central Asian Countries owes itself to primarily the significant “economic distance” from the market faced by transporters

throughout the region. The ways in reducing economic distance lies not only in improving physical infrastructure but also simplifying transit and clearance procedures, providing information to stakeholders and eliminating corruption.

A close look at geographical fault lines in the ECO sub-region can enable the ECO members to understand the challenges in the field of transport. This part of the world has seven out of the 42 landlocked countries. The shortest distance for any of the landlocked countries to a coastal line is not less than 2000 km.

The ECO countries do not have the capacity to take on the challenges. The state of railway intensive transport system in Central Asian Republics is in a deplorable shape. The infrastructure is too weak to meet the demand of economic growth. Compared to the Central Asian Republics, the situation is slightly better off in other member states. There is a need of making huge investments in the system to make it work efficiently. There is a scarcity of roads worthy of international standards marked by plenty of missing links in the region.

The ECO region faces gigantic technical difficulties such as different gauges, different sizes of cargo bogies, lack of bogie change facilities at border crossing points and absence of a joint manufacturing and maintenance facility for rolling stock. Additionally, there is a need to introduce information technology aimed at injecting efficiency in the transport system in the landlocked countries. Unfortunately, the respective governments have financial constraints to maintain or modernise rail and road infrastructure (ECO prospects and challenges 2002).

Keeping in view the importance of the communication sector, the ECO has focussed on enhancing cooperation in the field of transport and communication in the region. Five Ministerial meetings on Transport and Communication were held in this regard. The outcome of these meetings in concrete shape includes such major achievements such as the conclusion of a Transit Trade Agreement (TTA) and Transit Transport Framework Agreement (TTFA). On the eve of fifth ECO summit, the member countries signed TTFA in 1998 and adopted 8 annexure in 2000. The experts dubbed this as a comprehensive agreement, which addresses all major issues and responds to related challenges in the concerned fields including customs, trade facilitation, road, rail and inland water transportation.

The 9 states have put their signatures on the Agreement and 5 have ratified it. Ratification by one more country is needed to render it fully functional. The government officials as well as

the private sector need to be familiarised with the requirements and operation of the TTFA and its annexure. The Agreement can be instrumental in devising an efficient transit system in the region. If it gets implemented in letter and spirit, the agreement has the potential of integrating this economically developing but geographically landlocked region with the global market.

A number of other projects have been carried out by ECO to improve links, which include preparation of railway and road maps, identification of constraints on the custom border crossing points and a common tariff policy to names some of them. A container train service has been in operation running fortnightly from Istanbul to Almaty through Iran. A project of international passenger trains from Almaty to Iran was also launched but it could not be run on sustainable basis due to some technical problems as well as high transit charges/visa fees by some of the member states. Through passenger trains, the Central Asian railway network can be linked to Iran and Turkey and further to Middle East and Europe.

Removal of physical obstacles in the field of road transport and harmonisation of international road transport of goods, figures highly on the agenda of the ECO. Unfortunately, the border points happen to be the areas where the member states are faced with many technical problems. Custom clearance and immigration process in most cases has not been networked with information technology tools hindering the smooth passage of goods or people by causing delays. Customs officials also happen to be unaware of visa rules and there is non-availability of maps in English or in Russian. The working hours have been so worked out in most cases that the drivers and traffic have to wait for several hours for processing of their request for entry. A feasibility study is under the consideration of the ECO Secretariat, which will help the removal of physical and non-physical barriers on border crossing points. In this context, ECO has also launched another project i.e. Multi-model Transport Project which is funded by IDB and UNCTAD. Despite these positive steps geared towards putting in place a good transport network, there is still a long way to go before a modern and efficient transport and communication network becomes possible.

A databank on manufacture of products for telecommunications and postal technologies has been established. These technologies are available in the region. The member states are focusing on actively promoting cooperation in energy, mineral and environment within the ECO region. The services of NESPAK have been hired to undertake a feasibility study on interconnection and parallel functioning of power systems in the region. The Islamic

Development Bank will fund this study. The ECO Secretariat has been engaged in an effort to explore funds for another feasibility regarding route of oil pipeline.

The establishment of ECO Trade and Development Bank and ECO Re-insurance Company will improve Regional connectivity. Iran, Turkey and Pakistan have already signed agreements to this effect.

April 2009 saw the inauguration of the ECO Zone in Chabahar Free Economic Area, with an aim to proffer concessional conditions, land and premises for the ECO landlocked Member States (ECO presentation… 2009).

The facilities to be offered at the Gwader port were finalised by the government of Pakistan during 2009. The 19th RPC in January 2009 "supported a proposal to study two selected sea ports in each ECO transit country (Iran, Pakistan and Turkey) to be designated for providing concessional tariffs and facilities" (ECO presentation… 2009, p. 10). Identification of possible routes, including rail, road, and inter-modal were the proposed objectives for the landlocked countries in this area. The objective for the proposal of Joint Project between the ECO, UN-OHRLLS and other UN agencies, which is related to promotion of transit transport cooperation among landlocked and transit countries in the ECO region, contends:

"The objective of the project is to assist the ECO landlocked member states to develop efficient transport links to international markets through the transit countries of the ECO, in line with the Almaty Programme of Action and the ECO Transit Transport Framework Agreement." (A presentation… 2009, p. 11)

4.8.2 Pakistan

The need and importance of greater trade and interaction within the ECO region has been emphasised by Pakistan. With the development and inauguration of the new deep-water port at Gwader, a number of long-term steps have already been initiated. The approval of funds has been given by the government to undertake an engineering survey in Balochistan in order to establish a rail link from the new port to the existing railway track, which would lead to Afghanistan and Iran. The possibility of developing an alternative route via the Karakoram Highway and the China route needs to be examined as a viable option. The Government of

Pakistan needs to collaborate with its Chinese counterpart to develop this project on a fast-track basis.

4.8.3 Iran

With 7.782,000 telephones in operation at present, the Iran's telecommunication network is active and this figure will reach 15 million by the end of 2015. The rural areas having access to telecommunications is 19,887, and it would further rise to 35,000 by the end of the Third Development Plan. Thus all the rural areas of Iran with 20 families or more will have access to telecommunication networks. The number of public phones in operation will increase from 75,666 at present to 120,000 by the end of the Third Development Plan.

The number of mobile phones in operation will increase from 450,000 at present to 3 million by the end of the Third Development Plan. The 180-cities would experience an expansion of the transferring information network under its coverage and about 11,000 ports number will rise to 27,000 ports in 400 cities.

About 166,000 kilometres is the length of Iran's road network, including freeways, highways, feeder and rural roads. The existing road networks have been generally constructed through government development budget and freeways were constructed through implementation of the cooperative law. About 6067 kilometres is the total length of main rail road lines in the country, which include Bafq-Bandar Abbas, Mashhad-Sarakhs railroads which are some of the most important routes.

The number of operational airports having programmed flight facilities has been increased up to 44 airports. The most important air transportation project, which is currently in the process of completion relates to the construction of the Imam Khomeini (R.H) International Airport. The first phase of this mega project expects to cater for 4.5 million passengers.

The ports have the trade capacity of 36.4 million tons annually. Amirabad port, being constructed at the moment, is an important water transport project. This project will be built to develop the transit transportation in the country. The development of container transportation in water transport and the protection of marine environment are two important measures that are in the pipeline.

4.8.4 Turkey

Turkey has a unique distinction of being geographically located between Asia and Europe and serves as an intersection of trade. Since the country is surrounded by sea on three sides and covers an extensive area of 814,578 sq. kilometres, the transport sector contributes significantly to the economy and this area is growing in importance with its far-reaching impact on the means of communications in the world.

Land, sea, air and rail transport is what defines the transport sector. Except for Lake Van ferry operation, Turkey does not have inland water transport. Economic growth, competitiveness and employment find a major contributor to in the form of transport sector.

Following the foundation of the Turkish Republic in 1923, railways remained as a main driving force behind its economic development until the 1950s. In the 1920s, the total length of the railway network was about 4,000 km, while national policies were formulated with a view to supporting and promoting railway transportation. There was a revision of the transport policy in 1950s. The new policy laid greater emphasis on highway transportation, which resulted in a rapid expansion of the national road system. From 18000 km in 1920, the road network registered an expansion to 63,167 km in 2001 including 1851 motorways of 31,376 km, state roads of 29,940 km, provincial roads excluding village and forest roads.

Three factors further encouraged the development of the road transport after 1970s. These are:

• A Rapid development in Domestic automotive industry's after the 1970's.

• An infrastructure investment program leading to the construction of 1300 km of motorways in the 1980s.

• Successive Governments' failure to launch policies aimed at either requiring or allowing the publicly owned railway industry to effectively respond to a competitive transport market structure dominated by private sector operators.

With a share of 89.10% in 1999, the highway led the domestic freight transport. The ratio is 4.36% for railway, 4.76 for maritime and 0.185 for airways. 96% of the domestic passenger transport in Turkey is by road.

The total Turkish road network is 354,382 km. E-Road, the Turkish international Highway network, is spread across the country from east to west and north to south. As in other countries, there is a separation between infrastructure and road transport operations.

The construction and maintenance of the road infrastructure falls within the ambit of the government's responsibility through General Directorate of Highways within Ministry of public works and Housing. Highway operators are completely private.

The laws and policies that govern railways are rooted in the country's historical nature and are regarded as a public service monopoly, which do not reflect current economic realities. The regulatory authorities distort prices in favour of certain classes of passengers and shippers. Faced with the challenge mounted by the transport sector, the services offered by the railways are no longer in demand, and at prices below cost.

4.8.5 Kazakhstan

Under the USSR, the development of the transport network was carried out in Kazakhstan primarily to exploit rich natural resources. It was also meant to transport these resources to the main industrial centres of the Union, as well as to establish connectivity from the Central Asian Republics and Kazakhstan to central and eastern parts of Russia.

The main mode of transportation in Kazakhstan is railways because of the long distances involved and the special character of the freight, which accounts for 85 precent of cargo and 30 percent of passenger traffic. For the normal functioning of the economy, the existing railway network (6.4 km per 1000 km^2) is unable to do carry the load.

The number of roads per 1000 km is 52.5 km of public roads. As a result of low level of motorisation and poor quality of road pavement; the highways do not meet international standards. Going by these standards, only around 10 percent of roads are able to accommodate trucks with the axle load of 10 tons. The government prepared a programme for the development of the transport and communication sector in 1992. However, following the bad economic situation, the measures envisaged in the Programme for 1993-1996 could not be implemented.

For lack of sufficient investment in the area for telecommunication, the gap between demand and supply could not be bridged with the result that the development of telecommunications

suffered in Kazakhstan. The communication system is out-dated. Nearly two million main telephone lines use antiquated equipment and are serviced poorly. Connection to the republics of the former Soviet Union and China are carried by landline and microwave radio relay. Connection with other countries is by satellite and by the Trans-Asia-Europe fibber-optic cable. Kazakhstan had 13.8 telephones per 100 citizens and in rural areas the situation was even worse; Telephone services offered in the country were of low quality as well.

However, the government embarked upon modernisation of the network and reorganisation of management structures in 1992. Consequently, modern digital systems were introduced in a number of regional centres. The construction project and laying down of high speed fibre-optical communication lines were also launched. The number of international lines increased from 10 to 783 (ECO prospects and challenges 2002).

4.9 **Conclusion**

The number of Regional Trade Agreements (RTAs) has registered phenomenal increase with some 421 RTAs notified to the GATT/WTO up to December 2008. At that same date, 230 agreements were in force (WTO 2009a). This shows a clear picture of the importance of regional groupings in the present world and it suggests the future of RTAs.

Compared to other regional groupings, ECO is relatively young organisation. It is passing through a critical phase of evolution despite its commendable achievements. It augurs well for the future of the organization that all of its member states remain committed to the ECO charter, objectives and goals. The efforts have been afoot on their part to harmonise their incompatible rules and regulations, which hinder the process of regional integration despite their resource constraints.

However, what hampers the ECO's ability to emerge, as an FTA is its poor infrastructure and institutional inability to make use of the available resources. ECO's programmes and plans of action, already worked out and agreed by the member states, have been suffering from implementation problems because of the bottlenecks in physical infrastructure, institutional and human resource capacity constraints and limited experience with the global market. The region can be developed and integrated with global markets by harmonising regional development strategies, reducing non-tariff barriers and evolving a common regulatory regime for cross border flow of capital, goods and persons.

The imperative of the ECO success as an effective regional organization and its financial capacity to fulfil its obligations needs to be highlighted to enable it to emerge as a harbinger of regional cooperation. For example, there is a broad agreement within the ECO member states that accession will be accorded to basic international agreements and conventions which stipulate the rules and procedures aimed at promoting transit facilitations and laying down minimum technical requirements for construction and maintenance of infrastructure and transit transport facilitation. However, there is a high financial cost of adhering to European norms and standards for construction and maintenance of infrastructure and transport facilitation. Even the installation or up-gradation of signs and signals in line with the Convention on Road Signs and Signals (1968) involves high expenditures keeping the width and stretch of the region. Therefore, financial and technical support from its trading partners and multilateral organisations and financial institutions is needed as emergence of the region as a land bridge between Europe and Asia, hinges greatly on its financial capacity to do the needful (ECO decade of progress, 2002).

Chapter five will further explore the comparative advantage and specialisation in regards to the commodities produced, of each of the four major ECO countries, which are Pakistan, Iran, Turkey and Kazakhstan to support the above mentioned discussion on the Trade Complementarities and trade substitutes between ECO member countries. To achieve this objective revealed comparative advantage theory would be utilised. The analysis would base on the indices provided by Balassa and Vollrath.

CHAPTER 5 Comparative Advantage of Selected ECO Countries

5.1 Introduction

An examination of the comparative advantage and trade competitiveness of Pakistan, Iran, Turkey and Kazakhstan will be undertaken in this chapter. Chapter four has provided us an extensive overview on the existing infrastructure and importance of ECO as an economic grouping. Chapter five will take a further step towards policy formation for an ECO to transform it into an FTA by exploring the comparative and competitive advantages of each of the four countries under reference in four different commodities mentioned below. This will help us to form better intra-regional trade policy in the light of trade complementarities and substitutes before this study advances towards trade intensity analysis in Chapter six of this thesis.

The four major commodities to be examined in this chapter are Textiles Fabric, Crude Oil, Natural Gas and Cereals. Balassa's Revealed Comparative advantage index will be used to analyse revealed comparative advantage of these four countries in above-mentioned four commodities. Vollrath's revealed competitive advantage indexes are also used to analyse revealed competitive advantage of these four countries in the same four commodities.

The chapter is structured as follows: In order to provide conceptual framework to the analysis, Section 5.2 reviews theory and empirical studies of comparative advantage. Using Balassa's index, an analysis of revealed comparative advantage in the four major industrial categories has been undertaken in Section 5.3. Vollrath's competitive advantage indices provide an analysis of competitive advantage in these industrial categories. Data and empirical results are discussed in Sections 5.4 and 5.5. Section 5.6 concludes the chapter by shedding light on the implications of the findings for FTA of ECO countries.

5.2 Theories of Comparative advantage

Ever since there was a shift from autarky to international trade, literature on comparative advantage had been under the process of development. However, the analytical

approaches, that measure the comparative advantage of countries over other countries engaged in the production and sale of commodities, have changed, expanded and developed overtime. The Ricardian theory and the Heckscher-Ohlin (H-O) theory (Simsek *et al.* 2004) are two prominent theories of trade that are based on comparative advantage.

An over view of the literature on comparative advantage shows that, a number of theoretical frameworks have attempted to explain why countries trade with each other and how countries benefit from international trade. The first doctrine associated with international trade evolved in the 15th century was that of Mercantilism. However, the term could not gain currency and remained unknown during the intervening period. When the French politician Mirabeau coined the term Mercantilist in 1763 (Cannon, 2001), the term became known. Kerr (1986) stated that traditional Mercantilism was premised on the promotion of exports (X) and restricting Imports (M). The theory supported the nationalist dimension of self-sufficiency and independence. It was the considered opinion of the Mercantilists that, the trade is a 'zero-sum-game'. They argued that and whatever is gained from the X is lost by the M, which implies that X is desirable, while M is not desirable (Matall, 2001). However Adam Smith (1776) was critical of the Mercantilist notion towards international trade.

Adam Smith (1976) presented the trade theory of Absolute Advantage (AA). According to this theory, both exports (X) and imports (M) can be beneficial to a country. This can be done by exporting the goods in which a country possess an absolute advantage and by importing the goods in which a country has an absolute disadvantage. A country can be said to have absolute advantage if according to this theory, a country can produce goods more efficiently than any other country. With this advantage and efficiency, it should specialise in the production of goods and export the same to the rest of the world (ROW). Contrary to this, a country, which is not efficient in producing particular goods than other countries, has to import these goods from the countries having an absolute advantage in the production of those goods. According to the principles of specialisation in the production of goods, given the factor of an absolute advantage, both exporting and importing countries will stand to benefit from the trade. This will allow them the space and make sufficient resources available for the countries to improve welfare and standards of living of their people, thanks to efficient resources utilisation.

The Absolute Advantage Theory holds that a country has little chance of benefiting from trade, if it does not possess an absolute advantage in the production of any category of goods. In his book titled "On the principles of Political Economy and Taxation (Ricardo, 1817)" Ricardo states, despite the fact that a country can manage to produce everything more efficiently than another, it still can gain more from specialisation and trade of its productions. Ricardo held that free competition was the true touchstone to determine the wages. The Ricardian theory is premised on the fact that differences in technology across countries give rise to comparative advantage. David Ricardo has clearly questioned this principle of absolute advantage by using his "law" of Comparative Advantage.

The theory of Comparative Advantage holds that a country can still benefit from trade even if it does not have an absolute advantage. Theory of Comparative Advantage is premised on the fact that as long as a country produces the goods at lower comparative cost than another country, then that country can still benefit from trade. This theory further explains that a nation, which possesses Comparative Advantage in the production of a particular good, must concentrate its attention on the specialisation of production of that good. It will enable such a country to export these commodities to the rest of the world. This is how trade can be beneficial for nations with Comparative Advantage in the production of particular goods.

Other economists, such as (Haberler, 1936), (Bhagwati, 1964) and (Dunn and Mutti 2000), are of the similar view as well, as they state, under the constant returns to scale and perfect competition the differences in relative commodity prices account for the theory of comparative advantage between two nations and a nation has comparative advantage in the production of a commodity in which it has a lower relative price (opportunity cost).

Heckscher-Ohlin (H-O), theory of comparative advantage was propounded by Eli Heckscher in 1919 when he published the substance of what the theory meant. Bertil Ohlin further developed the theory in 1933. The H-O theory is premised on the assumption of similarity of production technology, factor intensities in products and consumer tastes and preferences across the nations. The theory is further characterised by constant returns to scale in production, incomplete specialisation in production, perfectly competitive product and factor markets, perfect factor mobility within nations but no factor mobility between nations, no transport costs or other barriers to trade, full employment of resources within nations and balanced international trade. A nation, under H-O theory of international trade, will export

the commodity whose production requires the intensive use of the nation's relatively abundant and cheaper factor. The nation will import the commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor. The concept can be better understood from an example whereby a capital abundant nation would naturally tend to export the capital-intensive commodity. It would, at the same time, import the labour-intensive commodity to make up for the shortage. A nation, which has abundance of cheap labour, will likely export the labour-intensive commodity and import the capital-intensive commodity.

5.2.1 Studies Testing Comparative Advantage Theory

H-O model identifies the factor abundance as the source of comparative advantage and an indicator of trade patterns. The empirical testing of the H-O model, for instance, by Leontief (1954,1956), Brown (1957), Vanek (1959), Kravis (1971), Melvin, (1968), Deardorff (1982) has been inspired extensively by this prediction of trade patterns.

Leontief (1954) tested the proposition that the United States, being favourably placed in the production of capital-intensive products, was able to export those goods due to the comparative advantage in that category. For the purpose of measurement of the factor intensity of exports and imports replacements, he employed the input-output tables. As the findings showed that the US imports were more capital-intensive than US exports, thus the results appear to contradict the H-0 theory. This paradox has popularly been known as *Leontief paradox.* The findings and results Leontief concluded mainly dealt with Japan, West Germany, India and Canada. A good number of economists were intrigued to explain the Leontief paradox and study the countries' patterns of trade through presentation of alternate justification. Economists, after thorough investigations, came up with a number of explanations of these paradoxical results, which led to the extension of the H-O theory marked by allowance for factors other than labour and capital.

Leontief's findings have been accounted for a high level of protection and tariffs, which are biased against labour-intensive products (Kravis, 1956; Kunimoto, 1977). The phenomenon of free trade allows for the higher share of labour-intensive goods in imports contrary to what is actually the case. Baldwin (1971) assumed zero import duties and thus derived competitive

imports to measuring the impact of tariffs and non-tariff protection on the capital-labour ratio adopted in import-competing production. He also came to the conclusion that Kravis's findings, which supported the Leontief paradox, had been consistent with the results. However, Leamer's (1984) argument was that Baldwin's conclusion was based on a false proposition in support of the Leontief paradox. Baldwin's assumption that the signs of the estimated coefficients are the "same as the signs of the excess factor supplies" (p. 56) was not correct.

Vanek (1959) and Weiser (1968) in their studies identified that the factor of natural resources was missing in Leontief's analysis and thus they attempted to explain his results by considering natural resources. The results derived from their in-depth analyses established the complementarity between capital and natural resources. This is how Leontief's paradox was partially explained. The conclusion of Vanek was that any test of the theory should include natural resources.

In the perspective of Leontief's findings, spread over the period of almost twenty years, Stem and Maskus (1981) analysed the direct factor content of U.S. trade in manufactures. The relationship between net exports, physical capital and unskilled was tested by them. The unskilled labour negatively influences exports as is testified by the results. These exports seem to register an increase over time. Invoking technological developments in human capital-intensive industries and greater imports in unskilled labour-intensive products, Stern and Maskus seek to justify this phenomenon. Exports however get a boost with as human capital plays a positive role in increasing them. Underlining the importance of technological influence, their findings seem to vindicate the theory of product cycle in evident terms. In the opinion of Stern and Maskus the Leontief paradox gets removed with the inclusion of human capital.

Other studies such as that of Keesing (1967), Gruber and Vernon (1967), Lowinger (1975), and Stern and Maskus (1981) explain the trade pattern by testing the role of research and development (R&D) activities, and also highlight their positive role in this regard. The net export patterns are explained by a number of studies, including Keesing (1965; 1966), Kenen (1965), Bharadwaj and Bhagwati (1967), Yahr (1968), Baldwin (1971), Branson (1971), Branson and Monoyios (1977), and Tan (1992), which emphasise the importance of the skill intensities. Their findings do not identify labour being a single homogeneous factor. They

conclude that Leontief paradox is explained by differences in skill intensity, including technological innovation etc., though they do differ on the details.

Through re-examination of the Leontief's data, Leamer (1980) has sought to explain the paradox. The data, in his opinion, showed that the U. S. was a net exporter of both capital and labour services. His contention was the unbalanced nature of trade violated the claimed relationship between the input intensity in traded commodities and the country's factor endowments. By proposing the ratio of factor manifested in production against consumption as a more appropriate determinant of trade, Leamer challenges the validity of the H-O model in unbalanced trade situations. He explored resolution of Leontief's paradoxical results by finding that the capital-labour ratio incorporated in production was greater than that in consumption.

Havrylyshyn (1984) analysed and tested the Heckscher-Ohlin theory on trade between developed and developing countries. His observation was that there was a flow of less capital-intensive exports from developing to the developed countries, while their imports were characterized by flow of capital intensive goods which also included physical, technological and human capital. Havrylyshyn based his conclusion on the observation that the theory was more suitable for analysing and predicting trade patterns between the developed and developing countries.

By exploring the issues in detail, Deardorff (1994) identified the continued insignificance as well as inability of comparative advantage to respond to some situations. He threw light on the assumption of homotheticity that restricts demand to take the same dimensions that would be reached with balanced trade, even if trade is unbalanced in a single time period. Thus he established the utility of employing comparative advantage in explaining the patterns of trade.

Tan (1992) undertook empirical testing of the H-O theorem of trade in the single country setting. His results gave overall support to the theory. He further listed the role human capital as the crucial determinant of dynamic comparative advantage. At the same time, Tan's results establish statistically insignificant importance of the skill ratio, marked by accumulation of scientific and technical skills. In his opinion, there is a relationship of complementarity between physical and human capital. The phenomenon, in his view, is reflective of the fact

that physical capital imports and human capital movements are instrumental in the occurrence of investment inflows.

A number of other studies such as Balassa (1977, 1979, 1989); Yamazawa (1970. 1971); Balassa and Bauwens (1987); Hillman (1980); Huey (1998); Roemer (1977); Sheehan *et al.* (1994); Chuankamnerdkarn (1997); Son and Wilson (1995); Yeats (1985); Tan (1992); Kalirajan and Shand (1998) Havrila & Gunawardana (2003); Ferto & Hubbard (2003); Hoen & Oosterhaven (2006) ; Gunawardana & Khorchurklang (2007); have also employed revealed comparative advantage index for various industry sectors in respect to various countries.

5.3 **Balassa's Revealed Comparative Advantage**

A concept, which uses ex-post specialisation patterns to infer comparative advantage, is called the "revealed" comparative advantage (RCA). This in simple words means that a country's actual high specialisation in an activity implies the presence of a strong comparative advantage in that activity (Balassa, 1965). Since this reflects true comparative advantage, high specialisation reflects the influence of policy interventions or other distortions such as tariffs or other trade barriers, therefore, it is called "revealed" (as opposed to theoretical) comparative advantage.

Comparative advantage (CA) is likely to originate from the outcome of numerous factors. The fact however, remains that some of these factors are available and measurable, whereas others may not be available and immeasurable at the same time. Furthermore, Balassa (1965) suggests that the trade patterns could be observed once they have taken place. This can be helpful in overcoming these challenges and facilitating the measurement of Comparative Advantage. With the help of such trade data, the CA can be 'Revealed'. This concept known as Revealed Comparative Advantage (RCA) has been adopted by current literature.

In the opinion of Balassa (1965 p.116), Pre-trade relative prices of commodities, which cannot be observed in the real world, account for comparative advantage in theory, whereas the access of analysts is restricted to post-trade and real world trade data. Balassa (1966), further states, thanks to differences in relative factor endowments, the comparative advantage can be revealed in the real world, country and commodity. Post-trade (export) data paves the

way for the revealed comparative advantage (RCA). The relative share of a commodity in a country's total exports, divided by the commodity's relative share in total world exports can measure the RCA.

The utility of the "Revealed comparative advantage" as an effective methodology lies in its ability to provide valuable information for both commercial and policy decision-making regarding economic integration. Two practical approaches, which are commonly used in literature for Revealed Comparative advantage assessment, include Balassa's revealed comparative advantage approach and Vollrath's Revealed competitive advantage Approach.

5.3.1 Balassa's RCA Index (BRCAI)

Balassa's RCA index utilised in this study is as follows:

$$RCA_{ij} = (X_{ij} / X_j) / (X_{wi} / X_w) \qquad (5.1)$$

where;

RCAij = the revealed comparative advantage index for commodity *i* of

country *j*;

X_{ij} = exports of commodity *i* of country *j*;

X_j = total exports of country *j*;

Xwi = total world exports of commodity *i*;

X_w = total world exports.

When the commodity's share in a country's exports is less than its share in world trade, the RCA index takes a value less than one. This goes to show that the country has a revealed comparative disadvantage in that commodity. Compared to this, a country has a revealed comparative advantage in the commodity if the index is greater than one (Balassa, 1996).

In order to estimate revealed comparative advantage using indicators derived from real post-trade observations (see for example Kojima 1970; Yamazawa 1970; Baldwin 1971; Donges and Riedel 1977; Wolter 1977; Balassa 1979, 1989; Hillman, 1980; UNIDO 1982, 1985, 1986; Bowen, 1983; 1985, 1986; Bowen and Pelzman 1984; Balance *et. al.* 1985; 1986; Yeats

1985,1992; Tan 1992; Memedovic 1994; Son and Wilson 1995; Maule 1996; Hiley 1999; Yue and Hua 2002; Bender and Li 2002; Havrila and Gunawardana 2003; Gunawardana and Khorchaklany 2007), a number of studies have employed the theory of comparative advantage. If we go by the various contributions made by a number of authors, the consistency of the alternative RCA crops up as an issue. Balance *et al.(*1987), in his analysis that he undertook to examine the consistency of alternative RCA measures, came across considerable incoherence and cautions on their use.

Through the use of the Ricardian framework, Moenius Johannes (2006) derives and compares several production and export-based measures of comparative advantage. He found out that theoretically, correct production and export based indicators, when there are no trade costs such as transport fees, insurance and tariffs are equivalent. However, most of the measures perform poorly in the presence of costs. It would rather be apt to say that the higher the costs, the poorer the measures. Hoen and Oosterhaven (2001) established the presence of problems with the properties of standard RCA when they analysed their properties, which runs from zero to infinity. Accordingly, it has a moving mean without a useful interpretation due to its multiplicative specification. Its distribution depends on the number of countries and commodities/industries. Keeping in view this weakness, it is proposed as an alternative additive RCA, running from -1 to +1 with a bell shaped distribution that centres on a mean equal to zero be used as it is more stable empirically.

As a key factor that explains the imbalance in bilateral trade, Palit Amitendu and Shounkie Nawani (2009) have employed indicators of comparative advantage to examine the relative competitiveness of Indian exports in the China market. The study seeks to assess the competitive quality of the Indian exports compared to those from other Southern Asian countries, which compete with India, as exporters to China. The study proved that compared to South Asian competitors in selected product categories, India is more competitive in the China market.

By employing different trade measures of comparative advantage, Simsek *et al.* (2004) explored the competiveness of Turkish firms in the EU market. The results revealed Turkey having comparative advantage in raw materials and labour intensive goods at aggregate level, a relative export advantage in capital goods, and comparative disadvantage in the research-

intensive goods. In a bid to increase its exports to EU, the results identified the sectors that Turkey should focus on to specialise.

Odhiambo Samson (2010) employed the RCA to analyse the impact the Principle of Asymmetry had on Uganda's export performance and competitiveness with special reference to the selected categories of products. During the implementation of the EAC CU wherein Uganda had to levy a phased duty on goods entering its frontiers from Kenya from 2005 to 2010, these commodities were considered and categorised as sensitive. In the opinion of Odhiambo, the asymmetry policy failed to address the imbalances in competitiveness between Uganda and Kenya, during the implementation of the EAC CU. It is affirmation of the fact that Kenya continues to have higher competitiveness compared to that of Uganda in the EAC.

However, some researchers mention the constraints of Balassa's RCA index as well. According to them, this index cannot be used to provide either an ordinal measure (to rank industries/commodities of a country according to the level of revealed comparative advantage) or a cardinal measure (to compare the magnitude of comparative advantage of different industries/commodities) of a country's revealed comparative advantage (Yeats, 1985; Ballance et al 1987). By including country/world and commodity i in all commodities, Balassa's index also doubly counts countries and commodities within the formulae.

One of the major criticisms advanced against the BRCAI is that it is restricted only to export levels and does not consider import levels. For Comparative Advantage to be measured correctly and accurately, Bowen (1983) holds that both export and import should be considered. Furthermore, in order to better reflect the CA, Bowen (1983) is of the opinion that the Net Export (NX) should be included as a variable in the calculation of BRCAI. However, this proposal does not find favour with Vollrath (1991), who objects to the contents of this proposal. According to Yeats (1985), Since the BRCAI is not a reliable index to measure the CA.

It is neither an ordinal nor cardinal measurement of the RCA. In order to compare the magnitude of CA amongst the countries, Yeats (1985) further holds that the cardinal measure of this index is more desirable than the ordinal. On the contrary, according to Balassa (1987) that the usage of the BRCAI as a cardinal and/or ordinal measure for CA should be

predominantly according to the theoretical grounds alone due to this irregularity. Numerous studies, including the ones by Hoen & Oosterhaven (2006) and Siggel (2006), describe the ways and means to improve the reliability of the BRCAI measure. Compared to the original Blassa index, which is multiplicative, Hoen & Oosterhaven (2006) proposed an additive measure of BRCAI. The BRCAI, in the opinion of Siggel (2006), is more about competitiveness and less about the comparative advantage. He, on the other hand, proposes the employment of an integrated approach for measurement of the competitiveness and the CA. However, despite all the criticism, Balassa's RCA remains the most popular and the most used index to measure revealed comparative advantage.

5.4 Vollrath's revealed Competitive Advantage Indexes

The current literature shows that Balassa's RCA index (BRCAI) has numerous inherent limitations despite the fact that Vollrath (1991) indices attempt to address some of these limitations. One of the limitations of BRCAI is that the country is exceptionally competitive (Vollrath, 1991) when it only exports a negligible amount, while most of the country's export (X) is in observed category. Furthermore, distortions are likely to characterize the trade between the countries unlike the assumption of BRCAI. Consequently, in developing a measure of RCA under various trade distortions, Vollrath (1991) further builds on Kunimoto's (1977) work. Additionally, while measuring the RCA between countries with different factor endowments, Vollrath (1991) contends about the usefulness of his measure of RCA in particular. BRCAI further makes it evident. Finally, since the BRCAI does not include the Import (M) levels, therefore, it should not be expected to represent a real world trade scenario. By including the import levels in the measurement of RCA, Vollrath (1991) has tried to address this limitation through his indices.

Using the RCA model, Vollrath (1991) undertook an investigation into alternative indexes and thus tested the trends of international competitiveness in agriculture. According to him, if the trade between countries having different factor endowments were to be focused, it was then that the estimation of comparative advantage would be especially beneficial. He identified the role and significance of RCA in differentiating between two countries' trade links and their economic association with the rest of the world. Hence, Vollrath (1991) proved that it was under international competitiveness that RCA could be estimated. Four

principal areas under RCA theory determined this, which are relative trade advantage (RTA), revealed competitiveness index (RC), the relative export advantage (RXA), and relative import advantage (RMA). Vollrath's indexes are presented below:

$$RTA_{ji} = RXA_{ji} - RMA_{ji} \quad (5.2)$$

$$RC_{ji} = \text{Ln}(RXA_{ji}) - \text{Ln}(RMA_{ji}) \quad (5.3)$$

$$RXA_{ji} = (X_{ji} / X_{nj}) / (X_{ir} / X_{nr}) \quad (5.4)$$

$$RMA_{ji} = (M_{ji} / M_{nj}) / (M_{ir} / M_{nr}) \quad (5.5)$$

where,

RTA_{ji} = relative trade advantage of country j in product i;

RC_{ji} = revealed competitiveness index of country j in product i;

RXA_{ji} = relative export advantage of country j in product i;

RMA_{ji} = relative import advantage of country j in product i;

X_{ji} = exports of product i, by country j;

X_{nj} = exports of all commodities, excluding product i, by country j;

X_{ir} = exports of product i, by the rest of the world, excluding country j;

X_{nr} = exports of all commodities excluding product i, by all countries in the World excluding country j;

M_{ji} = imports of product i, by country j;

M_{nj} = imports of all commodities, excluding product i, by country j;

M_{ir} = imports of product i, by the rest of the world;

M_{nr} = imports of all commodities, excluding product i, by all countries in the world, Excluding country j;

X = exports;

M = imports;

n = rest of the commodities;

r = rest of the world;

Ln = the natural logarithm.

According to Vollrath (1991), revealed competitive advantage emanates from positive values of RXA*ji*, RTA*ji*, and RC*ji*, while negative values indicate revealed competitive disadvantage. In order to investigate revealed competitive advantage of some industries of certain countries, Vollrath's indexes have been applied for example, in the studies of Chuankamnerdkarn (1997), Havrila and Gunawardana (2003), and Gunawardana and Khorchaklang (2007).

5.5 **Data and Sources**

The United Nations Trade Statistics databases (Commtrade), World Trade Organization (WTO) and State Banks databases of each country under review are the source of trade data that have been used in this chapter. The UN Comtrade is the preferred source of trade data used for comparative advantage analysis. However, in some cases the scope of the UN Comtrade was found limited and could not fulfil the demand. Two other sources were employed to make up for the deficiency.

For the calculation and analysis of Balassa's RCA and Vollrath's RXA, RTA, and RC to be authentic, there is a need of trade data that reflect all trade flows between all countries in the world, aimed at targeting the specific product categories. The data used for Balassa and Vollrath indices came from UN Comtrade databases for this reason. The data for the period between 1990 and 2009 consisted of annual time series.

Trade data, collected and analysed in case of Pakistan and Turkey cover a period starting from 1990 to 2009 but in the case of Kazakhstan and Iran data, which have been collected and analysed cover a period between 1995 and 2009. This is so because Kazakhstan appeared on the world map as an independent country in 1992. The earliest data we can obtain about the country only pertains to the year of 1995. Despite the fact that the Iranian economy is quite old, however the process of data collection suffered difficulty because of peculiar political and ideological history of the country and its consequent isolation from the world economic system. Data for the Years between 1997 and 2006 were obtained from UN Comtrade databases and data for the years 1995, 1996, 2007, 2008 and 2009 were

extrapolated. In the process of collecting data on Pakistan, it was found out that trade data of 1994 was not available from any source. It forced one to interpolate the trade data for the same year. All trade figures obtained from UN Commtrade were found to be nominal. Before using these figures for Comparative Advantage Analysis, they were converted into real figures. Data used is the analyses of Revealed Comparative Advantage in this chapter are given in Appendix 2, chapter 5.

Since the UN sources provide the trade data used in this chapter, the data are classified according to the Standard Industrial Trade Classification (SITC), which is a commodity-based classification system (ABS, 2008i). The categories selected from the UN databases, according to the SITC Classification, are as follows:

SITC-2

- **65: Textile Yarn, fabric**

  Textile yarn, fabrics, made-up articles and related products

- **04: Cereals, Cereal Preparations**

  Wheat (including spelt) meslin unmilled, Barley unmilled, Rice, Maize (not Including sweet corn) unmilled, Meal and flour of wheat and flour of meslin.

SITC-3

- **333: Petroleum oils, Crude**

  Petroleum oils and oils obtained from bituminous minerals, crude

- **343: Natural Gas**

  Natural gas, whether or not liquefied

5.6 Estimation of Balassa's RCA Index

This section used RCA Index developed by Balassa (1965) to measure the Revealed Comparative Advantage in four categories, based on SITC-3 in respect to four selected ECO countries.

5.6.1 Balassa RCA Index: Textile Yarn Fabric (Product Category 65)

Revealed comparative advantage (RCA) for Pakistan, Iran, Turkey and Kazakhstan in product category "65" (which is, Textile, Yarn Fabric) are shown in Table 5.1 below. According to Table 5.1, the revealed comparative advantage index (RCAI) for Pakistan is greater than one for the entire period as a proportion of trade in this commodity, which shows that Pakistan has an overall RCAI in yarn fabric production. In the case of Iran, it is evident from Table 5.1, that its RCAI remain greater than one for the years between 1995 and 2003.

Table 5.1: BRCA Analysis in Textile, Yarn Fabric

BRCAI: CATEGORY 65*				
YEARS	PAKISTAN	IRAN	TURKEY	KAZAKHSTAN
1990	19.5984	-	4.5592	-
1991	19.9169	-	4.2646	-
1992	16.0211	-	3.5856	-
1993	17.3388	-	3.5274	-
1994	10.0772	-	4.2312	-
1995	18.2536	1.2364	4.0929	0.2113
1996	19.1874	1.2180	4.2950	0.1765
1997	19.0208	1.4581	4.5960	0.0833
1998	18.6772	1.7846	4.8705	0.0591
1999	19.8947	1.5282	5.1238	0.0299
2000	20.7143	1.1360	5.6188	0.0243
2001	20.5332	1.1821	5.2792	0.0249
2002	20.3180	1.0811	4.9834	0.0167
2003	21.2260	1.0318	4.8523	0.0261
2004	21.6514	0.7996	4.8169	0.0235
2005	22.8329	0.6731	4.9792	0.0294
2006	24.4813	0.6720	4.9218	0.0461
2007	24.5493	0.9636	4.9523	0.0329
2008	23.3015	0.9989	4.6821	0.0332
2009	22.5426	0.8700	4.5971	0.0303

Category 65: Textile yarn, fabric Source: Compiled using data obtained from UN Commtrade

But, from the year 2004 to 2009, RCAI for Iran in the said commodity remains less than one. The decrease in proportion of the total trade of Iran is one of the reasons, which explains the change in BRCAI for Iran. This proves that the country has overall Revealed Comparative Disadvantage (RCD) in textile, yarn fabric production. While in the case of Turkey, RCAI remains greater than one for the entire period of 20 years, which shows Turkey has revealed comparative advantage in the production of textile, yarn fabric. It is evident from table 5.1 that, the BRCAI for Kazakhstan in textile, yarn fabric, remains less than one for the entire period of analysis; which shows Kazakhstan's revealed comparative disadvantage (RCD) in the said commodity.

In summary, Pakistan has an overall Revealed Comparative Advantage (RCA) in the textile, yarn fabric production and is followed by Turkey in this commodity. Iran and Kazakhstan possess an overall a RCD in the said commodity; which means that, Pakistan remains the strongest in this commodity amongst all four selected countries.

5.6.2 Balassa Revealed Comparative Advantage Index: Crude Oil (Product Category 333)

The BRCAI in the category 333 (which is Crude oil) for Pakistan, Iran, Turkey and Kazakhstan is presented in Table 5.2 below. According to the data analysis, the BRCAI in the case of Pakistan is less than one for the entire period of analysis. This shows that, Pakistan's has an overall RCD in crude oil production. In the case of Iran, the BRCAI is Greater than one for the entire period of analysis, excluding 2009. The country suffered decrease in total proportion of trade in the aftermath of the political crises in 2007, which seems a visible reason of decreased BRCAI in 2009. It is evident from, table 5.2 that, Iran has an overall revealed comparative advantage in the crude oil production. On other hand, BRCAI for Turkey in the said commodity remains less than one for the entire period of analysis, which shows that, the Turkey has an overall revealed comparative disadvantage in crude oil production.

For Kazakhstan, BRCAI is greater than one in crude oil, for the entire period of analysis; which shows, Kazakhstan has an overall revealed comparative advantage in the said commodity.

Table 5.2: BRCA Analysis in Petroleum Oils, Crude

BRCAI: CATEGORY 333*				
YEARS	PAKISTAN	IRAN	TURKEY	KAZAKHSTAN
1990	0.3755	-	0.0151	-
1991	0.2826	-	0.0029	-
1992	0.2819	-	0.0025	-
1993	0.2749	-	0.0035	-
1994	0.2493	-	0.0000	-
1995	0.2155	7.7965	0.0020	6.0227
1996	0.1570	12.6001	0.0014	6.1481
1997	0.2421	31.5506	0.0007	9.6314
1998	0.1037	32.7868	0.0041	12.9498
1999	0.1954	24.1657	0.0056	11.4228
2000	0.1464	16.0790	0.0031	9.0248
2001	0.1740	17.1416	0.0019	10.3965
2002	0.1346	14.5203	0.0019	11.1037
2003	0.0621	16.9918	0.0013	11.9319
2004	0.0141	15.1473	0.0023	11.2099
2005	0.0145	13.5245	0.0028	10.5004
2006	0.0327	11.1327	0.0009	8.6555
2007	0.0302	10.4224	0.0008	9.9679
2008	0.0164	5.4300	0.0003	7.9347
2009	0.0237	0.9674	0.0000	10.4764

PETROLEUM OILS, CRUDE

Source: Compiled using data obtained from UN Commtrade

In summary, Iran remains the strongest amongst all four of the countries in crude oil production, in terms of proportion of good traded and has an overall revealed comparative advantage in the said commodity. It is followed by Kazakhstan in revealed comparative advantage. But Pakistan and Turkey both have shown their revealed comparative disadvantage in crude oil production and remain major importers of this commodity in the ECO region.

5.6.3 Balassa Revealed Comparative Advantage Index: Natural Gas (Product Category 343)

In the category 343 (which is natural gas), the BRCAI for Pakistan, Iran, Turkey and Kazakhstan is presented in the table 5.3 below. According to the data analysis, the BRCAI of Pakistan remains less than one for the entire period of analysis, which proves its

overall revealed comparative disadvantage in natural gas production. It is necessary to mention here that, Pakistan is neither a major exporter nor a major importer of this commodity in the ECO region. In the case of Iran, BRCAI also remains less than one for the entire period of the analysis in the said commodity. This proves its revealed comparative disadvantage in natural gas production. BRCAI for Turkey in natural gas production also remains less than one for the entire period of analysis, which shows, Turkey's overall revealed comparative disadvantage in this commodity as well. Kazakhstan has proved to be the only country amongst all four selected countries to have revealed comparative advantage in natural gas production as; its BRCAI in natural gas production is greater than one for most of the years in the entire period of analysis.

It is evident from the table 5.3, that, only for the years between 1996 and 2001. The BRCAI has remains less than one in the case of Kazakhstan, in regards to the natural gas production. "The resources not being tabbed earlier" seems to be the main reason for the low BRCAI, Kazakhstan had between the years 1996 and 2001. Kazakhstan's overall revealed comparative advantage in evident from the analysis of the data.

In summary, Kazakhstan remains the only country with an overall revealed comparative advantage in natural gas production. Other three countries have overall revealed comparative disadvantage in natural gas production. Other than Turkey, Iran and Pakistan are not among the list of major importers of natural gas in the ECO region. Turkey, on the other hand has a clear opportunity to import natural gas from Kazakhstan in future.

Table 5.3: BRCA Analysis in Natural Gas

BRCAI: CATEGORY 343*				
YEARS	PAKISTAN	IRAN	TURKEY	KAZAKHSTAN
1990	0.0026	-	0.0089	-
1991	0.0021	-	0.0071	-
1992	0.0017	-	0.0059	-
1993	0.0021	-	0.0058	-
1994	0.0025	-	0.0048	-
1995	0.0032	0.0390	0.0052	1.0601
1996	0.0017	0.0278	0.0028	0.8134
1997	0.0015	0.0001	0.0028	0.4246
1998	0.0021	0.0175	0.0026	0.6101
1999	0.0022	0.0249	0.0000	0.6102
2000	0.0018	0.0179	0.0020	0.4284
2001	0.0015	0.0304	0.0019	0.8393
2002	0.0001	0.0749	0.0036	2.3017
2003	0.0019	0.0074	0.0000	1.6431
2004	0.0013	0.2732	0.0004	2.3321
2005	0.0018	0.3227	0.0006	1.1152
2006	0.0004	0.3500	0.0012	1.3185
2007	0.0005	0.1426	0.0033	1.1194
2008	0.0004	0.1911	0.0299	0.9852
2009	0.0002	0.2277	0.0694	2.2669

NATURAL GAS

Source: Compiled using data obtained from UN Commtrade

5.6.4 Balassa Revealed Comparative Advantage Index: Cereals and Cereals Preparations (Product Category 04)

In the product category 04 (which is Cereals and cereals preparations), the BRCAI for Pakistan, Iran, Turkey and Kazakhstan is presented in table 5.4. According to the analysis of the data, BRCAI for Pakistan remains greater than one for the entire period of analysis, which shows its overall revealed comparative advantage in Cereals production. On other hand, the BRCAI for Iran in the said commodity remains less than one for the entire period of analysis. This shows Iran's revealed comparative disadvantage in the cereals production. BRCAI for Turkey in cereals production is greater than one, for entire period except the years 1990 and 2002. This shows Turkey's revealed comparative advantage in cereals production. BRCAI for Kazakhstan remains greater than one for the entire period of analysis as well, which shows the country's overall revealed comparative advantage in cereals production.

Table 5.4: BRCA Analysis in Cereals and Cereal Preparations

BRCAI: CATEGORY 04*				
YEARS	PAKISTAN	IRAN	TURKEY	KAZAKHSTAN
1990	3.8518	-	0.5061	-
1991	5.9103	-	3.1786	-
1992	4.2815	-	3.1732	-
1993	3.5170	-	1.5697	-
1994	4.9808	-	2.0471	-
1995	5.6195	0.3324	1.9326	6.4185
1996	4.6126	0.2537	1.8722	7.1922
1997	5.3946	0.5815	2.3269	8.6746
1998	6.9125	0.5190	2.1925	6.5644
1999	7.8705	0.4038	1.6027	6.7981
2000	7.8278	0.2363	1.9349	8.2588
2001	7.9803	0.1841	1.2719	5.3827
2002	7.8706	0.0961	0.9814	4.7044
2003	7.5595	0.1334	1.0812	6.0703
2004	7.2399	0.1031	1.0790	3.5510
2005	10.9681	0.2323	1.7615	2.0355
2006	11.4386	0.3771	1.5448	2.9600
2007	9.7724	0.2025	1.2383	4.4394
2008	13.5025	0.1788	1.1278	3.8038
2009	11.1373	0.1811	1.5230	3.0753

CEREALS,CEREAL PREPARATIONS

Source: Compiled using data obtained from UN Commtrade

In terms of revealed comparative advantage in cereals production, Pakistan tops the list of all four selected countries. Though Kazakhstan shows its strength in early years but loses its trade proportion of said commodity in later years. This change or fluctuation in trade pattern in the said commodity tends to place it at second position in terms of revealed comparative advantage. Table 5.4 shows that Turkey has revealed comparative advantage in the said commodity as well but holds third position in the list of four countries. Iran shows no strength in cereals production, which concludes that Iran has revealed comparative disadvantage in the cereals and cereals Preparations.

5.6.5 Summary- Balassa Revealed Comparative Advantage Index

The main findings have been drawn up in the light of analysis of the RCAI based on SITC-3 level of aggregation for the four selected product categories and four selected ECO countries. They are as follows:

Pakistan records a revealed comparative advantage in textile yarn fabric and cereals production, out of the four product categories analysed, while it records a revealed comparative disadvantage in crude oil and natural gas production. Iran records a revealed comparative advantage in crude oil production only, while it records a revealed comparative disadvantage in Textile yarn fabric, natural gas and cereals production. Though in textile yarn fabric production, Iran shows its strength in early few years of the entire period of analysis but its revealed comparative disadvantage is proven in later years. Similar to Pakistan, Turkey also records a revealed comparative advantage in textile yarn fabric and cereals production. It holds second place in the production of textile yarn fabric and third in the production of cereals while, comparing it with Pakistan. Turkey records a revealed comparative disadvantage in crude oil and natural gas production. Kazakhstan records a revealed comparative advantage in the production of crude oil, natural gas and cereals, while in textile yarn fabric production; it records a revealed comparative disadvantage. In natural gas production Kazakhstan remains the only country with a revealed comparative advantage among the four countries and in other two products, Kazakhstan is a major exporter as well.

5.7 **Vollrath Revealed Export, Trade and Competitive Advantage Indexes**

According to equations 5.2-5.5, based on STIC-3 level aggregation for four selected ECO countries, Vollrath indices are calculated for four selected product categories. The tables containing the analysis in respect of calculated Vollrath (1991) indices, in the next section are structured as follows:

Based on the STIC-3 level of aggregation with respect to Pakistan, Iran, Turkey and Kazakhstan, Tables' 5.5- 5.20 show the Vollrath's revealed export advantage index (VRXAI), Vollrath's revealed import advantage index (VRMAI), Vollrath's revealed trade advantage index (VRTAI) and Vollrath's revealed competitive advantage index (VRCAI) for the four selected product categories. It is divided into four sections and the division is country-based, while each section contains four tables one for each product category.

5.7.1 Textile, Yarn Fabric (Product Category 65)

Table 5.5: VRCA Analysis in Textile Yarn, Fabric for Pakistan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 65*				
PAKISTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	41.0994	0.7647	40.3347	3.9842
1991	42.9511	0.6595	42.2916	4.1764
1992	33.8401	0.4580	33.3821	4.3025
1993	37.6622	0.3797	37.2825	4.5971
1994	14.5950	0.3793	14.2158	3.6502
1995	40.1576	0.3957	39.7620	4.6199
1996	42.7951	0.3586	42.4365	4.7819
1997	41.9465	0.2919	41.6546	4.9677
1998	39.1155	0.3894	38.7261	4.6098
1999	41.7353	0.4700	41.2654	4.4864
2000	42.0665	0.5316	41.5349	4.3711
2001	41.4000	0.6805	40.7195	4.1082
2002	40.5137	0.7804	39.7333	3.9496
2003	42.7866	0.9502	41.8364	3.8073
2004	41.2196	0.9120	40.3076	3.8111
2005	42.3039	1.0933	41.2107	3.6557
2006	45.2403	1.1719	44.0683	3.6533
2007	43.1013	1.1935	41.9078	3.5867
2008	37.0241	1.0466	35.9775	3.5660
2009	36.6117	1.3416	35.2700	3.3065

Textile yarn, fabric

Source: Compiled using data obtained from UN Commtrade

According to the table 5.5, Pakistan's Vollrath's revealed export advantage Index (VRXAI) is positive in value for textile, yarn fabric product, which means that the country has more potential in exporting the said commodity to the world. The VRXAI has been consistent between 1990 and 2009 and did not vacillate over time. Year 1994 saw it sharply decrease but it again picked up momentum in the year 1995. As a proportion of total trade in goods than in total trade, VRXAI has more pronounced patterns. The observation of the Vollrath's revealed trade advantage Index (VRTAI) and Vollrath's revealed competitive advantage index (VRCAI) shows that, both values are positive as well, for the entire period of analysis and makes one conclude that the country has overall advantage in the production of textile, yarn fabric.

5.7.2 Crude Oil ((Product Category 333)

Table 5.6: VRCA Analysis in Petroleum Oil, Crude for Pakistan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 333*				
PAKISTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	0.3777	1.6072	-1.2295	-1.4482
1991	0.2840	1.2472	-0.9632	-1.4797
1992	0.2835	1.3118	-1.0282	-1.5318
1993	0.2764	1.1747	-0.8983	-1.4470
1994	0.2503	1.2812	-1.0308	-1.6327
1995	0.2162	1.2803	-1.0641	-1.7787
1996	0.1575	1.1290	-0.9715	-1.9698
1997	0.2433	1.1918	-0.9485	-1.5888
1998	0.1038	1.4553	-1.3516	-2.6409
1999	0.1964	1.6453	-1.4489	-2.1254
2000	0.1474	2.1929	-2.0455	-2.6996
2001	0.1752	2.7872	-2.6120	-2.7668
2002	0.1353	2.6008	-2.4655	-2.9562
2003	0.0622	2.3506	-2.2884	-3.6321
2004	0.0141	2.2234	-2.2093	-5.0600
2005	0.0145	1.7356	-1.7211	-4.7834
2006	0.0327	1.8560	-1.8233	-4.0385
2007	0.0302	1.7164	-1.6862	-4.0393
2008	0.0165	1.7530	-1.7366	-4.6687
2009	0.0237	1.5607	-1.5370	-4.1870

PETROLEUM OILS, CRUDE

Source: Compiled using data obtained from UN Commtrade

It is evident from table 5.6 that Pakistan's VRXAI is having a positive value for the entire period of analysis, theoretically speaking; it means that in crude oil production, Pakistan has a Revealed Export Advantage (RXA). Fluctuation has marked VRXAI over time and between 1990 and 2009, it has steadily been decreasing. The early years saw it picking up some strength but only to decrease in later years. The Vollrath's analysis of competitive advantage is always based on the positivity and negativity of the revealed trade advantage index (RTAI) and the revealed competitive advantage index (RCAI). When we look the VRTAI and VRCAI for the crude oil in the table 5.6, it is observable that, the both values are negative for the entire period of the analysis and does not register any major fluctuation. This shows the presence of a revealed competitive disadvantage (RCD) in crude oil production, in the case of Pakistan.

5.7.3 Natural Gas (Product Category 343)

Table 5.7: VRCA Analysis in Natural Gas for Pakistan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 343*				
PAKISTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	0.0026	0.0000	0.0026	4.5303
1991	0.0021	0.0000	0.0021	4.6906
1992	0.0017	0.0000	0.0017	4.6207
1993	0.0021	0.0003	0.0018	2.0195
1994	0.0025	0.0092	-0.0067	-1.3008
1995	0.0032	0.0178	-0.0145	-1.7041
1996	0.0017	0.0109	-0.0092	-1.8668
1997	0.0015	0.0055	-0.0040	-1.3203
1998	0.0021	0.0258	-0.0237	-2.5028
1999	0.0022	0.0151	-0.0129	-1.9283
2000	0.0018	0.0224	-0.0206	-2.5400
2001	0.0015	0.0012	0.0003	0.2335
2002	0.0001	0.0005	-0.0004	-2.0395
2003	0.0019	0.0001	0.0018	2.8809
2004	0.0013	0.0001	0.0012	3.0708
2005	0.0018	0.0044	-0.0026	-0.8851
2006	0.0004	0.0002	0.0002	0.8358
2007	0.0005	0.0001	0.0004	1.7980
2008	0.0004	0.0000	0.0004	2.6585
2009	0.0002	0.0006	-0.0004	-1.0213

NATURAL GAS

Source: Compiled using data obtained from UN Commtrade

Pakistan's Vollrath's revealed export advantage index (VRXAI) is positive in natural gas production. The years between 1990 and 2009 saw Pakistan's VRXAI registering a downward trend in this product on a consistent basis. On other hand, it is evident from table 5.7 that, the VRTAI of Pakistan is natural gas is overwhelmingly positive for the entire period of analysis. A period of six years from 1994 to 2000 saw it go down to such an extent that it changed into negative value. However, it registered an increase and was rendered into a positive value since 2001. On other hand, VRCAI remains positive for the entire period of analysis, meaning that the country possesses a revealed competitive advantage in natural gas production and carries a potential to export it to the rest of the world.

5.7.4 Cereals and Cereals Preparations (Product Category 04)

Table 5.8: VRCA Analysis in Cereals and Cereal Preparations for Pakistan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 04*				
PAKISTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	4.0823	6.1460	-2.0637	-0.4091
1991	6.4621	2.2979	4.1642	1.0340
1992	4.5962	5.2047	-0.6084	-0.1243
1993	3.6968	4.0885	-0.3918	-0.1007
1994	5.3133	4.2235	1.0898	0.2295
1995	6.0526	4.1883	1.8643	0.3682
1996	4.9268	3.7124	1.2143	0.2830
1997	5.7696	8.2301	-2.4605	-0.3552
1998	7.4998	4.4752	3.0247	0.5163
1999	8.5608	4.7560	3.8048	0.5878
2000	8.4089	1.9089	6.5000	1.4828
2001	8.6285	0.4242	8.2042	3.0125
2002	8.5169	0.7113	7.8056	2.4827
2003	8.1329	0.1918	7.9411	3.7472
2004	7.7368	1.9857	5.7511	1.3600
2005	12.0490	1.1351	10.9139	2.3622
2006	12.5549	0.7221	11.8328	2.8557
2007	10.6961	0.4647	10.2314	3.1363
2008	15.6639	4.6959	10.9679	1.2047
2009	12.5858	1.3572	11.2286	2.2271

CEREALS,CEREAL PREPARATIONS

Source: Compiled using data obtained from UN Commtrade

It is evident from table 5.8 that, Pakistan's VRXAI is positive in value for the product of Cereals and Cereals preparations. Fluctuations can be noticed over the period of analysis, in regards to the VRXAI in the table 5.8; however, it has been increasing steadily, between the years 1990 and 2009. The observation of the VRTAI and VRCAI in the table 5.8 makes one notice, that the VRTAI is overwhelmingly positive for the entire period of analysis except during the early few years. However, it steadily registered an upward trend over the time period. VRCAI has also remained positive for the entire period of analysis, meaning thereby that Pakistan possesses a revealed competitive advantage (RCA) in cereals production and carries a potential of exporting this product to the rest of the world.

5.7.5 Textile, Yarn Fabric (Product Category 65)

Table 5.9: VRCA Analysis on Textile, Yarn Fabric for Iran

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 65*				
IRAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	1.2891	0.8308	0.4582	0.4392
1996	1.2673	0.8437	0.4236	0.4068
1997	1.5320	0.9084	0.6236	0.5227
1998	1.8928	0.8453	1.0475	0.8061
1999	1.6029	0.8875	0.7154	0.5912
2000	1.1716	1.0045	0.1671	0.1539
2001	1.2226	0.8808	0.3418	0.3279
2002	1.1119	0.5257	0.5863	0.7492
2003	1.0576	0.5886	0.4691	0.5861
2004	0.8081	0.6314	0.1767	0.2468
2005	0.6722	0.6371	0.0351	0.0536
2006	0.6697	0.1469	0.5228	1.5168
2007	0.9785	0.6208	0.3577	0.4550
2008	1.0143	0.5463	0.4680	0.6188
2009	0.8785	0.5874	0.2910	0.4024

Textile yarn, fabric

Source: Compiled using data obtained from UN Commtrade

Table 5.9 shows that Iran has a positive VRAXI value, in regards to the textile, yarn fabric production. While, observing the VRTAI and VRCAI in table 5.9, we find out that both values are positive for the entire period of the analysis. Unlike the results obtained from Balassa's revealed comparative advantage analysis, in the previous section of this chapter, Vollrath's competitive analysis, suggests that Iran has a Revealed Competitive Advantage (RCA) in textile yarn fabric production and carries potential to export it to the rest of the world.

5.7.6 Crude Oil (Product Category 333)

Table 5.10: VRCA Analysis in Petroleum Oils, Crude for Iran

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 333*				
IRAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	11.6152	0.0001	11.6150	11.3481
1996	31.7723	0.0001	31.7722	12.6200
1997	438.1009	0.0003	438.1006	14.2044
1998	230.6455	0.0000	230.6455	16.1086
1999	219.7590	0.0000	219.7590	15.4144
2000	208.6878	0.0001	208.6877	14.6524
2001	178.9828	0.0000	178.9827	15.1400
2002	68.5640	0.0000	68.5640	15.7191
2003	122.5928	0.0001	122.5927	13.6167
2004	120.5199	0.0002	120.5197	13.2933
2005	156.3537	0.0001	156.3536	14.9326
2006	105.0364	0.0000	105.0363	14.5659
2007	36.8412	0.0001	36.8411	13.0617
2008	10.7183	0.0001	10.7182	11.9418
2009	1.0236	0.0001	1.0235	9.3515

PETROLEUM OILS, CRUDE

Source: Compiled using data obtained from UN Commtrade

Table 5.10 shows that Iran has a positive VRXAI value in regards to the crude oil production. It possesses a Revealed Export Advantage in this commodity. Table 5.10, suggests that the VRTAI and VRCAI of Iran are also, strongly positive and increasing during the entire period of analysis, which suggests that Iran has Revealed Competitive Advantage in crude oil production and carries a strong potential to export crude oil to the rest of the world.

5.7.7 Natural Gas (Product Category 343)

Table 5.11: VRCA Analysis in Natural Gas for Iran

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 343*				
IRAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	0.0382	0.0001	0.0381	6.5929
1996	0.0272	0.0000	0.0272	7.8546
1997	0.0001	0.0001	0.0000	-0.0085
1998	0.0173	0.0001	0.0172	5.2536
1999	0.0246	0.0000	0.0245	7.6883
2000	0.0175	0.0000	0.0174	6.0553
2001	0.0296	0.0000	0.0296	6.4392
2002	0.0733	0.0001	0.0732	7.1496
2003	0.0072	0.0000	0.0072	5.8527
2004	0.2677	0.0000	0.2677	9.6393
2005	0.3146	0.0004	0.3142	6.7921
2006	0.3407	0.0001	0.3406	8.4388
2007	0.1395	0.0001	0.1394	6.9994
2008	0.1872	0.0001	0.1871	7.4805
2009	0.2222	0.0001	0.2220	7.5272

NATURAL GAS

Source: Compiled using data obtained from UN Commtrade

It is evident from the table 5.11 that Iran has a positive VRXAI value, in regards to the natural gas production. The table also suggests that the VRTAI is positive in value for the entire period of analysis as well. The observation of VRCAI in the table also makes one notice that, it is overwhelmingly positive in value for the entire period of analysis. Only the years 1997 has shed the negativity on VRCAI of Iran, in regards to the natural gas production. Unlike the results obtained from the Balassa's revealed comparative advantage analysis, this analysis suggests that Iran has revealed competitive advantage in natural gas production and carries a potential for export in the said product.

5.7.8 Cereals and Cereals Preparations (Product Category 04)

Table 5.12: VRCA Analysis in Cereals and Cereal Preparations for Iran

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 04*				
IRAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	0.3283	11.9501	-11.6218	-3.5946
1996	0.2497	10.49954	-10.2498	-3.7387
1997	0.5808	17.37988	-16.7991	-3.3987
1998	0.5187	7.763025	-7.2443	-2.7057
1999	0.4017	15.16078	-14.7591	-3.6308
2000	0.2322	20.05357	-19.8214	-4.4587
2001	0.1803	15.28163	-15.1014	-4.4400
2002	0.0941	6.12689	-6.0328	-4.1761
2003	0.1308	4.758366	-4.6276	-3.5942
2004	0.1003	3.483015	-3.3827	-3.5476
2005	0.2250	4.129363	-3.9043	-2.9097
2006	0.3671	1.085298	-0.7182	-1.0840
2007	0.1984	3.328104	-3.1297	-2.8198
2008	0.1749	2.515518	-2.3406	-2.6659
2009	0.1761	2.311205	-2.1351	-2.5743

CEREALS,CEREAL PREPARATIONS

Source: Compiled using data obtained from UN Commtrade

Table 5.12, shows that the Iran has positive values for VRXAI entire period of analysis, which is in regards to the production of cereals. On other hand, the observation of VRTAI and VRCAI shows that the VRTAI value is overwhelmingly negative and VRCAI value is completely negative for the entire period of analysis. This means that Iran has a revealed competitive disadvantage (RCD) in this Product. It can be concluded that Iran possesses no potential for export of cereals to the world.

5.7.9 Textile, Yarn Fabric (Product Category 65)

Table 5.13: VRCA Analysis in Textile, Yarn Fabric for Turkey

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 65*				
TURKEY				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	5.2559	1.1439	4.1120	1.5249
1991	4.8753	1.1206	3.7547	1.4703
1992	4.1042	1.0876	3.0166	1.3281
1993	4.0054	1.3135	2.6920	1.1150
1994	4.9275	1.8333	3.0942	0.9887
1995	4.7588	2.0441	2.7147	0.8450
1996	5.0113	1.8655	3.1458	0.9882
1997	5.4313	2.0073	3.4241	0.9954
1998	5.7778	2.1106	3.6673	1.0071
1999	6.0520	2.0658	3.9862	1.0749
2000	6.7584	1.8571	4.9012	1.2917
2001	6.2779	2.1822	4.0957	1.0567
2002	5.8106	2.6514	3.1592	0.7846
2003	5.6051	2.5067	3.0984	0.8047
2004	5.5159	2.3458	3.1701	0.8550
2005	5.6689	2.2900	3.3789	0.9064
2006	5.5469	2.1885	3.3584	0.9300
2007	5.5616	2.4530	3.1086	0.8186
2008	5.1900	2.1613	3.0287	0.8760
2009	5.0928	2.4676	2.6252	0.7246

Textile yarn, fabric

Source: Compiled using data obtained from UN Commtrade

Table 5.13 shows that Turkey's VRXAI has positive value for the entire period of analysis, in regards to the production of textile, yarn fabric, which suggests that Turkey possesses Revealed Export Advantage in the said product. While, observing VRTAI and VRCAI in table 5.13, we find out that, they carry positive values as well, for the entire period of analysis. We can conclude that Turkey has a Revealed Competitive Advantage in this product, thereby Turkey carries a strong potential for export in textile, yarn fabric.

5.7.10 Crude Oil (Product Category 333)

Table 5.14: VRCA Analysis in Petroleum Oils, Crude for Turkey

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 333*				
TURKEY				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	0.0150	3.4821	-3.4670	-5.4452
1991	0.0029	2.7067	-2.7038	-6.8531
1992	0.0025	2.7364	-2.7339	-6.9956
1993	0.0035	2.1270	-2.1235	-6.4172
1994	0.0000	3.0378	-3.0377	-11.4107
1995	0.0020	2.4420	-2.4401	-7.1215
1996	0.0014	2.0151	-2.0137	-7.2722
1997	0.0007	1.6369	-1.6362	-7.7703
1998	0.0041	1.5780	-1.5740	-5.9614
1999	0.0056	1.9845	-1.9790	-5.8766
2000	0.0031	1.5059	-1.5029	-6.1913
2001	0.0019	2.0283	-2.0264	-6.9621
2002	0.0019	1.7630	-1.7611	-6.8313
2003	0.0013	1.3976	-1.3963	-6.9950
2004	0.0023	1.1317	-1.1294	-6.1912
2005	0.0028	1.1113	-1.1085	-5.9962
2006	0.0009	1.0677	-1.0668	-7.0458
2007	0.0008	1.0070	-1.0062	-7.1343
2008	0.0003	0.9071	-0.9069	-8.1912
2009	0.0000	0.6737	-0.6736	-11.9493

PETROLEUM OILS, CRUDE

Source: Compiled from UN Commtrade

Table 5.14, shows that, the Turkey's VRAXI in crude oil production is positive in value for the entire period of analysis. It is evident from the table 5.14 that the VRTAI and VRCAI values remain negative for the entire period of analysis and steadily decrease over the time period. This reveals that Turkey has revealed competitive disadvantage (RCD) in crude oil production and carries no potential to export in crude oil. On the other hand VRMAI's positive value suggests that Turkey is a strong market for the import of this Product.

5.7.11 Natural Gas (Product Category 343)

Table 5.15: VRCA Analysis in Natural Gas for Turkey

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 343*				
TURKEY				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	0.0088	1.9105	-1.9017	-5.3809
1991	0.0071	2.3789	-2.3718	-5.8148
1992	0.0059	2.0721	-2.0663	-5.8691
1993	0.0058	1.8798	-1.8740	-5.7846
1994	0.0048	2.9754	-2.9705	-6.4264
1995	0.0052	3.3584	-3.3533	-6.4792
1996	0.0028	2.6661	-2.6633	-6.8545
1997	0.0028	1.3890	-1.3863	-6.2117
1998	0.0026	2.3599	-2.3573	-6.8017
1999	0.0000	3.7496	-3.7495	-12.0190
2000	0.0019	1.4718	-1.4699	-6.6269
2001	0.0018	1.0310	-1.0292	-6.3239
2002	0.0036	0.4674	-0.4638	-4.8619
2003	0.0000	0.6771	-0.6771	-14.3792
2004	0.0004	0.5260	-0.5256	-7.1326
2005	0.0006	0.3281	-0.3276	-6.3393
2006	0.0012	0.2373	-0.2361	-5.2693
2007	0.0033	0.2231	-0.2198	-4.2187
2008	0.0297	0.1580	-0.1283	-1.6724
2009	0.0690	0.2231	-0.1541	-1.1734

NATURAL GAS

Source: Compiled using data obtained from UN Commtrade

Table 5.15 shows that Turkey's VRXAI has a positive value for the entire period of analysis, in natural gas production. However, the observation of VRTAI and VRCAI in table 5.15 reveals that both of these values remain negative for the entire period of the analysis and are characterised by a high level of fluctuation. This suggests that Turkey has a Revealed competitive disadvantage (RCD) in natural gas production and possesses no potential to export in this product.

5.7.12 Cereals and Cereals Preparations (Product Category 04)

Table 5.16: VRCA Analysis in Cereals and Cereal Preparations for Turkey

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 04*				
TURKEY				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1990	0.5073	3.4916	-2.9843	-1.9289
1991	3.3417	0.6355	2.7062	1.6598
1992	3.3580	0.7098	2.6481	1.5541
1993	1.6043	1.2945	0.3098	0.2146
1994	2.1059	0.7401	1.3658	1.0457
1995	1.9882	1.3737	0.6146	0.3698
1996	1.9287	1.6952	0.2335	0.1290
1997	2.4114	1.6250	0.7864	0.3947
1998	2.2609	1.1662	1.0947	0.6620
1999	1.6320	1.2140	0.4181	0.2959
2000	1.9800	1.0297	0.9502	0.6538
2001	1.2885	0.5912	0.6972	0.7790
2002	0.9895	0.9337	0.0558	0.0581
2003	1.0913	1.3314	-0.2402	-0.1989
2004	1.0886	0.7553	0.3334	0.3656
2005	1.7927	0.2885	1.5043	1.8269
2006	1.5665	0.2335	1.3331	1.9036
2007	1.2526	0.7845	0.4681	0.4680
2008	1.1409	1.2325	-0.0917	-0.0773
2009	1.5507	1.0401	0.5106	0.3994

CEREALS,CEREAL PREPARATIONS

Source: Compiled using data obtained from UN Commtrade

According to the table 5.16, Turkey's VRXAI has a positive value for the entire period of analysis, in cereals production. The observation of the VRTAI and VRCAI also suggests that both of these values remain positive for the entire period of analysis as well. This suggests that Turkey has a revealed competitive advantage (RCA) in the production of cereals, which means Turkey can export more in the said product.

5.7.13 Textile, Yarn Fabric (Product Category 65)

Table 5.17: VRCA Analysis in Textile, Yarn Fabric for Kazakhstan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 65*				
KAZAKHSTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	0.2121	0.4748	-0.2627	-0.8059
1996	0.1771	0.4705	-0.2934	-0.9773
1997	0.0833	0.3867	-0.3034	-1.5351
1998	0.0591	0.3597	-0.3006	-1.8063
1999	0.0299	0.3583	-0.3284	-2.4846
2000	0.0243	0.3896	-0.3654	-2.7762
2001	0.0249	0.3204	-0.2955	-2.5541
2002	0.0167	0.4094	-0.3927	-3.2005
2003	0.0261	0.5449	-0.5188	-3.0382
2004	0.0235	0.4670	-0.4435	-2.9905
2005	0.0293	0.3982	-0.3688	-2.6076
2006	0.0460	0.4153	-0.3693	-2.2001
2007	0.0328	0.3773	-0.3445	-2.4434
2008	0.0331	0.4438	-0.4107	-2.5960
2009	0.0302	0.4258	-0.3955	-2.6448

Textile yarn, fabric

Source: Compiled using the data obtained from UN commtrade

Table 5.17 shows that the Kazakhstan's VRXAI has positive value for the entire period of analysis in textile yarn fabric. A look at VRTAI and VRCAI on the other hand shows that both of these values remain negative for the entire period of analysis. This means that Kazakhstan has a revealed competitive disadvantage in this product. It also shows that Kazakhstan has no potential to export in the said product.

5.7.14 Crude Oil (Product Category 333)

Table 5.18: VRCA Analysis in Petroleum Oils, Crude for Kazakhstan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 333*				
KAZAKHSTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	7.2103	0.3139	6.8964	3.1342
1996	7.9084	0.1618	7.7466	3.8894
1997	13.1963	0.9287	12.2677	2.6539
1998	18.9746	1.2116	17.7630	2.7511
1999	19.1022	0.1206	18.9816	5.0655
2000	17.9554	0.2927	17.6627	4.1165
2001	21.1297	0.7464	20.3833	3.3432
2002	23.5465	0.7346	22.8119	3.4675
2003	26.6063	0.5999	26.0064	3.7921
2004	26.5946	0.7071	25.8874	3.6273
2005	28.7039	0.6521	28.0518	3.7846
2006	23.1632	0.8655	22.2977	3.2870
2007	24.9776	0.8006	24.1770	3.4404
2008	20.9876	0.8565	20.1311	3.1989
2009	27.3016	0.7593	26.5423	3.5823

PETROLEUM OILS, CRUDE

Source: Compiled using data obtained from UN Commtrade

Table 5.18 shows that the Kazakhstan's VRXAI has a positive value for the entire period of analysis, in the production of crude oil. Even though, VRXAI has been fluctuating over time it has been steadily increasing between 1995 and 2009. Observation of the VRTAI and VRCAI, also suggests that, both values are positive as well for the entire period of the analysis. This means that Kazakhstan has a revealed Competitive advantage in crude oil production and possesses a potential for export in crude oil.

5.7.15 Natural Gas (Product Category 343)

Table 5.19 shows that Kazakhstan's VRXAI possesses a positive value for the entire period of analysis, in natural gas production. The observation of the VRTAI and VRCAI shows that these both values remain negative for the first 12 years out of the entire period of analysis. Later years have seen the negative values change into positive values, which suggest that Kazakhstan possessed revealed Competitive disadvantage in this product for the first 12

years. But the country had revealed competitive advantage in later years. The analysis clearly shows that since Kazakhstan has capitalised on its vast natural gas resources, it has great potential for the export in this product.

Table 5.19: VRCA Analysis in Natural Gas for Kazakhstan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 343*				
KAZAKHSTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	1.0645	20.9112	-19.8467	-2.9778
1996	0.8177	7.2145	-6.3968	-2.1773
1997	0.4256	3.1972	-2.7716	-2.0165
1998	0.6124	5.6411	-5.0287	-2.2205
1999	0.6126	4.8012	-4.1887	-2.0590
2000	0.4299	2.8060	-2.3761	-1.8759
2001	0.8470	2.1379	-1.2909	-0.9259
2002	2.3588	3.6472	-1.2883	-0.4358
2003	1.6749	2.5062	-0.8312	-0.4030
2004	2.3983	2.6109	-0.2125	-0.0849
2005	1.1322	1.6711	-0.5389	-0.3893
2006	1.3387	1.4020	-0.0633	-0.0462
2007	1.1354	0.9187	0.2168	0.2119
2008	1.0004	0.7770	0.2235	0.2528
2009	2.3504	0.6068	1.7435	1.3541

NATURAL GAS

Source: Compiled using data obtained from UN Commtrade

5.7.16 Cereals and Cereals Preparations (Product Category 04)

Table 5.20 shows that Kazakhstan's VRXAI has a positive value for the entire period of analysis, in cereals production. A look at both VRTAI and VRCAI shows that both values are positive for the entire time period of analysis as well. This suggests that Kazakhstan has a revealed competitive advantage (RCA) in this product and potential for export in cereals and cereals preparations.

Table 5.20: VRCA Analysis in Cereals and Cereal Preparations for Kazakhstan

VRXAI, VRMAI, VRTAI, VRCAI: CATEGORY 04*				
KAZAKHSTAN				
YEARS	VRXAI	VRMAI	VRTAI	VRCAI
1995	6.9981	0.9051	6.0930	2.0453
1996	7.9707	0.6094	7.3613	2.5710
1997	9.6821	0.7343	8.9478	2.5791
1998	7.0753	0.4882	6.5871	2.6737
1999	7.2941	0.7812	6.5129	2.2340
2000	8.9115	0.9623	7.9492	2.2258
2001	5.6665	0.7594	4.9071	2.0098
2002	4.9256	0.8638	4.0617	1.7408
2003	6.4365	0.7954	5.6411	2.0909
2004	3.6710	0.7817	2.8893	1.5468
2005	2.0702	0.8294	1.2408	0.9147
2006	3.0374	0.8531	2.1844	1.2699
2007	4.6503	0.7264	3.9239	1.8566
2008	3.9875	0.6849	3.3026	1.7617
2009	3.1851	0.8014	2.3837	1.3799

CEREALS,CEREAL PREPARATIONS

Source: Compiled using data obtained from UN Commtrade

5.8 Trade Substitutes and Complementarities

It becomes evident from the analysis of Balassa's revealed comparative advantage and Vollrath's revealed competitive indices that Pakistan, out of four ECO member countries, has an overall advantage and a strong potential for export in the product category 65, which is Textile, Yarn Fabric. Turkey follows Pakistan in this product category. Iran and Kazakhstan, on the other hand, clearly have comparative disadvantage for textile, yarn fabric as Indices show.

Similarly in the product category "04", again Pakistan and Turkey have comparative and competitive advantages. The products of this category are Cereals and Cereals Preparations. Kazakhstan shows its Comparative Advantage in this product category as well. Out of the four ECO member countries, Iran is the only country that has comparative disadvantage in this product category.

Iran has immense potential to export crude oil, to the world as; the analysis shows its comparative advantage in it. Iran is followed by Kazakhstan, which has export potential in

crude oil as well, but, Iran has proven to be the strongest in this category in the ECO region. Pakistan and Turkey, on the other hand, are marked by a clear comparative disadvantage and possess absolutely no potential for the export of this product category to the world.

Pakistan and Turkey again possess comparative disadvantage in the case of Natural Gas. However both Balassa's Index and Vollrath indices have opposite opinion on the status of Iran in this category. According to Balassa's Index, Iran has comparative disadvantage in this category, while Vollrath Indices reveal Comparative advantage for Iran in this product category. Both indices identified Comparative Disadvantage for Kazakhstan during the early years of the entire period of analysis. However, after Kazakhstan explored rich gas resources, its comparative disadvantage turned into a clear comparative advantage and the country came to possess strong export potential in the later years for this product category.

Going by trade Complementarities and Substitutes phenomena, it is only natural for Pakistan and Turkey to export product textile, yarn fabric to Iran and Kazakhstan. They can, in return, import crude oil from Iran and Kazakhstan, for the latter have Comparative advantage in this category. Among the ECO countries, Kazakhstan is the only country rich in natural gas and can export this product to other three selected countries of the ECO region.

Vollrath's revealed Import advantage index shows that despite having comparative disadvantage in Natural Gas production, both Pakistan and Iran are not the prominent importers of this product category as well. Their limited production of natural gas balances with demand. It is rare when these countries suffer from shortage of natural gas though Pakistan has been faced with the severest energy crisis due to vast disconnect between demand and supply.

Given its revealed comparative disadvantage, Turkey, on the other hand, has to import natural gas to keep the engine of its economy moving. In case of these four countries of the ECO region, Kazakhstan can prove to be a big exporter of the Natural Gas for Turkey as well as for Pakistan and Iran.

Three out of four countries within the ECO, three countries have comparative advantage and a strong potential of export in cereals. Pakistan accompanied by Turkey in tandem is the strongest in this category. This means that Iran can meet its demand of cereals by importing them, either from Pakistan or Turkey, which have Comparative advantage in this product category.

5.9 **Conclusion**

This chapter reviewed the theoretical development of basis of the trade between different nations and also explain the underlying reasons for the countries' specialisation in the specific industries. These industries influence the Export and Imports levels. Through comprehensive and careful review of the existing literature, one has been led to identify the measurement of Comparative Advantage in various categories amongst four countries of ECO. Balassa (1965) and Vollrath (1991) identified, developed and applied the measurements of comparative and competitive advantages and numerous empirical studies have used these indices in current literature. BRCAI is Balassa's (1965) measurement of the comparative advantage, while Vollrath (1991) measures are the VRXAI, VRTAI and VRCAI. Due to lack of the authentic and credible data, the indices of Balassa (1965) and Vollrath (1991) are only intended to calculate the data of the last 20 years in the case of Turkey and Pakistan and for 15 years in the case of Iran and Kazakhstan.

The calculated BRCAI has revealed that Pakistan possesses a Revealed Comparative Advantage (RCA) in two out of four product categories, which are textile, yarn fabric and cereals. However in case of crude oil and natural gas, Pakistan has a revealed comparative disadvantage as revealed by BRCAI. The Pakistan's VRXAI, VRTAI and VRCAI, according to Vollrath indices, suggest that the country has a strong potential for export in textile, yarn fabric and cereals besides revealed competitive disadvantage in the other two products, which are crude oil and natural gas. Pakistan's export potential in textile, yarn fabric and cereals is improving overtime as is suggested by VRCAI.

Except for crude oil, Iran records a revealed comparative disadvantage (RCD) in all selected product categories as is suggested by Balassa and Vollrath. Iran comes out to be the strongest in the entire ECO region in crude oil. It has to rely on other countries such as Pakistan and Turkey for imports of textile, yarn fabric and cereals. However, Iran is neither a big importer nor an exporter in the case of natural gas.

Both Pakistan and Turkey have similar comparative advantages and disadvantages. Turkey, according to BRCAI and Vollrath indices, has revealed comparative advantage (RCA) in textile, yarn fabric and cereals and revealed comparative disadvantage (RCD) in crude oil and natural gas. Despite having revealed comparative advantage in both textile and cereals, Turkey still stands second, while Pakistan is the strongest in these categories.

Kazakhstan, as is evident from BRCAI, VRXAI, VRTAI and VRCAI, has a revealed comparative advantage (RCA) in all product categories except textile, yarn fabric, where it has comparative disadvantage. Among the four ECO countries, Kazakhstan proves to be the strongest and sole exporter of natural gas. Kazakhstan follows Iran in product crude oil and accompanies Pakistan in cereals production.

After stating these facts, it can be safe to conclude that both Pakistan and Iran can meet each other's need by exporting and importing the products in which they have advantage as well as comparative disadvantage such as textile and crude oil. In the same way, Pakistan can export textile, yarn fabric to Kazakhstan and import natural gas from it. Iran can import cereals from Turkey, while the latter can Import crude oil from the former. Turkey can import natural gas from Kazakhstan and export textile, yarn fabric to Kazakhstan.

This chapter provides valuable information on the existence of a Revealed comparative advantage or a Revealed comparative disadvantage in the four product categories. However, the limitation of indices such as BRCAI, VRXAI, VRCAI, and VRTAI is that they do not mention anything specific as to what influences such outcomes. This is so because these indices rely on post-trade historic data for calculation.

Consequently, all indices used in this chapter including the BRCAI, VRXAI, VRTAI, and VRCAI do elaborate on as to what has initiated such Export and Import flows leading to these specific outcomes by showing only Revealed Advantage or Revealed disadvantage. An important question such as– "What are the economic variables that influence the Export and Import flows between Pakistan, Iran, Turkey Kazakhstan and the Rest of the world?" remain unanswered in the process. Chapter 6 will analyse the trade intensity for these countries and trade flows using the Gravity Model analysis in chapter 7. These chapters will attempt to establish the potential for Free Trade Area (FTA) among the ECO countries.

CHAPTER 6 Trade Intensity Analysis: Trade Flows among ECO Countries and between ECO and Other Countries

6.1 Introduction

In chapter 5, an analysis of Comparative Advantage of Pakistan, Iran, Turkey and Kazakhstan was presented. The analysis conducted in the preceding chapter, however, does not clearly state the preference of these four ECO countries to trade with one another. Therefore, in this chapter (chapter 6) an analysis of trade intensity indices is used to examine bilateral trade linkages. These indexes essentially aim to highlight the relative importance of a trading partner vis-à-vis the rest of the world. This chapter exclusively focuses on estimating the extent of bilateral trade between Pakistan, Iran, Turkey, Kazakhstan and their other major trading partners during the period 1990-2009. An effort has also been made in this chapter to identify changes taking place in the pattern of trade relations over the period.

In order to measure the extent of trade among ECO countries and between ECO countries and their other major trading partners, the trade intensity analysis technique is used. Since this chapter seeks to highlight interdependence in aggregate and to identify major trade partners of each of the four ECO countries, the trade intensity analysis technique appears suitable for this purpose. This technique is characterised by simplicity as well as the ability to identify the bilateral/multilateral trade linkages in clear terms.

This chapter is divided into following sections: section 6.2 discusses the theory of trade intensity analyses and models used in literature on trade intensity. Section 6.3 examines other factors influencing country bias other than economic factors. Section 6.4 extensively reviews the empirical studies on trade intensity analysis. Section 6.5 presents and discusses the trade intensity analysis model employed for this study and data sources and issues related to them. Section 6.6 analyses the data for trade intensity analysis between ECO countries. In this study, we will utilise the Frankel and Rose method with the modifications suggested by Kim (2002). In section 6.7 the potential of an FTA amongst ECO countries id discussed. This chapter concludes in Section 6.8

6.2 Trade Intensity: Theory and Models

In order to measure and analyse bilateral trade flows and trade resistances, trade intensity index is utilised as a method. Brown (1947), Kojima (1964) and Drysdale and Garnaut (1982) pioneered, developed and popularized the method respectively. This index abstracts from the effects of the size of the exporting and importing countries, and focuses on variations in bilateral trade levels. A detailed survey of the trade intensity index is given by Drysdale and Garnaut (1982), in which they discuss the use of the trade intensity index in trade relation's analysis.

6.2.1 Kojima Model

Kojima's trade intensity index, Iij , and expressed it as:

$$I_{ij} = \frac{X_{ij}}{X_i} / \frac{M_j}{M_w - M_i} \qquad (6.1)$$

Where X_{ij} is country i's exports to country j; X_i is i's total exports; M_j is j's total imports; M_i is i's total imports; and M_w is total world imports. The proportion of exports of i that goes to j is shown by the level of intensity and weighted by the world share of imports of j. It uses values that range from zero to infinite positive number. An I_{ij} of unity would mean the proportion of exports of i that goes to j is in exact proportion to j's world share of imports. However, Kojima's basic trade intensity index only roughly measures relative resistance to trade flows and does not account for varying commodity composition of bilateral trade

6.2.2 Drysdale Index

Drysdale (1967) argues that due to the degree of complementarity in the commodity composition of one country's exports and the other's imports, there are fewer prospects for bilateral trade in cases where commodities are not substitutable for each other (Drysdale and Garnaut, 1982). In order to account for compositional effect, Drysdale divided the trade intensity index into two indices that seek to separate the effects of commodity composition (complementarity) from other factors, which influence the intensity of trade. Complementarity in i's exports to j, C_{ij}, is the sum of the product of each commodity's share in i's exports and j's imports, weighted by the inverse of world share.

$$C_{ij} = \sum_k \left(\frac{X_i^k}{X_i} * \frac{M_w - M_i}{M_w^k - M_i^k} * \frac{M_j^k}{M_j}\right) \quad (6.2)$$

Where X_i^k is i's export of commodity k; M_j^k is j's imports of commodity k; and M_w^k is world imports of commodity k. The complementarity index, C_{ij}, indicates the value that the intensity index, I_{ij} , would take if i.s exports of each commodity k were distributed among world markets exactly in proportion to each market's share of world imports of commodity k (Drysdale and Garnaut, 1982). In other words, it uses hypothetical that bilateral exports of i that go to j to calculate expected intensity index.

To capture trade resistance and barriers, Drysdale also developed an index of country bias at commodity level, analogously to the intensity index.

$$B_{ij}^k = \frac{X_{ij}^k}{X_i^k} / \frac{M_j^k}{M_w^k - M_i^k} \quad (6.3)$$

Where X_{ij}^k is i's exports of commodity k to j. Since some goods face higher trade barriers than others, Drysdale demes the weighted average of country bias index for all commodities k in i's aggregate export trade with j as follows.

$$B_{ij} = \sum_k \left(B_{ij}^k * \frac{X_{ij}^k}{X_{ij}}\right) \quad (6.4)$$

Where X_{ij}^k is the hypothetical value of X_{ij}^k obtained when B_{ij}^k equals unity; and X_{ij} is the hypothetical value of X_{ij} when all B_{ij}^k equal unity. The ratio $\frac{X_{ij}^k}{X_{ij}}$ is equal to the percentage contribution of commodity k to complementarity in i.s export to j. Finally, the product of the indexes is equal to trade intensity index.

$$I_{ij} = C_{ij} * B_{ij} \quad (6.5)$$

The Complementarity index measures the effect of commodity composition on trade intensity. In the same way, country bias index is used to measure the average effect of differential resistances on trade intensity. Drysdale assumed that the global trade of each

country in terms of commodity composition remains independent of influences, which affect bilateral trade (Drysdale and Garnaut, 1982).

6.2.3 Rose and Frankel Models

Bilateral trade intensity between two trading countries has been examined through several methods. Frankel (1997) and Frankel and Rose (1998) aimed at analysing the bilateral trade intensity. Nevertheless, the argument advanced by Frankel and Rose is basically premised on facilitating an evaluation of the suitability of the optimum currency areas (Heungchong, 2002).

With a view to examining the propensity to trade among Pakistan, Iran, Turkey and Kazakhstan, this research mainly used trade intensity indices proposed by Frankel and Rose (1998). The use of this model has been necessitated by its suitability and appropriateness to analyse and estimate how intensely one country (i.e. Pakistan) trades with its trading partner.

Following, simple proxy was proposed by Frankel and Rose (1998) for the bilateral trade intensity of two countries, in evaluating the suitability of the optimum currency areas.

$$W_{ijt} = (X_{ijt} + M_{ijt}) / (X_{i.t} + X_{j.t} + M_{i.t} + M_{j.t}) \qquad (6.6)$$

Where W_{ijt} is the degree of trade intensity between two countries i and j during period t, X_{ijt} denotes country i's total nominal exports to country j, M_{ijt} denotes country i's total nominal imports from country j, $X_{i.t}$ denotes i's total exports to the world and $M_{i.t}$ denotes country i's total imports from the world. This measure expresses the bilateral trade intimacy normalized by the total trade of the two countries. Higher value of W_{ijt} indicated greater trade intensity between countries i and J.

6.2.4 Other Models

While the measure proposed by Frankel and Rose (1998) is intuitive and simple to calculate, it nonetheless is afflicted with several problems. Firstly, as recognized by Frankel and Rose themselves, just a few cases are observed in the dataset where country i's exports to country j do not coincide with Country j's imports from country i.

The asymmetry of the data can lead to controversies on data accuracy. Second, the denominator has four terms in the measure, but the numerator has only two terms. So, numerators ignore any effects of trade flows from country j to i, while they are given consideration in the second and fourth terms of the denominators. One can think of an extreme case to recognise any misunderstanding when two countries trade exclusively with each other without having any trade with third parties. The value of measure make 1/2 it would be more natural for trade intensity to be 1 in this case.

In order to forestall the possibility of recurrence of these problems, Kim (2002) revisited Frankel and Rose's measure and simply added two terms of X_{jit} and M_{jit} in the numerators:

$$W_{ijt}(\%) = (X_{ijt} + X_{jit} + M_{ijt} + M_{jit}) * 100/ (X_{i.t} + X_{j.t} + M_{i.t} + M_{j.t}) \quad (6.7)$$

The degree of intensity in the trade of two countries compared to their global trade volume is implied by W_{ijt}. Higher values of the measure indicate greater trade intensity between the countries i and j. By definition, this measure is symmetric, that in $W_{ijt} = W_{jit}$.

6.3 **Determinants of Special Country Bias**

Factors other than those, which determine the commodity composition of each country's global trade, also affect the intensity of trade between the trading countries. From the hypothetical model of homogeneous commodity trade, these factors, which include transport cost, discriminatory tariffs and other import restrictions, product differentiation within commodity classes, and other international economic relations than trade such as capital movements and economic cooperation, have been put aside.

These factors have the potential of affecting all commodities in bilateral trade to the same extent. The global structures of export and import specialisation determine the degree of complementarity between a pair of countries and are independent of other factors. However, this may not necessarily be the case in actuality. For example, transport costs incurred by importing countries tend to depress imports of bulk commodities from the distance more than those of other commodities. That is why that the global commodity composition of the exporter does not reflect structure of export specialisation in relation to the importer. Similarly, preferential tariff arrangements may be a hurdle in the non-member sources of

supply in imports of manufactures more than in those of raw materials. What is more important is not the product differentiation in semifinished products but in finished manufactures. Therefore, all commodities do not necessarily have the same degree of special country bias but have varying degrees around the overall special country bias in each bilateral trade, which is a weighted harmonic means of special country bias of individual commodities.

Each bilateral trade has a varying size and structure of divergence. For the first approximation, they can be regarded as the random disturbance around the overall bias and independent of the overall degrees of complementarity and special country bias. Thus a line can be drawn between two groups of factors, which affect the intensity of bilateral trade. One relates to the structure of comparative advantage of exporters and importers. These structures are modified somewhat by their commercial policies, which determine the degree of complementarity between two countries. The factors, which mainly determine the degree of special country bias in bilateral trade, form the second group.

The first group of factors as the determinants of the pattern of international trade has been the special focus of traditional theories. The second group of factors has received scant attention. This phenomenon can be explained by the fact that most traditional theories of international trade have been worked out on the basis of a two-country model without having any special country bias. Discriminatory effects of Customs Union or Free Trade Area have appeared recently following the establishment of WTO. From both theoretical and practical understanding of international economics, it is interesting to study how much the second group of factors affect trade patterns among a number of countries.

For example Drysdale suggested that the increased investments in Australia made by the U.S. since the mid-1950s and by Japan in recent years have been instrumental in the increased imports of capital goods and related commodities from these countries. These imports have resulted in higher special country bias in export trade of these countries with Australia. This is more likely to be the case when the development countries resort to distribution of economic aids among LDCs since tied loans are the most used form of giving aids (uppal, 2007).

6.4 **Empirical Literature**

It is surprising to know from the survey of literature that only a few studies employed trade intensity analysis indices to study bilateral trade flows. By using both complementarity and country bias indexes, Yamazawa (1970, 1971) studies the pattern of international trade between pairs of countries. His empirical findings find out the trade intensity index is significantly affected by the complementarity index, distance, and other dummy variables. However, his study is based on the use of country level data and many geographical clusters. Drysdale and Garnaut (1982) have studied bilateral trade patterns through the survey papers, which apply the indexes on trade patterns. Since then, the use of indexes has been made at limited scale with a view to analyse bilateral trade relationships in the following papers.

The pattern, composition and trends in Australia-Philippine trade spread over two decades 1962-81 were analysed and explained by Hill (1985) through application of the three indexes. Zhang (1997) measured the transformation of China-Japan trade relationship over a period between 1965 and 1993 by using the three indexes. Similarly, Bano (2002) resorted to the use of the trade intensity index to examine the strength of trade relations between New Zealand and its major trading partners (Australia and selected Asia-Pacific nations) between 1981 and 1999. In addition to other methods, Creamer (2003) employed the trade intensity index to examine the effect of open regionalism in the Andean community on intra-region and inter-region trade between 1990 and 2000. Likewise, the measurement of East Asian intra-regional trade was carried out by Ng and Yeates (2003) by using the trade intensity index and expected distance adjusted trade intensity index. Bhattacharya and Bhattacharyya (2007) also applied the trade intensity index aimed at measuring the trade potential between China and India. By using the same index, Bhalla and Bhalla (1996) have explored trade intensities for the SAARC countries both individually as well as regionally. Pitigala (2005) has undertaken analysis on the trade intensity indices and their movements from pre-reform to post-reform periods for the whole of the South Asian region. Recently, Das (2007) analysed the trade intensity indices for South Asian countries as well. He was of the view that that there was mixed evidence of trade complementarity in South Asia. Indian and Pakistani exports have complementarity to imports by some South Asian countries such as Bangladesh and Sri Lanka. Other than these studies mentioned above, applying or using this index in a significant way has not studied bilateral trade between countries.

6.5 The Model Used for the Analysis in this Chapter

Variations in bilateral trade levels are the focus of the trade intensity index. These variations result from differential resistances by abstracting from the effects of the size of the exporting and importing countries. This means the higher value of this index, the higher bilateral trade (Drysdale and Garnaut, 1982).

A number of studies apply the Frankel and Rose method of trade intensity analysis. For example, using Frankel and Rose method, Kim (2002) has analysed trade intensity between ASEAN and China, Japan and Korea. Trade intensity between ECO countries will be the major thrust of this study which will utilise the Frankel and Rose method with the modifications suggested by Kim (2002).

$$W_{ijt}(\%) = (X_{ijt} + X_{jit} + M_{ijt} + M_{jit}) * 100/ (X_{i.t} + X_{j.t} + M_{i.t} + M_{j.t}) \quad (6.7)$$

One is the average amount of this index. If an index value is greater or closer to one, it means that trade intensity is at a higher degree between two given countries. There is lower trade intensity between countries when the result of the computation is closer to zero.

6.6 Data and Sources

United Nations Trade Statistics databases (Commtrade), World Trade Organization (WTO) and each of the selected country's national Bank databases are the source of trade data used in this chapter for each country under review. The UN Commtrade was relied upon as a preferred source of trade data for comparative advantage analysis. However, at times the scope of the UN Comtrade was found limited in some cases. Hence, utilising the other two sources as and when required made up the deficiency.

In order to fully and comprehensively calculate and analyse the trade intensity among Pakistan, Iran, Turkey, Kazakhstan and their major trading partners, there was a need as well as requirement of total trade data, which could reflect all trade flows amongst the above mentioned countries and between these countries and the rest of the world. Yet again, UN

Comtrade database is the source of the data used for Frankel and Rose and Kim's indices. This consists of annual time series data for the period between 1990 and 2009.

Trade data collected and analysed in the case of Pakistan and Turkey and their other trading partners represent the years between 1990 and 2009. However, in the case of Kazakhstan and Iran, years between 1995 and 2009 is the period on which data has been collected and analysed and same time period is used for their other trading partners in this chapter. Since Kazakhstan came into existence in 1992 after the collapse of the USSR, therefore, we cannot get its trade data beyond 1995. Though Iran has an old history, it has been aloof from the world community due to its political and ideological differences with the rest of the world. This was the major constraint in getting authentic trade data for Iran.

The UN Commtrade databases provided data for the years between 1997 and 2006 and data for the years 1995, 1996, 2007, 2008 and 2009 were extrapolated. During the process of data collection in respect of Pakistani trade, it was found that trade data for the year 1994 was not available anywhere, which required the trade data for the year 1994 to be interpolated. All trade figures obtained from UN Commtrade were nominal; they all are converted into real figures before they are utilised for Trade Intensity Analysis. The data used for the analysis could be found in appendix to chapter 6.

6.7 **Results and Discussion**

Table 6.1 shows that the period between 1995 and 2009 saw fluctuations in the trade intensity between Pakistan and Iran. It was 0.3866 in 1995. Then it was gradually reduced to 0.2611 in 1999. It rose up again to 0.4028 in 2001 and gradually increased and reached up to 0.4727 in 2007. It again reduced to 0.2112 in 2009. The fluctuating trade intensity between Pakistan and Iran mainly owes itself to the socio-political situation that existed in Iran at that point of time. Appendix table 6.1 indicates the rising trend of imports from Iran to Pakistan over the time period of the analysis. It can be concluded by looking at the Trend coefficient of trade intensity between Pakistan and Iran that even though it does not show a strong potential of trade between Pakistan and Iran, yet it points out a positive trend and hints at the increase in trade between these two countries.

Compared to the intensity between Pakistan and Iran, trade intensity between Pakistan and Turkey can be seen to have a more positive and stronger basis. The year 1990 shows the trade intensity between Pakistan and Turkey at 0.6034, which gradually decreased over the period of analysis. 2005 saw an improvement and the trend coefficient of the trade intensity reached to 0.4463 in 2009. The trade intensity has been on the stronger trajectory throughout the period of analysis than the intensity between Pakistan and Iran. The Trend Coefficient of trade intensity between Pakistan and Turkey indicates the negative result. This is because of the decreasing trend of trade between Pakistan and Turkey. Gradual decrease in the total exports and imports of Turkey with the world explains the decreasing trade intensity between Pakistan and Turkey. The trade between Pakistan and Turkey has also been affected in the process. This decreasing trend depicting total exports and imports of Turkey is rather general than being country specific.

Table 6.1 Trade Intensity, Pakistan's Major Trade Partners

Year	Iran	Turkey	Kazakhstan	USA
1990	-	0.6034	-	0.8756
1991	-	0.5377	-	0.8143
1992	-	0.3520	-	0.8113
1993	-	0.5494	-	0.7247
1994	-	0.4998	-	0.6554
1995	0.3866	0.5928	0.0509	0.6155
1996	0.3821	0.3391	0.0978	0.6720
1997	0.2916	0.2324	0.0687	0.6071
1998	0.2839	0.2521	0.0965	0.5800
1999	0.2611	0.3711	0.0412	0.4492
2000	0.3384	0.2484	0.0429	0.4471
2001	0.4028	0.2425	0.0258	0.4686
2002	0.4455	0.3325	0.0349	0.5139
2003	0.4986	0.3685	0.0279	0.5380
2004	0.3280	0.3301	0.0195	0.6183
2005	0.4587	0.4275	0.0232	0.5705
2006	0.4727	0.3661	0.0229	0.5780
2007	0.3983	0.4001	0.0257	0.5322
2008	0.3864	0.3350	0.0495	0.4109
2009	0.2112	0.4463	0.0372	0.4320
Trend Coefficient	0.0027	-0.0080*	-0.0036**	-0.0181***
t statistic	0.5281	-1.7291	-2.9271	-5.7422

While calculating the intensity coefficient within the sample countries,
Country mentioned in the title is treated as the first country and the
Individual countries mentioned in the table are treated as the second country.

Source: Compiled using the data obtained from UN Commtrade

Ratios of trade intensity between Pakistan and Kazakhstan appear to be little compared to the trade intensity between Pakistan and the other two countries. The figures shown in table 6.1 make this fact quite evident. There has been decreased trade intensity between Pakistan and Kazakhstan during the entire period of analysis as well. It started with 0.0509 in 1995 and was reduced to 0.0372 in 2009. The trend coefficient of the trade intensity between these two countries also points out a negative outcome. The analysis of trade intensity between Pakistan and Kazakhstan sufficiently proves that both countries are not fully exploiting their trade potential. This is more so the case at the policy level and in economic decision-making.

In the case of the trade intensity between Pakistan and the USA, it becomes clear that the USA has been the biggest and the strongest trade partner of Pakistan for the entire period of

the analysis. The trade intensity between Pakistan and USA was 0.8756 in 1990, which gradually decreased and was reduced to 0.4320 in 2009. The outcome of their trend coefficient is also negative. However, a review of the entire period of analysis shows that the USA has remained the strongest trading partner as compared to the other three internal trade partners. This is despite the fact that the trade intensity between Pakistan and the USA has decreased over the entire period of analysis.

ECO consists of Iran, Turkey, Kazakhstan and Pakistan in addition to other countries. The analysis of the trade intensity between these countries spells out a negative trend. Despite many economic advantages, these countries have not been able to fully benefit from the trade potential.

Compared to ECO countries, the USA is an external trade partner of Pakistan but is the largest trading partner. The trade relations between Pakistan and the US have been subject to political considerations and geo-strategic imperatives. With the change in the American Administration, the foreign policy of the US has changed having far-reaching implications for all kinds of relations with countries like Pakistan. Trade has been a major sufferer in the whole process. Turkey is the second largest trading partner of Pakistan out of these four countries in terms of trade intensity, which is followed by Iran. Kazakhstan has weak trade relations with Pakistan and is at number four in that trajectory.

The analysis of table 6.2 shows that over a period of analysis, the trade intensity between Iran and Pakistan has been fluctuating. The trend coefficient is positive but not significant and shows some unused potential of continuing trade between the two countries.

Trade intensity between Iran and Turkey was 1.0344 in 1995, which gradually increased to 1.4731 in 2008. The trend coefficient of trade intensity is 0.0082 between these two countries, which is positive but not significant and show some trade potential between Iran and Turkey.

The trade intensity between Iran and Kazakhstan was 0.2538 in 1995, which registered a gradual increase and reached to 0.8648 in 2000. It continued decreasing and was reduced to 0.3993 in 2005. There was a marginal improvement in 2006 and 2007 but only to fall down in 2008 and 2009. The trend coefficient of trade intensity between Iran and Kazakhstan is not

significant. It however reflects a positive trend with Iran inclined towards Kazakhstan in terms of trade.

Table 6.2 Trade Intensity, Iran's Major Trade Partners

Year	Pakistan	Turkey	Kazakhstan	China
1995	0.3866	1.0344	0.2538	0.4080
1996	0.3821	1.1276	0.4180	0.6622
1997	0.2916	1.2113	0.4493	0.7019
1998	0.2839	1.2451	0.4694	1.1006
1999	0.2611	1.2561	0.5254	0.8902
2000	0.3384	1.1309	0.8648	1.0072
2001	0.4028	1.0744	0.7903	1.2767
2002	0.4455	1.0284	0.6683	1.1959
2003	0.4986	1.2812	0.6839	1.2568
2004	0.3280	1.2188	0.4359	1.1662
2005	0.4587	1.4604	0.3993	1.4547
2006	0.4727	1.2208	0.5283	1.6554
2007	0.3983	1.4920	0.6580	1.2531
2008	0.3864	1.4731	0.4719	1.2276
2009	0.2112	0.7374	0.2216	0.8511
Trend Coefficient	0.0027	0.0082	0.0001	0.0481***
t statistic	0.5281	0.6872	0.0109	3.1844

While calculating the intensity coefficient within the sample countries,
Country mentioned in the title is treated as the first country and the
Individual countries mentioned in the table are treated as the second country.

Source: Compiled using data obtained from UN Commtrade

The trade intensity between Iran and China was 0.4080 in 1995, which gradually increased and reached to 1.6554 in 2006. The trend coefficient of trade intensity between the two countries is 0.0481, which is positive and significant. This trend shows Iran's inclination towards China in relation to trade.

As compared to the trade intensity between Iran and Turkey, trade intensity between Iran and China has been fluctuating throughout the period of analysis. Iran and China scored high ratio of trade intensity between years 2005 and 2006, which has been instrumental in overall increasing the trend coefficient of trade intensity between Iran and China. The downward trend in Trade intensity registered that the last three years between Iran and China can be attributable to particular geo-strategic changes and the political circumstances of Iran.

Table 6.2 suggests that Turkey is the major trade partner of Iran as the trade intensity between Iran and Turkey has remained positive and constant for the entire period of analysis. China happens to be the second most important trade partner of Iran followed by Kazakhstan and Pakistan. Pakistan remains the weakest trade partner as compared to the other three trade partners of Iran.

Table 6.3 shows that during the entire period of trade intensity between Turkey and Pakistan, the trade relations between both countries have been fluctuating. The trade intensity between Turkey and Pakistan was 0.6034 in 1990, which reduced to 0.2324 in 1997 and recovered back in 2002 and 2003. Trend coefficient of trade intensity between Turkey and Pakistan is negative and significant which shows a negative result in terms of trade partnership between these two countries.

In 1995 the trade intensity between Turkey and Iran is 1.0344, which has gradually increased to 1.4731 in 2008; only in 2009, the trade intensity has reduced to 0.7374. The trend coefficient of trade intensity between Turkey and Iran is positive but not significant. Referring to table 6.2, the trade intensity between Turkey and Iran has remained positive and constant for the entire period of analysis. This proves that Iran is a stronger trade partner of Turkey than Pakistan.

The trade intensity between Turkey and Kazakhstan was 0.7451 in 1995. During the entire period of analysis between 1995 and 2009, it continued to fluctuate. In years, namely 2007 and 2008 the trade intensity was getting stronger and positive when the trade intensity reached 1.1912 and 1.3582 respectively. The trend coefficient of the trade intensity between Turkey and Kazakhstan is positive and significant.

Table 6.3 Trade Intensity, Turkey's Major Trade Partners

Year	Pakistan	Iran	Kazakhstan	UK
1990	0.6034	-	-	0.9745
1991	0.5377	-	-	1.0574
1992	0.3520	-	-	1.0845
1993	0.5494	-	-	1.3914
1994	0.4998	-	-	1.0977
1995	0.5928	1.0344	0.7451	1.3346
1996	0.3391	1.1276	0.6160	1.5791
1997	0.2324	1.2113	0.7551	1.6800
1998	0.2521	1.2451	0.9197	1.6980
1999	0.3711	1.2561	0.6959	1.5708
2000	0.2484	1.1309	0.6482	1.9718
2001	0.2425	1.0744	0.4101	1.6768
2002	0.3325	1.0284	0.5774	1.7549
2003	0.3685	1.2812	0.5790	1.8573
2004	0.3301	1.2188	0.6619	2.0501
2005	0.4275	1.4604	0.6692	1.9243
2006	0.3661	1.2208	0.9070	1.8251
2007	0.4001	1.4920	1.1912	1.9938
2008	0.3350	1.4731	1.3582	1.7548
2009	0.4463	0.7374	0.9627	1.6549
Trend Coefficient	-0.0080*	0.0082	0.0294**	0.0468***
t statistic	-1.9271	0.6872	2.2347	6.3391

While calculating the intensity coefficient within the sample countries,
Country mentioned in the title is treated as the first country and the
Individual countries mentioned in the table are treated as the second country.

Source: Compiled using data obtained from UN Commtrade

The trade intensity between Turkey and the UK was 0.9745 in 1990, which increased gradually to 2.0501 in 2004. The years between 2005 and 2009 registered a downward trend of the trade intensity but it still remained between 1.9243 and 1.6549 respectively. The positive and significant trend coefficient of the trade intensity between Turkey and the UK, indicates the fact that despite the UK being an external trade partner, the UK still remains the most important trade partner of Turkey as compared to the other three ECO member countries.

The trade intensity index Table 6.3 suggests that UK remains on the top of the list of major trade partners of Turkey, followed by Iran. Kazakhstan stands third in trade partnership with

Turkey, while Pakistan proves to be the weakest of all in terms of trade partnership with Turkey.

The analysis of table 6.4 suggests that 0.0506 was the trade intensity index between Kazakhstan and Pakistan for the year 1995, which has been fluctuating throughout the period of analysis.

The index decreased gradually but 2004 saw it picking up momentum and managed to reach 0.0195. The entire period of analysis show that the trade intensity between Kazakhstan and Pakistan remained insignificant. The significant trend coefficient of the trade intensity between Kazakhstan and Pakistan is negative, representing the fact that over time, the Pakistan's importance as a trade partner of Kazakhstan id declined.

The trade intensity between Kazakhstan and Iran was 0.2538 in 1995, which increased to 0.8648 in 2000. Later years saw it decreasing to 0.2216 in 2009. The trend coefficient of the trade intensity between Kazakhstan and Iran is 0.0001, which implies that Kazakhstan is inclined towards Iran as a trade partner. Despite this positive trend coefficient, the size of the trade between both countries is not very significant.

0.7451 was the trade intensity between Kazakhstan and Turkey in 1995, which has been on the upward trend and gradually increased to 1.3582 in 2008. A downward trend in trade intensity was noticed between these two countries in 2009. 0.0294 is the trend coefficient of trade intensity between Kazakhstan and Turkey, which suggests that Kazakhstan is inclined towards Turkey as a major trade partner.

In year 1995, the trade intensity index between Kazakhstan and Germany was 0.1335. The entire period of analysis saw it increasing. The significant trend coefficient of trade intensity between these two countries represents the inclination of Kazakhstan towards Germany as a trade partner.

Table 6.4 Trade Intensity, Kazakhstan's Major Trade Partners

Year	Pakistan	Iran	Turkey	Germany
1995	0.0509	0.2538	0.7451	0.1335
1996	0.0978	0.4180	0.6160	0.1090
1997	0.0687	0.4493	0.7551	0.1924
1998	0.0965	0.4694	0.9197	0.1680
1999	0.0412	0.5254	0.6959	0.1682
2000	0.0429	0.8648	0.6482	0.2283
2001	0.0258	0.7903	0.4101	0.2504
2002	0.0349	0.6683	0.5774	0.2355
2003	0.0279	0.6839	0.5790	0.2433
2004	0.0195	0.4359	0.6619	0.2980
2005	0.0232	0.3993	0.6692	0.3419
2006	0.0229	0.5283	0.9070	0.3883
2007	0.0257	0.6580	1.1912	0.4144
2008	0.0495	0.4719	1.3582	0.4121
2009	0.0372	0.2216	0.9627	0.3429
Trend Coefficient	-0.0036**	0.0001	0.0294**	0.0212***
t statistic	-2.9271	0.0109	2.2347	10.3952

While calculating the intensity coefficient within the sample countries, Country mentioned in the title is treated as the first country and the Individual countries mentioned in the table are treated as the second country.

Source: Compiled using data obtained from UN Commtrade

The analysis of Table 6.4 shows that Turkey remains the strongest and most important trade partner of Kazakhstan followed by Germany, which is a non-ECO country, followed by Iran. Kazakhstan and Pakistan stood fourth in trade partnership with Kazakhstan.

6.8 **Conclusion**

This chapter focused on examining the trade intensity between four major ECO countries, which are Pakistan, Iran, Turkey and Kazakhstan and their four other external trade partners, which are USA, China, UK and Germany respectively. The analysis is spread over 20 years between 1990 and 2009. The Frankel and Rose index characterised by Kim's modifications analyses the data for the trade intensity analysis. The chapter estimated trade intensities between ECO countries and between them and they're other major trade partners with a view to identify the major trade partner for each of the four ECO countries. Through a

regression test on the trade intensity data, trend coefficients were estimated for each of the 8 countries under analysis.

In this chapter, the analysis indicated that in some cases a country is better off trading with its external trade partner than with its internal counterpart. An example is Pakistan who has the US as its most important trading partner than any of the countries within the ECO. Despite this, Pakistan does have a reasonable degree of trade intensity with the other three ECO countries as well. We have also noted examples of countries within the ECO who are more inclined to strengthen their trade intensities and have over a period of time managed to increase the quantum of their trade. The examples are Iran and Turkey. Iran's other major trade partner is China but has second position in terms of trade preference. Kazakhstan and Pakistan also qualify as Iran's significant trade partners. It is also noted that while Kazakhstan's major trade partner is Turkey, the latter has UK as its major trade partner.

Looking together at the RCA analysis done in previous chapter and the trade intensity analysis done in this chapter, it can be safe to conclude that, there is a great deal of untapped potential for intra-regional trade, which is yet to be explored. For example both Pakistan and Iran can meet each other’s need by exporting and importing the products such as textile and crude oil. In the same way, Pakistan can export textile, yarn fabric to Kazakhstan and import natural gas from it. Iran can import cereals from Turkey, while the latter can Import crude oil from the former. Turkey can import natural gas from Kazakhstan and export textile, yarn fabric to Kazakhstan. It has become clear that the ECO countries have yet to scale up their weak trade relations amongst themselves in the interest of all countries of the ECO region. For example, we have seen that in case of Iran and Kazakhstan, their major trade partners belong to the ECO region, whereas in the case of Pakistan and Turkey, their major trade partners are non-ECO countries.

This is where the phenomena of special country bias emerges and is applicable as well. Pakistan has been faced with many trying and turbulent circumstances dictated by changes in the geo-strategic neighbourhood around it. For the last decade or so, it has had to rely on the US not only for military aid but also for economic aid. This political and economic turbulence narrowed down the options for the foreign policy of Pakistan making it dependent on the USA. The country also had to seek Washington’s blessings in order receive a bailout package from the IMF. Thus in a way, the US has been influencing export and import

policies of Pakistan. In the case of Turkey it has been interested in joining European Customs Union till 2009, which had a great impact on its trade patterns and directions.

The trade relationships of Pakistan, Turkey, Iran and Kazakhstan, have historically been with the USA, UK, China and Germany. This has changed, and continues to change, with ECO countries, now becoming major trading partners of Pakistan, Iran, Turkey and Kazakhstan. If "geography is destiny", Pakistan's, Iran's Turkey's and Kazakhstan's destiny is indeed with each other and the rest of the ECO countries.

This chapter (chapter 6) provides useful information about the existence of the positive trade intensity between countries besides identification of major trading partners from each of the ECO countries under study. However, the factors influencing these outcomes have not been spelled out so far. It leaves one with a moot point if the Free Trade Area among Pakistan, Iran, Turkey and Kazakhstan is a workable option or not. Dictated by this factor is an important question, which is yet to be answered. The question is: what economic variables influence the Export and Import flows among Pakistan, Iran, Turkey Kazakhstan and the rest of the world? Chapter 7 will focus on answering these questions through a Gravity Model analysis in an attempt to establish the potential for Free Trade Area (FTA) among ECO countries.

CHAPTER 7 Gravity Model Analysis: Trade Flows of ECO Countries

7.1 Introduction

This study aims to analyse the trade flows of ECO countries and explore the potential for an FTA among ECO countries. In Chapter 6, a Trade Intensity Analysis was conducted to identify the major trade patterns of the four major ECO countries, which are Pakistan, Iran, Turkey and Kazakhstan. After highlighting the important trade partners of the above mentioned countries in Chapter 6, the trade potential among the four ECO countries under reference is explored in Chapter 7 through the Gravity model analysis, which will lead us to understand if the trade potential between ECO countries and between ECO and their other trade partners is over utilised or underutilised. This will help us to conclude whether an FTA between ECO countries is a viable option. This Chapter is concerned with the Country-Specific Gravity Model Analysis for the four ECO countries and their other major trading partners.

The structure of Chapter 7 is as follows: The theoretical foundation of the Gravity Model is discussed in Section 7.2. Section 7.3 discusses the empirical applications of gravity trade models. Section 7.4 discusses the model used in the study, which is followed by a discussion of the core explanatory variables used in country-specific gravity model. Section 7.5 specifies the country-specific empirical gravity trade equations used in the study and deals with issues related to data used in estimation of models in this study and estimation procedures. Section 7.6 has discussed the estimation results obtained from the gravity model analysis. Section 7.7 undertakes a discussion of the estimation of the trade potential among the selected countries. Section 7.8 contains a conclusion of the chapter.

7.2 Theoretical Foundation of the Gravity Trade Model

It was in the later part of the 19th century that the use of the gravity model emerged to explain spatial interaction and flows. This model has successfully explained the trade flows from one centre to another, such as exports and imports. The assumption of the model is that a hidden force is there to draw the flow, which is formed by the attraction of two centres.

This attraction of two centres can be attributable to their size. The distance between two centres weakens the force. The formulation can be better understood by referring to the use of Newton's Law of universal Gravitation.

$$F = \frac{GM_1M_2}{r^2} \qquad (7.1)$$

Where F is attraction force, M_1 and M_2 are masses of two objects, r is the distance between M_1 and M_2, and G is a constant proportion. Newton's theory of gravitation holds that the force of attraction between the objects is proportionally interconnected to the size of their masses and inversely related to the square of the distance between them.

It was Tinbergen (1962) who derived the gravity model from the discipline of physics and intuitively used it to analyse international trade flows. He, however, did not provide firm theoretical justifications. Despite this, the gravity model applied by him was instrumental in empirically modelling trade flows. The difference between the gravity model used in physics and economics is that while the physics gravity model was invented to explain universal gravitation, the purpose of the economic gravity model is to explain international trade flows. Hence, it is in this context that there is a need to provide a theoretical justification for the economic gravity model. Moreover, an economic model is structured on the theory that explains its development, and not the other way round. The construction of theory is, thus critical to the formulation of a model framework, as the econometric results cannot be expected to be strongly persuasive in the absence of theoretical support.

By using a Walrasian general equilibrium system, Linnemann (1966) justified the theoretical foundation of the gravity trade model. He maintained that the gravity trade model was a reduced form of a four-equation partial equilibrium model of export supply and import demand (see also Bergstrand, 1985). Aitken (1973) and Geraci and Prewo (1977) used the same approach to examine the trade bloc effect, and to analyse bilateral trade flows respectively. A similar theory was developed and used by Frankel et al (1995) and *Le et al* (1997) to support their models.

Citing its "unidentified" properties as the reason, Anderson (1979) criticised the above-mentioned approach and dubbed it unhelpful for policy purposes. By using the property of the expenditure system, he offered a solution and also maintained the hypothesis of identical

homothetic preferences across regions at the same time. By assuming Cobb-Douglas preferences of Constant Elasticity of Substitution (CES) with the Armington assumption of product differentiation by place of origin, he formally derived the gravity model.[7] However, Deardorff (1995), Anderson (1979) preferred the modelled preferences to traded goods. Rather than eliciting easily interpretable theoretical implications, he sought to examine the econometric properties of the resulting equation as his primary concern. Anderson's model could make the best case for the aggregate. However, it failed to deliver on a commodity-specific gravity equation.

The most successful empirical tool that has been used to explain international trade flows is gravity model analysis (in many forms for different studies). The application of the gravity model has been undertaken in case of a wide variety of goods trade and the factors across different regions and national borders. The data has accordingly been compiled upon the basis of the estimations of production of the goods. The models that specifically sought to explain the volume of trade were developed during 1960s. According to these models, the size and structure of the economy for trading partners determine the trade flows among them and the level and nature of trade impediments is also a critical factor in these flows.

Different trade theories such as Ricardo's comparative advantage theory; the Heckscher-Ohlin's factor endowment and factor intensity theory; and monopolistic competitive theory with increasing return to scale have paved the way for emergence of different models. There is a consistency and compatibility between gravity models and the Heckscher-Ohlin-Vanek factor service trade prediction, which is one of the most important results of trade flows (Evenett and Keller, 2002).

The gravity models are instrumental and useful in analysing what constitutes the international trade flows, besides identifying and estimating export market potential and "natural" trade blocs (Lung and Gunawardana, 2000). By using the gravity models, one can study about the determinants of the normal or standard bilateral trade patterns, which is a likely consequence of the absence of trade impediments (Gunawardana, 2005). These models also determine the

[7] Armington (1969) assumed that goods are differentiated by country of origin. Each country is completely specialised in the production of its own good. Thus there is one good for each country.

scale and magnitude of the trade impediments. Additionally, the gravity models are also in accord with Help-Krugman-Markusen theory of intra-Industry trade (Bergstrand, 1989).

Analysis of the theoretical foundations of gravity equations led to Evenett and Keller (1998) to mention three types of trade models. The differences in these models derive from the way by which specialisation is obtained in equilibrium. They are:

- The Ricardian model marked by technology differences across countries,
- The H-O model variations characterized by the countries' different factor endowments,
- And increasing returns at the firm level, which marks the increasing returns to scale (IRS) model.

These perfect specialisation models are considered as limiting cases for a model of imperfect specialisation. But imperfect product specialisation is important empirically. Though different countries, in real life, have different technologies and factor endowments, yet these technologies and factors endowments change over time and can be transferred among the countries.

The function of trade theories is just limited to explaining as to why the countries trade in different products. They do not address the question of why some countries' trade links are stronger than others and why the volume and level of trade between countries tend to increase or decrease with the passage of time. Hence trade theories are characterised by this limitation in explaining the size of trade flows. Where trade theories are unable to explain the extent of trade, the gravity model is successful in this regard. In the gravity model, more factors account for and explain the extent of trade as an aspect of international trade flows (Paas 2000).

7.3 **Empirical Applications of Gravity Trade Models**

These were the Dutch economists Tinbergen (1962), Finnish economists Pulliainen (1963) and Poyhonen (1963) who independently pioneered the application of the gravity model in international trade. The studies they came up with became the foundation stone for

more advancement as they provided preliminary results to be tested further in future studies. Later, three popular approaches were derived from these studies in regards to the application of gravity trade model, which are discussed below.

7.3.1 General Gravity Trade Model

Bergstrand (1989), derivation was, limited to a 'generalised' gravity equation, which also included price index variables from partial equilibrium. This represents the general equilibrium model plus small market assumption and the assumptions of identical utility and production functions across countries. He explained that the gravity model is a reduced form of a partial equilibrium sub-system of a general equilibrium trade model with nationally differentiated products. After his model of aggregate trade flow underwent considerable mathematical transformation[8], it came to be written as follows:

$$PX_{ij} = f(Y_i, Y_j, D_{ij}, A_{ij}, EEC, EFTA, E_{ij}, U_i, U_j, P_i, P_j \qquad (7.2)$$

Where PX_{ij} represents the value of aggregate trade flow from *i* to *j*. The special feature of this model is the additional variables of Eij, U_i, U_j, P_i. E_{ij} is exchange rate variable. U_i is unit value index. P is price index. The subscripts *i* and *j* are exporting country i and importing country *j*. A major turning point for the gravity model is the use of cross—country differences in price indices. In order to proxy the exporter's price index and the importer's GDP deflator to proxy the importer's price index, Bergstrand (1985) used exporter's GDP deflator. By incorporating the 'genera1ised' gravity equation with relative factor endowment differences and non-homothetic tastes and by assuming monopolistic competition, Bergstrand introduced a new gravity model in1989. In order to apply the gravity model to intra-industry trade, the theoretical foundation was provided by the non-homothetic preference assumption.

Per capita incomes of exporter and importer countries, which are proxies for relative factor endowments of the trading countries, were included in Bergstrand's model in Equation (7.1). He examined the model for each one-digit SITC category in a multi-industry world by basing on product differentiation among firms rather than among countries. Through this he proved

[8] The mathematical transformation is complex. It is presented in Bergstraod (1985).

that the gravity equation is consistent with modern theories of inter-industry and intra-industry trade.

7.3.2 Commodity Based Gravity Trade Models

The model, which was developed to analyse the commodity composition of total exports from one country to another is called gravity model. Leamer (1974) focused on how trade was affected by the tariffs, and used the gravity model for disaggregated commodity imports. The dependant variable was M_{ik}, where M is imports, i is the country subscript and k is commodity subscript. The study used one period cross-sectional data.

A number of studies employed a technique that was similar to Leamer (1974) and focussed on disaggregate commodities; for example the trade flow pattern of consumer goods between the U.S. and its immigrant home countries was studied by Gould (1996). And to analyse the EU wine trade, Dascal et al (2002) made use of panel data.

Bergstrand (1989) modified the gravity model to explain international trade flows in differentiated products rather than for total trade of a country. His model can be presented as:

$$PX_{aij} = \text{f}\ (Y_i, \frac{Y_i}{N_i}, Y_j, \frac{Y_j}{N_j}, D_{ij}, A_{ij}, EEC, EFTA, C_j, WPI_i, WPI_j) \qquad (7.3)$$

Where PX_{aij} represents the value of exports of commodity "a" from i to j, and i is the exporter country and j is the importer country. Y is the aggregate income. Y/N is per capita income. D is distance between countries. A is the dummy variable for common border effect. For custom union effects of EEC and EFTA, the dummy variables are EEC and EFTA respectively. The change in importing country's exchange rate is represented by C_j. *WPI* represent average wholesale price indices.

Bergstrand (1989) used the variable of Y/N to explain that the consumers' buying power (per capita income) also affects the volume of trade for a commodity in both countries, in addition to the basic gravity model. When the consumers' buying power in the exporting countries is increased, the demand for the export goods becomes stronger domestically. This is marked by the assumption of the fact that the goods are normal goods. Thus the reduction in the quantity

of the exported commodity results in the reduction of trade flow. On the other hand, the demand for imported goods is dependent on improvement of the importer's per capita income (assuming the fact that marginal propensity to import remains unchanged). Resultantly, trade flow picks up momentum. In order to capture the impact of change in the importing country's exchange rate, the variable C_j was used. When the currency of the importing country appreciates, it will lead to an increase in the demand for imported goods.

After the innovative usage of the gravity model by Bergstrand to explain bilateral trade flows for a particular commodity, several other analysts were encouraged to use a similar approach in their studies, For example, in order to analyse the determinants of world wheat trade flows, Koo and Karemera (1991) used the gravity model. Similarly, Chisterson (1998) employed the gravity model to analyse the world trade in apparel. For the purpose of analysing trade flows of alcoholic beverages between Australia and APEC countries as well as between Australia and some non-APEC countries, Lung (1998) used the gravity model. Vido and Prentice (2003) employed the gravity model with a view to studying Canadian lentil and pork trade.

7.3.3 Country Specific Gravity Trade Models

The purpose of employing the Country Specific-gravity trade model initially was to study trade among all trading partners of a country. In other words, the gravity models analysed international trade among all of the countries that traded with one another. It was by keeping the aspect of trade among all trading countries in view that Bergstrand (1985) developed the theoretical foundations of the gravity model. Some studies (e.g. Gould, 1996) also relied on Bergstrand's technique in order to construct the theory for country-specific studies, where a special emphasis was placed on the export and import of a particular country with its trade partners. The comprehensive version of the gravity model is characterised by a study of the population. Then the country-specific model can be viewed as a study on a sample with the sample size of (1/N) of the population size because the full version of the gravity model uses N (N- l) observations, whereas the country specific model utilises only N -1 observation. N refers to a number of countries contained in the study. Thus, the country-specific model represents only a part of the full and comprehensive version of the gravity model, in the sense that the country specific model draws a reduced set of data for measurement from the full gravity model.

Whether a country has bilateral or multilateral trade relations, two forms of country-specific gravity models have been used. The focus of country specific studies remains on a single country's trade with its trade partners in both cases. Such studies leave trade among other countries out of its ambit. However, since Bergstrand's theory studies the inter-trade between all trading partner countries in the population, it may not be appropriate for a study, which focuses only on one country. Therefore, it is necessary to look for an alternative theoretical gravity model to make up for the deficiency. Before presenting theoretical arguments in favour of the country-specific gravity model, it is natural to elaborate the problems that are associated with borrowing Bergstrand's (l985) model for a country-specific study.

Bergstrand's (1985) employed the world trade equilibrium system to extract the theoretical foundations of the gravity model. In other words it meant that the total imports by all the importing countries in the world should be equal to the total exports by all countries that exported goods in the world. The application of this equilibrium was to be equal for both total trade of all commodities and trade for any specific commodity. Deducing the behaviour of both importers and exporters, Bergstrand constructed the gravity model. His assumption was that both exporters (supply side) and importers (demand side) were the economic agents who served to maximise the benefits. Subject to the constraints of constant-elasticity of-transformation (CET) in the use of immobile resources, suppliers maximise their profits on the export side. On the import side of world trade, buyers, subject to income constraint, tend to maximise their constant elasticity-of-substitution (CES) utilities. Since the outputs of all countries are assumed to be sold only in the foreign market, the major source of income was the exports, which were sold in the foreign market. N x (N-1) bilateral export supply equations and N x (N —1) bilateral import demand equations were produced by the system for each point in time. N refers to the number of countries trading the goods (the sum of N countries' trade makes the world total trade). N -1 is the number of trade partners (that is, a particular country i does not trade with itself). Equating the supply and demand equations in equilibrium derived the gravity model.[9]

The Bergstrand (1985) model demands that in order to satisfy the equilibrium requirement, we need to develop the assumption that the importing countries imported all exports by the exporting countries in the study within the same dataset. The country-specific gravity model

[9] The process of deriving the gravity model can be found in Bergsuand (1985) and Gould (1996).

did not address such an equilibrium requirement. In order elucidate this point Gou1d's (1996) approach can be used as an example. Bergstrand's (1985) model was modified and applied to study the US trade with its trading partners. This approach was, however, marked by a problem that while the exports of the US represented total imports among its trading partners in the world economy, its trade partners also import goods from countries other than the US. This in other words means that the total imports of its trade partners are not equal to the total exports of the US. When applied to country-specific studies, the world trade equilibrium fundamental in Bergstrand's (1985) model is not satisfied.

The above-mentioned analysis exposes the fundamental weakness of the world trade equilibrium foundation of Bergstrand's theory for the gravity model as it fails to hold in case of the country-specific gravity model and is limited to use in the full version of the gravity equation. In the same way, it will not be appropriate to provide theoretical framework for a country-specific case through direct application of Bergstrand's model (as in Gould's (1996) study). In order to analyse the country specific model, an alternative theory was required.

The purpose of using the Country specific gravity model is to explain trade and identify trade patterns between countries. Initially, in a particular year, the model relied on the usage of the cross-section trade data among trading partners in the sample. The initial version of the gravity model, for a number of years, dealt with trade of one country with a pool of other countries in the sample. A form of the pooled cross-section and time series data characterises this version of the model, but this reduced form of the full panel gravity model is in accord with its focus on a particular country only. In other words, it is the usage of the country-specific gravity model.

The credit for using the country-specific models goes to Thursby and Thursby (1987). The study conducted by them sought to test the `Linder hypothesis and the impact of exchange rate variability on trade flows.[10] In their model, the dependant variable was X_{jt}^{i}, with i the exporting country that remains unchanged for one regression equation, and j the set of trade partners (1,...,J) and t is the period of time (1,...,T) with which the study is concerned. The

[10] Linder (l96l) hypothesised that trade of manufactured goods between two countries will be inversely related to the difference in their per capita incomes (Thursby and Thursby, 1987). That is, trading in manufactured goods will be higher among countries with similar taste and income levels (Salvatore, 1990, p.I5 1).

number of observations in their model was J xT.[11] The sample by Thursby and Thursby (1987) contained seventeen countries and generated seventeen regression equations. Each equation modelled the exports of a particular country i (i = l,2,3,...,l7) to the rest of the sixteen countries j (j = l,2,3,...,l6) over nine years t (t = 1,2,3,...9) with a total of 144 observations for each U equation.[12]

Gould (1996) employed a country specific gravity model aimed at one country's (the U.S.) trade with all trade partner countries in the same way as Thursby and Thursby's approach, which focuses on a single country in each regression equation in a pooled cross-section and time series gravity model. For exports and imports, the dependent variables in Gould's models were EX_{jt}^{us} and IM_{jt}^{us} respectively. For each of the trade partners of the U.S, no separate equations were estimated.

Another new direction in the use of the gravity model was indicated by the use of cross-section and time series (panel) data on a country specific basis. To investigate Australian trade with its trade partners, Lung (1998), Dhar and Panagariya (1999), Kalirjan (1999) and Gunawardana (2005) also used the country specific model. In the same way, for the purpose of analysing Canadian trade with other countries, Vido and Prentice (2003) used the country specific model.

While, looking at the literature on gravity trade model, we find Tinbergen (1962) using the simplest form of the gravity trade model:

$$E_{ij} = a_0 Y_i^{ai} Y_j^{a2} D_{ij}^{a3} \qquad (7.4)$$

Where: E_{ij} = Exports from country i to country j.

Y_i = GNP of country i

Y_j = GNP of country j

D_{ij} = Distance between country i and country j.

a = scaling factors

[11] Compared to the full panel data gravity model, which has the number of observations I x J x T, where T = I - 1, the country specific gravity models have J times observations less.

[12] The explanatory variables used by Thursby and Thursby to test the Linder hypothesis and the foreign exchange risk could be of great interest to some readers, who are recommended to refer to the Thursby and Thursby's article.

In Equation (7.4), an analogy of a country's exports E_{ij} with Newtonian's Universal Gravitation force F was developed by Tinbergen. Y_i and Y_j replaced the masses of M1 and M2, which represent the income levels or the sizes of economies of the trading partner countries. In the opinion of Tinbergen, if the economy of an exporting country is large, it contributed major exports to the international market and hence positively influenced the supply line. Likewise, the market size is a critical factor in determining an importer's income level. He opined that a price wedge between the exporting country and the importing country was created by transportation costs and other natural trade impediments. This price wedge was instrumental in raising the relative price of traded goods to non-traded goods. The volume of trade was inversely (negatively) affected by it. The complexity of natural trade impediments makes it difficult to quantify the costs individually. To capture the essence of those natural trade impediments, Tinbergen used the proxy of distance variable D_{ij}.

By introducing three dummy variables, Tinbergen (1962) modified the basic gravity model of Equation (7.4) to capture the artificial trade enhancing and trade discrimination effects. These dummy variables are: the common border effect dummy, the Commonwealth preferential dummy and the Benelux preferential dummy. The gravity model in Equation (7.4) was then expanded as:

$$E_{ij} = \alpha_0 Y_i^{a1} Y_j^{a2} D_{ij}^{a4} N^{a4} P_c^{a5} P_b^{a6} \qquad (7.5)$$

Where N is common border dummy variable, P_c is Commonwealth preference dummy i variable and P_b, is Benelux preference dummy variable. Positive values were given to dummy variables if the arguments of the dummies are satisfied and zero otherwise.[13]
Equation (7.5) was then estimated in the double-log form of

$$Log\ E_{ij} = a_0 + \alpha_1\ log\ Y_i + a_2\ logY_j + a_3\ logD_{ij} + a_4 logN + a_5\ logP_c + a_6\ logP_b + ut \qquad (7.6)$$

[13] Tinbergen (1962) did not indicate what the positive value was, but presumably, the 'positive value' means'+1'.

Where $a_0 = \log a_0$ is the constant. However, the logarithm of dummy variables, which consist of zeros and ones, would result in the regression being inoperative. By using the values of ones and twos for the dummy variables, Linnemann (1966) rectified this problem.

In the analysis of international trade flows, the model, which uses the trading countries' income and distance as variables, is viewed as the basic gravity model. In the absence of discriminatory trade impediments, Tinbergen (1962) sought to develop a model to determine the standard pattern of international trade. The "average" trade estimated from the model can reveal an expected- or standard-trade between countries when the trade impediments are of a stochastic nature. Through comparison of the actual exports with the expected exports, a positive deviation between them means that those actual exports are greater than the expected exports. The importing countries give preferential treatment to such countries whose actual exports are greater than their expected exports. When, in contrast, actual exports are less than the expected exports, it means that there is a negative deviation. Negative deviations represent the fact that the importing counties show discrimination towards the exports of the given countries. The presence of negative deviations in the eyes of the policy makers who look to trade expansion are of greater interest since they point out the space for and existence of untapped trade potential in the importing countries. This phenomenon draws their attention or policy intervention towards removing the existing trade barriers or diluting resistances to trade, for trade negotiation purposes.

According to Linnemann (1966), a joint force of two major components namely the potential factor and the resistance factor represent the actual trade. Both income and population determine a country's potential factors. Natural obstacles and artificial impediments are the sub-division of the resistance factor. The major construing elements of the natural obstacles include transportation costs, transportation time and the psychic distance. The transportation costs and transportation time component of the natural trade obstacles are self-explanatory and do not need any explanation. However, there is a need to explain the term of psychic distance. Due to difference of languages, cultures, unfamiliar laws and institutions in the partner country, when, in the opinion of Linnemann (1966), an imperfect market information becomes available, it is called the psychic distance. Since the people could in a way relate to the neighbouring countries compared to a country located far away, that is why terms such as the psychic distance and physical distance are related. Linnemann maintained that the physical distance variable as a proxy represent these three components of natural obstacles.

Artificial trade refers to impediments put in place by the governments, including such obstacles as quotas, tariffs, exchange controls, voluntary export restrictions, embargoes and trade diverting custom unions. Linnemann (1966) particularly focused on the effects of these artificial trade impediments on wade. Linnemann firmly established the empirical base of the gravity model by taking into consideration the wade potential; natural wade impediments and artificial trade impediments. He did this to explain international trade flows as:

$$Log\ X_{ij} = \varphi_1 log\ y_i + \varphi_2\ log\ N_i + \varphi_3 log\ Y_j + \varphi_4 log\ N_j + \varphi_5\ log\ D_{ij} + \varphi_6\ log\ P_{ij}^{uuc} + \varphi_7\ log\ P_{ij}^{FFC} + \varphi_8\ log\ P_{ij}^{PB} + \varphi_0 \quad (7.7)$$

X_{ij} = Total Exports of country i to country j.

Y = GNP

N = Population

D_{ij} = Distance between country i and country j

P_{ij}^{UUC} = Dummy variable for British Commonwealth preference

P_{ij}^{FFC} = Dummy variable for French Community preference

P_{ij}^{PB} = Dummy variable for Belgian and Portuguese colonial preference

What differentiates between Linnemann's model (Equation (7.7)) and Tinbergen's model (Equation (7.5)) was the former's exclusion of the common border dummy variable, and inclusion of the population variables of the trading nations. Additionally, Linnemann used the values of ones and twos in the dummy variables.

The field of economics soon acknowledged the effective role and empirical success of the gravity model as a popular instrument, which explains the world trade. Different forms of the gravity model were used to conduct substantial amount of research on international trade flows.

Most of studies that use the gravity framework aimed at the task of predicting trade potentials. Using the gravity model approach, Batra (2004) tried to gauge the trade potential for India. The author, in his study, employed an augmented gravity model to first analyse bilateral trade flows between India and all its trading partners. He then predicted the trade potential for India by achieving the coefficients from the analysis of bilateral trade. The

employment of the Ordinary Least Squares (OLS) estimation technique with cross-section data for the year 2000 was instrumental in the estimation of the gravity model. Total merchandise trade (exports plus imports in US dollars) served as the dependent variable in all the tests between the pairs of countries. According to the findings of the estimation, the gravity equation explains about 70 percent of the variation in bilateral trade across the sample of countries and thus fits the data well. It is also the source of accurate and plausible income, distance elasticity and estimates for other geographical, cultural and historical characteristics. Specifically, the income elasticity and the distance elasticity stand at to 0.87 and -1.11 respectively, both of these elasticity's are significant at the 1 percent level.

The results of Batra (2004) showed that India possessed immense trade potential, which was evident from the fact that it had the highest magnitude of trade potential with the Asia-Pacific region followed by Western Europe and North America. So far as the trade potential with individual countries was concerned, the findings showed that India had maximum potential for expansion of trade with China, United Kingdom, Italy and France. India's trade potential, among specific country groupings/trade arrangements, was revealed to be the highest with Pakistan in South Asian Association for Regional Cooperation (SAARC) and with the Philippines and Cambodia in the Association of the South East Asian Nations (ASEAN).

Rahman (2003), sought to provide a theoretical justification aimed at using the gravity model for the analysis of bilateral trade. In order to analyse Bangladesh's trade with its major trading partners, he also tried to employ the generalised gravity model by using the panel data estimation technique. The paper attempted to estimate gravity models for total trade (sum of exports and imports). The results showed that such variables as the size of the economies, per capita GNP differential of the countries involved and openness of the trading countries determined Bangladesh's trade. Additionally, it was known that the exchange rate, partner countries' total import demand and openness of the Bangladesh economy were the major determinants of her exports. Bangladeshi exports are positively affected by all three factors. On the other hand, her import remains unaffected by the exchange rate. Rather it was shown that inflation rates, per capita income differentials and openness of the countries involved in trade determined imports. What impacted the Bangladeshi trade negatively was the presence of significant transportation cost. Additional factors such as the border between India and Bangladesh also influenced the imports to a great extent. It was also known that Bangladesh

had a lot of potential to gain by trading with its neighbouring countries because her trade and exports were affected by multilateral resistance factors.

To analyse aggregate trade volumes between OECD and transition countries, a gravity model was developed by Christie (2002). Following scenarios on potential GDP levels and possible membership of institutions, the projections on trade flows into and out of Southeast European countries were made. Alternative variables, such as transport times instead of geographical distance, and GDP in PPP instead of nominal GDP were also tested. It was seen that the model's performance does not greatly improve by replacing distance with transport times. The gravity model estimates showed the striking feature in Southeast Europe, which was the flows of extreme values, in some cases far below, but in others far above. The main conclusion of the study was that, the Southeast Europe could no longer be considered as a region, from the viewpoint of aggregate trade flows.

By using a number of gravity equations, Kalbasi (2001) analysed the volume and direction of Iran's trade with 76 other countries. The major issue the analysis grappled with was to explore as to why some countries, relative to the predicted trade flows of the model, are over or under traded. The broad areas the study sought to explore bilateral trade among all the 76 countries, bilateral trade among 19 industrial countries, bilateral trade among 57 developing countries, industrial countries' exports to developing countries, and finally developing countries' exports to industrial countries.

"Trade Sim" is the most recent gravity model developed in 1999, by UNCTAD-WTO Trade Centre. Trade potentials of countries with limited trade relations, especially of transition economies have been analysed by this model. The model has analysed the bilateral trade flows of developing countries with their trading partners.

The Last few decades have seen many other researchers employ different forms of the gravity trade models as well. For example, Stewart (1947) studied the distribution and equilibrium of population through the usage of the gravity model. Hua and Porell (1979), Kau and Sirmans (1979) and Oguledo and Macphee (1994) highlighted some other applications of the gravity model, which sought to analyse the flows of buyers to shopping centres, patient flows to hospitals, recreation traffic, commuting immigration, communication, household relocation, regional planning, transportation and tourism. Aitken (1973), Aiken and Obutelewic (1976),

Bikker (1987), Baldwin (l993), Frankel et al (1995), Greenaway and Milner (2002) and Rajapakse and Arunatilake (1997) explored the preferential trade effects of trade blocs on international trade flows. Egger (2002), and A1-Atrash and Yousef (2000) focused on trade potential. Martinez-Zarzoso (2003), Tang (2003), and Martinez-Zarzoso and Nowak-Lehmann (2002), studied the trade effects between trade blocs through the application of the gravity model. Yu and Zietlow (1995), Investigated the determinants of bilateral trade in Asia-Pacific. The impact of Asian economic crisis on Australia's trade flow with East Asian countries was explored by Gunawardana and Hewarathna (2000); Blomqvist (2004) and Gunawardana (2005). Modification of the gravity model by Bergenstrand (1989; 1990) attempted to explain intra-industry trade flows. McCrohan and Lung (2001) used the gravity model to study the potential trade links between Australia and Thailand generated by Thai tertiary students graduated in Australia. The link between immigration and trade in the US was investigated by Gould (1994;1996) and Rauch (1996; 1999). Koo and Karemera (1991), Dascal (2002), Christerson (1994) and Lung (1998) explored the trade flow in specific commodities between a numbers of countries.

7.3.4 The Impact of Costs on Trade Flows

The earlier studies dealt with the artificial trade impediments and preferential treatments of trade blocs. They bracketed all the natural trade obstacles together into the distant variable. Contrary to these studies, Geraci and Prewo (1977) concentrated their attention to model the transportation costs explicitly. They used various arguments to justify their approach. One argument related to the transportation costs, which vary according to the size of the commodities being transported. The example is bulky, heavy but low value versus light, compact in size and of high value goods. The proportion of transportation cost to value that matter than the absolute cost, negatively affects trade. Secondly, this justification is based on the previous argument. According to this line of thinking, there will be fluctuation in the transportation costs for both directions of moving goods. This is so because there is a difference in the commodity composition of trade. As long as inter-industry trade is involved between a pair of countries, transportation costs differ even though the distance between the pair of countries remains the same. Thirdly, the cause of policy analysis between a pair of countries is not helped by the use of distance as a proxy for transportation costs because distance remains the same between them.

For the purpose of modelling the transportation costs, Geraci and Prewo (1977) differentiated between and divided the trade resistance into those that can be quantified and those that cannot be quantified. By using an average nominal tariff rate, they quantified the transportation costs of the natural trade obstacles T_{ij}^{*} and also quantified tariff Z_j.[14] the model structured by them is as follows:

$$X_{ij} = f(Y_i, Y_j, Z_j, G_{ij}, L_{ij}, B_{ij}, T_{ij}^{*}) \qquad (7.8)$$

Where X_{ij} is total exports from country i to country j. To capture the effects of preferential trading groups, common language and common borders respectively, the variables such as G, L and B are dummy variables. T_{ij}^{*} Cannot be observed and it can be obtained in two ways. According to Geraci and Prewo, T_{ij} is a proxy of T_{ij}^{*} which is the ratio of true c.i.f value to true f.o.b. value,[15] and as in Equation (7.9) below:

$$T_{ij}^{*} = g(T_{ij}) \qquad (7.9)$$

Or, alternatively, T_{ij}^{*} is a function of distance D_{ij} and the average unit value (V_i)[16] of exports from country i, as in Equation (7.10) below: - ·

$$T_{ij}^{*} = h(D_{ij}, V_i) \qquad (7.10)$$

Geraci and Prewo (1977) gathered during the course of modelling that the exports of a country were adversely impacted by both the tariff and the transport cost variables, as they were statistically significant factors. A number of studies, undertaken on the subject, sought to measure the negative impact of transaction costs on the volume of trade between the trading countries. For example, the impact of physical distance and information distance on

[14] Geraci and Prewo (1977) used average nominal tariff rate weighted by each country's most-favoured-nation imports of industrial goods.

[15] Both c.i.f and f.o.b. are Incoterms — the official international Chamber of Commerce rules for the interpretation of trade terms. c.i.f stands for Cost, Insurance and Freight. The cost of carriage and insurance cover up to the named port of destination are borne to the sellers. F.o.b stands for Free on Board. Seller‘s responsibility to the goods is up to the named port of shipment. After the goods pass the ship’s rial, all costs associated with moving the goods are borne by the buyer.

[16] Geraci and Prewo (1977) calculated the average unit value (Vi) by using the weight and value figures for each country’s exports as reported in the Country Table 3 of the U. N. Yearbook of lnternational Trade Statistics, 1970-1971.

capital flow was the focus of Loungani et al (2002). Hutchinson (2002) evaluated the effects of costs of inefficient communication and language barriers on trade.

7.3.5 Combining Cross Sectional Data and Time Series Data

Traditionally, the purpose of the gravity model, was to explain economic interaction (international trade) between country i and country j at a point in time. Holding time constant at a particular point, based on empirical studies, the majority of gravity models have drawn comparisons across countries. Usually the dependent variable X_{ij} represents exports from country i to country j. Where i =1,...,I , j = 1,...,i - l, i + l,...,J(it means i $\neq$ j and J = I - 1). The number of observations in the regression is 1 x J or 1 x (I - 1).

Acknowledging the shortcoming of a single cross-section study, Learner (1974) identified that it could fail to capture the effect of policies since policy decisions operate over time rather than across countries. By using cross-section and time-series data, he suggested a fruitful direction of research for gravity models.

Some researchers resorted to the usage of the method of conducting several cross-sectional econometric analyses at different times across a number of years with a view to comparing and recording the changes over time. The changes of the factors affecting trade over the same period of time can be captured by changes of the coefficients for the same variables in the gravity model drawn from those analyses. For example Blavy, 2001; Blomqvist, 1993; Frankel, Stein and Wei, 1995; Helliwell, 1996; Yu and Zietlow, 1995.

Learner (1974), and Pelzman (1976, 1977), combined a full set of cross-section data on trade development of Council of Mutual Economic Assistance (CMEA) over a 16-years period into one gravity model. Pelzman's studies used a full panel of cross-section and time-series with the dependant variable of Xt_{ij}, where Xt_{ij}; represents the exports from country i to country j at time t. i=1,...,I, j=1,...,i—1,i+1,...,Jand t=l,...T. The number of observations in Pe1zman's _ regression was 1x(I -1)xT. The gravity models that use panel data are suitable for the situation wherein trade development between countries is also of interest in the studies since it can capture the dynamic time effect. Although Anderson (1979) held that there was a requirement of the use of pooled cross-section and time series data technique in the gravity model for theoretical justification, yet a number of empirical studies (or example Matyas,

1997; Tang, 2003; Vido and Prentice, 2003; Zhang and Kristersen, 1995) used the full panel data with the dependent variable of Xt_{ij}.

The econometric issues of the model drew special attention of some researchers. Allowing coefficients for the explanatory variables across countries to vary, Zhang and Kristensen (1995) specified their pooled cross—sectiona1 and time-series gravity model. Based on the study of Maryas et al (1997), Matyas (1997) commented on the issue of model specification for the use of a full panel data set. He demonstrated that when the fixed effect is appropriate for a full panel gravity model, which has the data structure like Pelzman (1976; 1977), incorporation of dummy variables becomes necessary for the home country effect, the target country effects and the time effect. Maryas et al (1997) developed the following model:

$$ln\, EXP_{ijt} = \alpha_i + \gamma_j + \beta_1\, ln\, Y_{it} + \beta_2\, ln\, Y_{it} + \beta_3\, ln\, POP_{it} + \beta_4\, ln\, POP_{jt} + \beta_5\, ln\, FCR_{jt} + \beta_6\, ln\, RER_{ijt} + u_{ijt} \quad (7.11)$$

Where: ln = Logarithm

EXP = The volume of exports

Y = GDP

POP = Population

FCR = Foreign currency reserves

RER = Real exchange rate

i = Exporting counry, i = 1,..., N,

j = Importing country,j = l,...,i-l, i+l,...N+ I,

t = Time, t= l,...,T

α_i = Dummy for local country effect,

γ_j= Dummy for target country effect,

λ_t, = Dummy for time (business cycle) effect, and

u_{ijt} = White noise (error term).

When using cross section dummy variables only, Matyas et al (1997) pointed out that some previous researchers automatically restricted the time effect, which arose from business cycles. The local (exporting) country and target (importing) country's effects are restricted when only time series dummies were used. Least Square Dummy Variables (LSDV) model is the gravity model proposed by Matyas et al (1997). This is for pooled data with fixed effects

for which the intercept vectors α_i, γ_j and λ, are treated as fixed parameters. All studies, according to the argument advanced by Matyas (1997), which failed to incorporate the three sets of dummy variables for the fixed effect, had come up with misleading results. However, for the omission of the distance variable and the inclusion of variables for real exchange rate and foreign currency reserves in the model, the theoretical justification is not given by Matyas et al (1997).

7.4 The Gravity Trade Models Used in this Analysis

This Section is aimed at developing a gravity model that can be applied to this study focusing on trade of a single country with its trade partners. It is from Frankel (1993), Sharma and Chua (2000) and Hassan (2000, 2001) that this model has been derived. The modification of this model has been done by incorporation of dummy variables to suit this study. The advantage of this model is that for measurement of country-specific trade, it does not account for the total volume of trade among all the trading countries.

Since a country-specific model draws on the gravity model, therefore, it is appropriate to highlight some of the steps used by previous studies on the Country Specific-Gravity Model. Let us begin with a very simple model, and then extend the arguments contained in a simple model into a comprehensive model applicable to the country-specific situations. Exporter countries i trade with importer countries *j* for the simple model. With no natural and artificial trade impediment, imports (IM) of goods from country *i* by country *j* could be represented as:

$$IM_{ij} = b_j Y_j \qquad (7.12)$$

where b_j is the share of country j's importable goods in its national expenditure, and Y_j refers to country j's total income. Equation (7.12) represents the imports of country j from country *i* as a share of country j's total income. In the complete specialisation case with exportation of its total production, country i 's income is derived from its total exports to country j, thus

$$Y_i = b_j \sum Y_j \qquad (7.13)$$

It is assumed non-traded goods have zero value, from Equation (7.13),

$b_j = \frac{Y_i}{\sum_j Y_j}$ (7.14)

Substituting Equation (7.14) into Equation (7.12), yields

$$IM_{ij} = \frac{Y_j Y_i}{\sum_j Y_j} \quad (7.15)$$

With the denominator as a constant, equation (7.15) represents the simplest form of gravity equation. The mathematical equation can be rendered into a statistical model by adding an error term and taking logarithm of both sides of the equation. OLS technique can be used to estimate the model.

For measurement of trade effects and trade relationships within a particular time period, classical gravity models generally employ cross-section data. Useful information can be obtained by observing cross-section data spread over several time periods (panel data methodology) than is the case with cross-section data alone. There are several advantages of this method. Firstly, panel can capture the relevant relationships among variables over time. Secondly, panels can monitor unobservable trading-partner-pairs' individual effects. OLS estimates omitting individual effects will be biased if individual effects are correlated with the regressors. Therefore, we have employed panel data methodology for our empirical gravity model of trade.

The gravity model of trade states that, countries' (GNPs or GDPs), their populations, Per Capita GDP, their distance (proxy of transportation costs) and a set of other dummy variables speak about the volume of trade / exports / imports between pairs of countries X_{ij}. These variables either facilitate or restrict trade between pairs of countries. That is,

$$Xij = \beta_0 Y_i^{\beta 1} Y_j^{\beta 2} N_i^{\beta 3} N_j^{\beta 4} D_{ij}^{\beta 5} A_{ij}^{\beta 6} U_{ij} \quad (7.16)$$

Where Y_i (Y_j) refers to the GDP or GNP of the country i (j), N_i (N_j) represent populations of the country i (j) , D_{ij} measures the distance between the two countries' capitals (or economic centers), A_{ij} represents dummy variables, U_{ij} is the error term and β s are parameters of the model. Using per capita income instead of population, an alternative formulation of equation

(7.16) Can be written as

$$Xij = \beta_0 Y_i^{\beta 1} Y_j^{\beta 2} y_1^{\beta 3} y_j^{\beta 4} D_{ij}^{\beta 5} A_{ij}^{\beta 6} U_{ij} \qquad (7.17)$$

Where yi (yj) are per capita income of country i (j). As the gravity model is originally formulated in multiplicative form, we can linearise the model by taking the natural logarithm of all variables. So for estimation purposes, model (7.17) in log-linear form in year t, is expressed as,

$$IX_{ijt} = \beta_0 + \beta_1 lY_{it} + \beta_2 lY_{jt} + \beta_3 ly_{it} + \beta_4 ly_{jt} + \beta_5 lD_{ijt} + \sum \delta_h P_{ijht} + U_{ij} \qquad (7.18)$$

where *l* denotes variables in natural logs. P_{ijh} is a sum of preferential trade dummy variables. Dummy variable takes the value one when a certain condition is satisfied, zero otherwise.

Export and Import country-specific gravity trade model equations, employed in this study are as follow:

$X_{ijt} = \alpha_0 + \alpha_1 \log(GDP_i) + \alpha_2 \log(GDP_j) + \alpha_3 \log(PCGDP_i) + \alpha_4 \log(PCGDP_j) + \alpha_5 \log(Dis_{ij}) + \alpha_6 \log(POP_i) + \alpha_7 \log(POP_j) + \alpha_8 \log(CPI_i) + \alpha_9 \log(CPI_j) + \alpha_{10} \log(ONI_j) + \alpha_{11} CUL_{ij} + \alpha_{12} Bor_{ij} + \alpha_{13} PTA_{ij} + U_{ijt}$ (7.19)

$M_{ijt} = \beta_0 + \beta_1 \log(GDP_i) + \beta_2 \log(GDP_j) + \beta_3 \log(PCGDP_i) + \beta_4 \log(PCGDP_j) + \beta_5 \log(Dis_{ij}) + \beta_6 \log(POP_i) + \beta_7 \log(POP_j) + \beta_8 \log(CPI_i) + \beta_9 \log(CPI_j) + \beta_{10} \log(ONI_i) + \beta_{11} CUL_{ij} + \beta_{12} Bor_{ij} + \beta_{13} PTA_{ij} + U_{ijt}$ (7.20)

7.4.1 Core Explanatory Variables in the Country Specific Gravity Model

Depending on the relative attractiveness of the two regions, the Country Specific-gravity model attempts to attribute flows from one region to another region and this is its common feature. In the realm of international trade, the model proposes that flow of goods from one country to another is a function of a positive product of the size of economies of the two trading countries and an inverse function of trade resistance factors. As a consequence of the trading countries' ability to supply and demand tradeable goods when the trade resistance factors are removed, the model attempts to explain the volume of trade. It appears as a

reduced form of simultaneous equations of supply and demand in which prices are endogenous. The ability to supply and demand by trading nations is directly linked with the trading countries wealth (GDP), market sizes (population), and their average living standard (per capita GDP). Trade resistances can appear both in quantitative and/or qualitative forms. Transportation costs (proxy by the geographical distance between trading nations) capture quantitative resistances and tariff measures are in the form of non-tariff barriers (proxy by preferential treatment trade bloc dummy variables and country's openness index). A great deal of attention was given to the use of these explanatory variables in the gravity model. The core explanatory variables in gravity are discussed in the ensuing sub-sections.

7.4.1.1 **The GDP Variables**

There is lack of clarity of empirical relationship between GDP variables and the total exports. Most studies concluded the GDP variables to be positive and significant. The studies, which have reached this conclusion include Tinbergen (1962), Poyhonen (1963), Linnernann (1966), Aitken (1973), Aitken and Obutelewicz (1976), Geraci and Prewo (1977; 1982), Frankel and Wei (1993), Frankel et al(l995), Bergstrand (1985; 1989; 1990), Thursby and Thursby (1987), Le, Nguyen and Bandara (1997) and Christerson (1994).

However, as noted by Gleliser (1968; cited in Oguledo and MacPhee, 1994), exporter's GDP has a negative and significant impact on total trade. In his view, While total exports have a partial role of home country's GDP, they also contribute a portion of home country's GDP. The sum of aggregate consumption (C), aggregate investment (I), government expenditure (G) and net exports (NX) measures GDP. NX represents total exports (X) minus total imports (IM). Either by increasing the GDP if net exports are positive or by reducing the GDP if net exports are negative, total exports contributes a portion of GDP. The GDP is independent from net exports under the very rare situation where a country has a balanced trade (a very special case of zero net export). However, in case of net exports not being zero, the dependent variable of total exports in the gravity model is not independent from the explanatory variable of GDP. As a result, through the dependent variable, the GDP variable is contemporaneously correlated with the error term in the regression. Thus the estimates are

biased and the ordinary least squares (OLS) estimators are inconsistent.[17] For the same reasoning, home country's total exports are correlated with foreign country's GDP as they constitute a proportion of the foreign country's total imports. But the endogeneity is there to a lesser extent.

It was acknowledged by a number of studies that an endogenous problem exists between the dependent variable in the gravity model and the GDP variable. An effort was made in these studies to replace the GDP variables with instrument variables; for example, a quadratic function of population was used by Wei (1996). Factor-accumulation-variables were employed by Cyrus (2002) as instruments for GDP. These factor-accumulation-variables represent physical capital accumulation rate (the average share of investment in income), human capital accumulation rate (the average share of the working-age population in secondary schools) and the growth rate of the working-age population.

7.4.1.2 **Population**

It is not clear what impact the population variable has had. Linnemann (1966), Aitken (1976), Blomqvist (1994), Oguledo and MacPhee (1994), Christiri (1996) and Matyas et al (1997) concluded through their studies that populations of the trading countries impacted the trade flows negatively as a statistically significant factor. Contrary to these findings, Brada and Mendez (1983) were of the view that population size has had a positive and significant impact on trade flows. Frankel, Romer and Cyrus (1996) analysed the exports and imports of Asian countries. The concluded that the population variable had significantly negative impact on the exporting country, Contrary to this, the population variable of importing courtiers have had positive and significant impacts.

7.4.1.3 **Per Capita GDP**

Since 'per capita GDP' as a separate and independent variable indicates the level of development, this justifies why per capita GDP as a variable is used in gravity model for the analysis. With the development of a country, there will be increases in the per capita income of its consumers. Consumers tend to spend on imported and exotic foreign varieties

[17] Contemporaneous correlation, in economics terminology, means that one or more explanatory variab1e(s) correlate(s) with the error term in the same time period (Griffiths, Hill and Judge, 1993, p.450).

as they are considered superior goods to those locally produced. The use of innovative technologies in producing super-quality goods accelerates the process of development as exports increases thereby fetching precious foreign exchange. Another factor that provides an impetus to domestic and global trade is the presence of the state of art and development transportation infrastructure in developed countries. Transportation cost is an important variable that affects trade in ways more than one. When two or more countries produce the same good in the presence of transport costs, they are inconsistent with factor price equalisation. Moreover, such variables as the presence of transport cost and differences in demand across countries make different trade models operate differently (Paas 2000, quoted from Davis and Weinstein 1996).

For Gravity models applying cross-section data, per capita GDP is not a common variable. However, a number of studies took into account the stages of economic development on the influence of trade and incorporated per capita GDP in the models. Either population variable (Le et al, 1997; Bergstrand, 1989; Frankel and Wei, 1993; Frankel etal, 1995) or GDP variable (Frankel etal, 1996) was omitted when per capita GDP is used. Except some in Bergstrand's model, all of the per capita GDP variables have had a positive and significant impact on trade flows.[18]

7.4.1.4 **The Distance Variable**

The proxy variable for transportation costs is the distance variable in the gravity model. The direct distance (so called "bird-view") between major economic centres of the two trading partners is used by way of practice, and the selection of these economic centres is done arbitrarily. Major seaports replaced the economic centres by some studies.

However, the influence of transportation costs on trade was investigated by a number of studies. Their argument was based on the fact that transportation costs are subject to the influence of economies of scale and are not a linear function of distance and volume.

[18] Bergstrand (I989), by studying one digit Sl'[`C (from SITC 0 to SITC 8) trade flows and using variables of exporter per capita income and importer per capita income, found that in 1976 importer per capita income had positive impact on trade flow of six out of nine categories of tradeable goods. However, three of the six coefficients are statistically significant Importer per capita income also had positive sign for six categories. Four of them were statistically significant. Of the nine categories, three had the positive sign for importer per capita income and for exporter per capita income. Six of them had opposite signs.

Conversely speaking, the cost may decrease substantially through the use of shipments between a pair of countries because of the impact of ocean currents on the shipping route. Since Land transportation between seaports and economic centres depends largely upon the condition of roads and the landscape, therefore, the cost may vary substantially for the same distance. Vido and Prentice (2003) provide a comprehensive discussion of the deficiency in using direct distance as a proxy for transportation costs.

Studies such as Tinbergen 1962, Poyhonen 1963, and Bergstrand 1985, 1989 etc., which are based on the general equilibrium approach, concluded that incomes of trading partners and the distances between them were statistically significant and had expected positive and negative signs, respectively (Oguledo and Macphee 1994, Karemera et al 1999). The businesses located at a distance have to face three kinds of costs: (i) physical shipping costs, (ii) time-related costs and (iii) costs of (cultural) unfamiliarity. Evident among these costs are the shipping costs (Frankel 1997 quoted from Linnemann 1966).

Trade flows among the trading countries as suggested by the majority of the general equilibrium studies, were negatively affected by their population sizes and had significant effect in statistical terms (Linnemann 1966, Sapir 1981, Bikker 1987), although literature has indicated a few exceptions for example, (Brada and Mendez 1983) for example.

The deficiency of the distance variable was identified by Linnemann (1966, p. 1 80-88), who provided an alternative measure for the purpose. In order to measure the "advantage" of a country for international trade in terms of physical location, he calculated a location index. Based on the country's trade share in value to the total world trade, the index was calculated by introducing some improvement in efficiency, for APEC Polak (1996) applied the location index in his study. However, it is very complex to calculate the location index. When one looks at the outcome of weightage of the efficiency improvement against the cumbersome working out of the location index, one would find that the benefit would be reduced. Either the change occurs in the number of countries involved or in the trade shares or in both, changes occur in the location index for each country. Its use is confined to one period cross-section analysis.

7.4.1.5 **Export and Import Prices in the Gravity Equation**

According to Linnemann (1966), the gravity model did not have a role for prices of commodities since supply equals demand in the world market. If economy of a particular country has been characterised by long term "too high" or "too low" prices, it would pave the way for a permanent disequilibriurn in the balance of payment. Consequently, the disequilibriurn will be corrected through the adjustment of the exchange rate.

The missing price components in the gravity model and their effects on trade started getting attention of authors in the 1970s. The gravity model, according to Anderson (1979), should include the price variables. In his general equilibrium approach, it was in an explicit manner that Bergstrand (1985) grappled with the problem of missing price variables in the gravity model. Thursby and Thursby (1987), Gould (1996) and Bikker (1987) among others concluded that international trade was explained significantly by price variables. By placing the price variables in the gravity model and fully justifying the price variable in the gravity model, Oguledo and MacPhee (1994) successfully modified Anderson's approach.

7.4.1.6 **The Trade Openness Index**

Empirical literature using the gravity trade models, suggest that a country's population is the most significant determinant of openness, with a negative correlation between the two variables. In other words, countries with smaller populations have higher levels of external trade (relative to their GDP) and vice versa. This result is intuitively appealing: countries with smaller populations have fewer opportunities for trade within their own borders and are therefore likely to trade more externally.

The second most important determinant of openness is a country's location, with countries that are more remote tending to be less open. This is consistent with a key finding of the 'gravity' model of bilateral trade: the amount of trade between two economies is inversely related to the distance between them, due to transport and associated costs. One measure of economic location is 'remoteness', which is the weighted average of a country's distance to all potential trading partners (i.e. all other countries in the world) where weights are determined by the potential trading partners' GDP.

The third most significant determinant of openness is a country's trade policy; with more liberalised regimes being associated with greater openness. It seems reasonable to expect that a liberal trade regime stimulate trade. However, it is also possible that countries with high degrees of openness may have more powerful constituencies pushing for low trade barriers. The relationship between the level of openness and the degree of trade liberalisation might be capturing a broader relationship between the quality of a country's institutions and infrastructure and the extent of trade. Variables for the quality of legal and property rights and port and air transport infrastructure are also positively correlated with openness, but the relationship with trade policy is typically stronger.

A fourth factor explaining openness appears to be the level of economic development, which is proxied by the per capita GDP of each country. Interestingly, there is evidence that openness and stage of development are negatively correlated, after controlling for other effects.

That is, richer countries tend to be relatively less open. This is contrary to the conventional wisdom that much trade is intra-industry or in differentiated products that rich countries do more of such trade, and so rich countries should trade more. Further analysis, however, suggests that the relationship between openness and per capita GDP is relatively complex. For example, there is some evidence that the relationship between the variables may be non-linear (approximating an inverse U-shape) and the relationship may also be influenced by the impact of country price levels on the measure of openness.

Finally, openness is also correlated with the geographic size of countries. In particular, countries with larger land mass tend to be less open. An explanation for this effect would be that geographically larger countries may have a wider range of resource endowments and climatic variation, and so are able to produce a more diversified range of products internally and thus have less need for external trade.

7.4.1.7 **Preferential Trade Agreements**

PTAs are clearly among the forces that might be expected to impact bilateral trade flows. In gravity model analysis, PTAs are introduced by the inclusion of a dichotomous (0,1) explanatory variable to represent PTAs individually or on a combined basis. If the estimated coefficient of the (0,1) dummy variable is positive and significant, then the PTA may expand mutual two-way trade between the PTA members on a gross basis, that is, the sum of "Vinerian" trade creation and trade diversion effects on intra bloc trade is positive.

Various means have been developed to refine this measure of trade expansion under PTAs as well as to assess the extent of possible trade diversion. For example, Soloaga and Winters (2001), whose gravity model approach examines not only intra bloc trade expansion effects, but also possible extra bloc import diversion and export diversion effects.

To assess the overall affects of PTAs, Soloaga and Winters specify two additional dichotomous dummy, or indicator, variables for each PTA considered. The first additional dummy variable is set equal to one if the importing country is a PTA member (and zero otherwise), while the second additional dummy variable is set equal to one if the exporting country is a PTA member (and zero otherwise).

7.4.1.8 **Border**

Border/ Adjacency: A dummy variable to identify a pair of countries that are adjacent or contiguous or share a border. This dummy is in addition to the inclusion of the distance variable to account for the possibility of centre-to-centre distance overstating the effective distance between neighbouring countries that may engage in large volumes of border trade. The dummy variable is one if countries i and j share a common border and zero when they do not.

7.4.1.9 **Culture**

Common Culture: is equal to one when the two countries share a common culture and zero if otherwise. Common Culture is expected to attract more trade, as having the same

culture helps facilitate trade negotiations and to have better understanding of the consumer's demand.

7.5 Export and Import Models Estimation

We estimate two gravity models for the selected country's trade by using our data set: (a) the gravity model for exports, (b) the gravity model for imports. For the models (a) and (b), we have followed the models used by Frankel (1993), Sharma and Chua (2000), and Hassan (2000; 2001), after introducing some modifications and addition of dummy variable in the equations.

7.5.1 Export Model

For the gravity model for Export, the following equation is employed:

$X_{ijt} = \alpha_0 + \alpha_1 \log(GDP_i) + \alpha_2 \log(GDP_j) + \alpha_3 \log(PCGDP_i) + \alpha_4 \log(PCGDP_j) + \alpha_5 \log(Dis_{ij}) + \alpha_6 \log(POP_i) + \alpha_7 \log(POP_j) + \alpha_8 \log(CPI_i) + \alpha_9 \log(CPI_j) + \alpha_{10} \log(ONI_j) + \alpha_{11} CUL_{ij} + \alpha_{12} Bor_{ij} + \alpha_{13} PTA_{ij} + U_{ijt}$ (7.19)

where,

X_{ij} = Total Export between (country i) and country j,
GDP_i = Gross Domestic Product of country i
GDP_j = Gross Domestic Product of country j
$PCGDP_i$ = Per capita GDP of Country i
$PCGDP_j$ = Per capita GDP of Country j
Dis_{ij} = Distance between country i and country j,
POP_i = Total Population of country i
POP_j = Total Population of country j
CPI_i = The Consumer Price Index of country i
CPI_j = The Consumer Price Index of country j
ONI_j = Trade openness index of the country (Country j),
CUL_{ij} = Cultural Similarities between Country i and j (dummy variable),

Bor_{ij} = Land border between country i and j (dummy variable),

PTA_{ij} = Preferential trade area between country i and country j (dummy variable),

U_{ij} = error term; t = time period, α_s = parameters.

7.5.1.1 **Hypotheses**

- We expect positive signs for α_1, α_4, α_5, α_7, α_9, α_{10}, α_{12} and α_{13}.
- We expect negative signs for α_2, α_3, α_6, α_8 and α_{11}.

7.5.1.2 **Interpretation of Hypothesis**

- The size of the economy is marked by GDP. The bigger the size of GDP, the more trade between the two countries. The positive sign for coefficient of α_1 (GDP_i) can be expected.

- In order to measure the level of development and infrastructure, per capita GDP is a sine qua non. These indicators are essential to conduct trade among the countries. Development has direct relationship with the volume of trade among the countries. The more developed the countries are, the more trade there would be between the pairs of countries (Frankel 1993). So a positive sign for the coefficient of PCGDP variable is expected.

- Distance is a critical factor, which can prevent or reduce trade. If there is less distance, there can be more trade, as costs of transportation will be less as trade flows are inversely related to the transport costs. Positive signs can be expected for the coefficients of these variables.

- Trade flow can have a positive sign with the coefficients such as Culture Variable. This variable provides the trader with a comfort zone while trading with a country having similar culture and language.

- The fact as to the openness of the country can be identified by the Trade Openness Index variable. More trade will take place among countries if there are fewer tariffs and there is more openness. So this variable possesses a positive sign.

- A positive sign is connected with the coefficients of Preferential Trade Area. The presence of this agreement means that two countries already engaged in Preferential Trade Agreement will have more trade between them.

- A positive sign is expected with the coefficients of the Common Border variable. If two countries share borders, there can be more trade, as costs of transportation will be less as trade flows are inversely related to transport costs.

The product of GDP and that of per capita GDP have been used as independent variables because total exports and total imports between the pairs of countries are the dependent variable in the gravity model used for analysis.

7.5.2 Import Model

For the gravity model for imports, the following equation is employed:

$$M_{ijt} = \beta_0 + \beta_1 \log (GDP_i) + \beta_2 \log (GDP_j) + \beta_3 \log (PCGDP_i) + \beta_4 \log (PCGDP_j) + \beta_5 \log (Dis_{ij}) + \beta_6 \log (POP_i) + \beta_7 \log (POP_j) + \beta_8 \log (CPI_i) + \beta_9 \log (CPI_j) + \beta_{10} \log (ONI_i) + \beta_{11} CUL_{ij} + \beta_{12} Bor_{ij} + \beta_{13} PTA_{ij} + U_{ijt} \quad (7.20)$$

Where, M_{ijt} = total imports of country i from country j, ONI_i=Trade openness index of country i. All other variables are the same as defined in the Export model equation.

7.5.2.1 **Hypotheses**

- We expect positive signs for β_1, β_2, β_3, β_4, β_5, β_7, β_8, β_9, β_{10}, β_{11}, β_{12} and β_{13}.
- We expect negative signs for β_6.

7.5.2.2 **Interpretation of Hypothesis**

- The size of the economy is marked by GDP. The bigger the size of GDP, the more trade between the two countries. A positive sign for coefficient of $\beta 1(GDP_i)$ can be expected.

- In order to measure the level of development and infrastructure, per capita GDP is a sine qua non. These indicators are essential to conduct trade among the countries. Development has direct relationship with the volume of trade among the countries. The more developed the countries are, the more trade there would be between the pairs of countries (Frankel 1993). So a positive signs for the coefficients of $\beta 3$ and $\beta 4$ variable, which are $(PCGDP_i)$ and $(PCGDP_{j)}$ respectively, are expected.

- Distance is a critical factor, which can prevent or reduce trade. If there is less distance, there can be more trade, as costs of transportation will be less as trade flows are inversely related to the transport costs. Positive signs can be expected for the coefficients of $\beta 5$ variable.

- Trade flow can have a positive sign with the coefficients such as Culture Variable. This variable provides the trader with a comfort zone while trading with a country having similar culture and language. A positive sign is expected for $\beta 11$ variable.

- The fact as to the openness of the country can be identified by the Trade Openness Index variable. More trade will take place among countries if there are fewer tariffs and there is more openness. So a positive sign is expected for $\beta 10,$ variable.

- A positive sign is expected for $\beta 13's$ coefficients, which is Preferential Trade Area. The presence of this agreement means that two countries already engaged in Preferential Trade Agreement will have more trade between them.

- A positive sign is expected with the coefficients of $\beta_{12,}$ which is the Common Border variable. If two countries share borders, there can be more trade as costs of transportation will be less as trade flows are inversely related to transport costs.

The product of GDP and that of per capita GDP have been used as independent variables because total exports and total imports between the pairs of countries are the dependent variable in the gravity model used for analysis.

7.5.3 Sample Size, Data sources, Procedure and Issues

In estimating the model, we use panel data (pooled cross-section and time-series) for eight countries in total. The selection of these countries is done on the basis of two factors (a) importance of trading partnership and (b) availability of required data. Four countries of ECO, Pakistan, Iran, Turkey and Kazakhstan are included in this study. Since there is not enough data available for most of the years for most of the ECO countries, we could not include the other six countries of ECO in our sample. The other four countries included in our sample are major trading partners of above-mentioned countries such as USA, UK, China and Germany. For the analysis of the potential for a Free Trade Area among ECO countries, our sample includes these eight countries, four ECO and four non-ECO countries in total.

The data used in this study cover a period of 1995 to 2009 (15 years), thus, making a sample of 420 observations. Since Kazakhstan came into being in 1992, it makes it impossible for us to go beyond this period and the data regarding this country is only available from 1995 onwards. Similarly, it was also found out during the process of collection of data that there was no data available after 2009 with respect to the above sample countries.

All the data used in this study are annual. COMMTRADE, the United Nation's Database is the major data source for collection of facts and figures on total Exports and Imports of each of the sample countries. UNSTATS, the United Nation's database has been used for obtaining data regarding GDP, GDP per capita and population. Data on CPI are obtained from the database of the World Bank.

The data on total Exports, total Imports and GDP were used to calculate the trade openness index (ONI) of each of the sample countries. The website (www.maprrow.info/distance) was used to obtain the data on the distance (in kilometres) between major trading ports of each of the sample countries (as the crow flies). The data on exports, imports, GDP, and GDP per capita were in nominal terms, to convert into the real values of those data, the respective Consumer Price Indices of the sample countries were used. World Bank Database was the source of data on the Consumer Price Index of each sample country. All the values were in million US dollars. Likewise, the population of all countries have also been measured in millions.

7.5.4 Model Estimation Procedure

The export and import model equations were estimated using the random effect model (REM) in which, its specification assumes that the corresponding δ_i and γ_t are realisations of independent random variables with mean zero and finite variance. Most importantly, the random effects specification assumes that the effect is uncorrelated with the idiosyncratic residual ϵ_{it}. As we have used Eviews Swamy-Arora estimator, it handles the random effect models using feasible GLS techniques.

In selecting the Fixed Effect Model (FEM) or the Random Effect Model (REM), advice is provided by Baltagi (2005), Gujarati (2003) and Hsiao (1986), among others. Some of these, which are relevant to our data set, are discussed below.

If the number of cross-sections in the data set is relatively larger to the number of time periods in the data set, the FEM will suffer a loss of a degree of freedom and the REM would be more efficient. But if the number of time periods in the data set is larger and the number of cross-sections is small, it would not make much difference between FEM and the REM. In our data set, the number of the time periods is 15 and the number of cross-sections is 28, which makes the number of cross-sections substantially greater than the number of time periods. This has made us select the REM for this study, as it is more likely that REM will achieve efficient estimation of the models.

When, it came to the point where we had to decide which econometric procedure would be more beneficial to get most accurate results. We preferred Estimated Generalised Least Squares (EGLS) to Ordinary Least Squares (OLS) to estimate the random effect models (REM). The econometricians are of the opinion that the REM by ordinary Least Squares (OLS) will result in coefficients with poor statistical significance. On other hand, the Estimated Generalised Least Squares (EGLS, cross-section seemingly unrelated Regression or SUR) can achieve asymptotically efficient estimates (Baltagi, 2005 discusses the details of the procedure).

Next, we had to specify settings for EGLS weight. One may choose to estimate with no weight, or with cross-section weight, cross-section SUR, period weight, period SUR. We selected the option of period SUR weight, which allows for general correlation of residuals across periods for a specific cross section. As we are using two-way random effect with the option of balanced panel data, period SUR weights are the most appropriate option to be used in Eviews (see Baltagi, 2001, for more details).

While analysing the data for Export and Import models, the culture variable was found to be highly correlated with distance, per capita GDP j, and PTA, in both Export and Import models. However, we tried model estimation without culture variable, but the majority of the coefficients became non-significant. Therefore in table 7.1 and 7.2 we present results with culture variable. The purpose of gravity model estimation in this study is to predict potential trade flows. Therefore correlation between independent variables has been overlooked.

7.6 **Discussion of Estimation Results**

Before the discussion of estimation results, the statistical properties of the model estimates are discussed below. The Common Culture (CUL) variable is highly correlated with PTA and Common Border variables. Thus, we estimated the export and import models without the Common Culture variable, but then none of the coefficients of the models were statistically significant. So the model estimates presented in Tables 7.1 and 7.2 contain the Common Culture variable as well.

- **Regression Coefficients**

In tables 7.1 and 7.2, the column labelled "Coefficient" depicts the estimated coefficients. The coefficient measures the marginal contribution of the independent variable to the dependent variable, holding all other variables fixed. If present, the coefficient of C is the constant or intercept in the regression; it is the base level of the prediction when all of the other independent variables are zero. The other coefficients are interpreted as the slope of the relation between the corresponding independent variable and the dependent variable, assuming all other variables do not change.

- **t-Statistics**

The t-statistic, which is computed as the ratio of an estimated coefficient to its standard error, is used to test the hypothesis that a coefficient is equal to zero. To interpret the t-statistic, one should examine the probability of observing the t-statistic given that the coefficient is equal to zero.

- **R-squared**

The R-squared (R^2) measures the success of the regression in predicting the values of the dependent variable within the sample. In settings, R^2 may be interpreted as the fraction of the variance of the dependent variable explained by the independent variable. The statistic will equal one if the regression fits perfectly, and zero if it fits no better than the simple mean of the dependent variable. It can be negative for a number of reasons, for example, if the regression does not have an intercept or constant, if the regression contains coefficient restrictions, or if the estimation method is two –stage least squares or ARCH. In the estimated export model, R^2 appears to be low which cannot be explained. We have included all the variables that appear in an gravity model.

- **Adjusted R-squared**

One problem with using R^2 as a measure of goodness of fit is that the R^2 will never decrease as one adds more independent variables (regressors). In the extreme case, one can always obtain $R^2$of one if one includes as many independent regressors as there are sample observations. The adjusted R^2, commonly denoted as R^{-2}, penalizes R^2 for the addition of regressors, which do not contribute to the explanatory power of the model.

- **Standard Error of the Regression (S.E. of regression)**

The standard error of the regression is summary measure based on the estimated variance of the residuals.

- **F-Statistic**

The F-statistic reported in the regression output is from a test of the hypothesis that all of the slop coefficients (excluding the constant, or intercept) in a regression are zero.

The P-value given below the F-statistic, denotes **prob (F-statistic)**, is the marginal significance level of the F-statistic. If the p-value is less than the significance level you are testing, say 0.05, you reject the null hypothesis that all slop coefficients are equal to zero.

7.6.1 Export Model

By applying the Country Specific-gravity model to our panel data (on Pakistan's Iran's, Turkey's and Kazakhstan's bilateral trade relations with their major trade partners), the discussion of results is presented in this section.

Two gravity model equations i.e. for imports and exports have been estimated. These models, in addition to the traditional variables, consist of culture, PTA, border and several other

dummies to capture the impact of certain important factors on bilateral trade. Reported below are the results and discussion for the estimated Export model for the time period t= 1995-2009 and cross-sections reaching 28 in number.

Table 7.1 shows the results below. At 1% level, the traditional variable (GDP of Country i), which refers to an exporting country in our model, is found to be significant and carries the expected positive sign. Negative sign is associated with GDP of Country j, which refers to an Importer country in this model and has no significance.

The deduction from this discussion is that as the GDP of the said four countries increases, it would have positive impact on the exports of all four-sample countries namely Pakistan, Iran Turkey and Kazakhstan. The exports of the exporter country can be impacted negatively by decrease in the GDP of the importer country but not at a significant level.

Seen significantly negative at 5% level is the coefficient of Country i's Per Capita GDP (which is an Exporter country in our export model). Per Capita GDP of the coefficient of County j is positive and significant at 1% level. The implication we can draw from this is that weak economic position of the people belonging to Pakistan, Iran, Turkey and Kazakhstan, has a direct and a significant impact on the overall exports of these countries. With the increase in the Per Capita GDP of country j, the exports of i will have a positive boost with high probability level standing at 1%.

Table 7.1: Panel EGLS Estimates for Export Model

Dependent Variable: LOG(Total Exports) Method: Panel EGLS (Two-way random effects) Sample: 1995 2009 Periods included: 15 Cross-sections included: 28 Total panel (balanced) observations: 420 Swamy and Arora estimator of component variances Period SUR (PCSE) standard errors & covariance (d.f. corrected)		
Explanatory Variables	**Coefficient**	**t-Statistic**
Constant	-13.40592	-1.394982
LOG(GDP Country i)	2.759367***	2.885661
LOG(GDP Country j)	-0.00413	-0.156524
LOG(Per Capita GDP Country i)	-2.030733**	-2.111501
LOG(Per Capita GDP Country j)	0.601853***	2.779011
LOG(Distance)	0.109547	0.222884
LOG(Polulation Country i)	-2.358649**	-2.18401
LOG(Population Country j)	0.676383*	1.891898
LOG(CPI Country i)	-0.283522	-1.190517
LOG(CPI Country j)	0.638398***	2.477894
LOG(Openness index Country j)	0.190704	0.581317
Culture	-1.663141	-1.499553
Borders	0.730876	1.032583
PTA	2.117273**	2.063372
Effects Specification	**S.D.**	**Rho**
Cross-section random	1.245651	0.844
Period random	0	0
Idiosyncratic random	0.535511	0.156
Weighted Statistics		
R-squared		0.295117
Adjusted R-squared		0.272546
S.E. of regression		0.548343
F-statistic		13.07552***
Prob(F-statistic)		0

Note: *, Significant at 10% level. **, Significant at 5%level, ***, Significant at 1% level.

The Distance coefficient, though appearing positive, does not have a significant impact. It means that exports of the sample countries do not get affected. Significant at 5% level, the coefficient of the population of Country i carry negative sign. On other hand the coefficient of the population of country j has a significant presence at 10% and carries positive sign. The country j refers to an importing country in this model. The implication of coefficient of the population variable is that the exports of the sample countries (Pakistan, Iran, Turkey and

Kazakhstan) will register a downward trend if the size of population of these countries increases. Thus there is an inverse relationship between both but the increase in the population size of country j (the importing countries) has a positive impact on the exports of Country i. The consumer market is a reflection of the population size of the exporting country as well. With the expansion of the consumer market, there will be a flood of the imported goods to address the needs of the population and hence imports of such countries would increase and their exports will decrease. However, there is a positive correlation between the exports of the country i, and the economic size of the importing country (which is country j in this model).

Although the estimated coefficient is Negative, it is not statistically significant, even at 10% level. Sign, it is associated with the Coefficient of the Consumer Price Index (CPI) variable for Country i. Contrary to this, coefficient of CPI variable for country j at is positive and significant at 1% level. The traditional impact of Exchange trade and price levels of the economies impact the exports of country i. The higher the exchange importing country gets, the increased the exports of the country i. There is an inverse relationship, between the exports of country i and the price levels of country j. Exports to country j doesn't show a significant impact on the price level of country i.

Appendix 7.1 shows that positive sign is associated with the openness index variable of the county j (importing country) but the exports of country i do not have significant impact. The result is consistent with the hypothesis, which is premised on the fact that the lower the tariff level of the importing country, the more trade between the trades partners are expected. The authenticity of this theory is proven in case of Pakistan, Iran, Turkey and Kazakhstan but their exports to the major trading partners are not impacted significantly as other variables influence their exports to their trade partners.

Table 7.1 reflects that negative sign (-1.663141) is associated with the coefficient of the culture dummy variable and it does not affect the exports of the four selected countries. In the same way, the dummy variable of border fails to have impact on the exports of our sample countries in our export model. However, positive sign is associated with coefficient of this variable. At the face of it, the theory seems to be contradicted by the results. The reasons underlying this contradiction are obvious. Cultural affinity exits between the four sample

countries (Pakistan, Iran, Turkey and Kazakhstan) and only three of the seven trading partners are involved in our analysis.

More than culture, other factors influence the exports of these countries with their trading partners. It explains why this model does not give much of an importance to this variable. Since Pakistan, out of seven trading partners analysed in the thesis, shares its border with Iran and China only, it explains why the border variable is not that significant. Iran shares its borders with Pakistan and Turkey. Among the countries under analysis, Kazakhstan happens to share its borders with China only. Since the US exerts huge influence on Pakistan's foreign policy, therefore, the strained nature of relations between the US and Iran have held up Pakistan and Iran from realizing their full trade potential. The same is also the case with Turkey's trade relations with Iran where the US factor is also significant. However, Turkey has been warding off the pressure from the US and has developed relatively better economic relations with Iran compared to Pakistan. At the same time, international sanctions on Iran imposed by such multilateral bodies as the United Nations every now and then have hampered its trade with the rest of the world including Turkey. Kazakhstan and China have a common border but since Kazakhstan is a very small economy, therefore, this border is of no advantage to it.

Such factors as low-level skill set, similar products, underdeveloped industrialisation, more or less the same level of technical progress and development account for low level of Pakistan's, Iran's, Turkey's and Kazakhstan's trade with their neighbouring countries.

As is evident from Table 7.1, the PTA dummy variable carries positive sign as expected and is significant at 5% level. (2.117273) Is co-efficient of the PTA dummy variable, which shows Pakistan, Iran, Turkey and Kazakhstan have prospects of better trade with such countries with whom former have struck Preferential Trade Agreement compared to their other trade partners under analysis. Out of eight countries, which are part of analysis in this model, only Pakistan, Iran, Turkey and Kazakhstan are part of any PTA as they are members of ECO. However, it may be said at the same time that efforts at economic integration of the ECO region have not been successful for different reasons including lack of political will, political conflicts in the region and heavy involvement of the member countries in trade outside the ECO region. Despite this, exports of the sample countries still show positive outcome (World Bank, 2006).

This model does not reflect the impact of commonness of culture and border on the trade relations among four of our selected countries. It, however, shows that PTA does impact the exports of these countries amongst them.

A clear picture will emerge from the analysis of the Actual, Fitted and Residual percentage of exports of our sample countries to their major trading partners in the following section.

7.6.2 Import Model

This section will discuss and analyse the results gathered from the application of our import model equation on the panel data (on Pakistan's, Iran's, Turkey's and Kazakhstan's bilateral trade relations with their major trade partners under reference). Reported below is the equation we estimated for import model for the time period t= 1995-2009 and cross-sections reaching 28 in number.

Table 7.2 above reports the results of the analysis; the coefficient of the (GDP of Country i which is an importing country in this model) variable is (0.844187) percent. Positive sign is attached with it but not at a significant level. On other hand the GDP variable of country j (which is exporting country in this model) carries positive sign and has no significance as well. The deduction from these figures is that the GDP variables for both countries do not record any significant impact on imports of Country i from Country j in the case of our selected countries (Pakistan, Iran, Turkey and Kazakhstan).

Positive sign is carried by Per Capita GDP variable for country i again and which has no significance impact but at 1% level, the Per Capita GDP variable for country j (which is exporting country in this model) is significant and carries expected positive sign. It becomes abundantly clear that if the economy of an exporting country becomes stronger, it will enable it to further increase its exports for the outside world or trading partners.

Table 7.2: Panel EGLS Estimates for Import Model

Dependent Variable: LOG(Total Imports) Method: Panel EGLS (Two-way random effects) Sample: 1995 2009 Periods included: 15 Cross-sections included: 28 Total panel (balanced) observations: 420 Swamy and Arora estimator of component variances		
Explanatory Variables	**Coefficient**	**t-Statistic**
Constant	-20.38136	-2.176067
LOG(GDP Country i)	0.844187	1.201498
LOG(GDP Country j)	0.008171	0.43322
LOG(Per Capita GDP Country i)	0.009716	0.013612
LOG(Per Capita GDP Country j)	0.621446***	3.700113
LOG(Distance)	0.866447	1.684511
LOG(Polulation Country i)	-0.474872	-0.615915
LOG(Population Country j)**	0.555827	1.620248
LOG(CPI Country i)	-0.29865*	-1.814623
LOG(CPI Country j)	0.409428**	2.059052
LOG(Openness index Country i)	1.207175***	6.786378
Culture	-1.5081	-1.31308
Borders	1.544882**	2.005078
PTA	2.047042*	1.834704
Effects Specification	**S.D.**	**Rho**
Cross-section random	1.29012	0.8976
Period random	0.00	0.00
Idiosyncratic random	0.435641	0.1024
Weighted Statistics		
R-squared		0.505911
Adjusted R-squared		0.490091
S.E. of regression		0.453528
F-statistic		31.97807***
Prob(F-statistic)		0.00

Note: *, Significant at 10% level. **, Significant at 5%level, ***, Significant at 1% level.

Expectedly positive sign is carried by the coefficient of the Distance variable and it is significant at 10% level. The implication from the coefficient of distance variable is that when the distance (as a proxy for transportation cost) among our sample countries and among them and their other trading partners, decreases on average, it would lead to an increase in the imports of Country i from Country j. Hence there is theoretical consistency of this variable with the hypothesis of gravity model. Referral to Table 7.1 (in which results of our export

model are described) made it clear that Distance variable carried positive sign as well but not at significant level. This in simple words means that the importing country has to bear a considerable cost as a result of increase in the cost of transportation.

Negative sign is carried by the Population variable for Country i in this model but at no significant level. At the significant level of 5%, on the other hand, the population variable of country j carries positive sign. This implies inverse relation of the Population variable to the size of country i market. The exports of the exporting country j, for example, will be adversely affected if the population of a country where they are used decreases. This fits in very neatly with the phenomenon of Supply and Demand. The positive significance of the population variable of Country j, on the other hand is that the bigger the population size of country j, more the utilisation of resources take place, which will strengthen the economy for country j. With economy of country j becoming stronger, it would be able to increase its exports.

Negative sign is carried by the variable of CPI for country i and which is significant at 10% level. Positive value is carried by the variable of CPI for country j in this model and which is significant at 5% level. This contrasts with the results of our gravity model. The deduction here is that since country i is an importing country in this model, imports from country j will face negative effect if the price levels become high. This is theoretically correct and carries an expected sign according to our hypothesis.

At a significant level, negative sign is carried by the culture dummy variable. This result is consistent with our findings in our export model for this variable. Our deduction drawn from this is that culture, despite being a shared featured of Pakistan, Iran, Turkey and Kazakhstan, has failed to produce any tangible impact on their bilateral trade either amongst them or with their other trading partners. In case of these countries, other factors affect their bilateral and multilateral trade.

Positive sign is carried by Border dummy variable in this model, which is significant at 5% level. This result contradicts the results we found in our export model for the same variable. The figures contained in Table 7.2 make it evidently clear that the countries having this variable as is the case with sample countries under study such as Pakistan, Iran Turkey and Kazakhstan, have better trade relations with each other and other trading partners as the cost

of transportation decreases. For example Pakistan shares borders with Iran and China whereas Iran shares it borders with Turkey and Kazakhstan shares its borders with China as well. As is evident from the Residual analysis (referring to Appendices 7.2, 7.3, 7.4, and 7.5), the nations that share borders are better off in bilateral trade.

Positive sign is carried by the coefficient of the PTA dummy variable and which is significant at 10% level. We can imply that if a country joins the PTA of a country i, the exports of the latter will get a tremendous boost because of availability of new export destination having a strong population variable. Four countries in the present analysis namely Pakistan, Iran, Turkey and Kazakhstan are part of ECO (which is PTA), whereas the remaining four (which are USA, UK, China and Germany) are not part of any PTA. The residual analysis in Tables 7.7, 7.8, 7.9, and 7.10 in Appendix section of this thesis supports this conclusion.

7.7 Estimation of Trade Potential among Selected Countries

7.7.1 Export Flows

The actual exports, expected exports and the residuals (difference between actual and expected exports) of each of the four of our selected countries to there seven major trading partners under reference will be analysed in this section. The main purpose of this analysis is to examine, whither the trade potential between the selected countries has been over utilised or underutilised. Since the trade data of the countries under study have been taken from 1995 to 2009 as is shown in Tables 7.2, 7.3, 7.4 and 7.5 in chapter 7, Appendix section, but we will use most recent data of two years for the purpose of interpretation and discussion. Since this study focuses on exploring the trade potential among Pakistan, Iran Turkey and Kazakhstan, so trade relations among them will get the major share of discussion than other trading partners of these countries. All the figures used in discussion were logs of the real figures present in the tables in the Appendix section. The logs are again converted into real figures in tables 7.3 to 7.10 for the discussion purposes. Tables containing logs of these real values could be found in chapter 7, appendix section.

The data shown in Table 7.3 makes it clear that in years 2008 and 2009 the fitted exports (Expected Exports) of Pakistan to Iran were (1,340,697) and (1,113,590) dollars respectively

but the actual recorded exports were (3,050,756) and (1,588,975) dollars respectively. The recorded residual (differences) were (1,710,059) and (475,385) dollars. These statistics, theoretically speaking, show that Pakistan has utilised its full trade potential to Iran and hence there is no space for the country to further increase the volume of exports to Iran. Contrary to this perception, Table 7.3 reveals that the Pakistan's exports to Iran have been on the rise between 1995 and 2009. This leads one to conclude that immense trade potential still exists between Pakistan and Iran as they are natural trade partners. The fact that both countries share borders and to top it all are members of the ECO is a contributory factor, which influences the exports of Pakistan to Iran.

The data dealing with Pakistan's exports to Turkey shows that the fitted exports for the years 2008 and 2009 were (1,297,046) and (951,981) dollars respectively but the actual exports were recorded as (3,371,270) and (2,565,336) dollars. Residuals is (2,074,224) and (1,613,355) dollars. These figures again point out that there exists immense export potential of Pakistan towards Turkey. Both Pakistan and Turkey are natural trade partners because of their being members of the ECO and other favourable factors. Years under analysis (1995-2009) register the increasing trend of the Pakistani exports to Turkey.

The analysis of the Pakistani exports to Kazakhstan during 2008-09 reveals that fitted exports were (388,248) and (275,213) dollars respectively but the actual recorded figures were (43,391) and (26,572) dollars respectively. (-344,857) and (-248,641) dollars are the evident differences respectively. This indicates that Pakistan's export potential to Kazakhstan has yet to be realized and there is a potential to develop trade relations. Why export potential has not been fully utilised is similarity of production of goods and exports in the case of Kazakhstan and Pakistan. Both countries can derive mutual benefits by realising this export potential.

Table 7.3 while dealing with the years 2008 and 2009 reveals in respect of Pakistan and the US that the fitted Exports were (5,235,642) and (4,118,090) dollars respectively and the actual recorded exports of Pakistan to USA were (26,158,899) and (20,295,302) dollars respectively. (20,923,257) and 16,177,212) dollars were recorded as the residual respectively. This shows that Pakistan has over-utilised its exports potential to USA. However, the whole period of analysis (1995 and 2009) reveals that the exports ration has remained constant implying thereby that there does not exist, potential for Pakistan to increase its exports to USA. This is so because they are not natural trade partners. In order to get economic benefits

and develop its economy on a sustainable basis, Pakistan should focus on strengthening its trade with other trade partners.

The analysis of Pakistan's exports to the UK for the years 2008 and 2009 reveals that the fitted value of export was (1,833,615) and (1,335,345) dollars respectively and the actual exports were recorded at (7,162,001) and (5,939,289) dollars. (5,328,386) And (4,603,944) dollars were the residuals for two years. These figures show that Pakistan's export potential has been over utilised and there is no more potential of exporting goods to the UK.

As is evident from the Table 7.3 that for the years 2008 and 2009, the value of the fitted exports was (6,744,244) and (5,205,363) dollars respectively in case of Pakistan's exports to China. (5,202,761) and (6,287,663) dollars were actual recorded exports to China respectively for two years. (-1,541,486) and (1,082,300) dollars are the residual. According to these figures, the export potential for the year 2008 was underutilised and it was over utilised for the year 2009.

Pakistan's export potential for China remained underutilised from 1995 to 2007 and with the passage of time the volume of the Pakistan's exports to China has been increasing. This leads one to conclude that Pakistan possesses huge potential to increase its exports to China in future.

The Pakistan's fitted exports to Germany in years 2008 and 2009 were (2,543,369) and (1,945,637) dollars and the actual exports were recorded (6,300,251) and (4,532,118) dollars respectively. For these two years the residuals were (3,756,882) and (2,586,481) dollars respectively. This indicates the over utilisation of Pakistan's export potential to Germany meaning thereby that Pakistan cannot gain any major trade benefits from Germany in future.

Table 7.3: **Pakistan's Export Flows to Selected Countries**

	Pakistan's Exports to																				
	Iran			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	2,274,339	1,089,468	1,184,871	2,490,266	960,875	1,529,390	148,094	187,700	- 39,606	22,447,729	5,889,608	16,558,121	9,650,304	1,951,483	7,698,822	2,209,772	3,582,961	- 1,373,188	10,241,923	3,158,160	7,083,764
1996	1,111,921	964,823	147,098	1,257,329	875,106	382,223	257,790	167,695	90,095	25,720,528	5,228,317	20,492,211	10,392,552	1,733,755	8,658,798	1,964,209	3,430,100	- 1,465,891	10,972,470	2,669,762	8,302,708
1997	279,037	814,720	- 535,683	879,053	800,026	79,026	242,365	150,693	91,672	24,278,458	4,643,598	19,634,860	9,134,783	1,610,894	7,523,889	2,346,886	3,288,033	- 941,147	8,623,486	2,208,668	6,414,819
1998	281,053	832,010	- 550,957	822,004	847,885	- 25,881	340,680	155,905	184,776	25,556,443	4,986,775	20,569,667	7,991,588	1,727,006	6,264,581	2,163,851	3,411,627	- 1,247,777	7,725,213	2,343,603	5,381,610
1999	141,379	726,577	- 585,198	528,184	677,388	- 149,204	103,549	116,297	- 12,748	25,813,289	4,309,360	21,503,929	7,561,650	1,450,763	6,110,887	2,423,443	3,020,401	- 596,957	7,061,726	1,926,663	5,135,063
2000	213,673	823,732	- 610,059	1,299,513	778,948	520,564	134,282	139,777	- 5,494	29,247,364	4,996,759	24,250,605	7,721,352	1,603,661	6,117,690	3,143,351	3,477,416	- 334,065	6,653,143	2,026,661	4,626,483
2001	361,277	631,340	- 270,063	1,086,204	507,778	578,426	88,451	115,879	- 27,428	27,896,171	3,812,516	24,083,655	7,825,514	1,203,687	6,621,827	3,604,523	2,775,662	828,861	5,964,287	1,526,976	4,437,310
2002	503,783	795,718	- 291,935	1,327,755	636,793	690,962	136,162	137,036	- 874	29,153,922	4,246,476	24,907,446	8,592,498	1,396,947	7,195,550	2,850,486	3,292,969	- 442,483	5,840,927	1,755,738	4,085,188
2003	962,318	1,026,535	- 64,218	2,346,652	924,215	1,422,437	117,607	197,264	- 79,658	32,242,628	5,371,405	26,871,224	9,869,897	1,848,712	8,021,185	3,042,530	4,672,477	- 1,629,947	7,126,281	2,414,010	4,712,270
2004	1,120,964	971,698	149,267	2,392,860	891,446	1,501,414	95,397	199,786	- 104,389	34,052,023	4,624,136	29,427,887	10,567,565	1,660,617	8,906,948	3,278,183	4,175,731	- 897,548	7,253,539	2,137,399	5,116,140
2005	1,784,234	1,114,370	669,864	2,994,836	1,030,032	1,964,804	99,678	243,263	- 143,585	39,792,937	5,091,077	34,701,860	9,074,692	1,745,061	7,329,631	4,357,025	4,850,537	- 493,512	7,244,115	2,219,295	5,024,820
2006	1,656,637	1,360,415	296,222	3,142,722	1,257,329	1,885,394	78,913	336,448	- 257,535	40,245,148	5,860,233	34,384,914	8,671,913	2,093,400	6,578,513	4,694,490	6,100,614	- 1,406,124	6,463,619	2,630,804	3,832,816
2007	1,259,342	1,538,472	- 279,129	3,843,139	1,505,145	2,337,994	54,138	420,080	- 365,941	33,184,717	6,448,770	26,735,947	8,331,050	2,364,081	5,966,968	5,285,617	7,443,859	- 2,158,242	6,251,925	3,043,443	3,208,482
2008	3,050,756	1,340,697	1,710,059	3,371,270	1,297,046	2,074,224	43,391	388,248	- 344,857	26,158,899	5,235,642	20,923,257	7,162,001	1,833,615	5,328,386	5,202,761	6,744,244	- 1,541,483	6,300,251	2,543,369	3,756,882
2009	1,588,975	1,113,590	475,385	2,565,336	951,981	1,613,355	26,572	275,213	- 248,641	20,295,302	4,118,090	16,177,212	5,939,289	1,335,345	4,603,944	6,287,663	5,205,363	1,082,300	4,532,118	1,945,637	2,586,481

Table 7.4 analyses Iran's exports to its seven trading partners under reference. Iran's fitted exports to Pakistan between 2008 and 2009 were (2,044,370) and (1,881,538) dollars respectively. But the actual exports were recorded (1,251,183) and (1,163,333) dollars. (-793,187) and (-718,205) dollars were recorded as residual respectively for these two years. The analysis of the previous year's proves that there is immense trade potential between Pakistan and Iran, which if capitalised on can result in mutual benefit of both countries. They stand to gain in concrete terms as Iran and Pakistan are natural trade Partners and are members of ECO. Hence they should focus on tapping the untapped trade potential. Iran exports Crude oil and Natural Gas as it specialises in its production (see Chapter 5 on Comparative Advantage Analysis). Given Pakistan's vast and increasing energy needs, it is a significant importer of these two commodities in the region. The commonness of border and cultural harmony are added factors that enhance the prospects of mutually rewarding trade relationship between both countries.

Table 7.4, which shows Iran's exports to Turkey, reveals that the fitted exports for the years 2008 and 2009 were (5,960,709) and (4,684,173) dollars but the actual exports were (1,369,423) and (1,325,765) dollars recorded for these years. For these two years, residuals were recorded (-4,591,286) and (-3,358,409) dollars respectively. The analysis of trade pattern between both countries makes one believe that the export potential has been underutilised and given the favourable factors on their side such as common border, culture and PTA, Iran can increase its exports to Turkey in future.

Fitted exports of Iran to Kazakhstan for the years 2008 and 2009 were (966,465) and (733,439) dollars. But (316,633) and (282,519) dollars were actual recorded exports. For these years the residuals were (-649,831) and (-450,921) dollars respectively. The data here shows that Iran has not fully utilised its export potential to Kazakhstan and there is a strong untapped potential for Iran to work on. The similarity or specialisation of production can be cited as an important reason as to why trade has not picked up momentum between both and why potential remains underutilised since Iran and Kazakhstan are mainly the exporters of the same product line (see chapter 5 as reference).

Table 7.4: Iran's Export Flows to Selected Countries

	Iran's Exports to																				
	Pakistan			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	2,090,889	4,208,008	- 2,117,119	7,485,662	9,236,744	- 1,751,082	1,426,166	977,252	448,913	1,177,848	27,737,615	-26,559,767	1,459,493	9,036,658	- 7,577,165	4,633,393	8,086,447	- 3,453,054	23,957,692	14,624,372	9,333,320
1996	1,846,126	3,460,418	- 1,614,292	5,233,548	7,820,038	- 2,586,490	1,119,732	811,630	308,102	1,373,812	22,892,044	-21,518,232	1,164,148	7,463,239	- 6,299,091	4,077,114	7,197,181	- 3,120,067	16,874,261	11,492,440	5,381,821
1997	920,618	2,778,162	- 1,857,544	2,817,893	6,545,576	- 3,727,683	1,022,949	667,837	355,111	147,016	18,615,405	-18,468,388	1,271,109	6,348,950	- 5,077,841	1,941,750	6,316,653	- 4,374,903	16,647,989	8,705,800	7,942,189
1998	936,964	2,095,075	- 1,158,111	4,169,055	5,268,731	- 1,099,675	776,770	524,762	252,008	93,135	15,183,198	-15,090,064	592,082	5,170,087	- 4,578,005	2,428,781	4,977,807	- 2,549,026	10,791,831	7,015,973	3,775,858
1999	1,113,813	1,937,676	- 823,863	4,414,036	4,461,966	- 47,930	535,684	414,944	120,740	113,018	13,908,351	-13,795,333	706,869	4,603,374	- 3,896,505	1,752,931	4,671,076	- 2,918,145	9,399,810	6,113,439	3,286,371
2000	1,048,425	1,558,758	- 510,333	3,798,056	3,876,720	- 78,664	637,813	376,774	261,039	1,408,590	12,184,802	-10,776,212	515,916	3,844,676	- 3,328,760	2,752,169	4,063,682	- 1,311,513	10,618,412	4,858,790	5,759,622
2001	1,370,930	1,530,033	- 159,103	1,065,655	3,169,549	- 2,103,895	545,577	391,797	153,780	1,704,871	11,660,295	- 9,955,424	609,382	3,619,332	- 3,009,950	2,999,631	4,068,154	- 1,068,523	6,208,314	4,591,420	1,616,894
2002	1,811,200	1,577,891	233,308	1,389,980	3,580,811	- 2,190,831	709,915	417,400	292,515	1,932,645	11,700,007	- 9,767,362	382,621	3,784,029	- 3,401,409	2,847,067	4,347,885	- 1,500,817	4,249,025	4,755,917	- 506,892
2003	1,959,696	1,486,448	473,248	1,507,706	3,830,860	- 2,323,154	640,369	442,856	197,513	1,805,774	10,907,923	- 9,102,149	408,317	3,691,340	- 3,283,022	2,868,501	4,547,099	- 1,678,598	4,613,051	4,819,593	- 206,542
2004	1,398,205	1,692,979	- 294,773	1,367,234	4,357,896	- 2,990,663	429,682	529,030	- 99,348	1,239,849	11,076,098	- 9,836,249	599,769	3,910,595	- 3,310,826	2,802,998	4,793,158	- 1,990,160	3,810,992	5,033,872	- 1,222,880
2005	2,769,840	1,920,699	849,140	3,696,511	5,088,023	- 1,391,512	515,452	650,828	- 135,375	997,892	12,322,039	-11,324,147	746,761	4,152,412	- 3,405,652	4,948,030	5,625,948	- 677,918	6,372,485	5,281,391	1,091,094
2006	2,583,098	2,096,542	486,556	2,857,907	5,655,845	- 2,797,938	635,711	819,705	- 183,994	979,796	12,916,292	-11,936,495	637,112	4,536,199	- 3,899,087	8,862,150	6,443,613	2,418,537	4,125,097	5,701,273	- 1,576,176
2007	1,465,343	2,176,655	- 711,312	1,554,089	6,276,355	- 4,722,266	391,954	948,844	- 556,890	893,499	13,556,816	-12,663,317	390,077	4,749,263	- 4,359,186	3,271,306	7,288,439	- 4,017,133	3,160,687	6,114,050	- 2,953,363
2008	1,251,183	2,044,370	- 793,187	1,369,423	5,960,709	- 4,591,286	316,633	966,465	- 649,831	696,623	11,790,445	-11,093,822	341,021	4,060,026	- 3,719,005	2,888,939	7,278,243	- 4,389,303	2,671,365	5,631,577	- 2,960,212
2009	1,163,333	1,881,538	- 718,205	1,325,765	4,684,173	- 3,358,409	282,519	733,439	- 450,921	588,893	10,215,329	- 9,626,436	327,453	3,165,115	- 2,837,662	2,822,687	6,013,996	- 3,191,309	2,448,534	4,612,128	- 2,163,594

For year 2008 and 2009, Iran's fitted exports to USA were (11,790,445) and (10,215,329) dollars for the years 2008 and 2009, whereas actual exports recorded for these years were (696,623) and (588,893) dollars and (-11,093,822) and (-9,626,436) dollars were the residuals for these two years. The figures shows that Iran has not fully utilised its export potential to USA and theoretically speaking Iran can increase the volume of its exports to USA in the future. But this is not going to happen any time soon. Both countries share a history of strained relations. Iranian economy has had to suffer major blows due to sanctions imposed on it by the US and the UN. Of late both the US and UN have placed fresh sanctions on Iran over the country's nuclear program. There is very dim possibility of the issues being resolved amicably between the two countries in the near future. This means that Iran should focus on strengthening and diversifying its trade relations with countries within the ECO and outside of it.

The fitted exports in case of Iran's exports to UK were (4,060,026) and (3,165,115) dollars for the years 2008 and 2009, where actual recorded Exports were (341,021) and (327,453) dollars respectively for the same period. For two years, the residuals were (-3,719,005) and (-2,837,662) dollars respectively. A look at the figures makes one conclude that Iran can boost its trade relations with the UK and it would go to the benefit of both countries. However, bilateral relations between Iran and the UK are subject to political tensions over a whole host of issues. Since the UK is an ally of the US, therefore, it cannot be expected to have a different foreign policy than that of the US when it comes to dealing with Iran. Hence underutilised trade potential between both countries is proven.

Iran's fitted exports to China were (7,278,243) and (6,013,996) dollars for the years 2008 and 2009. (2,888,939) and (2,822,687) dollars were recorded as actual exports. For these two years, the residuals were (-4,389,303) and (-3,191,309) dollars. These figures amply suggest that Iran can boost its trade relations with China as export potential is underutilised. Such a relationship will be beneficial for both countries.

The fitted exports in case of Iran's exports to Germany were (5,631,577) and (4,612,128) dollars for years 2008 and 2009, whereas (2,671,365) and (2,448,534) dollars were actual exports respectively. For this period, the residual figures are (-2,960,212) and (-2,163,594) dollars. These statistics show that Iran can increase its exports to Germany by strengthening its trade relations with it.

Table 7.4 reveals the underutilised nature of Iran's exports potential to all of its major trading partners under reference. The world stands to benefit from trade with Iran as it is one of the major exporters of crude oil in the world. However, for Iran to be able to become a major economic power depends largely on its relations with the US and the EU. Iran must sort out its differences with these countries with economic benefits in view if the relations get normalised. However, Iran is better positioned to undertake trade with the countries of the ECO region and it is doing pretty well. It can make up for the losses accruing to its economy as a result of estranged relations with the US and its ally countries by focusing hard on further boosting its economic relations with ECO trade partners.

Table 7.5 analyses Turkey's export potentials with its seven trade partners under reference. Turkey's fitted exports to Pakistan in 2008 and 2009 were (2,506,255) and (2,123,975) dollars respectively, whereas the actual exports for these years were recorded as (1,168,113) and (1,155,218) dollars. For this period, the residuals stood at (-1,338,142) and (-968,757) dollars. These figures suggest that Turkey's export potential has been underutilised and there is immense space for Turkey to increase its exports to Pakistan in the future.

Turkey's fitted exports to Iran in 2008 and 2009 were (7,554,092) and (6,185,386) dollars. Contrary to this, the actual exports were (15,291,383) and (14,339,091) dollars and the residuals for these two years were (7,737,290) and (8,153,705) dollars respectively. It is evident from the figures that the export potential of Turkey to Iran is over utilised. Analysis of the data for 15 years shows that it has been constantly over utilised and the exports are still increasing in percentage as well as volume. This favourable pattern of trade owes itself to Iran and Turkey being natural trade partners and sharing borders as well as being members of a Preferential Trade Agreement. Turkey can still increase its exports to Iran in the future being natural trade partner of Iran.

Table 7.5: Turkey's Export Flows to Selected Countries

	Turkey's Exports to																				
	Pakistan			Iran			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	1,796,229	1,714,102	82,127	5,313,706	4,265,628	1,048,077	2,997,233	656,449	2,340,784	30,264,925	19,388,681	10,876,244	22,698,287	49,387,109	- 26,688,823	1,339,759	5,952,370	- 4,612,611	100,714,466	80,494,547	20,219,919
1996	1,580,418	1,845,203	- 264,785	6,026,639	4,596,933	1,429,705	3,319,418	713,687	2,605,731	32,874,242	20,944,780	11,929,462	25,347,737	53,393,523	- 28,045,786	1,323,248	6,934,365	- 5,611,117	104,761,825	82,805,082	21,956,743
1997	1,120,292	1,802,707	- 682,415	5,914,396	4,324,902	1,589,495	4,055,157	714,616	3,340,542	39,051,818	20,726,010	18,325,808	29,116,046	55,273,271	- 26,157,224	854,781	7,406,733	- 6,551,952	101,209,178	76,331,786	24,877,392
1998	1,114,705	1,649,363	- 534,659	3,400,048	4,070,189	- 670,141	3,738,892	681,260	3,057,632	39,137,827	20,511,577	18,626,250	30,035,783	54,608,494	- 24,572,711	668,038	7,081,526	- 6,413,488	95,697,238	74,633,498	21,063,740
1999	2,053,590	1,467,249	586,341	2,521,589	3,624,040	- 1,102,451	1,542,323	518,140	1,024,183	38,942,626	18,072,464	20,870,162	29,232,744	46,772,220	- 17,539,476	585,429	6,392,270	- 5,806,841	87,478,184	62,563,963	24,914,221
2000	1,296,268	2,317,038	- 1,020,769	5,828,673	6,093,907	- 265,234	2,889,228	923,661	1,965,568	76,469,307	31,083,883	45,385,424	50,339,469	76,683,721	- 26,344,252	2,272,066	10,915,562	- 8,643,496	128,636,351	97,601,166	31,035,185
2001	689,968	1,723,211	- 1,033,243	7,976,418	4,437,936	3,538,482	2,650,344	727,668	1,922,676	69,157,703	22,535,446	46,622,257	48,114,782	54,690,468	- 6,575,687	4,410,947	8,279,557	- 3,868,610	118,734,445	69,880,696	48,853,749
2002	875,018	1,359,327	- 484,308	4,701,537	3,854,686	846,851	2,421,021	592,971	1,828,051	50,921,714	17,296,245	33,625,469	45,868,997	43,741,156	2,127,841	4,051,914	6,768,567	- 2,716,653	89,049,237	55,367,315	33,681,922
2003	856,920	1,381,803	- 524,883	6,501,867	3,955,035	2,546,833	2,850,201	678,880	2,171,321	45,722,451	17,400,335	28,322,116	44,700,713	46,043,631	- 1,342,918	6,146,541	7,639,174	- 1,492,633	91,166,677	60,545,155	30,621,522
2004	951,600	1,790,669	- 839,069	8,950,321	5,024,317	3,926,005	3,916,465	922,737	2,993,727	53,404,203	20,103,410	33,300,793	61,061,982	55,500,356	5,561,625	4,313,240	9,161,312	- 4,848,072	96,321,297	71,944,101	24,377,196
2005	1,875,527	2,036,616	- 161,089	9,129,304	5,836,839	3,292,464	4,599,233	1,138,133	3,461,099	49,106,403	22,420,808	26,685,596	59,174,425	59,079,822	94,603	5,497,478	10,779,966	- 5,282,488	94,546,279	75,670,580	18,875,700
2006	1,172,677	2,070,085	- 897,407	9,654,165	6,042,328	3,611,837	6,305,293	1,334,811	4,970,482	45,800,245	21,884,737	23,915,508	61,663,331	60,092,764	1,570,567	6,271,336	11,497,038	- 5,225,702	87,653,316	76,072,698	11,580,617
2007	1,298,863	2,337,050	- 1,038,187	11,920,856	6,888,060	5,032,796	8,932,439	1,680,161	7,252,278	34,552,829	24,276,030	10,276,800	71,356,572	68,414,818	2,941,753	8,598,514	14,142,571	- 5,544,056	99,195,182	88,711,492	10,483,690
2008	1,168,113	2,506,255	- 1,338,142	15,291,383	7,554,092	7,737,290	6,709,265	1,954,021	4,755,244	32,446,398	24,806,096	7,640,302	61,466,324	66,779,052	- 5,312,729	10,827,503	16,123,687	- 5,296,184	97,571,890	93,297,139	4,274,751
2009	1,155,218	2,123,975	- 968,757	14,339,091	6,185,386	8,153,705	4,486,574	1,365,457	3,121,117	22,903,493	19,232,267	3,671,226	41,921,107	47,941,880	- 6,020,773	11,325,869	12,267,941	- 942,072	69,344,681	70,357,504	- 1,012,823

The fitted exports of Turkey to Kazakhstan were (1,954,021) and (1,365,457) dollars respectively for 2008 and 2009. However the actual exports were recorded at (6,709,265) and (4,486,574) dollars respectively and the residuals for these two years were (4,755,244) and (3,121,117) dollars. These figures make it clear that the export potential of Turkey to Kazakhstan is over utilised and there is little space for increase in it. Despite this, Turkey has consistently been increasing its exports to Kazakhstan for years on end, which shows that Turkey and Kazakhstan are natural and regionally close trade partners.

For 2008 and 2009, Turkey's fitted exports to USA were (24,806,096) and (19,232,267) dollars respectively, whereas the actual recorded exports stood at (32,446,398) and (22,903,493) dollars. For this period, the residuals were (7,640,302) and (3,671,226) dollars. This indicates that Turkey has over utilised its trade potential with the US and it cannot increase its exports to it in future.

The fitted exports of Turkey in case of UK for the years 2008 and 2009 were (66,779,052) and (47,941,880) dollars respectively. (61,466,324) and (41,921,107) dollars were actual exports and the residuals for these two years were recorded at (-5,312,729) and (-6,020,773) dollars. These figures suggest that Turkey has yet to realise its full export potentials as it remains largely underutilised here. Since Turkey is part of European Custom Union, it has been a significant trade partner of UK and still carries more potential to increase its exports to UK.

The fitted exports of Turkey to China for the years 2008 and 2009 were (16,123,687) and (12,267,941) dollars respectively, whereas the actual exports for these years were recorded at (10,827,503) and (11,325,869) dollars. (-5,296,184) and (-942,072) dollars were residuals for this period which clearly shows that here the export potential is underutilised. It provides Turkey with an opportunity to increase its exports to China in future.

For 2008 and 2009, Turkey's fitted exports to Germany were (93,297,139) and (70,357,504) dollars. The actual exports to Germany stood at (97,571,890) and (69,344,681) dollars respectively, whereas the residual for 2008 was (4,274,751) and for 2009, it was (-1,012,823) dollars. An analysis of trade data of the last fifteen years reveals that the export potential of Turkey to Germany has remained over utilised. Turkey has little space for increase of its exports to Germany in the future.

Table 7.6 analyses Kazakhstan's exports to its major trade partners under reference. The Table for the years 2008 and 2009 shows that the fitted exports of Kazakhstan to Pakistan were (931,825) and (777,936) dollars respectively, whereas contrary to this, the actual exports for the same period were (178,939) and (149,418) dollars. (-752,886) and (-628,519) dollars were the residuals for two years respectively.

Kazakhstan can increase its volume of exports to Pakistan as its export potential is underutilised. Pakistan is in grave need of gas imports and Kazakhstan can step forward. Table 7.3 noticed that Pakistan has yet to fully exploit its export potential to Kazakhstan. So both countries stand to benefit if they somehow work out arrangements aimed at increasing their exports to each other in the future. Pakistan is importer of natural gas and Kazakhstan specialises in production of this commodity in the ECO region. Contrary to this, Kazakhstan can rely on Pakistan for import of agricultural products as Pakistan is rich in production of agricultural products in the region of ECO (see Chapter 5 as reference).

For 2008 and 2009, Kazakhstan's fitted exports to Iran were (1,521,489) and (1,227,021) dollars respectively, whereas its actual exports were (14,473,067) and (8,458,649) dollars. (12,951,578) and (7,231,628) dollars were residual for the same period respectively. This goes to show that Kazakhstan's export potential is over utilised. There is little possibility wherein Kazakhstan can increase its exports to Iran in the future. What needs to be mentioned here is that since 1995 (the base year of the period for analysis) it has remained over utilised. The exports of Kazakhstan to Iran have been registering upward trend gradually. Despite export potential being over utilised, the two countries are natural trade partners, which has been instrumental in enhancing their trade.

Table 7.6 shows that Kazakhstan's fitted exports to Turkey for 2008 and 2009 were (2,427,081) and (1,729,945) dollars respectively, whereas the actual exports for two years stood at (13,509,450) and (5,237,213) dollars. (11,082,369) and (3,507,268) dollars were recorded as residual for the same period. These figures suggest that export potential here has been over utilised again. Theoretically speaking, it appears that Kazakhstan cannot increase its exports to Turkey any more.

Table 7.6: Kazakhstan's Export Flows to Selected Countries

	Kazakhstan's Exports to																				
	Pakistan			Iran			Turkey			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	95,559	567,219	- 471,659	1,481,847	764,594	717,253	2,121,640	1,112,144	1,009,496	1,318,625	7,438,650	- 6,120,026	3,357,476	2,384,977	972,499	8,552,208	4,324,037	4,228,171	5,153,569	3,771,186	1,382,383
1996	263,788	430,843	- 167,056	1,332,677	581,403	751,273	1,118,389	869,697	248,692	1,291,481	5,670,569	- 4,379,088	4,995,759	1,819,368	3,176,391	9,930,288	3,554,767	6,375,521	3,959,388	2,737,348	1,222,040
1997	52,109	396,686	- 344,577	1,535,551	515,555	1,019,996	1,884,174	834,844	1,049,330	2,568,673	5,287,732	- 2,719,059	10,115,708	1,774,981	8,340,727	8,015,598	3,577,948	4,437,650	6,507,722	2,378,070	4,129,651
1998	39,525	341,294	- 301,769	1,316,648	456,160	860,488	1,589,770	766,661	823,109	1,211,052	4,920,398	- 3,709,346	8,099,396	1,648,869	6,450,527	6,616,652	3,216,486	3,400,166	4,530,306	2,186,254	2,344,052
1999	33,779	267,079	- 233,300	1,454,540	357,289	1,097,251	579,430	549,355	30,075	1,291,481	3,814,042	- 2,522,561	2,998,432	1,242,455	1,755,977	7,605,635	2,554,329	5,051,306	5,549,953	1,612,183	3,937,769
2000	20,425	254,588	- 234,163	2,853,052	362,689	2,490,364	874,144	565,576	308,568	2,472,895	3,959,388	- 1,486,493	3,079,568	1,229,478	1,850,091	9,411,096	2,632,646	6,778,450	7,660,593	1,518,145	6,142,448
2001	6,338	282,321	- 275,983	2,706,319	393,840	2,312,479	961,548	522,406	439,142	1,844,650	4,280,156	- 2,435,506	3,517,989	1,307,595	2,210,394	8,376,159	2,977,814	5,398,345	6,418,532	1,620,751	4,797,781
2002	5,365	295,700	- 290,335	3,792,364	454,203	3,338,160	1,192,664	599,409	593,255	1,742,968	4,362,256	- 2,619,288	1,613,312	1,388,452	224,860	12,467,053	3,232,285	9,234,768	2,689,054	1,705,041	984,012
2003	8,533	323,741	- 315,208	4,727,467	501,872	4,225,595	1,140,526	745,194	395,332	1,139,158	4,726,049	- 3,586,890	1,646,397	1,574,109	72,288	19,006,660	3,928,625	15,078,035	1,682,851	2,008,101	- 325,250
2004	8,004	464,353	- 456,349	7,659,827	705,738	6,954,089	1,582,158	1,067,575	514,583	2,947,005	6,043,537	- 3,096,532	2,583,098	2,100,109	482,989	21,161,626	5,214,741	15,946,885	2,289,628	2,641,348	- 351,720
2005	20,989	579,372	- 558,383	8,861,264	899,415	7,961,849	1,569,708	1,370,930	198,778	6,660,466	7,394,892	- 734,426	3,204,927	2,452,700	752,227	24,225,104	6,732,116	17,492,988	4,089,364	3,047,707	1,041,657
2006	15,308	736,600	- 721,292	19,132,519	1,164,614	17,967,905	3,206,530	1,774,981	1,431,550	4,257,105	9,028,529	- 4,771,424	10,533,803	3,120,488	7,413,315	33,082,004	8,980,804	24,101,199	5,075,827	3,832,010	1,243,817
2007	113,948	838,358	- 724,409	20,380,722	1,338,286	19,042,436	7,768,596	2,159,312	5,609,284	3,489,259	10,095,497	- 6,606,237	9,421,454	3,581,170	5,840,285	46,856,486	11,136,071	35,720,415	3,261,507	4,504,557	- 1,243,049
2008	178,939	931,825	- 752,886	14,473,067	1,521,489	12,951,578	13,509,450	2,427,081	11,082,369	4,042,201	10,693,001	- 6,650,800	12,853,157	3,623,678	9,229,479	54,477,591	13,161,415	41,316,176	4,358,332	4,911,058	- 552,726
2009	149,418	777,936	- 628,519	8,458,649	1,227,021	7,231,628	5,237,213	1,729,945	3,507,268	4,051,509	8,166,900	- 4,115,391	8,168,534	2,562,516	5,606,018	38,946,521	9,586,822	29,359,699	5,939,883	3,648,038	2,291,845

But both countries, being natural trading partners and members of PTA, have been deepening their trade relations and have vowed to stay the course in the future too.

For 2008 and 2009, the fitted exports of Kazakhstan to USA were (10,693,001) and (8,166,900) dollars respectively, whereas the actual exports stood at (4,042,201) and (4,051,509) dollars. The residuals for these years were recorded at (-6,650,800) and (-4,115,391) dollars. It is clear here that Kazakhstan has yet to fully realize its trade potential with the USA and it has immense potential to work on improving it in future.

The fitted exports of Kazakhstan in case of UK for 2008 and 2009 were (3,623,678) and (2,562,516) dollars, whereas the actual exports for these years were recorded at (12,853,157) and (8,168,534) dollars. (9,229,479) and (2,562,516) dollars were residuals respectively. These figures clearly show that exports potential here has been over utilised and Kazakhstan does not have space to increase its exports to UK in the future.

In 2008 and 2009, Kazakhstan's fitted exports to China were (13,161,415) and (9,586,822) dollars respectively whereas the actual recorded exports stood at (54,477,591) and (38,946,521) dollars for these years. For these years, residuals were (41,316,176) and (29,359,699) which shows that the export potential is over utilised here and Kazakhstan does not ha**ve** enough room to increase its exports to China in future.

Kazakhstan's fitted exports to Germany for the years 2008 and 2009, were (4,911,058) and (3,648,038) dollars respectively. Contrary to this, the actual exports for the same period were (4,358,332) and (5,939,883) dollars and the residuals for the period were (-552,726) and (2,291,845) dollars. An analysis of trade pattern over past years reveals that for most of the years the export potential of Kazakhstan was over utilised, except few years.

From these trade statistics, we can deduce that Germany has remained the major trade partner of Kazakhstan in the past. Residual analysis shows that the export potential has been over utilised for some years, Kazakhstan has somehow shown its interest to increase its volume and size of exports to Germany in the future.

7.7.2 Import Flows

This section will yet again discuss the actual exports, expected exports and the residuals (difference between actual and expected exports) in case of each of our selected countries in relation to their seven major trading partners (in terms of their Imports) under reference. As Tables 7.7, 7.8, 7.9 and 7.10 contain the analysis of trade of the selected countries spread over a period between 1995 and 2009 however; we will use the data of the most recent two years for the purpose of discussion and interpretation here. Since this study focuses on exploring the trade potential among Pakistan, Iran Turkey and Kazakhstan, we will naturally tend to throw light on the trade relations among these countries more than their other trading partners. This log values are converted into real figures for the discussion purpose, in the tables provided below. The log values and other related tables could be found in chapter 7 appendix section.

It is evident from Table 7.7 that the fitted imports of Pakistan from Iran for 2008 and 2009 were (1,075,827) and (630,142) dollars respectively whereas the actual imports for the same period were (5,280,863) and (6,023,626) dollars. (4,205,036) and (5,393,485) dollars were the residuals respectively for two years. The figures suggest that theoretically speaking Pakistan has over utilised its import potential from Iran and there is little possibility for Pakistan to further add to them in future. But as was sufficiently discussed in the previous section, Pakistan and Iran are natural trading partners due to the significant facts (refer to section 7.3.2. Pakistan's imports from Iran will increase. Its latest example is the Iran-Pakistan gas pipeline project, which will become operational after 2014 (see Trade intensity analysis chapter 6 for reference).

For 2008 and 2009, Pakistan's imports from Turkey were (1,475,784) and (807,017) dollars whereas the actual imports record for these years were recorded at (973,784) and (958,764) dollars respectively. The residuals for two years are recorded at (-502,044) and (151,747) dollars. Analysis of the last fifteen years also shows that the import potential of Pakistan from Turkey has remained over utilised for most of the years. Turkey has still been importing goods to Pakistan. This means that despite there being no space for increase in imports, Turkey is likely to be an importing country for Pakistan as both countries are natural trading partners and there are other factors favourable to their economic cooperation.

Pakistan's fitted imports from Kazakhstan for the years 2008 and 2009 were (123,241) and (65,835) dollars whereas the actual imports were recorded at (318,794) and (13,582) dollars respectively. (195,553) And (-52,253) precent were the residuals for the period of analysis. The analysis of 15 years reveals that imports potential has remained underutilized and hence Pakistan can increase its imports from Kazakhstan. The meeting of energy needs through gas imports from there can be a positive development for energy-starved Pakistan.

(14,209,197) and (8,673,648) dollars were the fitted imports of Pakistan from USA for the years 2008 and 2009 respectively. The actual imports were recorded at (14,761,013) and (11,344,005) dollars for these years and (551,816) and (2,670,358) precent were the residuals. The figures here suggest that the import potential of Pakistan is over utilised in this case and there is no space for increase in it in future.

For 2008 and 2009, the fitted imports of Pakistan from UK were (3,519,044) and (1,897,789) dollars whereas the actual imports stood at (6,210,798) and (4,922,859) dollars. The residual for these years were recorded at (2,691,754) and (3,025,070) dollars. This shows that Pakistan has fully over utilised its import potential and has little space to add to its imports from the UK.

Pakistan's fitted imports for 2008 and 2009 were recorded at (14,189,318) and (15,397,258) dollars respectively and while the actual imports for these years stood at (33,919,479) and (23,816,758) dollars. (19,730,160) And (8,419,500) dollars were the residuals for the period of analysis. It means that Pakistan has over utilised its import potential from China and does not have space to increase it.

(4,476,715) And (2,616,374) dollars were the fitted imports of Pakistan from Germany for the years 2008 and 2009, whereas the actual imports were recorded at (10,492,801) and (8,009,989) dollars. (6,016,087) And (5,393,615) dollars were the residuals for two years, which implies that the import potential of Pakistan in case of Germany is over utilised and does not have any room to increase in future.

Table 7.7: Pakistan's Import Flows from Selected Countries

	Pakistan's Imports from																				
	Iran			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	3,484,726	865,100	2,619,626	1,584,216	974,033	610,183	37,421	57,165	-19,744	19,937,242	10,515,911	9,421,331	10,102,566	2,409,669	7,692,897	9,397,930	5,257,152	4,140,778	13,396,446	4,076,707	9,319,739
1996	4,493,759	813,580	3,680,178	1,238,733	995,002	243,731	35,295	52,266	-16,971	21,623,689	10,488,605	11,135,084	9,348,253	2,400,770	6,947,483	9,488,584	5,755,117	3,733,467	9,937,241	3,863,948	6,073,293
1997	3,074,338	611,090	2,463,247	953,505	823,649	129,856	43,217	42,108	1,109	20,335,933	9,346,383	10,989,550	7,289,897	2,085,251	5,204,646	8,675,383	5,119,667	3,555,715	10,715,480	2,901,098	7,814,382
1998	1,278,886	459,641	819,246	906,549	649,138	257,411	11,674	32,846	-21,172	18,276,013	7,554,092	10,721,921	5,801,923	1,699,764	4,102,159	5,903,760	4,034,528	1,869,232	5,859,647	2,284,597	3,575,051
1999	1,065,975	447,307	618,668	1,924,160	602,173	1,321,987	2,811	27,141	-24,330	8,753,814	7,732,942	1,020,871	5,268,204	1,713,074	3,555,130	5,991,186	4,251,575	1,739,612	5,709,831	2,233,544	3,476,287
2000	4,302,471	440,339	3,862,132	1,053,365	727,086	326,279	11,076	28,825	-17,749	8,569,329	8,379,510	189,819	4,509,063	1,779,068	2,729,996	7,068,084	4,511,318	2,556,766	5,078,873	2,166,666	2,912,208
2001	2,695,785	409,995	2,285,790	472,125	536,381	-64,256	3,663	29,454	-25,791	7,082,234	7,684,378	-602,144	4,476,267	1,634,586	2,841,681	6,066,546	4,443,265	1,623,281	5,035,886	1,983,553	3,052,333
2002	2,461,792	459,686	2,002,105	1,279,014	558,830	720,184	1,090	31,527	-30,437	8,643,343	8,083,213	560,130	4,254,977	1,747,156	2,507,821	8,424,039	4,748,313	3,675,726	5,872,553	2,089,635	3,782,918
2003	3,535,623	508,083	3,027,540	768,426	705,315	63,111	619	41,036	-40,417	9,233,973	9,327,709	-93,736	4,722,741	2,148,112	2,574,629	11,217,661	5,976,825	5,240,837	6,750,992	2,651,139	4,099,853
2004	2,954,973	645,900	2,309,073	972,573	923,845	48,727	8,828	56,778	-47,950	18,819,422	11,003,236	7,816,186	4,796,035	2,718,797	2,077,238	16,236,949	7,249,913	8,987,036	7,705,924	3,250,112	4,455,812
2005	3,631,659	834,927	2,796,731	1,868,226	1,236,011	632,215	7,457	79,587	-72,130	15,309,743	12,818,500	2,491,243	7,207,985	3,294,286	3,913,699	23,495,043	9,809,874	13,685,168	11,449,997	3,893,426	7,556,571
2006	4,106,575	902,478	3,204,097	1,292,385	1,289,416	2,969	23,626	97,324	-73,698	17,473,570	14,018,662	3,454,908	6,877,735	3,441,782	3,435,953	27,009,521	10,933,040	16,076,481	11,029,676	4,003,982	7,025,694
2007	3,761,769	981,562	2,780,208	1,376,287	1,357,289	18,998	17,154	106,970	-89,816	22,458,955	13,691,695	8,767,261	5,972,642	3,562,952	2,409,690	35,862,402	11,919,664	23,942,738	9,708,380	4,137,904	5,570,476
2008	5,280,863	1,075,827	4,205,036	973,740	1,475,784	-502,044	318,794	123,241	195,553	14,761,013	14,209,197	551,816	6,210,798	3,519,044	2,691,754	33,919,479	14,189,318	19,730,160	10,492,801	4,476,715	6,016,087
2009	6,023,626	630,142	5,393,485	958,764	807,017	151,747	13,582	65,835	-52,253	11,344,005	8,673,648	2,670,358	4,922,859	1,897,789	3,025,070	23,816,758	15,397,258	8,419,500	8,009,989	2,616,374	5,393,615

Table 7.8 analyses Iran's imports from its major seven trading partners under reference. The fitted imports of Iran from Pakistan between 2008 and 2009 were (757,440) and (749,604) dollars, whereas the actual imports recorded were (699,555) and (638,707) dollars. (-57,885) and (-110,897) dollars were the residuals. This indicates that Iran has not yet fully utilised its import potential from Pakistan and it can increase it in the future. A giant step in this respect has been taken with the under process establishment of Iran-Pakistan gas pipeline. Table 7.3 noticed Pakistan's potential to export to Iran is over utilised but here according to the figures gathered from Table 7.8 (for import model), we see that Iran still can import more from Pakistan. This result is in line with the outcome of our discussion of Export model that both countries are natural trade partners. This is further substantiated from the fact that their bilateral trade has been registering an increasing trend throughout the analysis period.

For two years 2008 and 20099, Iran's fitted imports from Turkey were (8,847,098) and (7,274,604) dollars whereas the actual recorded imports were (3,770,054) and (3,494,846) dollars respectively for the period. So, (-5,077,043) and (-3,779,758) dollars were the residuals. We can conclude from these results that Iran's import potential here is underutilised too and it can increase its imports from Turkey, in the future.

Iran's fitted imports from Kazakhstan for the years 2008 and 2009 were (399,992) and (321,322) dollars, while the actual imports were recorded at (1,573,008) and (1,339,893) dollars respectively. The residuals for the period of analysis were (1,173,016) and (1,018,570) dollars for these years. Theoretically it implies the over utilisation of Iran's potential of import from Kazakhstan. But as Table 7.8 shows, its imports from Kazakhstan have constantly been increasing over the past years. This means that both countries are natural trade partners and Iran's imports from Kazakhstan can either remain the same or increase in the future.

(20,865,341) And (18,099,593) dollars were Iran's fitted imports from USA for the years 2008 and 2009, whereas the actual recorded imports for these years were (459,273) and (414,820) dollars. (-20,406,068) and (-17,684,773) dollars were residuals for these years of analysis.

Table 7.8: Iran's Import Flows from Selected Countries

	Iran's Imports from																				
	Pakistan			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	1,353,765	3,614,630	-2,260,865	12,166,539	32,133,190	-19,966,651	4,744,991	1,021,007	3,723,984	2,982,284	84,977,749	-81,995,465	25,515,585	17,028,518	8,487,067	27,626,886	8,730,210	18,896,676	75,067,630	28,814,809	46,252,822
1996	1,238,362	2,710,111	-1,471,749	9,518,045	25,687,113	-16,169,069	6,653,809	730,511	5,923,297	2,388,318	66,319,863	-63,931,545	20,622,639	13,275,091	7,347,548	22,349,176	7,478,928	14,870,248	59,079,822	21,370,029	37,709,793
1997	708,567	2,049,692	-1,341,125	9,034,851	20,043,190	-11,008,339	3,117,681	554,821	2,562,860	1,180,679	55,706,088	-54,525,409	21,295,365	10,869,812	10,425,553	12,329,434	6,271,336	6,058,098	57,933,132	15,124,099	42,809,032
1998	717,623	1,312,311	-594,687	7,154,127	13,486,503	-6,332,376	2,295,130	369,498	1,925,632	1,586,752	38,443,493	-36,856,740	15,093,881	7,564,675	7,529,206	17,240,986	4,219,807	13,021,179	43,675,593	10,169,463	33,506,130
1999	530,778	1,338,420	-807,641	5,060,116	12,498,260	-7,438,144	2,924,400	305,010	2,619,390	1,384,293	39,314,344	-37,930,051	9,757,044	7,616,291	2,140,753	13,626,132	4,441,932	9,184,200	30,713,105	9,932,274	20,780,831
2000	670,782	1,456,140	-785,358	4,458,398	16,669,646	-12,211,248	5,954,751	357,789	5,596,962	1,697,556	47,053,697	-45,356,141	8,234,968	8,737,197	-502,229	12,199,433	5,206,404	6,993,028	26,746,121	10,642,862	16,103,259
2001	1,008,021	1,212,264	-204,242	4,558,025	10,809,112	-6,251,086	4,655,687	321,354	4,334,332	1,271,744	37,931,786	-36,660,042	11,411,133	7,056,078	4,355,054	12,411,078	4,507,260	7,903,818	29,130,608	8,564,189	20,566,419
2002	1,065,122	1,250,933	-185,811	5,064,672	11,184,059	-6,119,386	3,634,929	341,601	3,293,327	866,225	39,626,157	-38,759,932	10,439,424	7,490,155	2,949,270	14,515,099	4,783,581	9,731,518	52,645,957	8,960,172	43,685,785
2003	1,238,362	1,346,609	-108,247	6,033,875	13,135,118	-7,101,243	3,953,849	413,743	3,540,106	867,612	42,550,408	-41,682,796	11,518,903	8,568,472	2,950,431	18,314,433	5,602,929	12,711,504	36,572,239	10,577,080	25,995,158
2004	999,190	1,698,235	-699,045	7,875,758	16,551,710	-8,675,952	2,365,737	550,730	1,815,007	810,738	48,288,307	-47,477,569	10,714,409	10,434,206	280,203	18,446,773	6,539,034	11,907,739	46,753,515	12,475,783	34,277,732
2005	1,282,857	1,913,223	-630,367	8,560,764	19,943,224	-11,382,460	2,457,856	695,301	1,762,555	952,076	50,657,609	-49,705,533	10,248,070	11,386,056	-1,137,985	23,643,529	7,967,649	15,675,880	51,049,178	13,459,557	37,589,621
2006	1,407,605	1,748,729	-341,125	4,665,008	18,135,828	-13,470,821	2,527,143	741,181	1,785,962	650,502	48,293,136	-47,642,634	7,509,654	10,369,714	-2,860,060	21,932,936	7,740,679	14,192,257	30,713,105	12,065,974	18,647,131
2007	823,732	975,690	-151,958	4,382,369	10,697,279	-6,314,910	1,956,172	456,480	1,499,692	554,765	24,982,846	-24,428,081	6,694,521	6,015,199	679,322	13,454,175	4,728,885	8,725,290	28,930,299	6,987,267	21,943,032
2008	699,555	757,440	-57,885	3,770,054	8,847,098	-5,077,043	1,573,008	399,992	1,173,016	459,273	20,865,341	-20,406,068	5,542,743	4,518,542	1,024,200	11,656,797	4,281,868	7,374,929	23,352,159	5,749,365	17,602,794
2009	638,706	749,604	-110,897	3,494,846	7,274,604	-3,779,758	1,339,893	321,322	1,018,570	414,820	18,099,593	-17,684,773	4,919,906	3,664,125	1,255,782	10,835,085	6,986,568	3,848,517	21,714,700	5,053,037	16,661,663

These figures show that the political conflicts are a major hindrance in the normalisation of trade relations between Iran and the US and it is not merely the under utilisation of the import potential. Theoretically speaking, these figures suggest that Iran has space to increase its imports from USA but it is not likely to happen any time soon given the history of tension-packed relations both countries have had so far.

Table 7.8 shows that the fitted imports of Iran from UK for the years 2008 and 2009 were (4,518,542) and (3,664,125) dollars respectively, whereas the actual imports were recorded at (5,542,743) and (4,919,906) dollars. (1,024,200) And (1,255,782) dollars were the residuals for these years. The import potential, according to the results here, seems over utilised and Iran has no room to increase its imports from UK, in the future.

(4,281,868) and (6,986,586) dollars were Iran's fitted imports from China for 2008 and 2009 respectively whereas the actual imports were (11,656,797) and (10,835,085) dollars for these years. For the period of analysis, the residuals for these years were (7,374,929) and (3,848,517) dollars. The results show that the import potential of Iran from China is over utilised. But analysis of the past years reveals that Iran's imports from China have remained constant. Trade Intensity Analysis in Chapter 6 of this thesis showed that China was a major trading partner of Iran. This implies that even if Iran does not increase its imports from China, both countries can still have the present ratio of trade between them.

For the years, 2008 and 2009, Iran's fitted imports from Germany were (5,749,365) and (5,053,037) dollars, whereas the actual imports for these years were recorded at (23,352,159) and (21,714,700) dollars. (17,602,794) and (16,661,663) dollars were residuals for these years. This implies the over utilisation of important potential of Iran from Germany and there is no room to increase its imports in the future.

Table 7.9 has analysed Turkey's imports from its seven major trade partners under study here. For the years 2008 and 2009, the fitted imports of Turkey from Pakistan were (3,506,048) and (2,505,753) dollars respectively, whereas the actual imports for these years stood at (4,416,243) and (4,383,684) dollars. (910,196) and (1,877,931) dollars were the residuals for these years. This implies Turkey has over utilised its import potential from Pakistan but the actual imports, on the contrary, have gradually been increasing from (1,420,330) in 1999 to (1,877,931) in 2009. This is so because both countries are natural

trading partners and also enjoy other favourable factors such as Culture and PTA. They will continue to depend on each other for trade both in exports and imports.

Turkey's fitted imports from Iran for the years 2008 and 2009 were (29,856,108) and (18,987,663) dollars respectively, whereas the actual imports for these years were (61,774,425) and (24,121,159) dollars. (31,918,317) And (5,133,497) dollars were the residuals for these years. These results show that Turkey has over utilised its import potentials. But analysis of actual imports percentages in the past will show that Turkey's imports have been increasing, as is the case between Turkey and Pakistan. The imports are constantly at an increasing trend even the residuals for all these years suggest the over utilisation of potential.

(1,400,304) And (812,280) dollars were the fitted imports of Iran from Kazakhstan for the years 2008 and 2009, whereas the actual imports for these years were recorded at (17,568,182) and (7,627,724) dollars. (1,400,304) And (812,280) dollars were residuals for these years. It implies that Turkey has over utilised its import potential. But again, imports have been on the upward trajectory. The fact that since Kazakhstan is Turkey's natural trading partner that is why we can suggest that the imports ration of Turkey from Kazakhstan will either remain where it is or will increase in future.

For 2008 and 2009, the fitted imports of Turkey from USA were (100,061,945) and (66,319,863) dollars respectively, whereas the actual imports for these years were (90,232,479) and (60,708,847) dollars. (-9,829,466) and (-5,611,015) dollars were the residuals for these years. This result suggests that the import potential has yet to be fully utilised and Turkey can increase its imports from USA in future.

(103,802,436) And (60,781,742) dollars were the fitted imports from UK in the years 2008 and 2009 whereas the actual imports for these years were recorded at (40,108,547) and (24,554,360) dollars. (-63,693,890) and (-36,227,381) dollars were residuals. This implies that the import potential for Turkey remained underutilised. It meant that Turkey can increase its imports in the future. It is possible for Turkey to achieve this as it is already part of European Custom's Union.

Table 7.9: Turkey's Import Flows from Selected Countries

	Turkey's Imports from																				
	Pakistan			Iran			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	3,073,723	1,686,389	1,387,334	13,796,148	13,314,976	481,172	1,733,408	360,231	1,373,177	74,514,180	41,070,473	33,443,707	36,612,490	39,424,579	- 2,812,088	10,785,358	6,352,125	4,433,232	111,006,576	70,583,008	40,423,567
1996	1,675,463	1,947,584	- 272,121	16,373,914	15,092,372	1,281,542	1,905,014	397,003	1,508,011	66,845,865	49,377,233	17,468,632	50,551,339	47,341,602	3,209,738	11,209,812	8,381,186	2,828,626	154,190,591	80,631,504	73,559,087
1997	1,098,438	2,047,643	- 949,205	12,453,347	14,855,786	- 2,402,439	3,184,163	419,157	2,765,006	83,411,771	57,655,719	25,756,052	53,233,582	53,887,010	- 653,428	15,171,057	9,770,713	5,400,344	154,530,184	79,327,864	75,202,320
1998	1,007,215	1,657,299	- 650,084	7,601,833	12,061,149	- 4,459,315	4,455,278	352,921	4,102,357	71,014,881	50,299,214	20,715,667	47,091,355	47,407,927	- 316,571	14,858,758	8,311,079	6,547,679	128,392,174	67,429,961	60,962,214
1999	406,403	1,420,330	- 1,013,928	10,161,331	9,852,147	309,184	4,728,412	244,752	4,483,660	49,219,478	43,219,399	6,000,079	34,994,449	40,108,547	- 5,114,098	14,298,998	7,351,390	6,947,607	93,961,906	55,339,639	38,622,267
2000	2,041,714	2,715,808	- 674,094	20,264,882	18,828,834	1,436,048	8,615,729	504,640	8,111,089	96,697,683	90,920,859	5,776,824	67,207,809	80,865,675	- 13,657,866	32,877,530	15,142,259	17,735,271	178,196,958	104,208,056	73,988,901
2001	2,240,703	2,342,197	- 101,495	18,580,069	15,963,254	2,616,815	1,998,685	469,536	1,529,149	72,153,042	75,920,705	- 3,767,663	42,342,421	67,652,847	- 25,310,426	20,478,784	13,581,240	6,897,544	118,035,974	86,876,663	31,159,311
2002	1,776,579	1,820,278	- 43,700	14,046,727	13,388,410	658,317	3,076,490	375,946	2,700,545	46,814,334	59,739,261	- 12,924,927	37,087,851	54,086,761	- 16,998,910	20,844,486	10,856,776	9,987,709	107,049,296	68,455,879	38,593,417
2003	2,338,920	1,853,340	485,580	22,664,265	13,022,641	9,641,624	3,247,838	430,628	2,817,210	42,588,721	60,666,366	- 18,077,645	42,631,331	58,521,221	- 15,889,891	31,794,377	12,025,020	19,769,357	115,144,682	76,431,082	38,713,600
2004	2,651,404	2,530,684	120,721	21,610,719	17,244,434	4,366,285	4,870,465	620,636	4,249,829	52,268,267	74,543,992	- 22,275,724	47,550,364	77,160,637	- 29,610,273	49,303,222	15,195,350	34,107,873	137,853,213	97,601,166	40,252,046
2005	3,154,688	2,689,323	465,365	34,698,257	18,936,465	15,761,791	5,588,939	739,108	4,849,830	53,757,836	73,772,751	- 20,014,915	46,954,988	79,431,057	- 32,476,069	68,854,077	17,466,582	51,387,495	136,345,137	99,334,152	37,010,985
2006	3,435,249	2,949,069	486,180	50,916,623	21,408,530	29,508,092	8,992,487	945,340	8,047,147	56,655,521	84,384,982	- 27,729,460	46,487,778	86,789,829	- 40,302,051	87,495,682	20,360,351	67,135,331	133,631,958	106,846,096	26,785,863
2007	4,397,294	3,307,489	1,089,805	54,717,820	26,227,001	28,490,820	10,620,536	1,170,100	9,450,435	67,551,444	92,831,818	- 25,280,373	45,303,733	101,188,938	- 55,885,205	109,463,312	25,000,340	84,462,971	145,080,599	124,361,101	20,719,497
2008	4,416,243	3,506,048	910,196	61,774,425	29,856,108	31,918,317	17,568,182	1,400,304	16,167,878	90,232,479	100,061,945	- 9,829,466	40,108,547	103,802,436	- 63,693,890	117,965,174	30,913,391	87,051,783	140,778,741	139,740,823	1,037,918
2009	4,383,684	2,505,753	1,877,931	24,121,159	18,987,663	5,133,497	7,627,724	812,280	6,815,444	60,708,847	66,319,863	- 5,611,015	24,554,360	60,781,742	- 36,227,381	89,674,769	36,422,599	53,252,169	99,832,067	88,684,883	11,147,184

For 2008 and 2009, the fitted imports of Turkey from China were (30,913,391) and (36,422,599) dollars whereas the actual imports were (117,965,174) and (89,674,769) dollars. (87,051,783) And (53,252,169) dollars were the residuals for the period of analysis. The figures suggest that Turkey has over utilised its import potential and it has no room to increase its imports from China in future.

(39,740,823) And (88,684,883) dollars were the fitted imports of Turkey from Germany for the years 2008 and 2009 whereas the actual imports for these years were recorded at (140,778,741) and (99,832,067) dollars. (1,037,918) And (11,147,184) dollars were the residuals for these years. This implies that the import potential here is over utilised as well and Turkey has no room left to increase its imports from Germany in future.

Table 7.10 analyses Kazakhstan's imports from its seven major trading partners under study. (729,854) And (462,222) dollars were the fitted imports of Kazakhstan from Pakistan for 2008 and 2009, whereas the actual imports were (63,538) and (101,702) dollars. (-666,316) and (-360,520) dollars were the residuals for the years. This implies that Kazakhstan has not fully utilised its imports potential from Pakistan and it can increase its imports from Pakistan in the future. Pakistan can be a source of imports in agricultural products.

(3,364,870) and (1,896,461) dollars were the fitted imports of Kazakhstan from Iran for the years 2008 and 2009, whereas the actual imports from Iran were (417,734) and (159,628) dollars. (-2,947,136) and (-1,736,833) dollars were the residuals for these years. The figures suggest here that the imports potential in this case is underutilised as well and there is a huge space for Kazakhstan to increase its imports from Iran in future.

(3,490,655) And (1,836,735) dollars were the fitted imports of Kazakhstan from Turkey in the years 2008 and 2009 respectively, whereas the actual imports were recorded at (6,888,749) and (3,775,714) dollars. (3,398,093) And (1,938,979) dollars were residuals for these years. It indicates the over utilisation of the import potential. According to the figures of actual imports contained in Table 7.10, with the passage of time imports have gradually been increasing consistently and constantly. This suggests that Kazakhstan continues to import from Turkey on a similar ratio or can increase it in the future.

(67,073,527) And (39,393,051) dollars were the fitted imports from USA in the years 2008 and 2009 respectively, whereas the actual imports for these years were (13,701,283) and (9,217,367) dollars. (-53,372,245) and (-30,175,684) dollars were the residuals. A look at these figures make one conclude that import potential has been underutilised and Kazakhstan can increase its imports from USA in the future.

(12,804,407) And (6,643,836) dollars were the fitted imports from UK in the years 2008 and 2009, whereas the actual imports for these years were recorded at (4,889,008) and (4,644,991) dollars respectively. (-7,915,399) and (-1,998,845) were the residuals we get for the years under analysis. The results make it abundantly clear that the import potential here is underutilised and Kazakhstan can increase its imports from UK in the future.

(46,744,165) And (51,639,632) dollars were the fitted imports of Kazakhstan from China in the years 2008 and 2009 whereas the actual imports for these years stood at (32,394,525) and (23,608,090) dollars. (-14,349,640) and (-28,031,542) dollars were the residuals for these years. As the results show, the imports potential even in this case is underutilised and Kazakhstan can increase its imports from China in the future.

Kazakhstan's fitted imports from Germany were (13,559,528) and (7,625,436) dollars in the years 2008 and 2009 respectively, whereas the actual imports for these years were (18,252,270) and (13,504,047) dollars. (4,692,742) Precent and (5,878,612) dollars were residuals respectively.

These statistics suggest that Kazakhstan's import potential has been over utilised in this case and it (Kazakhstan) cannot increase its imports from Germany any more. Trade Intensity Analysis in chapter 6 made it clear that Germany has been a very strong trade partner of Kazakhstan. Despite suggestion by the residuals that there is no space for imports, we still will witness that the imports from Germany are increasing by years. This sufficiently shows that Kazakhstan will either maintain or increase its imports from Germany in the future.

Table 7.10: Kazakhstan's Import Flows from Selected Countries

	Kazakhstan's Imports from																				
	Pakistan			Iran			Turkey			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	41,490	289,439	- 247,949	416,274	1,237,248	- 820,973	3,718,757	1,053,470	2,665,287	1,937,676	22,698,287	-20,760,610	2,519,069	4,009,191	- 1,490,122	1,044,136	7,919,194	- 6,875,058	5,920,314	5,646,238	274,076
1996	4,588	224,134	- 219,546	130,418	940,343	- 809,925	3,271,634	869,784	2,401,850	1,433,888	18,296,128	-16,862,240	1,655,809	3,228,086	- 1,572,278	775,141	7,006,158	- 6,231,017	4,275,878	4,324,902	- 49,024
1997	5,970	195,497	- 189,527	163,685	767,965	- 604,280	3,262,812	782,696	2,480,116	3,717,270	17,725,237	-14,007,967	2,605,408	3,048,316	- 442,908	858,722	6,776,017	- 5,917,295	6,773,307	3,529,970	3,243,337
1998	9,191	153,093	- 143,902	161,992	603,198	- 441,206	3,507,451	644,223	2,863,228	4,534,838	14,960,142	-10,425,303	3,769,301	2,594,748	1,174,552	1,019,885	5,576,657	- 4,556,772	6,256,303	2,903,130	3,353,173
1999	24,610	155,718	- 131,108	123,859	584,785	- 460,926	1,681,505	595,347	1,086,158	5,449,312	15,257,779	- 9,808,466	3,568,301	2,605,408	962,892	1,313,886	5,854,376	- 4,540,490	4,440,600	2,827,773	1,612,827
2000	27,920	189,662	- 161,742	186,465	711,976	- 525,511	2,020,186	888,953	1,131,232	3,889,145	20,446,045	-16,556,899	3,123,923	3,346,080	- 222,157	2,118,036	7,682,073	- 5,564,037	4,702,477	3,392,237	1,310,241
2001	13,391	183,652	- 170,261	141,846	677,659	- 535,813	1,773,206	670,514	1,102,692	4,497,355	19,168,905	-14,671,550	3,230,993	3,143,037	87,956	2,227,744	7,735,263	- 5,507,519	6,289,549	3,174,942	3,114,607
2002	15,032	190,499	- 175,467	151,206	758,577	- 607,371	2,124,825	697,390	1,427,435	5,647,367	20,131,574	-14,484,207	3,178,437	3,353,785	- 175,348	3,830,860	8,253,105	- 4,422,244	7,171,318	3,339,060	3,832,258
2003	23,179	233,025	- 209,846	147,208	886,468	- 739,260	2,402,931	930,614	1,472,317	5,410,218	24,561,728	-19,151,509	2,858,478	4,360,076	- 1,501,597	6,021,819	10,982,350	- 4,960,531	8,436,685	4,479,401	3,957,283
2004	23,466	369,683	- 346,217	139,721	1,363,820	- 1,224,099	3,683,228	1,475,194	2,208,034	6,058,665	35,061,001	-29,002,337	3,239,404	6,677,806	- 3,438,401	8,157,106	16,123,687	- 7,966,581	11,327,002	6,645,164	4,681,838
2005	72,323	472,787	- 400,464	147,916	1,802,527	- 1,654,611	3,997,181	2,017,965	1,979,217	12,044,275	41,762,109	-29,717,834	4,232,909	8,273,763	- 4,040,854	12,518,273	22,304,522	- 9,786,249	12,988,826	8,139,180	4,849,646
2006	111,614	578,793	- 467,179	199,088	2,274,794	- 2,075,706	5,141,215	2,457,856	2,683,359	10,183,711	53,324,156	-43,140,446	4,661,743	10,092,468	- 5,430,725	17,727,010	29,025,926	-11,298,917	16,661,313	9,773,645	6,887,668
2007	98,341	669,844	- 571,503	368,796	2,875,681	- 2,506,884	7,971,634	3,006,839	4,964,794	13,501,347	60,533,047	-47,031,700	6,126,903	12,141,016	- 6,014,112	29,159,753	36,777,618	- 7,617,864	21,498,635	11,738,681	9,759,954
2008	63,538	729,854	- 666,316	417,734	3,364,870	- 2,947,136	6,888,749	3,490,655	3,398,093	13,701,283	67,073,527	-53,372,245	4,889,008	12,804,407	- 7,915,399	32,394,525	46,744,165	-14,349,640	18,252,270	13,559,528	4,692,742
2009	101,702	462,222	- 360,520	159,628	1,896,461	- 1,736,833	3,775,714	1,836,735	1,938,979	9,217,367	39,393,051	-30,175,684	4,644,991	6,643,836	- 1,998,845	23,608,090	51,639,632	-28,031,542	13,504,047	7,625,436	5,878,612

7.8 **Conclusion**

This Chapter contains the first quantitative study of bilateral and regional trade among ECO countries in general and Pakistan, Iran, Turkey and Kazakhstan specifically. It presents the 'country Specific gravity model' that incorporates conventional and non-conventional variables, which are culture, border and PTA variables. Data of 15 years (1995 – 2009) in respect of 8 countries including Pakistan, Iran, Turkey and Kazakhstan from ECO region and other 4 non-ECO countries including USA, UK, China and Germany has been presented in this chapter. In order to estimate the trade potential among these ECO countries in the prevailing policy context, and in the context of potential FTA among these ECO countries, Country Specific-Gravity Model has been employed to conduct some trade policy experiments.

Common culture, according to the analysis results in chapter 7, does not seem to have a significant impact on intra-regional trade in the case of the ECO. Intraregional trade of the ECO, on the other hand, is influenced in a significant way by common border and PTA. Since Pakistan, Iran, Turkey and Kazakhstan are part of preferential trade agreement called ECOTA, there exists more potential for these countries to increase trade between them than their other non-ECO trade partners. It has been confirmed by the results of the gravity model analysis that the PTA has a positive and significant impact on intra-ECO trade. Other factors account for lack of realisation of the full trade potential among the ECO members. However, it is not due to the lack of effectiveness of the ECO. Rather, it, on the other hand, strengthens the case for further trade liberalisation in the ECO region, possibly in the context of Free Trade Area among these countries.

It may be concluded that there is still potential for greater regional integration among the ECO countries under focus as well as the entire region in the form of Free Trade Area though the present intra-regional trade flows are not very impressive. Greater regional integration of ECO, which is in accord with multilateral liberalisation as well, could be instrumental in growth by increasing trade, allowing regional producers to benefit from economies of scale, encouraging foreign direct investment and the deepening of capital market. The initiatives such as in the form of (ECOTA) are to be welcomed, which will help reduce tariffs for the member countries to a maximum of 15 precent as a highest tariff slab in the next few years.

CHAPTER 8 Summary and Conclusion

8.1 Introduction

This final chapter of the thesis presents a summary of the objectives, analytical methods employed and findings from research on the potential for a Free Trade Area among the ECO countries. This chapter has been structured by way of an overview regarding the purpose and major findings of each previous chapter. The final section of this chapter contains some policy implications and offers suggestions, which can lay the foundations for further research on the subject.

This thesis deals with issues of economic integration with special reference to the ECO region. The member countries of the ECO are Afghanistan, Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Turkey, Tajikistan, Turkmenistan and Uzbekistan. From of these ten member countries, the focus of the study remains on only 4 major member countries of the ECO, which are Pakistan, Iran, Turkey and Kazakhstan. This has been done with a purpose to assess and analyse the potential for a Free Trade Area among the ECO countries. Through the use of comparative advantage, trade intensity analysis and the gravity model analysis, the study has set out to achieve its objectives. The data used for these analyses are for the period 1990-2009.

The specific objectives of this study are as follows:

- To review the theoretical literature on international economic integration and the experience of developing and developed countries on Regional Integration Arrangements (RIAs) to place the ECO regional integration in context;

- To assess the underlying patterns of comparative advantage, trade complementarities and Substitutes in the ECO region;

- To examine the trade flows through trade intensity analysis among the ECO member countries and between them and their other major trade partners, aimed at locating the significant and major trade partners of Pakistan, Iran, Turkey and Kazakhstan;

- To describe economic policies and political factors that have shaped the political economic context of regional integration in the ECO region and discuss constraints on further integration;

- To identify the potential for expansion of trade flows and the potential for establishment of a Free Trade Area (FTA) among the ECO countries.

8.2 **An overview of the Study**

In Chapter 2, we reviewed the economic structure and international trade of Pakistan, Iran, Turkey and Kazakhstan, the four major ECO countries. The composition of trade, both intra- and inter-regional, and intra-industry trade in the ECO region was analysed. Chapter 2 has shown the ECO member countries have different political and economic structures and orientations; a closer look shows details of these systems and structure of their societies. The region is marked by the operation of different political systems, which range from democracy to military oversight in Turkey, to social democracy in Kazakhstan, to theocracy in Iran to a weak and immature democracy in Pakistan. Vast and real differences inform about their political systems despite some apparent homogenous conditions among the ECO member states.

The discussion on the economic structure of Pakistan and its international trade has shown that Pakistan has a liberal trade policy. Despite being primary cotton exporter in Asia and being an agrarian economy on the whole, Pakistan is an economically unstable country and is in acute need of policy attention and reforms by government. Pirzada (2005) sheds light on the ways in which the world economic architecture and the Pakistani economic system interact with each other. Due to the small size of its economy, Pakistan has not been able to integrate with the global economic system and is on the periphery. It does not contribute much to the global economy. The dependency theory explains this position of Pakistan being a subsidiary of the world economic architecture.

In the last several years the world has seen a shift in the economic orientation of the Iranian government. From being an over-regulated economy, steps have been taken to liberalise its economy and reduce government intervention. Oil exports are the source of 85% of Iran's

revenues. This contribution to Iran's revenues has also been inconsistent due to fluctuations in the international oil prices.

Turkey, a comparatively more developed nation within the ECO region, is on the high trajectory of socio-economic growth. The Turkish economy is characterised by a mixture of modern industry, commerce and traditional agriculture, which has been a hallmark of the Turkish economy for ages. The private sector of Turkey is dynamic, robust and has its presence in almost all fields of the national economy. Despite the public sector playing an active role in sectors such as communication, transport, banking and industry, the state also plays a leading role.

After gaining independence, Kazakhstan was marked by incessant economic instability and decline during the early years after independence. The Kazak economy suffered a major blow from the collapse of the USSR as the demand for heavy industry products, which were the traditional exports to the Soviet system, declined. Consequently, in 1994 the GDP decreased by 12.6%, which was the deepest decline that hit the economic landscape of Kazakhstan. It was in 2000 that real economic recovery got underway. Kazakhstan made history by sustainably managing 7-8% growth in its GDP for seven consecutive years with real GDP slightly above the average of other countries, which were going through a transition.

Literature on "Trade Liberalisation in the context of developing and developed countries" has been reviewed in Chapter 3. It then moved to an analysis of the pattern of trade liberalisation, coupled with trade policies of each country under study. The discussion throws light on various evolutionary stages of trade regimes: from closed regimes to highly open regimes. It further looks at the evolution of trade policies at a regional level and is followed by some country- specific details. The chapter then discusses the trade policies of Pakistan, Iran, Turkey and Kazakhstan.

The relationship between trade policy reform and economic performance is highly contentious according to the study. In the opinion of more ardent advocates, there is unquestionable relevance, and indeed the need of restructuring trade regimes along a more open and outward-oriented strategy. However, the critics have brought its theoretical and empirical relevance to the developing world into question. Some critics, basing their opinions on the above mentioned constraints, have argued that an unrestrained rush to push trade

liberalisation in developing countries, especially in the south and central Asian region, which has a weak industrial base, may result in the significant loss of output, reduction of employment and investment (de-industrialisation) and the stunted growth of new industries.

However, the proponents of trade reforms have addressed these concerns by arguing that opening up of trade regimes for developing countries will be instrumental into realising the gains from trade liberalisation, these constraints notwithstanding. They further say that the trade reforms would, undoubtedly, shut down inefficient businesses and firms. This would be short-term loss in their opinion. In the long run, these reforms will pave the way for the emergence of more efficient and dynamic industries that will ensure the maximisation of output.

In 2004, the total intra-regional trade volume of the ECO region increased to $16.7 billion (excluding Afghanistan) compared to $10.2 billion in 2002. The share of Iran's intra-regional exports was just 2.7 precent, with Kazakhstan at 5.7 precent, and Pakistan and Turkey at 6.7 percent and 3.5 percent respectively, according to 2004 statistics. The countries of the region tend to have a favourable outlook in the short-term. Economic groupings are making rapid strides in comparison to the overall pace of the global economy, which is in recession. The ECO is no exception in this regard. This progress has resulted in greater stability in exchange rates and the creation of a more stable environment for both domestic and foreign investment. However, institutional progress has been slower and more uneven, especially in the financial sector (ECO Secretariat Report, 2006).

The models of regional economic integration and the theory of regional trade agreements were discussed in Chapter 4. The chapter further traced the historical experience of regionalism in developing and developed countries. It also reviewed literature for an RTA among ECO countries. It concludes with a discussion on the progress and limitations in relation to Regional Trade Agreements (RTAs) among the ECO countries.

According to the chapter, there are two ways by which the term 'economic integration' can be interpreted. The first is related to the process by which member states form economic integration in a phased manner through the elimination of economic frontiers among themselves; e.g. seeking an end to individual and national discrimination among the integration partners, with the previously disconnected national economic entities choosing to

merge into a larger but collective whole slowly and progressively. In another sense i.e. static sense, it represents a situation in which individual national parts of a larger economic area/zone join one another and function as one entity".

Economic integration is generally referred to as an outcome of an evolutionary process of regional cooperation. The most outstanding and immediate example of regional integration, which quickly comes into mind, is that of European Union (EU). Following its successful experiment of nearly complete economic union which has been success; it is seriously discussing the prospects of forming a political union. The North America Free Trade Area (NAFTA) is the most important regional grouping in the Americas, whereas the Association of South East Asian Nations (ASEAN) happens to be the most successful economic union in Asia.

The world trading system was swept by three waves of regionalism since the signing of the General Agreement on Tariffs and Trade (GATT) in 1947. The first wave was the one wherein each partner was unwilling to grant other partners non-trivial preferential access to their own protected markets. Led by the Asian nations, the third wave of RTAs emerged in the early years of the twenty-first century. These countries were previously the strongest bulwarks of non-discrimination. It is in the aftermath of the 1997 Asian Crisis that the emergence of Asian regionalism can be traced back. The part explanation for the growth of this regionalism lay in a reaction to the dissatisfaction with the role of the Bretton Woods institutions. Strong calls for the establishment of an Asian Monetary Fund or even monetary union were echoed. The 2000 Chiang Mai Initiative proved to be the ultimate outcome, which provided (limited) stand-by swap facilities for countries facing currency crises

The treaty of Izmir signed by Iran, Pakistan and Turkey in 1977 became the founding document on which framework of the ECO was raised. Between the 1979 Iranian revolution and 1985, however, the organization remained inert and could not play an active role. The three founding countries then made an effort at reinvigorating the organization by offering preferential tariff treatment to one another. But the list of the eligible products was kept extremely limited. Iran put forward a proposal of making ECO a free trade zone by 2015 at the occasion of eighth ECO summit held in Dushanbe in September 2004. No discernible progress was noticed in terms of translating this idea into practical shape.

The unwillingness of key member countries is what hinders the agreement on the ECO transit trade agreement. These countries are not ready to accept the principle of unimpeded passage of goods in transit. As is the case with the Central Asian Cooperation Organisation (CACO), ECO has also produced little impact in this regard. The uniformity of the member countries' economies, which all tend to be specialised on a small group of primary products (oil, gas, minerals, and cotton) constitutes the major roadblock in the realisation of the dream of regional integration in both organisations.

Comparative Advantage Analysis of four major ECO countries under reference has been conducted in Chapter 5. The chapter further discusses and analyses trade complementarities, trade substitutes and implications for FTA of ECO countries in the light of the theory of revealed comparative advantage and analytical models, which were provided by Balassa and Vollrath.

Outlined in Chapter 6 are the theory and models of trade intensity analysis. It contains the results of the analysis produced by using the Frankel and Rose Model with Kim's modifications, for the implications of a potential FTA among ECO countries.

Chapter 7 contains the first quantitative study of bilateral and regional trade among ECO countries in general and Pakistan, Iran, Turkey and Kazakhstan specifically. It presents the 'country Specific gravity model' that incorporates conventional and non-conventional variables, which are culture, border and PTA variables. Data of 15 years between (1995 – 2009) in respect of 8 countries including Pakistan, Iran, Turkey and Kazakhstan from ECO region and other 4 non-ECO countries including USA, UK, China and Germany has been presented in this chapter. In order to estimate the trade potential among these ECO countries in the prevailing policy context, and in the context of potential FTA among these ECO countries, Country Specific-Gravity Model has been employed to conduct some trade policy experiments.

8.3 **Achievements and Findings of Study**

The subject of regionalism, its causes and implications for the world trading system has long been debated. Though there is an abundance of theoretical explanations, actual studies

on the subject have been few and far between. For instance in the case of ECO region, except the study by Clarete, Edmonds and Seddon (2002) and Achakzai (2006) which suggests that this PTA has been efficient in concentrating trade among their members, no useful and worth mentioning empirical study has been undertaken so far. This thesis, through its empirical approach, has thrown light on the importance of regionalism in the ECO region, a region characterised by a long story of regional integration agreements, many of which failed and some of which seem to be succeeding. Thoughtful planning and independent foreign policy to promote intraregional trade among its member countries tends to define the success of the endeavour at integration.

The ECO has been little known and likely to find less references or discussion about it in international business, trade, or economic textbooks compared to other economic blocs in the world. The chief highlight of this study is the investigation into the economic structure, international trade, economic and foreign policies of the four major economies of the ECO region, which are Pakistan, Iran, Turkey and Kazakhstan.

The study also explores each country's specialisation in terms of commodities. This has been made possible through the application of Balassa's and Vollrath's revealed comparative advantage indices on commodity based export and import data over the period of 20 years from 1990 to 2009. Trade complementarities and substitutes among Pakistan, Iran, Turkey and Kazakhstan have also been explored. Previous studies on the ECO region have not undertaken this kind of analysis. Applying the trade complementarities and substitutes phenomena, chapter suggests that it is only natural for Pakistan and Turkey to export "Textile Fabric" to Iran and Kazakhstan. Iran and Kazakhstan can, in return, export "Crude Oil" to them, for they have comparative advantage in this category. Kazakhstan is the only country rich in "Natural Gas" and having a strong export potential for the same among the ECO countries.

It has been shown by Vollrath's revealed import advantage index that despite having comparative disadvantage in natural gas production, both Pakistan and Iran are not the prominent importers of this product category. Their demand gets balanced through their limited production of category 343. Of late Pakistan's economy has suffered the most as a result of the severest energy crisis, which emerged due to vast gap between demand and supply.

Turkey, on the other hand, has to import natural gas to keep the engine of its economy moving, given its revealed comparative disadvantage. The energy deficient countries such as Pakistan and Turkey can import natural gas from Kazakhstan from among the ECO region.

A few empirical studies on the ECO region such as Bahaee and Saremi (2002); and Achakzi (2006 and 2010), though having limited scope, analysed the intra-regional trade of ECO countries over a few years. This study also analysed the intra-regional trade of ECO countries along with the trade of their non-ECO trade partners to explore if these ECO countries are better off if they continue their trade with non-ECO trade partners or it is more beneficial for them to promote intra-regional trade. This was made possible through the application of trade intensity analysis in chapter 6 of this thesis, which was based on the Frankel and Rose equation with Kim's modifications.

It was noted during the course of this chapter that in some cases a country is better off trading with its external trade partners than with its internal counterparts. Pakistan is its pertinent example that has the US as the largest trading partner than any of the countries within the ECO. Pakistan does have a reasonable size of trade intensity with the other three ECO countries as well. However there are scores of examples within the ECO wherein some countries have been seen more inclined to strengthen their trade intensities and have, in fact, managed to increase the quantum of their intra-regional trade over a period of time. The examples of Iran and Turkey prove this. China is Iran's other major trade partner but it is in second position in terms of trade preference. Kazakhstan and Pakistan are also Iran's significant trade partners.

It was also noted that Kazakhstan, has Turkey as a major trade partner, but Turkey is more inclined towards the UK as its major trade partner. The trade intensity analysis made it sufficiently clear that though the ECO countries have yet to strengthen their weak trade relations amongst themselves as trade data and analysis suggests; immense and untapped potential exists that can strengthen those relations in the interest of all countries of the ECO region. As we saw that in the case of Iran and Kazakhstan, their major trade partners belong to the ECO region, whereas in the case of Pakistan and Turkey, as we noted their major trade partners are non-ECO countries.

The fourth achievement of this study is that this study has also undertaken an analysis of the potential for the expansion of trade flows among Pakistan, Iran, Turkey and Kazakhstan and the exploration of potential for a Free Trade Area among these countries in the future, through the application of the country-specific gravity model analysis. There are no previous studies on this aspect in relation to the ECO region. The gravity model was based on trade data for 15 years from 1995 to 2009, in relation to 8 countries. Four of them are ECO countries and the rest of them are non-ECO countries but they are also the major trade partners of the ECO countries under study. To analyse past trade flows among ECO countries And among them and their other non-ECO trade partners, and to explore the future prospects for economic integration in the ECO region, export and import gravity models were estimated.

The dummy variables such as common culture, common borders and preferential trade area were used among the countries under analysis other than traditional variables. Common culture, according to the analysis results in chapter 7, does not seem to have a significant impact on intra-regional trade in the case of the ECO. Intraregional trade of the ECO, on the other hand, gets influenced in a significant way by common border and PTA. Since Pakistan, Iran, Turkey and Kazakhstan are part of preferential trade agreement in the name of ECOTA, there exists more potential for these countries to increase trade between them than their other non-ECO trade partners. It has been confirmed by the results of the gravity model analysis that the PTA has a positive and significant impact on intra-ECO trade. Other factors account for lack of realisation of the full trade potential among the ECO members. However, it is not due to the lack of effectiveness of the ECO. Rather, it, on the other hand, strengthens the case for further trade liberalisation in the ECO region, possibly in the context of Free Trade Area among these countries.

This study, in short, analysed the Economic Cooperation Organization (ECO) as an emerging economic bloc and its integration score during the 1990-2009 periods, which was based on intra-region trade data and the data describing the trade between ECO member countries and their non-ECO trade partners (USA, UK, China, and Germany). Given here below is the conclusion and the author's own opinions. The study makes it clear that increases in intra-ECO trade are generally desirable, especially where such increases are achieved through the trade creation effects to lower barriers to intra-ECO trade, and where the trade diversion effects (on trade with non-ECO members) are relatively minor.

However, the dynamics of this integration were explored by the analysis results in at least three areas. First of all, all member nations have been faced with the pressing domestic problems that warranted significant and immediate attention. Pakistan presents an extreme example of this situation where the country has been grappling a mix of challenges both on internal and external fronts. Its law and order has been hit by the recurring incidents of terrorism, poor economic handling as a result of the energy crisis, the curtailment of both civil liberties and its troubled relations with the US, Afghanistan and India. Many foreign and domestic issues also dominated the governments' agenda in case of Iran and Turkey. For example Iran's constant troubling foreign relations with USA and EU and on the other hand Turkey's unsure situation in regard to EU membership. Such internal and external political challenges have hampered efforts to realise the goal of economic integration.

Deep dependency of most members' economies on natural resources is the second area as was evident from the analysis results, and as reported previously in the literature. The main markets (customers) are located outside of the ECO region (Gillian, 1995). For instance, the economies of Iran and Kazakhstan remain dependent on sales of gas and oil to countries other than the ECO members and this has cast a negative impact on the potential of intra regional trade.

Thirdly, the role of uniformity or similarity of member nations' political and social environments was overemphasised in facilitating integration. As is indicated by data and results, the ECO region suffers from significant differences and large gaps. It is because of such diversity that the ECO region has been slow in responding to the process of integration. (Bahaee & Theeke, 1996).

These factors have led the authors to argue that though the ECO has not performed well in fulfilling its stated commitments, especially in the area of intra-regional trade, it has, somehow, managed to stay afloat. It may be concluded that there is still potential for greater regional integration among the ECO countries under focus as well as the entire region in the form of a Free Trade Area though the present intra-regional trade flows are not very impressive. Greater regional integration of the ECO, which is in accord with multilateral liberalisation, could be instrumental in growth by increasing trade, allowing regional producers to benefit from economies of scale, encouraging foreign direct investment and the deepening of capital market. The initiatives such as in the form of (ECOTA) are to be

welcomed, which will help reduce tariffs for the member countries to a maximum of 15 precent as a highest tariff slab in the next few years.

The following policy implications, which are based on our analysis of secondary data and extensive literature review for the ECO in an historical context, are presented here below with a view to accelerating the integration of member economies.

8.4 **Policy Implications**

First, the ECO must narrow down its objectives and clearly focus on its pursuit. The ECO was launched with much fanfare and with a very ambitious and aggressive agenda to achieve, which was subsequently deemed unrealistic by literature review. For instance, the ECO members, under the current mandates, are required to collaborate on a variety of projects, which encompass many industries. This approach rendered a politically charged issue into a highly visible one besides spreading the resources and the attention of the member states too thin. Huge capital is required to improve or institute the industrial, economic, and administrative infrastructure, so critical for integration. The capital is the scarcest of all resources in the region. It is in this context that a more specific and targeted approach towards economic integration, perhaps by industry segments or certain product categories may be more natural and appropriate.

The second recommendation pertains to the size of the ECO. The decision to increase membership of the ECO to 10 in early 1990 was not well thought through as it clearly had political undertone to it than a practical one. There was little assessment of the ECO's need for integration. Though there was express support for the enlargement of the ECO bloc in the light of literature review and historical context, yet there was disagreement among the authors about whether a larger ECO would be a better or not. They support the idea of reducing the membership of the ECO to make it more effective and integrated, though this decision would be unwise politically. It is important for key members to think hard more on developing fundamental values and principles that might under line their decision making processes and chart out a future growth framework. Only those countries must be considered for membership that meets the basic and non-negotiable preconditions. As of now, the ECO has not worked out any such baseline criteria.

The third issue pertains to the administration and management of the integration process. An ideology-driven approach has replaced the competence-based approach to management because of the dominance and the excessive interference of politics into the realm of economic decision-making. Indeed, ideology is important and has its proper place, but there is no substitute for competency and professionalism when dealing with such complex international matters (as supported by the literature and historical context.)

Our last recommendation is about the process of economic integration itself. As is evident from the experiences of successful integrations, it is a slow, incremental process, which requires patience, mid-course policy correction and a long-term view. The first fifteen or twenty years since inception of the ECO have been taken into account during the course of this research. This is the most difficult period for all member nations. This constitutes the major weakness of this study. As literature on economic integration made it manifestly clear, there is a need of exercising patience and persistence in dealing with and addressing the adversities and challenges for a strong and unified regional economic bloc to emerge.

In short, this economic bloc possesses significant economic potential. The dream of integration within the ECO region can be realised if ECO members are more pragmatic in their decisions and policy pronouncements. The focus on realistic, specific and achievable objectives will inject impetus and optimism for further and deeper integration. Intra-ECO trade will be the winner of the new ECO trade orientation. This trade was reduced in the past owing to protectionist trade policies throughout the region. As these countries turn towards more open trade regimes, intra-ECO trade will increase. The recommendations listed above would be helpful to achieve the said objective. The author is interested to carry on with this research as a longitudinal effort to examine the fate of the Economic Cooperation Organisation in the future.

8.5 **Limitations of the Study**

Two limitations characterised the estimated revealed comparative advantage, trade intensity and country specific gravity models: the number of the countries as a sample and the number of the years for analysis. Since the thesis was aimed at exploring the intra-ECO trade and further potential for FTA among the ECO countries but four countries out of ten ECO

member countries were reviewed, which are Pakistan, Iran, Turkey and Kazakhstan. The problem with the remaining six countries was that no data concerning these countries was available as they were newly created countries and had weak economic structures. Some of them have not even joined the WTO as members to date. The four countries under reference are the only countries having bigger economies within the ECO region.

The second important limitation marking this study pertains to the number of years on which our models are based for analysis. It was in 1985 that the ECO was established. With the induction of seven new members, it expanded later in 1992. Complete data from 1985 onwards was available in respect of Pakistan and Turkey but data was not forthcoming in the case of Iran and Kazakhstan. Kazakhstan won independence in 1990 but the data about it, stemmed from 1995. Iran is an old country but for most part of its existence, it remained aloof from the rest of the world. More so was the case after the Islamic revolution when the country had to face sanctions and political opposition from the powerful countries. So the earliest data we could get for Iran was 1997 and the latest data available for Iran was for the year 2006. Hence we had to extrapolate the data for the years 1995, 1996, 2007, 2008 and 2009 in the case of Iran.

We have reviewed Pakistan and Turkey for 20 years each and reviewed Iran and Kazakhstan for 15 years each for revealed comparative advantage analysis. During the course of data collection, it transpired that the latest available data for all countries was till the 2009. We used the same periods of analysis for trade intensity analysis as well.

While doing the trade intensity analysis, we have reviewed one major non-ECO trade partner for each of the four ECO countries as well. For example in case of Pakistan other than three ECO trade partners, we reviewed USA as well, as it is the biggest non-ECO trading partner of Pakistan. Due to time constraints, it was not possible for us to review all major trading partners of each of the four ECO countries under reference, which could have led us towards more authentic results.

Data of 15 years from 1995 to 2009 was used for the country-specific gravity model analysis. We had to have the same number of years for analysis of all the countries under review to run a regression test on the observations. The countries analysed here are 8, four being the original ECO countries namely Pakistan, Iran, Turkey and Kazakhstan, while rest of the four

are their non-ECO major trade partners, which are USA, UK, China, and Germany. Trade of each of the ECO country is analysed against seven countries in which three are ECO countries and four are non-ECO countries. Here again the relatively small number of years for analysis is the main limitation.

8.6 **Areas for further Research**

This study disagrees with the belief that the ECO region cannot survive on its own as an FTA or a customs union without joining hands with industrial mega economies of the world. After doing a comparative trade analysis between intra-ECO trade and the trade between ECO member country and its non-ECO partners, it is evident that, even though the present intra-regional trade flows are not very impressive, there is clear potential for greater regional integration in the form of a FTA among Pakistan, Iran, Turkey and Kazakhstan especially and the whole of ECO generally.

Greater regional integration, which is in accord with multilateral liberalisation, can be instrumental in achieving growth not only by increasing trade, allowing regional producers to benefit from economies of scale, but also by encouraging foreign direct investment and the deepening of capital market. It would be interesting to pursue a similar study by having more years for analysis and reviewing each of the 10 ECO countries' economic structure and trade flows to the rest of the world.

Significant structural, political and ideological change occurred in Pakistan and Turkey especially during the period of the present research study. Turkey refused to join the EU. Pakistan's foreign policy also underwent a drastic change after a decade of cooperation with the US when Pakistan reacted angrily to NATO's attack on a Pakistan's military check post. It also entrusted the matter of reengagement with the US to its Parliament.

What would be the impact on ECO, if Turkey is to be accepted into European Union, Kazakhstan joins Russian Federation and Belarus Customs Union and SAARC announces a Free Trade Area among India, Pakistan, Bangladesh and Sri Lanka, during the course of economic integration among ECO countries for a Free Trade Area? These aspects and questions are important and could be taken into account in future research and studies.

The world has noticed a recent development during the period of this study. The oldest and the most refined model of economic integration i.e. European Union has been faced with continuous economic problems and discussions are underway regarding the usefulness of disintegration as the solution for the economic problems of the EU. This would be an interesting fact on the theoretical and empirical level in future studies on economic integration and unions.

Globalisation and economic integration have given rise to the phenomenon of outsourcing. This has led economic conditions and unemployment levels to aggravate in the developed countries. A fear exists that the developed nations might not be left with any comparative advantage in the future. Because education, technical skills and technology factors were the last saviours for developed countries in terms of comparative advantage but, countries like China, Brazil and India seems to be on course to win in these areas in future, as well. It would be interesting to take this aspect under study in future while discussing international trade and relations.

APPENDIX CHAPTER 2: TABLES

Table 2.1:Kazakhstan's Intra-regional Imports 2009

Partner Regions	Mio euro	%
ACP	74,1	0,3%
Andean Community	1,9	0,0%
ASEAN	81,0	0,3%
BRIC	12.928,8	55,7%
CACM	12,0	0,1%
Candidate Countries	506,7	2,2%
CIS	8.702,8	37,5%
EFTA	415,3	1,8%
Latin American Country	118,6	0,5%
MEDA (excl EU and T	53,4	0,2%
Mercosur	41,9	0,2%
NAFTA	653,0	2,8%

Table 2.2:Kazakhstan's Intra-regional Exports 2009

Partner Regions	Mio euro	%
ACP	51,9	0.20%
Andean Community	1,0	0,0%
ASEAN	23,5	0,1%
BRIC	5.618,3	23,6%
CACM	0,3	0,0%
Candidate Countries	716,8	3,0%
CIS	3.850,8	16,1%
EFTA	404,6	1,7%
Latin American Country	27,7	0,1%
MEDA (excl EU and T	98,9	0,4%
Mercosur	18,5	0,1%
NAFTA	1.125,7	4,7%

Table 2.3: Kazakhstan's Total Intra-regional Trade 2009

Partner Regions	Mio euro	%
ACP	126,0	0,3%
Andean Community	2,9	0,0%
ASEAN	104,5	0,2%
BRIC	18.547,1	39,4%
CACM	12,3	0,0%
Candidate Countries	1.223,6	2,6%
CIS	12.553,7	26,7%
EFTA	819,9	1,7%
Latin American Country	146,3	0,3%
MEDA (excl EU and T	152,3	0,3%
Mercosur	60,4	0,1%
NAFTA	1.778,8	3,8%

Source: EUROSTAT (Comext, Statistical regime 4) DG TRADE

World excluding Intra-EU trade and European Union: 27 members.

Table 2.4:Pakistan's Intra-regional Imports 2009

Partner Regions	Mio euro	%
ACP	528,5	2,0%
Andean Community	3,2	0,0%
ASEAN	2.948,6	11,2%
BRIC	5.540,7	21,0%
CACM	6,7	0,0%
Candidate Countries	128,6	0,5%
CIS	494,8	1,9%
EFTA	245,8	0,9%
Latin American Country	278,1	1,1%
MEDA (excl EU and T	256,6	1,0%
Mercosur	256,2	1,0%
NAFTA	1.576,2	6,0%

Table 2.5: Pakistan's Intra-regional Exports 2009

Partner Regions	Mio euro	%
ACP	818,4	5,9%
Andean Community	31,8	0,2%
ASEAN	296,1	2,2%
BRIC	939,7	6,8%
CACM	38,2	0,3%
Candidate Countries	419,5	3,0%
CIS	137,0	1,0%
EFTA	84,7	0,6%
Latin American Country	300,3	2,2%
MEDA (excl EU and T	136,3	1,0%
Mercosur	68,4	0,5%
NAFTA	2.432,2	17,7%

Table 2.6: Pakistan's Total Intra-regional Trade 2009

Partner Regions	Mio euro	%
ACP	1.346,9	3,4%
Andean Community	35,0	0,1%
ASEAN	3.244,8	8,1%
BRIC	6.480,4	16,1%
CACM	44,9	0,1%
Candidate Countries	548,1	1,4%
CIS	631,8	1,6%
EFTA	330,5	0,8%
Latin American Country	578,5	1,4%
MEDA (excl EU and T	392,9	1,0%
Mercosur	324,6	0,8%
NAFTA	4.008,4	10,0%

Source: EUROSTAT (Comext, Statistical regime 4) DG TRADE

World excluding Intra-EU trade and European Union: 27 members.

Table 2.7: Iran's Intra-regional Imports 2009

Partner Regions	Mio euro	%
ACP	103,6	0,2%
Andean Community	2,9	0,0%
ASEAN	2.069,6	4,9%
BRIC	10.461,5	24,9%
CACM	3,9	0,0%
Candidate Countries	1.605,6	3,8%
CIS	3.436,7	8,2%
EFTA	573,3	1,4%
Latin American Country	1.777,7	4,2%
MEDA (excl EU and T	160,7	0,4%
Mercosur	1.744,0	4,1%
NAFTA	522,4	1,2%

Table 2.8: Iran's Intra-regional Exports 2009

Partner Regions	Mio euro	%
ACP	1.987,8	4,0%
Andean Community	113,5	0,2%
ASEAN	1.605,4	3,2%
BRIC	14.006,7	28,2%
CACM	0,6	0,0%
Candidate Countries	2.213,5	4,5%
CIS	506,5	1,0%
EFTA	17,7	0,0%
Latin American Country	171,5	0,3%
MEDA (excl EU and T	1.118,5	2,3%
Mercosur	18,4	0,0%
NAFTA	73,9	0,1%

Table 2.9: Iran's Total Intra-regional Trade 2009

Partner Regions	Mio euro	%
ACP	2.091,4	2,3%
Andean Community	116,4	0,1%
ASEAN	3.675,0	4,0%
BRIC	24.468,2	26,7%
CACM	4,5	0,0%
Candidate Countries	3.819,1	4,2%
CIS	3.943,2	4,3%
EFTA	591,0	0,6%
Latin American Country	1.949,3	2,1%
MEDA (excl EU and T	1.762,2	1,4%
Mercosur	1.762,3	1,9%
NAFTA	596,3	0,7%

Source: EUROSTAT (Comext, Statistical regime 4) DG TRADE

World excluding Intra-EU trade and European Union: 27 members.

Table 2.10: Turkey's Intra-regional Imports 2009

Partner Regions	Mio euro	%
ACP	1.568,8	1,6%
Andean Community	379,9	0,4%
ASEAN	2.669,1	2,7%
BRIC	25.299,2	25,4%
CACM	54,1	0,1%
Candidate Countries	105,1	0,1%
CIS	18.637,3	18,7%
EFTA	1.975,9	2,0%
Latin American Country	1.933,7	1,9%
MEDA (excl EU and T	3.353,9	3,4%
Mercosur	1.025,2	1,0%
NAFTA	7.063,4	7,1%

Table 2.11: Turkey's Intra-regional Exports 2009

Partner Regions	Mio euro	%
ACP	2.096,7	2,9%
Andean Community	82,4	0,1%
ASEAN	819,9	1,1%
BRIC	3.992,6	5,5%
CACM	80,5	0,1%
Candidate Countries	360,6	0,5%
CIS	6.251,3	8,6%
EFTA	3.229,0	4,4%
Latin American Country	655,2	0,9%
MEDA (excl EU and T	7.029,9	9,7%
Mercosur	339,8	0,5%
NAFTA	2.760,9	3,8%

Table 2.12: Turkey's Total Intra-regional Trade 2009

Partner Regions	Mio euro	%
ACP	3.665,5	2,1%
Andean Community	492,3	0,3%
ASEAN	3.489,0	2,0%
BRIC	29.291,0	17,0%
CACM	134,6	0,1%
Candidate Countries	465,7	0,3%
CIS	24.888,6	14,4%
EFTA	5.204,9	3,0%
Latin American Country	2.5888,9	1,5%
MEDA (excl EU and T	10.383,7	6,0%
Mercosur	1.365,0	0,8%
NAFTA	9.824,3	5,7%

Source: EUROSTAT (Comext, Statistical regime 4) DG TRADE

World excluding Intra-EU trade and European Union: 27 members

APPENDIX CHAPTER 4: TABLES

Table 4.1: International Border Crossing Points of ECO Countries (Part 1)

Pakistan	(1) Afghanistan	Torkham, Chamman
	(2) China	Khunjerab
	(3) India	Wagha
	(4) Iran	Taftan
Tajikistan	(1) Kyrgyzstan	Sulokta, Murgab, Dzhirgital
	(2) Uzbekistan	Tursan-Zabe, Penjikent, Ura-Tube, Bekabad, Bulok, Kanibadam
	(3) Afghanistan	Ishkashim, Aivadzh
	(4) China	Kulma Pass
Turkey	(1) Iran	Gurbulak, Esendere
	(2) Georgia	Sarp, Turkgozu, Aktas
	(3) Azerbaijan	Dilucu
	(4) Iraq	Habur
	(5) Syria	Yayladag, Cilvegozu, Oncupinar, Cobanbeyli, Akcakale
	(6) Bulgaria	Kapikule, Aziziye
	(7) Armenia	Dogukapi (closed)
	(8) Greece	
Turkmenistan	(1) Kazakhstan	Bekdash
	(2) Uzbekistan	Kunya-urgench, Mangit, Togta, Tezen- bazar, Takhiatash, Farap, Gazojak, Kelif, Tallymerjen
	(3) Iran	Gandan, Artyk, Gudriolum, Saragt
	(4) Afghanistan	Gushgy
Uzbekistan	(1) Kazakhstan	Chernyavka, Kugayaz, Oqzts
	(2) Kyrgyzstan	Khodzhaabad, Aim, Fergana
	(3) Tajikistan	Khavast, Taylak, Uzun, Bekhabad, Kirovo, Pungan
	(4) Turkmenistan	Khodzeili, Tokhitash, Mangit, Gurlen, Kshahkupir, Alat Khzarasp, Tarimardzhan, Bordir
	(5) Afghanistan	Khairaton

Source: UNESCAP, Transport, Communications, Tourism and Infrastructure Development (TCTID) Division.

Table 4.2: International Border Crossing Points of ECO Countries (Part 2)

Afghanistan	(1) Pakistan	
	(2) Iran	
	(3) Tajikistan	
	(4) Uzbekistan	
	(5) Turkmenistan	
Azerbaijan	(1) Georgia	Gazakh, Belokanik
	(2) Russia	Kuba
	(3) Iran	Astara, Kanlihk, Kyahlvae, Julfa
	(4) Turkey	Cedorek
Iran	(1) Afghanistan	Dogharoun
	(2) Armenia	Nordouwz
	(3) Azerbaijan	Astara, Bilehsavar, Jolfa
	(4) Iraq	Khosravi
	(5) Pakistan	Mirjaveh
	(6) Turkey	Bazargan, Sero
	(7) Turkmenistan	Bajgiran, Sarackhs, Lotfabad, Pol
Kazakhstan	(1) Kyrgyzstan	Georgevka, Merke, Kemin
	(2) Turkmenistan	Bekdash
	(3) Uzbekistan	Stephoe, Kopaya, Akjibit
	(4) Russia	Pogodaevo, Troizk, Chistoe, Karapoga, Zelezinka, Lokot, Kotyaevka, Ozernoe, Tashanta
	(5) China	Khorgos, Maikapchagai, Bakhty, Druzhba
Kyrgyzstan	(1) Kazakhstan	Georgievka, Chaldovar, Kegan
	(2) Uzbekistan	Osh, Karasu, Kizibl-Kiya
	(3) Tajikistan	Isfand, Sari-Tash, Karamik
	(4) China	Torugart, Irkeshtam

Source: UNESCAP, Transport, Communications, Tourism and Infrastructure Development (TCTID) Division.

Table 4.3: Transport Volume in the ECO Region

	1999		*2000*		*2001*	
	Export*	**No. of Trucks**	**Export***	**No. of Trucks**	**Exports***	**No. Of Trucks**
Afghanistan						
Azerbaijan	727,513	40,417	733,156	40,740	526.079	635,850
Iran			1,820,068	101,115	1,130,833	62,724
Kazakhstan	562,890	31,272	834,131	46,341	315,436	17,524
Kyrgyzstan	1,581,961	87,887	1,185,687	65,872	1,145,281	63,627
Pakistan	68,312	3,795	78,098	4,339	144,459	8,026
Tajikistan	2,942	163	13,643	758	3298	183
Turkey	493,109	27,395	560,325	31,129		
Turkmenistan						
Uzbekistan	162,591	9,033	272,015	15,112	258,069	14,337
Total ECO	3,599,318	199,962	5,497,123	305,395	3,523,455	195,746
Other Countries***	35,019,492	1,945,527	16,295,204	905,289	13,353,651	741,870
General Total	38,618,810	2,145,489	20,977,509	1,165,417	16,877,106	937,616

Source: IMF Trade Statistics (2002)

Table 4.4: Status of ECO countries accession or being party to International conventions listed in UNESCAP resolution 48/11 as at 12/04/2000

Country	Convention on road traffic 1968	Convention on road signs and signals 1968	Custom's convention on international. transport of goods under TIR carnet 1975	Custom's convention on Temporary. Importation of commercial road vehicle 1956	Convention on contraries 1972	International convention on the harmonization of frontier control of goods.	Convention on the contract for the International carriage of goods by road (CMR) 1956
Afghanistan			(x)	(x)			
Iran	(x)	(x)	(x)				(*)
Kazakhstan	(*)	(*)	(*)				(*)
Kyrgyzstan			(*)	(*)	(*)		(*)
Pakistan	x	x					
Tajikistan	(*)	(*)	(*)				(*)
Turkey			(x)		(x)		(*)
Turkmenistan	(*)	(*)	(*)				(*)
Uzbekistan	(*)	(*)	(*)	(*)	(*)		(*)

Notes: (x) Party / acceded, (*) Acceded after the adoption of 48/11, Source: UNESCAP / 250 report

Table 4.5: Existing visa fee structure for Nationals of ECO Member States for Pakistan

Partner Regions	**Mio euro**	**%**	***Multiple entry)***			
ACP	51,9	0.20%	Gratis			
Andean Community	1,0	0,0%	US$40			
ASEAN	23,5	0,1%	Rls320,000 (Rs.2000)			
BRIC	5.618,3	23,6%	Rs.498			
CACM	0,3	0,0%				
Candidate Countries	716,8	3,0%				
CIS	3.850,8	16,1%				
EFTA	404,6	1,7%				
Latin American Country	27,7	0,1%				
MEDA (excl EU and T	98,9	0,4%				
Mercosur	18,5	0,1%				
NAFTA	1.125,7	4,7%				

Source: UNESCAP, Transport, Communications, Tourism and Infrastructure Development (TCTID) Division

Table 4.6: Existing visa fee structure for Nationals of ECO Member States for Turkmenistan and Tajikistan

	10 days single	***20 days single***	***1 month***		***3 months***		***6months***		***1 year***	
Islamic Republic of Pakistan	20	30	Single 40	Multiple 60	Single 100	Multiple 140	Single 190	Multiple 260	Single 370	Multiple 500
Islamic Republic of Iran	20	30	40	60	100	140	190	260	370	500
Republic of Turkey	16	24	32	48	80	112	152	208	296	400
Afghanistan	20	40	60	60	140	140	260	260	500	500
Republic of Uzbekistan	40	50	60	60	140	140	260	260	500	500

Republic of Tajikistan									
	7 days	***14 days***	***1 month***	***2 months***	***3 months***	***6 months***		***1 year***	
Afghanistan, Iran, Pakistan and Turkey	40	Single 50	Single 60	Single 70	Single 80	Single 120	Multiple 180	Single 240	Multiple 300
Turkmenistan	10 (10 days)	15 (20 days)	20 Single 30 multiple	-	50 Single 70 multiple	95	130	185	250
Uzbekistan	-	-	4	-	-	-	10	-	20
Azerbaijan, Kazakhstan & Kyrgyzstan	No visa	No visa	No visa	No visa	No visa	No visa	No visa	No visa	No visa

Source: UNESCAP, Transport, Communications, Tourism and Infrastructure Development (TCTID) Division

Table: 4.7: Existing visa fee structure for Nationals of ECO Member States for Uzbekistan

	7days	***15 days***	***1 month***	***3 months***		***6 months***		**1 year**	
Afghanistan, Iran, Pakistan, Turkey	40	50	60	Single 80	Multiple 150	Single 120	Multiple 150	Single 160	Multiple 250
Kazakhstan	Gratis	Gratis	Gratis	Gratis	Gratis	Gratis	Gratis	Gratis	Gratis
Azerbaijan	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-	-do-
Kyrgyzstan, Tajikistan	4	4	4	10	10	15	15	25	25
Turkmenistan	51	61	71	91	161	131	161	171	261

Source: UNESCAP, Transport, Communications, Tourism and Infrastructure Development (TCTID) Division.

APPENDIX CHAPTER 5: TABLES

Table 5.1: Pakistan's Textile Exports (Data for BRCA Analysis)

Year	Xtp 65	Xp	Xwt	Xw
1990	82,533,622	172,738,103	906,082,396	37,165,948,276
1991	88,709,309	180,674,835	951,168,448	38,583,973,655
1992	90,894,543	184,923,667	1,242,367,983	40,494,623,656
1993	80,730,708	158,322,399	1,259,613,423	42,831,257,078
1994	44,322,068	153,553,585	1,363,145,309	47,590,759,076
1995	77,621,105	148,784,772	1,481,831,073	51,847,389,558
1996	81,280,427	154,034,929	1,522,422,318	55,358,606,557
1997	68,353,390	129,312,622	1,703,671,356	61,304,824,561
1998	60,080,858	118,673,292	1,731,852,841	63,890,824,623
1999	57,097,887	112,420,177	1,733,926,746	67,919,143,876
2000	58,230,504	118,221,307	1,874,405,872	78,827,838,828
2001	56,368,464	115,177,991	1,874,973,539	78,665,819,568
2002	57,766,511	119,388,064	1,939,788,716	81,455,457,967
2003	68,093,707	139,794,657	1,982,743,992	86,400,911,162
2004	66,796,675	145,915,745	2,040,793,672	96,523,560,209
2005	70,874,668	160,502,007	2,028,542,282	104,890,000,000
2006	69,204,822	156,902,087	2,088,205,094	115,904,306,220
2007	63,480,455	153,620,449	2,080,087,723	123,574,580,759
2008	51,447,924	145,182,173	1,956,154,410	128,627,294,493
2009	41,018,558	110,615,617	1,834,444,965	111,517,857,143

Source: Compiled using data obtained from UN Comtrade

Table 5.2: Pakistan's Oil Exports (Data for BRCA Analysis)

Year	Xop 333	Xp	Xwo	Xw
1990	1,502,944	172,738,103	861,178,510	37,165,948,276
1991	1,498,251	180,674,835	1,132,245,526	38,583,973,655
1992	1,640,507	184,923,667	1,274,203,926	40,494,623,656
1993	1,293,633	158,322,399	1,273,248,048	42,831,257,078
1994	1,029,355	153,553,585	1,279,919,345	47,590,759,076
1995	807,773	148,784,772	1,306,211,162	51,847,389,558
1996	838,676	154,034,929	1,919,913,861	55,358,606,557
1997	837,486	129,312,622	1,639,813,906	61,304,824,561
1998	290,199	118,673,292	1,506,898,657	63,890,824,623
1999	756,250	112,420,177	2,338,645,302	67,919,143,876
2000	942,060	118,221,307	4,289,331,561	78,827,838,828
2001	966,323	115,177,991	3,793,987,028	78,665,819,568
2002	754,651	119,388,064	3,825,082,541	81,455,457,967
2003	395,129	139,794,657	3,931,471,976	86,400,911,162
2004	104,501	145,915,745	4,896,038,753	96,523,560,209
2005	138,755	160,502,007	6,240,165,445	104,890,000,000
2006	365,696	156,902,087	8,267,434,878	115,904,306,220
2007	274,232	153,620,449	7,302,606,258	123,574,580,759
2008	183,974	145,182,173	9,909,698,497	128,627,294,493
2009	151,814	110,615,617	6,458,138,480	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.3: Pakistan's Gas Exports (Data for BRCA Analysis)

Year	Xgp 343	Xp	Xwg	Xw
1990	1,752	172,738,103	142,315,038	37,165,948,276
1991	1,764	180,674,835	175,810,293	38,583,973,655
1992	1,724	184,923,667	218,263,258	40,494,623,656
1993	1,729	158,322,399	226,372,374	42,831,257,078
1994	1,739	153,553,585	213,626,407	47,590,759,076
1995	1,805	148,784,772	194,166,978	51,847,389,558
1996	1,820	154,034,929	388,392,883	55,358,606,557
1997	1,529	129,312,622	493,008,526	61,304,824,561
1998	1,749	118,673,292	444,300,889	63,890,824,623
1999	1,791	112,420,177	490,560,434	67,919,143,876
2000	2,138	118,221,307	805,854,254	78,827,838,828
2001	1,895	115,177,991	873,433,228	78,665,819,568
2002	72	119,388,064	791,514,531	81,455,457,967
2003	2,850	139,794,657	942,716,683	86,400,911,162
2004	1,998	145,915,745	1,022,205,371	96,523,560,209
2005	3,875	160,502,007	1,383,756,503	104,890,000,000
2006	680	156,902,087	1,246,031,410	115,904,306,220
2007	906	153,620,449	1,513,789,649	123,574,580,759
2008	981	145,182,173	1,987,636,827	128,627,294,493
2009	358	110,615,617	1,591,566,881	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.4: Pakistan's Agriculture (Cereals) Exports (Data for BRCA Analysis)

Year	Xap 04	Xp	Xwa	Xw
1990	7,556,862	172,738,103	422,123,824	37,165,948,276
1991	11,519,517	180,674,835	416,229,155	38,583,973,655
1992	10,030,338	184,923,667	513,010,098	40,494,623,656
1993	6,280,019	158,322,399	483,070,618	42,831,257,078
1994	7,728,830	153,553,585	480,922,237	47,590,759,076
1995	8,785,051	148,784,772	544,769,408	51,847,389,558
1996	8,355,639	154,034,929	651,034,498	55,358,606,557
1997	7,270,813	129,312,622	638,960,546	61,304,824,561
1998	8,075,745	118,673,292	628,970,712	63,890,824,623
1999	7,874,031	112,420,177	604,425,962	67,919,143,876
2000	7,030,533	118,221,307	598,872,428	78,827,838,828
2001	7,550,174	115,177,991	646,177,933	78,665,819,568
2002	7,935,620	119,388,064	687,908,546	81,455,457,967
2003	8,459,521	139,794,657	691,637,970	86,400,911,162
2004	8,068,396	145,915,745	737,196,984	96,523,560,209
2005	12,130,873	160,502,007	722,790,793	104,890,000,000
2006	11,899,181	156,902,087	768,447,536	115,904,306,220
2007	11,716,698	153,620,449	964,455,851	123,574,580,759
2008	18,239,221	145,182,173	1,196,771,910	128,627,294,493
2009	11,736,106	110,615,617	1,062,364,172	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.5: Iran's Textile Exports (Data for BRCA Analysis)

Year	Xti 65 sitc	Xi	Xwt	Xw
1995	43,345,473	1,226,615,058	1,481,831,073	51,847,389,558
1996	46,081,291	1,375,684,095	1,522,422,318	55,358,606,557
1997	43,030,901	1,061,974,392	1,703,671,356	61,304,824,561
1998	35,844,054	740,965,975	1,731,852,841	63,890,824,623
1999	38,894,076	996,923,204	1,733,926,746	67,919,143,876
2000	52,877,042	1,957,527,624	1,874,405,872	78,827,838,828
2001	59,760,382	2,121,029,281	1,874,973,539	78,665,819,568
2002	50,604,500	1,965,550,907	1,939,788,716	81,455,457,967
2003	48,575,215	2,051,487,553	1,982,743,992	86,400,911,162
2004	51,116,246	3,023,577,236	2,040,793,672	96,523,560,209
2005	58,170,678	4,468,503,351	2,028,542,282	104,890,000,000
2006	64,131,223	5,297,068,677	2,088,205,094	115,904,306,220
2007	54,519,573	3,361,237,545	2,080,087,723	123,574,580,759
2008	55,302,587	3,640,374,872	1,956,154,410	128,627,294,493
2009	56,648,061	3,958,152,336	1,834,444,965	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.6: Iran's Oil Exports (Data for BRCA Analysis)

Year	Xoi 333	Xi	Xwo	Xw
1995	240,933,183	1,226,615,058	1,306,211,162	51,847,389,558
1996	601,160,209	1,375,684,095	1,919,913,861	55,358,606,557
1997	896,234,871	1,061,974,392	1,639,813,906	61,304,824,561
1998	572,983,996	740,965,975	1,506,898,657	63,890,824,623
1999	829,531,313	996,923,204	2,338,645,302	67,919,143,876
2000	1,712,686,300	1,957,527,624	4,289,331,561	78,827,838,828
2001	1,753,509,473	2,121,029,281	3,793,987,028	78,665,819,568
2002	1,340,237,099	1,965,550,907	3,825,082,541	81,455,457,967
2003	1,586,156,648	2,051,487,553	3,931,471,976	86,400,911,162
2004	2,323,102,981	3,023,577,236	4,896,038,753	96,523,560,209
2005	3,595,383,470	4,468,503,351	6,240,165,445	104,890,000,000
2006	4,206,359,264	5,297,068,677	8,267,434,878	115,904,306,220
2007	2,070,214,173	3,361,237,545	7,302,606,258	123,574,580,759
2008	1,522,906,580	3,640,374,872	9,909,698,497	128,627,294,493
2009	221,751,421	3,958,152,336	6,458,138,480	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.7: Iran's Gas Exports (Data for BRCA Analysis)

Year	Xgi 343	Xi	Xwg	Xw
1995	179,321	1,226,615,058	194,166,978	51,847,389,558
1996	268,716	1,375,684,095	388,392,883	55,358,606,557
1997	533	1,061,974,392	493,008,526	61,304,824,561
1998	89,926	740,965,975	444,300,889	63,890,824,623
1999	179,321	996,923,204	490,560,434	67,919,143,876
2000	358,111	1,957,527,624	805,854,254	78,827,838,828
2001	715,691	2,121,029,281	873,433,228	78,665,819,568
2002	1,430,851	1,965,550,907	791,514,531	81,455,457,967
2003	165,995	2,051,487,553	942,716,683	86,400,911,162
2004	8,747,970	3,023,577,236	1,022,205,371	96,523,560,209
2005	19,022,348	4,468,503,351	1,383,756,503	104,890,000,000
2006	19,929,400	5,297,068,677	1,246,031,410	115,904,306,220
2007	5,873,433	3,361,237,545	1,513,789,649	123,574,580,759
2008	10,747,829	3,640,374,872	1,987,636,827	128,627,294,493
2009	12,864,196	3,958,152,336	1,591,566,881	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.8: Iran's Agriculture (Cereals) Exports (Data for BRCA Analysis)

Year	Xai 04	Xi	Xwa	Xw
1995	4,284,629	1,226,615,058	544,769,408	51,847,389,558
1996	4,105,008	1,375,684,095	651,034,498	55,358,606,557
1997	6,436,326	1,061,974,392	638,960,546	61,304,824,561
1998	3,785,876	740,965,975	628,970,712	63,890,824,623
1999	3,582,449	996,923,204	604,425,962	67,919,143,876
2000	3,513,484	1,957,527,624	598,872,428	78,827,838,828
2001	3,206,905	2,121,029,281	646,177,933	78,665,819,568
2002	1,595,541	1,965,550,907	687,908,546	81,455,457,967
2003	2,190,387	2,051,487,553	691,637,970	86,400,911,162
2004	2,381,129	3,023,577,236	737,196,984	96,523,560,209
2005	7,153,848	4,468,503,351	722,790,793	104,890,000,000
2006	13,243,312	5,297,068,677	768,447,536	115,904,306,220
2007	5,312,843	3,361,237,545	964,455,851	123,574,580,759
2008	6,056,304	3,640,374,872	1,196,771,910	128,627,294,493
2009	6,829,487	3,958,152,336	1,062,364,172	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.9: Turkey's Textile Exports (Data for BRCA Analysis)

Year	Xty 65 sitc	Xy	Xwt	Xw
1990	27,756,378	249,717,602	906,082,396	37,165,948,276
1991	27,779,491	264,239,908	951,168,448	38,583,973,655
1992	31,418,239	285,606,409	1,242,367,983	40,494,623,656
1993	30,373,076	292,786,963	1,259,613,423	42,831,257,078
1994	40,549,204	334,576,664	1,363,145,309	47,590,759,076
1995	50,554,393	432,172,491	1,481,831,073	51,847,389,558
1996	55,354,109	468,633,173	1,522,422,318	55,358,606,557
1997	64,579,538	505,623,358	1,703,671,356	61,304,824,561
1998	62,330,083	472,116,371	1,731,852,841	63,890,824,623
1999	55,573,581	424,850,969	1,733,926,746	67,919,143,876
2000	91,348,592	683,715,400	1,874,405,872	78,827,838,828
2001	87,227,033	693,228,858	1,874,973,539	78,665,819,568
2002	64,765,099	545,734,493	1,939,788,716	81,455,457,967
2003	64,088,511	575,552,208	1,982,743,992	86,400,911,162
2004	70,806,005	695,241,203	2,040,793,672	96,523,560,209
2005	70,755,072	734,764,081	2,028,542,282	104,890,000,000
2006	68,633,547	773,999,417	2,088,205,094	115,904,306,220
2007	73,963,105	887,276,674	2,080,087,723	123,574,580,759
2008	70,810,056	994,443,157	1,956,154,410	128,627,294,493
2009	54,701,320	723,360,664	1,834,444,965	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.10: Turkey's Oil Exports (Data for BRCA Analysis)

Year	Xoy 333	Xy	Xwo	Xw
1990	87,527	249,717,602	861,178,510	37,165,948,276
1991	22,317	264,239,908	1,132,245,526	38,583,973,655
1992	22,682	285,606,409	1,274,203,926	40,494,623,656
1993	30,438	292,786,963	1,273,248,048	42,831,257,078
1994	305	334,576,664	1,279,919,345	47,590,759,076
1995	21,651	432,172,491	1,306,211,162	51,847,389,558
1996	22,941	468,633,173	1,919,913,861	55,358,606,557
1997	9,422	505,623,358	1,639,813,906	61,304,824,561
1998	45,601	472,116,371	1,506,898,657	63,890,824,623
1999	81,905	424,850,969	2,338,645,302	67,919,143,876
2000	115,676	683,715,400	4,289,331,561	78,827,838,828
2001	64,789	693,228,858	3,793,987,028	78,665,819,568
2002	49,092	545,734,493	3,825,082,541	81,455,457,967
2003	33,768	575,552,208	3,931,471,976	86,400,911,162
2004	82,291	695,241,203	4,896,038,753	96,523,560,209
2005	121,700	734,764,081	6,240,165,445	104,890,000,000
2006	51,686	773,999,417	8,267,434,878	115,904,306,220
2007	42,400	887,276,674	7,302,606,258	123,574,580,759
2008	19,406	994,443,157	9,909,698,497	128,627,294,493
2009	184	723,360,664	6,458,138,480	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.11: Turkey's Gas Exports (Data for BRCA Analysis)

Year	Xgy 343	Xy	Xwg	Xw
1990	8,466	249,717,602	142,315,038	37,165,948,276
1991	8,603	264,239,908	175,810,293	38,583,973,655
1992	9,076	285,606,409	218,263,258	40,494,623,656
1993	9,004	292,786,963	226,372,374	42,831,257,078
1994	7,282	334,576,664	213,626,407	47,590,759,076
1995	8,414	432,172,491	194,166,978	51,847,389,558
1996	9,324	468,633,173	388,392,883	55,358,606,557
1997	11,423	505,623,358	493,008,526	61,304,824,561
1998	8,679	472,116,371	444,300,889	63,890,824,623
1999	70	424,850,969	490,560,434	67,919,143,876
2000	13,742	683,715,400	805,854,254	78,827,838,828
2001	14,355	693,228,858	873,433,228	78,665,819,568
2002	19,302	545,734,493	791,514,531	81,455,457,967
2003	2	575,552,208	942,716,683	86,400,911,162
2004	3,115	695,241,203	1,022,205,371	96,523,560,209
2005	5,655	734,764,081	1,383,756,503	104,890,000,000
2006	10,233	773,999,417	1,246,031,410	115,904,306,220
2007	35,937	887,276,674	1,513,789,649	123,574,580,759
2008	459,034	994,443,157	1,987,636,827	128,627,294,493
2009	715,980	723,360,664	1,591,566,881	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.12: Turkey's Agriculture (Cereals) Exports (Data for BRCA Analysis)

Year	Xay 04	Xy	Xwa	Xw
1990	1,435,454	249,717,602	422,123,824	37,165,948,276
1991	9,060,753	264,239,908	416,229,155	38,583,973,655
1992	11,481,416	285,606,409	513,010,098	40,494,623,656
1993	5,183,465	292,786,963	483,070,618	42,831,257,078
1994	6,921,197	334,576,664	480,922,237	47,590,759,076
1995	8,775,757	432,172,491	544,769,408	51,847,389,558
1996	10,318,177	468,633,173	651,034,498	55,358,606,557
1997	12,262,835	505,623,358	638,960,546	61,304,824,561
1998	10,190,059	472,116,371	628,970,712	63,890,824,623
1999	6,059,357	424,850,969	604,425,962	67,919,143,876
2000	10,050,490	683,715,400	598,872,428	78,827,838,828
2001	7,242,663	693,228,858	646,177,933	78,665,819,568
2002	4,523,322	545,734,493	687,908,546	81,455,457,967
2003	4,981,506	575,552,208	691,637,970	86,400,911,162
2004	5,729,609	695,241,203	737,196,984	96,523,560,209
2005	8,918,727	734,764,081	722,790,793	104,890,000,000
2006	7,927,376	773,999,417	768,447,536	115,904,306,220
2007	8,575,298	887,276,674	964,455,851	123,574,580,759
2008	10,434,681	994,443,157	1,196,771,910	128,627,294,493
2009	10,495,176	723,360,664	1,062,364,172	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.13: Kazakhstan's Textile Exports (Data for BRCA Analysis)

Year	Xtk 65 sitc	Xk	Xwt	Xw
1995	950,823	157,431,382	1,481,831,073	51,847,389,558
1996	619,531	127,609,454	1,522,422,318	55,358,606,557
1997	276,707	119,569,508	1,703,671,356	61,304,824,561
1998	148,847	92,960,140	1,731,852,841	63,890,824,623
1999	71,154	93,268,861	1,733,926,746	67,919,143,876
2000	70,131	121,438,324	1,874,405,872	78,827,838,828
2001	65,329	109,916,003	1,874,973,539	78,665,819,568
2002	46,929	118,011,051	1,939,788,716	81,455,457,967
2003	89,089	148,510,366	1,982,743,992	86,400,911,162
2004	107,384	216,019,824	2,040,793,672	96,523,560,209
2005	158,376	278,460,848	2,028,542,282	104,890,000,000
2006	292,567	352,191,022	2,088,205,094	115,904,306,220
2007	219,547	396,972,917	2,080,087,723	123,574,580,759
2008	255,016	505,052,201	1,956,154,410	128,627,294,493
2009	142,390	285,686,256	1,834,444,965	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.14: Kazakhstan's Oil Exports (Data for BRCA Analysis)

Year	Xok 333	Xk	Xwo	Xw
1995	23,887,382	157,431,382	1,306,211,162	51,847,389,558
1996	27,209,541	127,609,454	1,919,913,861	55,358,606,557
1997	30,804,140	119,569,508	1,639,813,906	61,304,824,561
1998	28,392,571	92,960,140	1,506,898,657	63,890,824,623
1999	36,684,488	93,268,861	2,338,645,302	67,919,143,876
2000	59,635,329	121,438,324	4,289,331,561	78,827,838,828
2001	55,113,290	109,916,003	3,793,987,028	78,665,819,568
2002	61,533,296	118,011,051	3,825,082,541	81,455,457,967
2003	80,631,398	148,510,366	3,931,471,976	86,400,911,162
2004	122,830,837	216,019,824	4,896,038,753	96,523,560,209
2005	173,952,483	278,460,848	6,240,165,445	104,890,000,000
2006	217,441,685	352,191,022	8,267,434,878	115,904,306,220
2007	233,836,677	396,972,917	7,302,606,258	123,574,580,759
2008	308,742,002	505,052,201	9,909,698,497	128,627,294,493
2009	173,325,872	285,686,256	6,458,138,480	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.15: Kazakhstan's Gas Exports (Data for BRCA Analysis)

Year	Xgk 343	Xk	Xwg	Xw
1995	624,988	157,431,382	194,166,978	51,847,389,558
1996	728,238	127,609,454	388,392,883	55,358,606,557
1997	408,328	119,569,508	493,008,526	61,304,824,561
1998	394,400	92,960,140	444,300,889	63,890,824,623
1999	411,052	93,268,861	490,560,434	67,919,143,876
2000	531,850	121,438,324	805,854,254	78,827,838,828
2001	1,024,291	109,916,003	873,433,228	78,665,819,568
2002	2,639,455	118,011,051	791,514,531	81,455,457,967
2003	2,662,439	148,510,366	942,716,683	86,400,911,162
2004	5,335,131	216,019,824	1,022,205,371	96,523,560,209
2005	4,096,614	278,460,848	1,383,756,503	104,890,000,000
2006	4,992,087	352,191,022	1,246,031,410	115,904,306,220
2007	5,443,765	396,972,917	1,513,789,649	123,574,580,759
2008	7,689,223	505,052,201	1,987,636,827	128,627,294,493
2009	9,242,891	285,686,256	1,591,566,881	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.16: Kazakhstan's Agriculture (Cereals) Exports (Data for BRCA Analysis)

Year	Xak 04	Xk	Xwa	Xw
1995	10,617,185	157,431,382	544,769,408	51,847,389,558
1996	10,793,468	127,609,454	651,034,498	55,358,606,557
1997	10,810,613	119,569,508	638,960,546	61,304,824,561
1998	6,007,398	92,960,140	628,970,712	63,890,824,623
1999	5,642,584	93,268,861	604,425,962	67,919,143,876
2000	7,619,538	121,438,324	598,872,428	78,827,838,828
2001	4,859,921	109,916,003	646,177,933	78,665,819,568
2002	4,688,583	118,011,051	687,908,546	81,455,457,967
2003	7,216,482	148,510,366	691,637,970	86,400,911,162
2004	5,858,601	216,019,824	737,196,984	96,523,560,209
2005	3,905,890	278,460,848	722,790,793	104,890,000,000
2006	6,911,776	352,191,022	768,447,536	115,904,306,220
2007	13,754,357	396,972,917	964,455,851	123,574,580,759
2008	17,874,557	505,052,201	1,196,771,910	128,627,294,493
2009	8,369,678	285,686,256	1,062,364,172	111,517,857,143

Source: Compiled from UN Comtrade

Table 5.17: Pakistan's Textile Exports (Data for VRCA Analysis)

Year	X tp	X nt p	X tp r	X np r	M tp	M nt p	M tp r	M np r
1990	82,533,622	90,204,481	823,548,774	36,993,210,173	3,921,075	224,093,078	870,060,877	38,026,296,192
1991	88,709,309	91,965,526	862,459,139	38,403,298,820	3,581,726	231,596,694	929,429,691	39,633,098,198
1992	90,894,543	94,029,124	1,151,473,439	40,309,699,989	3,152,747	233,882,462	1,221,283,902	41,494,147,587
1993	80,730,708	77,591,691	1,178,882,715	42,672,934,679	2,313,382	221,897,948	1,198,923,091	43,660,273,382
1994	44,322,068	109,231,517	1,318,823,241	47,437,205,491	2,274,827	217,385,928	1,338,039,061	48,493,210,532
1995	77,621,105	71,163,667	1,404,209,968	51,698,604,786	2,217,314	211,234,132	1,401,422,911	52,828,717,229
1996	81,280,427	72,754,502	1,441,141,891	55,204,571,628	1,827,356	198,777,563	1,450,946,989	56,602,673,769
1997	68,353,390	60,959,232	1,635,317,966	61,175,511,939	1,266,741	170,743,217	1,594,386,358	62,733,691,796
1998	60,080,858	58,592,434	1,671,771,983	63,772,151,331	1,279,649	128,764,876	1,680,791,036	65,851,372,432
1999	57,097,887	55,322,290	1,676,828,859	67,806,723,699	1,521,997	134,712,971	1,689,265,648	70,268,045,651
2000	58,230,504	59,990,803	1,816,175,368	78,709,617,521	1,664,968	140,564,395	1,826,203,248	81,957,892,737
2001	56,368,464	58,809,527	1,818,605,075	78,550,641,577	1,921,982	125,114,379	1,856,458,236	82,236,368,976
2002	57,766,511	61,621,553	1,882,022,205	81,336,069,903	2,302,921	131,591,550	1,893,725,780	84,445,779,306
2003	68,093,707	71,700,950	1,914,650,284	86,261,116,505	3,005,760	149,895,687	1,886,142,235	89,380,128,166
2004	66,796,675	79,119,070	1,973,996,996	96,377,644,464	3,385,018	192,367,884	1,929,149,571	99,982,257,569
2005	70,874,668	89,627,339	1,957,667,614	104,729,497,993	4,706,602	246,259,151	1,892,945,736	108,279,034,247
2006	69,204,822	87,697,265	2,019,000,272	115,747,404,133	5,104,266	271,264,836	1,906,166,338	118,718,846,209
2007	63,480,455	90,139,994	2,016,607,268	123,420,960,310	4,986,165	275,705,671	1,907,883,398	125,906,422,020
2008	51,447,924	93,734,249	1,904,706,486	128,482,112,320	4,214,101	298,811,151	1,771,755,450	131,484,684,246
2009	41,018,558	69,597,059	1,793,426,407	111,407,241,526	3,722,621	195,292,614	1,605,975,394	113,033,127,622

Source: Compiled from UN Comtrade

Table 5.18: Pakistan's Oil Exports (Data for VRCA Analysis)

Year	X op	X no p	X op r	X np r	M op	M no p	M op r	M np r
1990	1,502,944	171,235,159	859,675,566	36,993,210,173	18,324,047	209,690,106	2,067,597,198	38,026,296,192
1991	1,498,251	179,176,584	1,130,747,275	38,403,298,820	13,664,428	221,513,993	1,960,211,245	39,633,098,198
1992	1,640,507	183,283,160	1,272,563,418	40,309,699,989	14,090,281	222,944,928	1,999,204,756	41,494,147,587
1993	1,293,633	157,028,766	1,271,954,415	42,672,934,679	11,285,943	212,925,386	1,969,970,949	43,660,273,382
1994	1,029,355	152,524,230	1,278,889,990	47,437,205,491	10,445,509	209,215,246	1,889,796,947	48,493,210,532
1995	807,773	147,976,999	1,305,403,389	51,698,604,786	9,655,831	203,795,615	1,955,048,378	52,828,717,229
1996	838,676	153,196,253	1,919,075,185	55,204,571,628	9,381,021	191,223,898	2,459,474,710	56,602,673,769
1997	837,486	128,475,136	1,638,976,420	61,175,511,939	8,442,916	163,567,043	2,717,100,327	62,733,691,796
1998	290,199	118,383,093	1,506,608,458	63,772,151,331	5,491,492	124,553,033	1,994,993,078	65,851,372,432
1999	756,250	111,663,927	2,337,889,053	67,806,723,699	7,786,967	128,448,001	2,589,052,901	70,268,045,651
2000	942,060	117,279,247	4,288,389,500	78,709,617,521	15,609,872	126,619,491	4,607,564,626	81,957,892,737
2001	966,323	114,211,668	3,793,020,705	78,550,641,577	15,896,386	111,139,975	4,220,139,654	82,236,368,976
2002	754,651	118,633,413	3,824,327,889	81,336,069,903	15,223,394	118,671,077	4,165,208,902	84,445,779,306
2003	395,129	139,399,528	3,931,076,847	86,261,116,505	16,934,980	135,966,467	4,736,061,877	89,380,128,166
2004	104,501	145,811,244	4,895,934,251	96,377,644,464	22,628,269	173,124,633	5,877,523,531	99,982,257,569
2005	138,755	160,363,252	6,240,026,690	104,729,497,993	27,849,368	223,116,385	7,787,169,316	108,279,034,247
2006	365,696	156,536,391	8,267,069,181	115,747,404,133	34,828,187	241,540,915	9,223,124,703	118,718,846,209
2007	274,232	153,346,217	7,302,332,026	123,420,960,310	31,556,779	249,135,057	9,291,614,317	125,906,422,020
2008	183,974	144,998,199	9,909,514,523	128,482,112,320	42,179,775	260,845,477	12,128,684,709	131,484,684,246
2009	151,814	110,463,803	6,457,986,666	111,407,241,526	19,741,140	179,274,095	7,975,220,422	113,033,127,622

Source: Compiled from UN Comtrade

Table 5.19: Pakistan's Gas Exports (Data for VRCA Analysis)

Year	X gp	X ng p	X gp r	X np r	M gp	M ng p	M gp r	M np r
1990	1,752	172,736,351	142,313,286	36,993,210,173	39	228,014,114	231,038,089	38,026,296,192
1991	1,764	180,673,071	175,808,529	38,403,298,820	32	235,178,388	277,342,927	39,633,098,198
1992	1,724	184,921,943	218,261,534	40,309,699,989	27	237,035,182	275,470,853	41,494,147,587
1993	1,729	158,320,670	226,370,645	42,672,934,679	398	224,210,932	283,821,881	43,660,273,382
1994	1,739	153,551,846	213,624,668	47,437,205,491	12,337	219,648,419	294,930,622	48,493,210,532
1995	1,805	148,782,967	194,165,172	51,698,604,786	21,649	213,429,797	301,732,240	52,828,717,229
1996	1,820	154,033,109	388,391,062	55,204,571,628	16,344	200,588,575	424,544,918	56,602,673,769
1997	1,529	129,311,093	493,006,997	61,175,511,939	7,216	172,002,743	478,976,218	62,733,691,796
1998	1,749	118,671,543	444,299,140	63,772,151,331	17,446	130,027,080	341,856,452	65,851,372,432
1999	1,791	112,418,386	490,558,643	67,806,723,699	13,476	136,221,492	459,023,697	70,268,045,651
2000	2,138	118,219,169	805,852,116	78,709,617,521	28,335	142,201,029	729,157,239	81,957,892,737
2001	1,895	115,176,096	873,431,333	78,550,641,577	1,666	127,034,695	920,610,569	82,236,368,976
2002	72	119,387,992	791,514,458	81,336,069,903	668	133,893,803	880,473,706	84,445,779,306
2003	2,850	139,791,807	942,713,833	86,261,116,505	200	152,901,247	1,115,278,356	89,380,128,166
2004	1,998	145,913,747	1,022,203,373	96,377,644,464	135	195,752,767	1,150,978,794	99,982,257,569
2005	3,875	160,498,132	1,383,752,628	104,729,497,993	14,986	250,950,767	1,460,330,787	108,279,034,247
2006	680	156,901,407	1,246,030,729	115,747,404,133	700	276,368,402	1,722,464,556	118,718,846,209
2007	906	153,619,543	1,513,788,743	123,420,960,310	284	280,691,553	1,599,957,552	125,906,422,020
2008	981	145,181,192	1,987,635,846	128,482,112,320	153	303,025,098	2,176,663,009	131,484,684,246
2009	358	110,615,259	1,591,566,523	111,407,241,526	2,068	199,013,167	1,869,367,353	113,033,127,622

Source: Compiled from UN Comtrade

Table 5.20: Pakistan's Agriculture (Cereals) Exports (Data for VRCA Analysis)

Year	X ap	X na p	X ap r	X np r	M ap	M na p	M ap r	M np r
1990	7,556,862	165,181,241	414,566,962	36,993,210,173	9,946,007	218,068,146	282,192,106	38,026,296,192
1991	11,519,517	169,155,318	404,709,638	38,403,298,820	4,182,628	230,995,792	312,302,150	39,633,098,198
1992	10,030,338	174,893,329	502,979,761	40,309,699,989	11,321,952	225,713,257	399,905,724	41,494,147,587
1993	6,280,019	152,042,380	476,790,598	42,672,934,679	8,059,738	216,151,591	398,182,677	43,660,273,382
1994	7,728,830	145,824,755	473,193,407	47,437,205,491	8,163,063	211,497,693	443,152,793	48,493,210,532
1995	8,785,051	139,999,721	535,984,358	51,698,604,786	8,148,151	205,303,295	500,604,391	52,828,717,229
1996	8,355,639	145,679,290	642,678,859	55,204,571,628	7,755,960	192,848,959	613,191,989	56,602,673,769
1997	7,270,813	122,041,809	631,689,734	61,175,511,939	12,052,344	159,957,614	574,332,201	62,733,691,796
1998	8,075,745	110,597,547	620,894,966	63,772,151,331	5,047,105	124,997,420	594,152,648	65,851,372,432
1999	7,874,031	104,546,146	596,551,931	67,806,723,699	5,294,154	130,940,813	597,360,416	70,268,045,651
2000	7,030,533	111,190,774	591,841,895	78,709,617,521	1,970,544	140,258,820	603,198,840	81,957,892,737
2001	7,550,174	107,627,817	638,627,759	78,550,641,577	422,882	126,613,478	647,422,636	82,236,368,976
2002	7,935,620	111,452,444	679,972,926	81,336,069,903	776,496	133,117,975	692,468,936	84,445,779,306
2003	8,459,521	131,335,136	683,178,450	86,261,116,505	232,293	152,669,154	709,005,829	89,380,128,166
2004	8,068,396	137,847,349	729,128,588	96,377,644,464	2,902,094	192,850,808	757,721,502	99,982,257,569
2005	12,130,873	148,371,134	710,659,920	104,729,497,993	1,887,811	249,077,942	722,982,991	108,279,034,247
2006	11,899,181	145,002,906	756,548,355	115,747,404,133	1,283,244	275,085,858	766,934,997	118,718,846,209
2007	11,716,698	141,903,751	952,739,153	123,420,960,310	1,002,092	279,689,745	970,765,554	125,906,422,020
2008	18,239,221	126,942,952	1,178,532,689	128,482,112,320	12,179,241	290,846,011	1,172,499,504	131,484,684,246
2009	11,736,106	98,879,511	1,050,628,066	111,407,241,526	2,360,800	196,654,435	999,799,101	113,033,127,622

Source: Compiled from UN Comtrade

Table 5.21: Iran's Textile Exports (Data for VRCA Analysis)

Year	X ti	X nt i	X ti r	X ni r	M ti	M nt i	M ti r	M ni r
1995	43,345,473	1,183,269,585	1,438,485,601	50,620,774,500	5,974,692	271,477,637	1,397,665,533	52,764,716,346
1996	46,081,291	1,329,602,804	1,476,341,027	53,982,922,462	10,362,788	479,527,163	1,442,411,558	56,313,388,738
1997	43,030,901	1,018,943,491	1,660,640,456	60,242,850,169	18,434,625	798,896,882	1,577,218,474	62,088,370,248
1998	35,844,054	705,121,921	1,696,008,787	63,149,858,648	16,916,599	783,392,911	1,665,154,087	65,181,107,447
1999	38,894,076	958,029,128	1,695,032,670	66,922,220,672	13,138,932	615,748,192	1,677,648,713	69,775,393,495
2000	52,877,042	1,904,650,582	1,821,528,830	76,870,311,204	20,588,158	920,434,428	1,807,280,059	81,159,099,515
2001	59,760,382	2,061,268,899	1,815,213,157	76,544,790,287	28,028,260	1,407,027,454	1,830,351,959	80,928,349,624
2002	50,604,500	1,914,946,407	1,889,184,216	79,489,907,060	16,648,409	1,401,465,161	1,879,380,291	83,161,560,206
2003	48,575,215	2,002,912,338	1,934,168,777	84,349,423,609	19,233,574	1,537,422,364	1,869,914,421	87,976,373,675
2004	51,116,246	2,972,460,990	1,989,677,425	93,499,982,973	27,126,221	2,208,447,549	1,905,408,368	97,942,436,702
2005	58,170,678	4,410,332,673	1,970,371,604	100,421,496,649	32,038,053	2,847,683,460	1,865,614,285	105,650,278,487
2006	64,131,223	5,232,937,454	2,024,073,871	110,607,237,543	8,223,893	3,399,293,598	1,903,046,712	115,587,697,820
2007	54,519,573	3,306,717,972	2,025,568,150	120,213,343,214	17,250,000	1,822,742,557	1,895,619,563	124,347,121,300
2008	55,302,587	3,585,072,285	1,900,851,823	124,986,919,621	9,750,484	1,318,326,877	1,766,219,067	130,459,632,137
2009	56,648,061	3,901,504,275	1,777,796,904	107,559,704,807	1,577,374	188,750,044	1,608,120,642	113,041,815,439

Source: Compiled from UN Comtrade

Table 5.22: Iran's Oil Exports (Data for VRCA Analysis)

Year	X oi	X no i	X oi r	X ni r	M oi	M no i	M oi r	M ni r
1995	240,933,183	985,681,876	1,065,277,979	50,620,774,500	1,415	277,450,914	1,964,702,794	52,764,716,346
1996	601,160,209	774,523,887	1,318,753,653	53,982,922,462	2,255	489,887,695	2,468,853,475	56,313,388,738
1997	896,234,871	165,739,521	743,579,035	60,242,850,169	10,654	817,320,853	2,725,532,589	62,088,370,248
1998	572,983,996	167,981,979	933,914,662	63,149,858,648	572	800,308,938	2,000,483,998	65,181,107,447
1999	829,531,313	167,391,891	1,509,113,989	66,922,220,672	1,040	628,886,084	2,596,838,828	69,775,393,495
2000	1,712,686,300	244,841,324	2,576,645,260	76,870,311,204	4,844	941,017,741	4,623,169,654	81,159,099,515
2001	1,753,509,473	367,519,808	2,040,477,555	76,544,790,287	3,576	1,435,052,138	4,236,032,465	80,928,349,624
2002	1,340,237,099	625,313,808	2,484,845,442	79,489,907,060	728	1,418,112,842	4,180,431,568	83,161,560,206
2003	1,586,156,648	465,330,905	2,345,315,327	84,349,423,609	12,577	1,556,643,361	4,752,984,280	87,976,373,675
2004	2,323,102,981	700,474,255	2,572,935,771	93,499,982,973	27,360	2,235,546,409	5,900,124,440	97,942,436,702
2005	3,595,383,470	873,119,881	2,644,781,975	100,421,496,649	10,899	2,879,710,614	7,815,007,785	105,650,278,487
2006	4,206,359,264	1,090,709,413	4,061,075,614	110,607,237,543	13,536	3,407,503,955	9,257,939,354	115,587,697,820
2007	2,070,214,173	1,291,023,372	5,232,392,085	120,213,343,214	10,801	1,839,981,756	9,323,160,295	124,347,121,300
2008	1,522,906,580	2,117,468,293	8,386,791,917	124,986,919,621	8,649	1,328,068,712	12,170,855,835	130,459,632,137
2009	221,751,421	3,736,400,915	6,236,387,059	107,559,704,807	1,196	190,326,222	7,994,960,365	113,041,815,439

Source: Compiled from UN Comtrade

Table 5.23: Iran's Gas Exports (Data for VRCA Analysis)

Year	X gi	X ng i	X gi r	X ni r	M gi	M ng i	M gi r	M ni r
1995	179,321	1,226,435,737	193,987,656	50,620,774,500	83	277,452,246	301,753,806	52,764,716,346
1996	268,716	1,375,415,379	388,124,166	53,982,922,462	39	489,889,912	424,561,223	56,313,388,738
1997	533	1,061,973,860	493,007,993	60,242,850,169	390	817,331,117	478,983,044	62,088,370,248
1998	89,926	740,876,049	444,210,963	63,149,858,648	379	800,309,132	341,873,519	65,181,107,447
1999	179,321	996,743,883	490,381,113	66,922,220,672	47	628,887,077	459,037,126	69,775,393,495
2000	358,111	1,957,169,513	805,496,143	76,870,311,204	346	941,022,239	729,185,228	81,159,099,515
2001	715,691	2,120,313,590	872,717,537	76,544,790,287	772	1,435,054,941	920,611,463	80,928,349,624
2002	1,430,851	1,964,120,056	790,083,680	79,489,907,060	864	1,418,112,707	880,473,511	83,161,560,206
2003	165,995	2,051,321,558	942,550,688	84,349,423,609	410	1,556,655,528	1,115,278,145	87,976,373,675
2004	8,747,970	3,014,829,266	1,013,457,402	93,499,982,973	458	2,235,573,312	1,150,978,471	97,942,436,702
2005	19,022,348	4,449,481,003	1,364,734,155	100,421,496,649	14,058	2,879,707,455	1,460,331,715	105,650,278,487
2006	19,929,400	5,277,139,277	1,226,102,009	110,607,237,543	3,742	3,407,513,749	1,722,461,514	115,587,697,820
2007	5,873,433	3,355,364,112	1,507,916,216	120,213,343,214	3,014	1,839,989,542	1,599,954,822	124,347,121,300
2008	10,747,829	3,629,627,043	1,976,888,998	124,986,919,621	2,340	1,328,075,021	2,176,660,823	130,459,632,137
2009	12,864,196	3,945,288,140	1,578,702,685	107,559,704,807	376	190,327,042	1,869,369,045	113,041,815,439

Source: Compiled from UN Comtrade

Table 5.24: Iran's Agriculture (Cereals) Exports (Data for VRCA Analysis)

Year	X ai	X na i	X ai r	X ni r	M ai	M na i	M ai r	M ni r
1995	4,284,629	1,222,330,429	540,484,780	50,620,774,500	27,279,701	250,172,628	481,472,841	52,764,716,346
1996	4,105,008	1,371,579,087	646,929,490	53,982,922,462	47,331,548	442,558,403	573,616,402	56,313,388,738
1997	6,436,326	1,055,538,066	632,524,220	60,242,850,169	98,253,656	719,077,851	488,130,889	62,088,370,248
1998	3,785,876	737,180,099	625,184,836	63,149,858,648	49,200,970	751,108,541	549,998,783	65,181,107,447
1999	3,582,449	993,340,755	600,843,513	66,922,220,672	65,705,387	563,181,737	536,949,184	69,775,393,495
2000	3,513,484	1,954,014,140	595,358,944	76,870,311,204	103,738,216	837,284,369	501,431,167	81,159,099,515
2001	3,206,905	2,117,822,376	642,971,028	76,544,790,287	128,225,399	1,306,830,314	519,620,119	80,928,349,624
2002	1,595,541	1,963,955,366	686,313,005	79,489,907,060	62,931,994	1,355,181,577	630,313,439	83,161,560,206
2003	2,190,387	2,049,297,166	689,447,584	84,349,423,609	53,331,797	1,503,324,141	655,906,325	87,976,373,675
2004	2,381,129	3,021,196,107	734,815,855	93,499,982,973	54,744,038	2,180,829,732	705,879,558	97,942,436,702
2005	7,153,848	4,461,349,503	715,636,945	100,421,496,649	71,688,429	2,808,033,083	653,182,373	105,650,278,487
2006	13,243,312	5,283,825,365	755,204,224	110,607,237,543	23,656,508	3,383,860,983	744,561,733	115,587,697,820
2007	5,312,843	3,355,924,702	959,143,008	120,213,343,214	44,556,372	1,795,436,185	927,211,274	124,347,121,300
2008	6,056,304	3,634,318,569	1,190,715,607	124,986,919,621	28,950,655	1,299,126,706	1,155,728,090	130,459,632,137
2009	6,829,487	3,951,322,849	1,055,534,685	107,559,704,807	3,807,231	186,520,188	998,352,670	113,041,815,439

Source: Compiled from UN Comtrade

Table 5.25: Turkey's Textile Exports (Data for VRCA Analysis)

Year	X ty	X nt y	X ty r	X ny r	M ty	M nt y	M ty r	M ny r
1990	27,756,378	221,961,224	878,326,018	36,916,230,674	10,930,294	418,786,984	863,051,659	37,824,593,067
1991	27,779,491	236,460,417	923,388,957	38,319,733,747	10,445,400	398,682,372	922,566,018	39,459,148,847
1992	31,418,239	254,188,170	1,210,949,744	40,209,017,247	13,719,882	430,200,289	1,210,716,767	41,287,262,625
1993	30,373,076	262,413,887	1,229,240,347	42,538,470,115	19,418,307	541,958,004	1,181,818,166	43,323,108,400
1994	40,549,204	294,027,460	1,322,596,105	47,256,182,412	20,518,731	409,444,228	1,319,795,157	48,282,908,328
1995	50,554,393	381,618,098	1,431,276,681	51,415,217,067	36,229,480	678,249,865	1,367,410,746	52,327,689,330
1996	55,354,109	413,279,064	1,467,068,209	54,889,973,384	39,300,692	833,607,925	1,413,473,653	55,930,370,071
1997	64,579,538	441,043,820	1,639,091,818	60,799,201,203	44,771,942	891,255,392	1,550,881,158	61,969,674,421
1998	62,330,083	409,786,288	1,669,522,758	63,418,708,252	40,693,106	765,590,660	1,641,377,580	65,175,133,191
1999	55,573,581	369,277,388	1,678,353,165	67,494,292,907	30,470,948	619,684,250	1,660,316,697	69,754,125,420
2000	91,348,592	592,366,808	1,783,057,280	78,144,123,428	52,830,878	1,294,178,955	1,775,037,338	80,753,112,267
2001	87,227,033	606,001,825	1,787,746,506	77,972,590,710	42,493,868	873,414,969	1,815,886,350	81,447,496,500
2002	64,765,099	480,969,394	1,875,023,617	80,909,723,474	43,324,391	739,068,339	1,852,704,309	83,797,281,047
2003	64,088,511	511,463,697	1,918,655,480	85,825,358,954	41,907,838	802,668,192	1,847,240,157	88,688,453,583
2004	70,806,005	624,435,198	1,969,987,666	95,828,319,006	45,924,804	1,028,420,013	1,886,609,785	99,103,665,654
2005	70,755,072	664,009,009	1,957,787,210	104,155,235,919	44,405,147	1,123,336,362	1,853,247,191	107,362,258,491
2006	68,633,547	705,365,869	2,019,571,547	115,130,306,803	42,403,767	1,220,614,731	1,868,866,838	117,732,196,814
2007	73,963,105	813,313,569	2,006,124,618	122,687,304,085	49,700,169	1,356,939,322	1,863,169,394	124,780,474,366
2008	70,810,056	923,633,100	1,885,344,354	127,632,851,336	42,535,175	1,478,941,241	1,733,434,376	130,266,233,081
2009	54,701,320	668,659,343	1,779,743,645	110,794,496,479	33,416,357	964,239,545	1,576,281,658	112,234,486,954

Source: Compiled from UN Comtrade

Table 5.26: Turkey's Oil Exports (Data for VRCA Analysis)

Year	X oy	X no y	X oy r	X ny r	M oy	M no y	M oy r	M ny r
1990	87,527	249,630,075	861,090,983	36,916,230,674	67,339,446	362,377,832	2,018,581,799	37,824,593,067
1991	22,317	264,217,591	1,132,223,209	38,319,733,747	47,746,142	361,381,630	1,926,129,531	39,459,148,847
1992	22,682	285,583,727	1,274,181,243	40,209,017,247	51,088,130	392,832,041	1,962,206,907	41,287,262,625
1993	30,438	292,756,525	1,273,217,610	42,538,470,115	48,648,810	512,727,501	1,932,608,082	43,323,108,400
1994	305	334,576,359	1,279,919,040	47,256,182,412	44,942,754	385,020,205	1,855,299,701	48,282,908,328
1995	21,651	432,150,840	1,306,189,511	51,415,217,067	58,370,469	656,108,876	1,906,333,740	52,327,689,330
1996	22,941	468,610,232	1,919,890,920	54,889,973,384	69,456,426	803,452,191	2,399,399,305	55,930,370,071
1997	9,422	505,613,936	1,639,804,483	60,799,201,203	61,537,585	874,489,748	2,664,005,658	61,969,674,421
1998	45,601	472,070,770	1,506,853,056	63,418,708,252	36,598,769	769,684,997	1,963,885,801	65,175,133,191
1999	81,905	424,769,064	2,338,563,397	67,494,292,907	44,022,682	606,132,516	2,552,817,186	69,754,125,420
2000	115,676	683,599,724	4,289,215,885	78,144,123,428	104,683,082	1,242,326,751	4,518,491,416	80,753,112,267
2001	64,789	693,164,070	3,793,922,239	77,972,590,710	85,795,413	830,113,424	4,150,240,627	81,447,496,500
2002	49,092	545,685,401	3,825,033,449	80,909,723,474	62,380,201	720,012,529	4,118,052,095	83,797,281,047
2003	33,768	575,518,441	3,931,438,208	85,825,358,954	58,179,483	786,396,547	4,694,817,374	88,688,453,583
2004	82,291	695,158,912	4,895,956,462	95,828,319,006	67,094,882	1,007,249,935	5,833,056,918	99,103,665,654
2005	121,700	734,642,381	6,240,043,745	104,155,235,919	86,494,775	1,081,246,734	7,728,523,909	107,362,258,491
2006	51,686	773,947,731	8,267,383,192	115,130,306,803	96,882,323	1,166,136,174	9,161,070,567	117,732,196,814
2007	42,400	887,234,275	7,302,563,859	122,687,304,085	97,470,723	1,309,168,769	9,225,700,374	124,780,474,366
2008	19,406	994,423,750	9,909,679,090	127,632,851,336	117,816,200	1,403,660,216	12,053,048,284	130,266,233,081
2009	184	723,360,480	6,458,138,297	110,794,496,479	45,434,729	952,221,173	7,949,526,833	112,234,486,954

Source: Compiled from UN Comtrade

Table 5.27: Turkey's Gas Exports (Data for VRCA Analysis)

Year	X gy	X ng y	X gy r	X ny r	M gy	M ng y	M gy r	M ny r
1990	8,466	249,709,136	142,306,572	36,916,230,674	4,853,921	424,863,357	226,184,207	37,824,593,067
1991	8,603	264,231,305	175,801,690	38,319,733,747	6,571,296	402,556,476	270,771,663	39,459,148,847
1992	9,076	285,597,333	218,254,182	40,209,017,247	5,925,190	437,994,981	269,545,689	41,287,262,625
1993	9,004	292,777,958	226,363,369	42,538,470,115	6,670,552	554,705,759	277,151,727	43,323,108,400
1994	7,282	334,569,382	213,619,125	47,256,182,412	7,483,871	422,479,088	287,459,087	48,282,908,328
1995	8,414	432,164,077	194,158,564	51,415,217,067	13,000,158	701,479,187	288,753,731	52,327,689,330
1996	9,324	468,623,849	388,383,559	54,889,973,384	16,649,289	856,259,329	407,911,973	55,930,370,071
1997	11,423	505,611,935	492,997,102	60,799,201,203	9,742,659	926,284,674	469,240,774	61,969,674,421
1998	8,679	472,107,692	444,292,211	63,418,708,252	9,585,592	796,698,174	332,288,305	65,175,133,191
1999	70	424,850,899	490,560,364	67,494,292,907	15,151,597	635,003,600	443,885,575	69,754,125,420
2000	13,742	683,701,658	805,840,512	78,144,123,428	17,254,732	1,329,755,101	711,930,842	80,753,112,267
2001	14,355	693,214,503	873,418,873	77,972,590,710	10,432,677	905,476,161	910,179,558	81,447,496,500
2002	19,302	545,715,191	791,495,229	80,909,723,474	3,807,016	778,585,715	876,667,359	83,797,281,047
2003	2	575,552,206	942,716,681	85,825,358,954	7,085,609	837,490,421	1,108,192,947	88,688,453,583
2004	3,115	695,238,087	1,022,202,256	95,828,319,006	6,486,588	1,067,858,230	1,144,492,341	99,103,665,654
2005	5,655	734,758,426	1,383,750,848	104,155,235,919	5,170,633	1,162,570,876	1,455,175,140	107,362,258,491
2006	10,233	773,989,184	1,246,021,177	115,130,306,803	4,359,316	1,258,659,182	1,718,105,941	117,732,196,814
2007	35,937	887,240,737	1,513,753,712	122,687,304,085	4,001,540	1,402,637,952	1,595,956,296	124,780,474,366
2008	459,034	993,984,123	1,987,177,793	127,632,851,336	3,997,654	1,517,478,761	2,172,665,509	130,266,233,081
2009	715,980	722,644,683	1,590,850,901	110,794,496,479	3,685,784	993,970,119	1,865,683,638	112,234,486,954

Source: Compiled from UN Comtrade

Table 5.28: Turkey's Agriculture (Cereals) Exports (Data for VRCA Analysis)

Year	X ay	X na y	X ay r	X ny r	M ay	M na y	M ay r	M ny r
1990	1,435,454	248,282,148	420,688,371	36,916,230,674	10,874,606	418,842,671	281,263,507	37,824,593,067
1991	9,060,753	255,179,155	407,168,402	38,319,733,747	2,061,389	407,066,384	314,423,390	39,459,148,847
1992	11,481,416	274,124,993	501,528,683	40,209,017,247	3,093,143	440,827,028	408,134,534	41,287,262,625
1993	5,183,465	287,603,497	477,887,152	42,538,470,115	6,624,088	554,752,223	399,618,328	43,323,108,400
1994	6,921,197	327,655,467	474,001,040	47,256,182,412	2,935,047	427,027,912	448,380,809	48,282,908,328
1995	8,775,757	423,396,734	535,993,651	51,415,217,067	9,247,488	705,231,857	499,505,054	52,327,689,330
1996	10,318,177	458,314,996	640,716,321	54,889,973,384	15,724,367	857,184,251	605,223,583	55,930,370,071
1997	12,262,835	493,360,523	626,697,711	60,799,201,203	13,844,917	922,182,416	572,539,628	61,969,674,421
1998	10,190,059	461,926,311	618,780,652	63,418,708,252	8,433,984	797,849,782	590,765,769	65,175,133,191
1999	6,059,357	418,791,612	598,366,605	67,494,292,907	6,674,241	643,480,957	595,980,330	69,754,125,420
2000	10,050,490	673,664,910	588,821,938	78,144,123,428	10,143,486	1,336,866,347	595,025,897	80,753,112,267
2001	7,242,663	685,986,195	638,935,270	77,972,590,710	4,258,927	911,649,911	643,586,591	81,447,496,500
2002	4,523,322	541,211,171	683,385,224	80,909,723,474	5,946,004	776,446,727	687,299,429	83,797,281,047
2003	4,981,506	570,570,702	686,656,464	85,825,358,954	8,788,644	835,787,386	700,449,478	88,688,453,583
2004	5,729,609	689,511,594	731,467,375	95,828,319,006	6,142,020	1,068,202,797	754,481,576	99,103,665,654
2005	8,918,727	725,845,354	713,872,065	104,155,235,919	2,262,960	1,165,478,549	722,607,842	107,362,258,491
2006	7,927,376	766,072,040	760,520,159	115,130,306,803	1,916,418	1,261,102,079	766,301,823	117,732,196,814
2007	8,575,298	878,701,376	955,880,554	122,687,304,085	8,467,280	1,398,172,212	963,300,366	124,780,474,366
2008	10,434,681	984,008,475	1,186,337,229	127,632,851,336	16,630,901	1,504,845,515	1,168,047,845	130,266,233,081
2009	10,495,176	712,865,487	1,051,868,996	110,794,496,479	9,097,958	988,557,944	993,061,942	112,234,486,954

Source: Compiled from UN Comtrade

Table 5.29: Kazakhstan's Textile Exports (Data for VRCA Analysis)

Year	X tk	X nt k	X tk r	X nk r	M tk	M nt k	M tk r	M nk r
1995	950,823	156,480,559	1,480,880,251	51,689,958,176	1,423,772	113,188,200	1,402,216,454	52,927,556,703
1996	619,531	126,989,923	1,521,802,787	55,230,997,103	1,091,513	90,633,037	1,451,682,832	56,711,554,138
1997	276,707	119,292,801	1,703,394,649	61,185,255,053	770,374	78,466,731	1,594,882,725	62,826,464,650
1998	148,847	92,811,293	1,731,703,994	63,797,864,483	671,569	73,183,391	1,681,399,117	65,907,561,997
1999	71,154	93,197,707	1,733,855,593	67,825,875,015	493,414	57,317,099	1,690,294,231	70,346,470,106
2000	70,131	121,368,193	1,874,335,741	78,706,400,504	594,974	68,549,709	1,827,273,242	82,030,977,417
2001	65,329	109,850,674	1,874,908,210	78,555,903,565	584,339	80,765,427	1,857,795,879	82,282,055,570
2002	46,929	117,964,122	1,939,741,787	81,337,446,916	732,926	79,809,539	1,895,295,774	84,499,131,312
2003	89,089	148,421,277	1,982,654,902	86,252,400,796	1,098,681	95,509,339	1,888,049,314	89,436,421,593
2004	107,384	215,912,440	2,040,686,287	96,307,540,385	1,227,789	136,195,271	1,931,306,800	100,040,587,411
2005	158,376	278,302,472	2,028,383,906	104,611,539,152	1,199,595	172,131,991	1,896,452,744	108,356,668,415
2006	292,567	351,898,455	2,087,912,526	115,552,115,198	1,445,418	216,447,514	1,909,825,187	118,777,322,379
2007	219,547	396,753,370	2,079,868,176	123,177,607,842	1,547,369	270,206,977	1,911,322,194	125,915,359,511
2008	255,016	504,797,185	1,955,899,394	128,122,242,292	1,596,999	266,749,381	1,774,372,552	131,519,363,118
2009	142,390	285,543,866	1,834,302,575	111,232,170,887	1,131,506	186,756,588	1,608,566,509	113,044,254,763

Source: Compiled from UN Comtrade

Table 5.30: Kazakhstan's Oil Exports (Data for VRCA Analysis)

Year	X ok	X no k	X ok r	X nk r	M ok	M no k	M ok r	M nk r
1995	23,887,382	133,544,000	1,282,323,780	51,689,958,176	1,319,238	113,292,734	1,963,384,971	52,927,556,703
1996	27,209,541	100,399,913	1,892,704,320	55,230,997,103	641,359	91,083,191	2,468,214,372	56,711,554,138
1997	30,804,140	88,765,368	1,609,009,766	61,185,255,053	3,065,370	76,171,735	2,722,477,874	62,826,464,650
1998	28,392,571	64,567,569	1,478,506,086	63,797,864,483	2,616,446	71,238,514	1,997,868,124	65,907,561,997
1999	36,684,488	56,584,373	2,301,960,814	67,825,875,015	256,108	57,554,405	2,596,583,760	70,346,470,106
2000	59,635,329	61,802,995	4,229,696,232	78,706,400,504	1,121,832	68,022,852	4,622,052,667	82,030,977,417
2001	55,113,290	54,802,713	3,738,873,738	78,555,903,565	3,008,188	78,341,579	4,233,027,852	82,282,055,570
2002	61,533,296	56,477,755	3,763,549,245	81,337,446,916	2,822,528	77,719,936	4,177,609,768	84,499,131,312
2003	80,631,398	67,878,968	3,850,840,578	86,252,400,796	2,983,128	93,624,892	4,750,013,729	89,436,421,593
2004	122,830,837	93,188,987	4,773,207,916	96,307,540,385	5,496,715	131,926,345	5,894,655,085	100,040,587,411
2005	173,952,483	104,508,365	6,066,212,962	104,611,539,152	7,778,485	165,553,100	7,807,240,199	108,356,668,415
2006	217,441,685	134,749,337	8,049,993,193	115,552,115,198	13,751,757	204,141,174	9,244,201,133	118,777,322,379
2007	233,836,677	163,136,240	7,068,769,581	123,177,607,842	15,184,345	256,570,002	9,307,986,752	125,915,359,511
2008	308,742,002	196,310,199	9,600,956,495	128,122,242,292	19,676,879	248,669,500	12,151,187,604	131,519,363,118
2009	173,325,872	112,360,384	6,284,812,608	111,232,170,887	9,564,482	178,323,612	7,985,397,080	113,044,254,763

Source: Compiled from UN Comtrade

Table 5.31: Kazakhstan's Gas Exports (Data for VRCA Analysis)

Year	X gk	X ng k	X gk r	X nk r	M gk	M ng k	M gk r	M nk r
1995	624,988	156,806,394	193,541,990	51,689,958,176	11,780,904	102,831,068	289,972,985	52,927,556,703
1996	728,238	126,881,216	387,664,644	55,230,997,103	4,651,337	87,073,213	419,909,925	56,711,554,138
1997	408,328	119,161,180	492,600,198	61,185,255,053	1,878,238	77,358,867	477,105,196	62,826,464,650
1998	394,400	92,565,740	443,906,489	63,797,864,483	2,087,186	71,767,774	339,786,712	65,907,561,997
1999	411,052	92,857,809	490,149,382	67,825,875,015	1,749,687	56,060,826	457,287,486	70,346,470,106
2000	531,850	120,906,474	805,322,404	78,706,400,504	1,678,928	67,465,756	727,506,646	82,030,977,417
2001	1,024,291	108,891,712	872,408,936	78,555,903,565	1,896,618	79,453,149	918,715,617	82,282,055,570
2002	2,639,455	115,371,596	788,875,075	81,337,446,916	2,939,315	77,603,150	877,535,060	84,499,131,312
2003	2,662,439	145,847,927	940,054,244	86,252,400,796	2,920,259	93,687,761	1,112,358,297	89,436,421,593
2004	5,335,131	210,684,693	1,016,870,240	96,307,540,385	3,994,056	133,429,004	1,146,984,872	100,040,587,411
2005	4,096,614	274,364,234	1,379,659,889	104,611,539,152	3,807,925	169,523,660	1,456,537,848	108,356,668,415
2006	4,992,087	347,198,935	1,241,039,323	115,552,115,198	4,331,152	213,561,779	1,718,134,104	118,777,322,379
2007	5,443,765	391,529,152	1,508,345,883	123,177,607,842	3,129,506	268,624,841	1,596,828,330	125,915,359,511
2008	7,689,223	497,362,978	1,979,947,604	128,122,242,292	3,401,508	264,944,872	2,173,261,655	131,519,363,118
2009	9,242,891	276,443,365	1,582,323,989	111,232,170,887	1,864,911	186,023,183	1,867,504,510	113,044,254,763

Source: Compiled from UN Comtrade

Table 5.32: Kazakhstan's Agriculture (Cereals) Exports (Data for VRCA Analysis)

Year	X ak	X na k	X ak r	X nk r	M ak	M na k	M ak r	M nk r
1995	10,617,185	146,814,197	534,152,224	51,689,958,176	986,639	113,625,333	507,765,903	52,927,556,703
1996	10,793,468	116,815,986	640,241,030	55,230,997,103	607,392	91,117,158	620,340,557	56,711,554,138
1997	10,810,613	108,758,895	628,149,933	61,185,255,053	538,879	78,698,225	585,845,666	62,826,464,650
1998	6,007,398	86,952,742	622,963,313	63,797,864,483	326,169	73,528,791	598,873,584	65,907,561,997
1999	5,642,584	87,626,277	598,783,378	67,825,875,015	384,073	57,426,439	602,270,497	70,346,470,106
2000	7,619,538	113,818,786	591,252,890	78,706,400,504	487,032	68,657,652	604,682,352	82,030,977,417
2001	4,859,921	105,056,082	641,318,012	78,555,903,565	483,167	80,866,600	647,362,351	82,282,055,570
2002	4,688,583	113,322,468	683,219,963	81,337,446,916	566,336	79,976,129	692,679,096	84,499,131,312
2003	7,216,482	141,293,884	684,421,489	86,252,400,796	605,014	96,003,006	708,633,108	89,436,421,593
2004	5,858,601	210,161,223	731,338,383	96,307,540,385	811,022	136,612,038	759,812,574	100,040,587,411
2005	3,905,890	274,554,958	718,884,902	104,611,539,152	955,197	172,376,388	723,915,606	108,356,668,415
2006	6,911,776	345,279,246	761,535,760	115,552,115,198	1,193,751	216,699,180	767,024,489	118,777,322,379
2007	13,754,357	383,218,560	950,701,495	123,177,607,842	1,512,579	270,241,768	970,255,067	125,915,359,511
2008	17,874,557	487,177,644	1,178,897,353	128,122,242,292	1,643,077	266,703,302	1,183,035,668	131,519,363,118
2009	8,369,678	277,316,578	1,053,994,494	111,232,170,887	1,323,665	186,564,429	1,000,836,235	113,044,254,763

Source: Compiled from UN Comtrade

APPENDIX CHAPTER 6: TABLES

Table 6.1: Total Trade Data between Pakistan and its Major Trade Partners

US $ M	Iran			Turkey			Kazakhstan			USA		
Year	Export	Import	Total	Export	Import	Total	Export	Import	Total	Export	Import	Total
1990	956,987	5,308,512	6,265,500	2,669,250	1,315,073	3,984,324	-	-	-	21,484,594	29,250,337	50,734,931
1991	4,805,593	3,827,112	8,632,705	1,480,039	2,032,403	3,512,442	-	-	-	20,703,798	26,102,440	46,806,238
1992	2,292,723	4,670,366	6,963,089	1,091,030	1,259,551	2,350,581	2,976	-	-	23,621,557	24,782,966	48,404,524
1993	422,010	3,515,083	3,937,092	2,392,369	1,368,799	3,761,168	244,765	-	-	23,162,049	20,874,435	44,036,485
1994	1,465,211	3,521,448	4,986,659	2,463,226	1,498,943	3,962,169	191,748	-	-	22,914,540	20,487,393	43,401,934
1995	2,274,335	3,484,745	5,759,080	2,490,162	1,584,282	4,074,444	148,099	37,420	185,519	22,446,799	19,937,878	42,384,678
1996	1,111,961	4,493,778	5,605,739	1,257,289	1,238,791	2,496,080	257,801	35,295	293,096	25,721,013	21,624,240	47,345,253
1997	279,028	3,074,196	3,353,225	879,050	953,476	1,832,526	242,371	43,218	285,589	24,279,175	20,336,591	44,615,766
1998	281,061	1,278,916	1,559,977	822,029	906,591	1,728,619	340,666	11,674	352,340	25,555,364	18,275,366	43,830,730
1999	141,383	1,065,982	1,207,365	528,202	1,924,134	2,452,336	103,551	2,811	106,362	25,812,380	8,753,498	34,565,878
2000	213,669	4,302,355	4,516,024	1,299,507	1,053,325	2,352,832	134,283	11,076	145,359	29,247,558	8,569,699	37,817,256
2001	361,281	2,695,887	3,057,168	1,086,186	472,143	1,558,329	88,455	3,663	92,118	27,895,746	7,082,141	34,977,888
2002	503,790	2,461,840	2,965,629	1,327,729	1,278,963	2,606,692	136,160	1,090	137,249	29,154,510	8,642,987	37,797,497
2003	962,295	3,535,764	4,498,060	2,346,743	768,440	3,115,183	117,606	619	118,226	32,241,869	9,233,983	41,475,852
2004	1,120,944	2,955,074	4,076,019	2,392,876	972,582	3,365,457	95,393	8,828	104,222	34,050,832	18,819,961	52,870,793
2005	1,784,254	3,631,683	5,415,937	2,994,801	1,868,235	4,863,037	99,676	7,457	107,133	39,794,849	15,309,528	55,104,377
2006	1,656,618	4,106,529	5,763,148	3,142,815	1,292,371	4,435,186	78,915	23,627	102,543	40,246,699	17,474,068	57,720,767
2007	1,259,355	3,761,648	5,021,002	3,843,144	1,376,240	5,219,385	54,139	17,154	71,292	33,185,217	22,458,150	55,643,367
2008	3,050,903	5,280,639	8,331,541	3,371,118	973,729	4,344,847	43,391	318,786	362,176	26,159,245	14,761,211	40,920,456
2009	1,588,908	6,023,349	7,612,258	2,565,351	958,754	3,524,105	26,572	13,582	40,153	20,295,829	11,344,150	31,639,980

Source: Compiled using data obtained from UN Comtrade

Table 6.2: Total Trade Data between Iran and its Major Trade Partners

US $ M	Pakistan			Turkey			Kazakhstan			China		
Year	Export	Import	Total	Export	Import	Total	Export	Import	Total	Export	Import	Total
1995	884,190	572,474	1,456,663	3,165,611	5,144,963	8,310,574	603,120	2,006,575	2,609,696	1,959,310	11,682,273	13,641,583
1996	1,722,304	1,155,332	2,877,636	4,882,666	8,879,635	13,762,301	1,044,686	6,207,757	7,252,443	3,803,685	20,851,061	24,654,746
1997	1,697,939	1,306,882	3,004,821	5,197,253	16,663,707	21,860,959	1,886,685	5,750,415	7,637,101	3,581,207	22,740,738	26,321,946
1998	1,994,702	1,527,729	3,522,431	8,875,208	15,230,173	24,105,381	1,653,567	4,885,999	6,539,566	5,170,438	36,702,484	41,872,923
1999	2,497,252	1,190,055	3,687,307	9,896,605	11,345,174	21,241,779	1,201,069	6,556,822	7,757,892	3,930,520	30,552,414	34,482,934
2000	3,764,941	2,408,915	6,173,857	13,639,306	16,011,470	29,650,776	2,290,463	21,384,218	23,674,681	9,883,019	43,812,193	53,695,212
2001	7,055,587	5,187,814	12,243,400	5,484,030	23,457,453	28,941,483	2,807,853	23,960,847	26,768,699	15,437,027	63,874,881	79,311,907
2002	8,336,113	4,902,117	13,238,230	6,397,557	23,311,319	29,708,877	3,267,256	16,729,798	19,997,054	13,103,097	66,806,194	79,909,291
2003	9,161,843	5,789,706	14,951,550	7,049,111	28,209,491	35,258,602	2,993,771	18,484,692	21,478,463	13,411,174	85,619,293	99,030,467
2004	8,336,366	5,957,281	14,293,647	8,151,760	46,954,308	55,106,068	2,561,861	14,104,974	16,666,836	16,711,800	109,983,745	126,695,544
2005	20,623,845	9,552,583	30,176,428	27,524,910	63,746,265	91,271,175	3,838,145	18,300,514	22,138,659	36,841,981	176,057,678	212,899,659
2006	24,230,143	13,203,284	37,433,427	26,807,287	43,759,096	70,566,384	5,963,289	23,704,782	29,668,070	83,128,294	205,743,513	288,871,807
2007	11,153,589	6,269,851	17,423,440	11,829,150	33,358,933	45,188,083	2,983,392	14,890,745	17,874,137	24,901,642	102,411,886	127,313,528
2008	8,079,685	4,517,640	12,597,324	8,843,343	24,347,234	33,190,577	2,044,717	10,158,223	12,202,940	18,657,104	75,280,239	93,937,343
2009	1,163,337	638,714	1,802,051	1,325,760	3,494,995	4,820,755	282,511	1,339,907	1,622,418	2,822,729	10,834,557	13,657,287

Source: Compiled using data obtained from UN Comtrade

Table 6.3: Total Trade Data between Turkey and its Major Trade Partners

US $ M	Pakistan			Iran			Kazakhstan			UK		
Year	Export	Import	Total	Export	Import	Total	Export	Import	Total	Export	Import	Total
1990	917,220	1,616,262	2,533,482	9,547,526	9,488,125	19,035,651	-	-	-	14,351,093	19,533,254	33,884,347
1991	991,100	1,353,716	2,344,816	9,464,702	1,759,938	11,224,640	-	-	-	13,141,096	22,657,276	35,798,372
1992	854,645	847,966	1,702,611	8,836,818	7,082,271	15,919,089	375,715	204,006	579,721	15,455,785	23,045,188	38,500,973
1993	827,460	2,205,579	3,033,039	5,525,756	12,723,811	18,249,567	1,293,388	834,372	2,127,761	15,929,676	29,490,220	45,419,896
1994	1,044,398	679,481	1,723,879	4,616,117	12,794,816	17,410,934	2,434,246	596,954	3,031,199	16,425,000	21,613,577	38,038,577
1995	1,796,219	3,073,842	4,870,061	5,313,708	13,795,857	19,109,565	2,997,294	1,733,421	4,730,715	22,699,136	36,611,503	59,310,639
1996	1,580,369	1,675,517	3,255,886	6,026,428	16,373,874	22,400,302	3,319,252	1,905,095	5,224,347	25,348,702	50,553,513	75,902,215
1997	1,120,342	1,098,448	2,218,791	5,914,297	12,453,132	18,367,428	4,055,355	3,184,296	7,239,651	29,115,630	53,233,392	82,349,023
1998	1,114,711	1,007,243	2,121,954	3,399,983	7,601,861	11,001,845	3,738,852	4,455,082	8,193,934	30,035,857	47,093,439	77,129,296
1999	2,053,523	406,421	2,459,943	2,521,473	10,161,597	12,683,070	1,542,394	4,728,489	6,270,882	29,232,290	34,994,204	64,226,494
2000	1,296,255	2,041,686	3,337,940	5,828,893	20,265,406	26,094,298	2,889,190	8,615,505	11,504,694	50,339,941	67,206,016	117,545,958
2001	689,965	2,240,713	2,930,679	7,976,455	18,579,648	26,556,103	2,650,333	1,998,732	4,649,065	48,117,072	42,341,726	90,458,799
2002	874,998	1,776,546	2,651,543	4,701,491	14,046,414	18,747,905	2,421,106	3,076,459	5,497,565	45,869,680	37,087,886	82,957,567
2003	856,930	2,338,950	3,195,880	6,501,659	22,663,615	29,165,275	2,850,107	3,247,722	6,097,830	44,702,710	42,631,123	87,333,834
2004	951,643	2,651,394	3,603,037	8,950,106	21,610,956	30,561,062	3,916,622	4,870,507	8,787,129	61,063,161	47,550,836	108,613,998
2005	1,875,542	3,154,630	5,030,172	9,129,401	34,697,058	43,826,458	4,599,459	5,588,999	10,188,459	59,171,627	46,956,448	106,128,075
2006	1,172,729	3,435,362	4,608,091	9,654,345	50,914,941	60,569,286	6,305,520	8,992,204	15,297,724	61,662,301	46,489,483	108,151,783
2007	1,298,910	4,397,173	5,696,083	11,920,514	54,717,898	66,638,411	8,932,066	10,620,754	19,552,820	71,354,642	45,302,749	116,657,391
2008	1,168,159	4,416,416	5,584,576	15,290,841	61,772,555	77,063,396	6,709,375	17,568,122	24,277,496	61,464,787	40,108,481	101,573,268
2009	1,155,194	4,383,490	5,538,684	14,339,646	24,121,078	38,460,724	4,486,567	7,628,030	12,114,597	1,923,180	24,553,926	66,477,106

Source: Compiled using data obtained from UN Comtrade

Table 6.4: Total Trade Data between Kazakhstan and its Major Trade Partners

US $ M	Pakistan			Iran			Turkey			Germany		
Year	Export	Import	Total	Export	Import	Total	Export	Import	Total	Export	Import	Total
1995	95,563	41,490	137,054	1,481,876	416,260	1,898,136	2,121,605	3,718,774	5,840,379	5,153,767	5,920,574	11,074,341
1996	263,798	4,588	268,385	1,332,711	130,423	1,463,134	1,118,409	3,271,739	4,390,148	3,959,426	4,276,054	8,235,480
1997	52,107	5,970	58,077	1,535,518	163,678	1,699,196	1,884,094	3,262,822	5,146,916	6,507,553	6,773,410	13,280,963
1998	39,527	9,191	48,718	1,316,700	161,989	1,478,689	1,589,712	3,507,342	5,097,054	4,530,087	6,256,346	10,786,433
1999	33,780	24,610	58,390	1,454,528	123,864	1,578,392	579,413	1,681,557	2,260,971	5,549,755	4,440,540	9,990,295
2000	20,425	27,919	48,344	2,852,916	186,473	3,039,389	874,111	2,020,244	2,894,355	7,660,529	4,702,564	12,363,093
2001	6,338	13,391	19,729	2,706,280	141,842	2,848,122	961,535	1,773,171	2,734,706	6,418,815	6,289,281	12,708,096
2002	5,365	15,032	20,398	3,792,455	151,204	3,943,659	1,192,619	2,124,833	3,317,452	2,689,167	7,171,585	9,860,751
2003	8,533	23,179	31,712	4,727,247	147,208	4,874,456	1,140,546	2,402,846	3,543,392	1,682,877	8,436,488	10,119,365
2004	8,004	23,466	31,470	7,660,149	139,723	7,799,873	1,582,109	3,683,135	5,265,244	2,289,731	11,327,020	13,616,752
2005	20,989	72,325	93,314	8,861,183	147,915	9,009,097	1,569,754	3,997,373	5,567,127	4,089,356	12,988,312	17,077,668
2006	15,308	111,611	126,919	19,132,494	199,081	19,331,576	3,206,553	5,141,037	8,347,590	5,075,747	16,660,483	21,736,229
2007	113,944	98,337	212,281	20,380,513	368,783	20,749,296	7,768,246	7,971,424	15,739,669	3,261,353	21,497,730	24,759,083
2008	178,944	63,538	242,482	14,472,961	417,753	14,890,715	13,509,538	6,888,663	20,398,201	4,358,336	18,251,818	22,610,154
2009	149,422	101,700	251,122	8,459,019	159,631	8,618,650	5,236,987	3,775,626	9,012,613	5,940,028	13,504,356	19,444,384

Source: Compiled using data obtained from UN Comtrade

APPENDIX CHAPTER 7: TABLES

Table 7.1: Residuals for Pakistan's Exports to its Trade Partners (Panel Export Model)

	Pakistan's Exports to																				
		Iran			Turkey			Kazakhstan			USA			UK			China			Germany	
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	14.6372	13.9012	0.7361	14.7279	13.7756	0.9522	11.9056	12.1426	-0.2369	16.9267	15.5887	1.3379	16.0825	14.4841	1.5984	14.6084	15.0917	-0.4833	16.1420	14.9655	1.1765
1996	13.9216	13.7797	0.1420	14.0445	13.6821	0.3623	12.4599	12.0299	0.4301	17.0628	15.4696	1.5932	16.1566	14.3658	1.7908	14.4906	15.0481	-0.5575	16.2109	14.7975	1.4134
1997	12.5391	13.6106	-1.0715	13.6866	13.5924	0.0942	12.3982	11.9230	0.4752	17.0051	15.3510	1.6542	16.0276	14.2923	1.7354	14.6686	15.0058	-0.3372	15.9700	14.6079	1.3621
1998	12.5463	13.6316	-1.0853	13.6195	13.6505	-0.0310	12.7387	11.9570	0.7817	17.0564	15.4223	1.6341	15.8939	14.3619	1.5320	14.5874	15.0427	-0.4552	15.8600	14.6672	1.1928
1999	11.8592	13.4961	-1.6368	13.1772	13.4260	-0.2488	11.5478	11.6639	-0.1161	17.0664	15.2763	1.7901	15.8386	14.1876	1.6509	14.7007	14.9209	-0.2201	15.7702	14.4713	1.2989
2000	12.2722	13.6216	-1.3494	14.0775	13.5657	0.5118	11.8077	11.8478	-0.0401	17.1913	15.4243	1.7670	15.8595	14.2878	1.5717	14.9608	15.0618	-0.1010	15.7106	14.5219	1.1887
2001	12.7974	13.3556	-0.5581	13.8982	13.1378	0.7603	11.3902	11.6603	-0.2701	17.1440	15.1538	1.9902	15.8729	14.0009	1.8721	15.0977	14.8364	0.2613	15.6013	14.2388	1.3625
2002	13.1299	13.5870	-0.4571	14.0990	13.3642	0.7348	11.8216	11.8280	-0.0064	17.1881	15.2616	1.9265	15.9664	14.1498	1.8166	14.8630	15.0073	-0.1443	15.5804	14.3784	1.2020
2003	13.7771	13.8417	-0.0646	14.6685	13.7367	0.9318	11.6751	12.1923	-0.5172	17.2888	15.4966	1.7922	16.1050	14.4300	1.6750	14.9282	15.3572	-0.4291	15.7793	14.6968	1.0825
2004	13.9297	13.7868	0.1429	14.6880	13.7006	0.9875	11.4658	12.2050	-0.7393	17.3434	15.3468	1.9965	16.1733	14.3227	1.8506	15.0028	15.2448	-0.2420	15.7970	14.5751	1.2219
2005	14.3945	13.9238	0.4707	14.9124	13.8451	1.0672	11.5097	12.4019	-0.8922	17.4992	15.4430	2.0562	16.0210	14.3723	1.6487	15.2873	15.3946	-0.1074	15.7957	14.6127	1.1830
2006	14.3203	14.1233	0.1970	14.9606	14.0445	0.9162	11.2761	12.7262	-1.4501	17.5105	15.5837	1.9268	15.9756	14.5543	1.4213	15.3619	15.6239	-0.2620	15.6817	14.7828	0.8988
2007	14.0461	14.2463	-0.2002	15.1618	14.2244	0.9374	10.8993	12.9482	-2.0489	17.3176	15.6794	1.6382	15.9355	14.6759	1.2596	15.4805	15.8229	-0.3424	15.6484	14.9285	0.7199
2008	14.9309	14.1087	0.8222	15.0308	14.0756	0.9552	10.6780	12.8694	-2.1914	17.0797	15.4710	1.6087	15.7843	14.4218	1.3625	15.4647	15.7242	-0.2595	15.6561	14.7490	0.9071
2009	14.2786	13.9231	0.3555	14.7576	13.7663	0.9913	10.1876	12.5253	-2.3377	16.8259	15.2309	1.5950	15.5971	14.1047	1.4924	15.6541	15.4652	0.1889	15.3267	14.4811	0.8456

Table 7.2: Residuals for Iran's Exports to its Trade Partners (Panel Export Model)

	Iran's Exports to																				
	Pakistan			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	14.5531	15.2525	- 0.6994	15.8285	16.0387	- 0.2101	14.1705	13.7925	0.3781	13.9792	17.1383	- 3.1592	14.1936	16.0168	- 1.8232	15.3488	15.9057	- 0.5569	16.9918	16.4982	0.4937
1996	14.4286	15.0569	- 0.6283	15.4706	15.8722	- 0.4016	13.9286	13.6068	0.3218	14.1331	16.9463	- 2.8132	13.9675	15.8255	- 1.8580	15.2209	15.7892	- 0.5683	16.6413	16.2572	0.3841
1997	13.7328	14.8373	- 1.1045	14.8515	15.6943	- 0.8428	13.8382	13.4118	0.4264	11.8983	16.7395	- 4.8411	14.0554	15.6638	- 1.6084	14.4791	15.6587	- 1.1796	16.6278	15.9795	0.6483
1998	13.7504	14.5551	- 0.8047	15.2432	15.4773	- 0.2341	13.5629	13.1707	0.3921	11.4418	16.5357	- 5.0939	13.2914	15.4584	- 2.1670	14.7029	15.4205	- 0.7176	16.1943	15.7637	0.4306
1999	13.9233	14.4770	- 0.5537	15.3003	15.3111	- 0.0108	13.1913	12.9359	0.2554	11.6353	16.4480	- 4.8126	13.4686	15.3423	- 1.8737	14.3768	15.3569	- 0.9801	16.0562	15.6260	0.4302
2000	13.8628	14.2594	- 0.3966	15.1500	15.1705	- 0.0205	13.3658	12.8394	0.5264	14.1581	16.3157	- 2.1576	13.1537	15.1622	- 2.0085	14.8279	15.2176	- 0.3897	16.1781	15.3963	0.7817
2001	14.1310	14.2408	- 0.1098	13.8791	14.9691	- 1.0901	13.2096	12.8785	0.3311	14.3490	16.2717	- 1.9227	13.3202	15.1018	- 1.7816	14.9140	15.2187	- 0.3047	15.6414	15.3397	0.3016
2002	14.4095	14.2716	0.1379	14.1448	15.0911	- 0.9462	13.4729	12.9418	0.5311	14.4744	16.2751	- 1.8007	12.8548	15.1463	- 2.2916	14.8618	15.2852	- 0.4234	15.2622	15.3749	- 0.1128
2003	14.4883	14.2119	0.2764	14.2261	15.1586	- 0.9324	13.3698	13.0010	0.3688	14.4065	16.2050	- 1.7985	12.9198	15.1215	- 2.2017	14.8693	15.3300	- 0.4607	15.3444	15.3882	- 0.0438
2004	14.1507	14.3420	- 0.1913	14.1283	15.2875	- 1.1591	12.9708	13.1788	- 0.2080	14.0305	16.2203	- 2.1898	13.3043	15.1792	- 1.8750	14.8462	15.3827	- 0.5364	15.1534	15.4317	- 0.2783
2005	14.8343	14.4682	0.3661	15.1229	15.4424	- 0.3195	13.1528	13.3860	- 0.2332	13.8134	16.3269	- 2.5135	13.5235	15.2392	- 1.7157	15.4145	15.5429	- 0.1284	15.6675	15.4797	0.1878
2006	14.7645	14.5558	0.2087	14.8656	15.5482	- 0.6826	13.3625	13.6167	- 0.2542	13.7951	16.3740	- 2.5789	13.3647	15.3276	- 1.9629	15.9973	15.6786	0.3187	15.2326	15.5562	- 0.3236
2007	14.1976	14.5933	- 0.3957	14.2564	15.6523	- 1.3960	12.8789	13.7630	- 0.8841	13.7029	16.4224	- 2.7195	12.8741	15.3735	- 2.4994	15.0007	15.8018	- 0.8011	14.9663	15.6261	- 0.6598
2008	14.0396	14.5306	- 0.4910	14.1299	15.6007	- 1.4709	12.6655	13.7814	- 1.1160	13.4540	16.2828	- 2.8288	12.7397	15.2167	- 2.4769	14.8764	15.8004	- 0.9240	14.7981	15.5439	- 0.7458
2009	13.9668	14.4476	- 0.4808	14.0975	15.3597	- 1.2622	12.5515	13.5055	- 0.9541	13.2860	16.1394	- 2.8534	12.6991	14.9677	- 2.2686	14.8532	15.6096	- 0.7564	14.7110	15.3442	- 0.6331

Table 7.3: Residuals for Turkey's Exports to its Trade Partners (Panel Export Model)

	Turkey's Exports to																				
	Pakistan			Iran			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	14.4012	14.3544	0.0468	15.4858	15.2661	0.2197	14.9132	13.3946	1.5187	17.2255	16.7802	0.4452	16.9378	17.7152	-0.7774	14.1080	15.5993	-1.4913	18.4278	18.2037	0.2241
1996	14.2732	14.4281	-0.1549	15.6117	15.3409	0.2708	15.0153	13.4782	1.5371	17.3082	16.8574	0.4508	17.0482	17.7932	-0.7450	14.0956	15.7520	-1.6565	18.4672	18.2320	0.2352
1997	13.9291	14.4048	-0.4756	15.5929	15.2799	0.3129	15.2155	13.4795	1.7361	17.4804	16.8469	0.6335	17.1868	17.8278	-0.6410	13.6586	15.8179	-2.1593	18.4327	18.1506	0.2821
1998	13.9241	14.3159	-0.3918	15.0393	15.2192	-0.1799	15.1343	13.4317	1.7026	17.4826	16.8365	0.6462	17.2179	17.8157	-0.5978	13.4121	15.7730	-2.3609	18.3767	18.1281	0.2486
1999	14.5351	14.1989	0.3361	14.7404	15.1031	-0.3627	14.2488	13.1580	1.0908	17.4776	16.7099	0.7677	17.1908	17.6608	-0.4701	13.2801	15.6706	-2.3905	18.2869	17.9517	0.3353
2000	14.0750	14.6558	-0.5808	15.5783	15.6228	-0.0445	14.8765	13.7361	1.1404	18.1524	17.2522	0.9003	17.7343	18.1552	-0.4209	14.6362	16.2057	-1.5695	18.6725	18.3964	0.2761
2001	13.4444	14.3597	-0.9153	15.8920	15.3057	0.5863	14.7902	13.4976	1.2926	18.0519	16.9306	1.1213	17.6891	17.8172	-0.1280	15.2996	15.9293	-0.6297	18.5924	18.0623	0.5301
2002	13.6820	14.1225	-0.4406	15.3634	15.1648	0.1986	14.6997	13.2929	1.4069	17.7458	16.6660	1.0798	17.6413	17.5938	0.0476	15.2147	15.7278	-0.5131	18.3047	17.8295	0.4752
2003	13.6611	14.1389	-0.4778	15.6876	15.1905	0.4971	14.8629	13.4282	1.4347	17.6381	16.6720	0.9661	17.6155	17.6451	-0.0295	15.6314	15.8488	-0.2174	18.3282	17.9189	0.4093
2004	13.7659	14.3981	-0.6322	16.0072	15.4298	0.5774	15.1807	13.7351	1.4456	17.7934	16.8164	0.9770	17.9274	17.8319	0.0955	15.2772	16.0305	-0.7533	18.3832	18.0914	0.2918
2005	14.4444	14.5268	-0.0824	16.0270	15.5797	0.4473	15.3414	13.9449	1.3966	17.7095	16.9255	0.7840	17.8960	17.8944	0.0016	15.5198	16.1932	-0.6734	18.3646	18.1419	0.2227
2006	13.9748	14.5431	-0.5682	16.0829	15.6143	0.4687	15.6569	14.1043	1.5527	17.6398	16.9013	0.7385	17.9372	17.9114	0.0258	15.6515	16.2576	-0.6061	18.2889	18.1472	0.1417
2007	14.0770	14.6644	-0.5874	16.2938	15.7453	0.5485	16.0052	14.3344	1.6708	17.3580	17.0050	0.3530	18.0832	18.0411	0.0421	15.9671	16.4647	-0.4976	18.4126	18.3009	0.1118
2008	13.9709	14.7343	-0.7633	16.5428	15.8376	0.7051	15.7190	14.4854	1.2337	17.2951	17.0266	0.2686	17.9340	18.0169	-0.0829	16.1976	16.5958	-0.3983	18.3961	18.3513	0.0448
2009	13.9598	14.5688	-0.6090	16.4785	15.6377	0.8409	15.3166	14.1270	1.1896	16.9468	16.7721	0.1747	17.5513	17.6855	-0.1341	16.2426	16.3225	-0.0800	18.0546	18.0691	-0.0145

Table 7.4: Residuals for Kazakhstan's Exports to its Trade Partners (Panel Export Model)

	Kazakhstan's Exports to																				
	Pakistan			Iran			Turkey			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	11.4675	13.2485	- 1.7810	14.2088	13.5471	0.6617	14.5677	13.9218	0.6459	14.0921	15.8222	- 1.7301	15.0267	14.6847	0.3420	15.9617	15.2797	0.6820	15.4552	15.1429	0.3124
1996	12.4829	12.9735	- 0.4906	14.1027	13.2732	0.8295	13.9274	13.6759	0.2515	14.0713	15.5508	- 1.4795	15.4241	14.4140	1.0100	16.1111	15.0838	1.0274	15.1916	14.8225	0.3691
1997	10.8611	12.8909	- 2.0299	14.2444	13.1530	1.0914	14.4490	13.6350	0.8139	14.7589	15.4809	- 0.7220	16.1296	14.3893	1.7403	15.8969	15.0903	0.8066	15.6885	14.6818	1.0067
1998	10.5847	12.7405	- 2.1557	14.0906	13.0306	1.0600	14.2791	13.5498	0.7293	14.0070	15.4089	- 1.4019	15.9073	14.3156	1.5917	15.7051	14.9838	0.7213	15.3263	14.5977	0.7285
1999	10.4276	12.4953	- 2.0677	14.1902	12.7863	1.4038	13.2698	13.2165	0.0533	14.0713	15.1542	- 1.0829	14.9136	14.0326	0.8810	15.8444	14.7533	1.0911	15.5293	14.2931	1.2362
2000	9.9245	12.4474	- 2.5229	14.8639	12.8013	2.0626	13.6810	13.2456	0.4354	14.7209	15.1916	- 0.4707	14.9403	14.0221	0.9182	16.0574	14.7835	1.2739	15.8516	14.2330	1.6186
2001	8.7543	12.5508	- 3.7965	14.8111	12.8837	1.9274	13.7763	13.1662	0.6101	14.4278	15.2695	- 0.8417	15.0734	14.0837	0.9897	15.9409	14.9067	1.0343	15.6747	14.2984	1.3763
2002	8.5877	12.5971	- 4.0095	15.1485	13.0263	2.1223	13.9917	13.3037	0.6880	14.3711	15.2885	- 0.9174	14.2938	14.1437	0.1501	16.3386	14.9887	1.3499	14.8047	14.3491	0.4556
2003	9.0517	12.6877	- 3.6360	15.3689	13.1261	2.2427	13.9470	13.5214	0.4256	13.9458	15.3686	- 1.4228	14.3141	14.2692	0.0450	16.7603	15.1838	1.5766	14.3360	14.5127	- 0.1767
2004	8.9877	13.0484	- 4.0607	15.8515	13.4670	2.3846	14.2743	13.8809	0.3933	14.8963	15.6145	- 0.7183	14.7645	14.5575	0.2069	16.8677	15.4670	1.4007	14.6439	14.7868	- 0.1428
2005	9.9518	13.2697	- 3.3179	15.9972	13.7095	2.2877	14.2664	14.1310	0.1354	15.7117	15.8163	- 0.1046	14.9802	14.7127	0.2676	17.0029	15.7224	1.2805	15.2239	14.9299	0.2940
2006	9.6361	13.5098	- 3.8737	16.7669	13.9679	2.7990	14.9807	14.3893	0.5914	15.2641	16.0159	- 0.7518	16.1701	14.9535	1.2166	17.3145	16.0106	1.3039	15.4400	15.1589	0.2811
2007	11.6435	13.6392	- 1.9957	16.8301	14.1069	2.7232	15.8656	14.5853	1.2803	15.0652	16.1276	- 1.0624	16.0585	15.0912	0.9673	17.6626	16.2257	1.4369	14.9977	15.3206	- 0.3230
2008	12.0948	13.7449	- 1.6501	16.4878	14.2352	2.2526	16.4189	14.7022	1.7167	15.2123	16.1851	- 0.9728	16.3691	15.1030	1.2661	17.8133	16.3928	1.4205	15.2876	15.4070	- 0.1194
2009	11.9145	13.5644	- 1.6499	15.9507	14.0201	1.9306	15.4713	14.3636	1.1077	15.2146	15.9156	- 0.7009	15.9158	14.7565	1.1593	17.4777	16.0759	1.4018	15.5972	15.1097	0.4875

Table 7.5: Residuals for Pakistan's Imports from its Trade Partners (Panel Import Model)

	Pakistan's Imports from																				
	Iran			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	15.0639	13.6706	1.3933	14.2756	13.7892	0.4864	10.5300	10.9537	- 0.4237	16.8081	16.1684	0.6397	16.1283	14.6950	1.4333	16.0560	15.4751	0.5809	16.4105	15.2208	1.1897
1996	15.3182	13.6092	1.7090	14.0296	13.8105	0.2191	10.4715	10.8641	- 0.3926	16.8893	16.1658	0.7235	16.0507	14.6913	1.3595	16.0656	15.5656	0.5000	16.1118	15.1672	0.9446
1997	14.9386	13.3230	1.6156	13.7679	13.6215	0.1464	10.6740	10.6480	0.0260	16.8279	16.0505	0.7774	15.8020	14.5504	1.2516	15.9760	15.4486	0.5274	16.1872	14.8806	1.3066
1998	14.0615	13.0382	1.0233	13.7174	13.3834	0.3341	9.3651	10.3996	- 1.0345	16.7211	15.8376	0.8835	15.5737	14.3460	1.2277	15.5911	15.2104	0.3806	15.5836	14.6417	0.9419
1999	13.8794	13.0110	0.8684	14.4700	13.3083	1.1617	7.9413	10.2088	- 2.2675	15.9850	15.8610	0.1240	15.4772	14.3538	1.1233	15.6058	15.2628	0.3430	15.5577	14.6191	0.9386
2000	15.2747	12.9953	2.2794	13.8675	13.4968	0.3707	9.3125	10.2690	- 0.9564	15.9637	15.9413	0.0225	15.3216	14.3916	0.9300	15.7711	15.3221	0.4490	15.4406	14.5887	0.8520
2001	14.8072	12.9239	1.8833	13.0650	13.1926	- 0.1276	8.2060	10.2906	- 2.0845	15.7731	15.8547	- 0.0817	15.3143	14.3069	1.0074	15.6183	15.3069	0.3114	15.4321	14.5004	0.9316
2002	14.7164	13.0383	1.6781	14.0616	13.2336	0.8280	6.9939	10.3586	- 3.3646	15.9723	15.9053	0.0670	15.2636	14.3735	0.8901	15.9466	15.3733	0.5733	15.5858	14.5525	1.0333
2003	15.0784	13.1384	1.9400	13.5521	13.4664	0.0857	6.4281	10.6222	- 4.1941	16.0384	16.0485	- 0.0101	15.3679	14.5801	0.7877	16.2330	15.6034	0.6296	15.7252	14.7905	0.9347
2004	14.8990	13.3784	1.5206	13.7877	13.7363	0.0514	9.0857	10.9469	- 1.8612	16.7504	16.2137	0.5367	15.3833	14.8157	0.5676	16.6028	15.7965	0.8063	15.8575	14.9942	0.8633
2005	15.1052	13.6351	1.4701	14.4405	14.0274	0.4131	8.9169	11.2846	- 2.3677	16.5440	16.3664	0.1776	15.7907	15.0077	0.7830	16.9723	16.0989	0.8733	16.2535	15.1748	1.0787
2006	15.2281	13.7129	1.5152	14.0720	14.0697	0.0023	10.0701	11.4858	- 1.4157	16.6762	16.4559	0.2204	15.7438	15.0515	0.6923	17.1117	16.2073	0.9044	16.2161	15.2028	1.0132
2007	15.1404	13.7969	1.3434	14.1349	14.1210	0.0139	9.7500	11.5803	- 1.8303	16.9272	16.4323	0.4948	15.6027	15.0861	0.5166	17.3952	16.2937	1.1015	16.0885	15.2357	0.8528
2008	15.4796	13.8886	1.5910	13.7889	14.2047	- 0.4158	12.6723	11.7219	0.9504	16.5075	16.4694	0.0381	15.6418	15.0737	0.5681	17.3395	16.4680	0.8715	16.1662	15.3144	0.8518
2009	15.6112	13.3537	2.2574	13.7734	13.6011	0.1723	9.5165	11.0949	- 1.5785	16.2442	15.9758	0.2684	15.4094	14.4562	0.9532	16.9859	16.5497	0.4362	15.8962	14.7773	1.1188

Table 7.6: Residuals for Iran's Imports from its Trade Partners (Panel Import Model)

	Iran's Imports from																				
	Pakistan			Turkey			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	14.1184	15.1005	- 0.9822	16.3142	17.2854	- 0.9712	15.3726	13.8363	1.5363	14.9082	18.2579	- 3.3497	17.0548	16.6504	0.4044	17.1343	15.9823	1.1520	18.1339	17.1764	0.9575
1996	14.0293	14.8125	- 0.7833	16.0687	17.0615	- 0.9928	15.7107	13.5015	2.2092	14.6861	18.0100	- 3.3240	16.8419	16.4014	0.4406	16.9223	15.8276	1.0947	17.8944	16.8775	1.0170
1997	13.4710	14.5332	- 1.0622	16.0166	16.8134	- 0.7968	14.9526	13.2264	1.7263	13.9816	17.8356	- 3.8540	16.8740	16.2015	0.6725	16.3275	15.6515	0.6760	17.8748	16.5318	1.3430
1998	13.4837	14.0873	- 0.6036	15.7832	16.4172	- 0.6340	14.6463	12.8199	1.8264	14.2772	17.4647	- 3.1875	16.5298	15.8390	0.6909	16.6628	15.2553	1.4075	17.5923	16.1349	1.4574
1999	13.1821	14.1070	- 0.9249	15.4369	16.3411	- 0.9042	14.8886	12.6281	2.2605	14.1407	17.4871	- 3.3464	16.0935	15.8458	0.2477	16.4275	15.3066	1.1209	17.2402	16.1113	1.1290
2000	13.4162	14.1913	- 0.7751	15.3103	16.6291	- 1.3187	15.5997	12.7877	2.8119	14.3447	17.6668	- 3.3221	15.9239	15.9831	- 0.0592	16.3169	15.4654	0.8516	17.1019	16.1804	0.9215
2001	13.8235	14.0080	- 0.1845	15.3324	16.1959	- 0.8635	15.3536	12.6803	2.6733	14.0559	17.4513	- 3.3954	16.2501	15.7694	0.4807	16.3341	15.3212	1.0130	17.1873	15.9631	1.2242
2002	13.8786	14.0394	- 0.1608	15.4378	16.2300	- 0.7922	15.1061	12.7414	2.3647	13.6719	17.4950	- 3.8231	16.1611	15.8291	0.3320	16.4907	15.3807	1.1100	17.7791	16.0083	1.7708
2003	14.0293	14.1131	- 0.0838	15.6129	16.3908	- 0.7779	15.1902	12.9330	2.2572	13.6735	17.5662	- 3.8927	16.2595	15.9636	0.2959	16.7232	15.5388	1.1844	17.4148	16.1742	1.2405
2004	13.8147	14.3451	- 0.5304	15.8793	16.6220	- 0.7428	14.6766	13.2190	1.4576	13.6057	17.6927	- 4.0870	16.1871	16.1606	0.0265	16.7304	15.6933	1.0372	17.6604	16.3393	1.3211
2005	14.0646	14.4643	- 0.3997	15.9627	16.8084	- 0.8457	14.7148	13.4521	1.2627	13.7664	17.7406	- 3.9743	16.1426	16.2479	- 0.1053	16.9786	15.8909	1.0877	17.7483	16.4152	1.3332
2006	14.1574	14.3744	- 0.2170	15.3556	16.7134	- 1.3578	14.7426	13.5160	1.2266	13.3855	17.6928	- 4.3073	15.8317	16.1544	- 0.3227	16.9035	15.8620	1.0415	17.2402	16.3059	0.9343
2007	13.6216	13.7909	- 0.1694	15.2931	16.1855	- 0.8924	14.4865	13.0313	1.4553	13.2263	17.0337	- 3.8074	15.7168	15.6098	0.1070	16.4148	15.3692	1.0456	17.1804	15.7596	1.4208
2008	13.4582	13.5377	- 0.0795	15.1426	15.9956	- 0.8530	14.2685	12.8992	1.3693	13.0374	16.8536	- 3.8162	15.5280	15.3237	0.2043	16.2714	15.2699	1.0015	16.9662	15.5646	1.4016
2009	13.3672	13.5273	- 0.1600	15.0668	15.7999	- 0.7331	14.1081	12.6802	1.4279	12.9356	16.7114	- 3.7758	15.4088	15.1141	0.2947	16.1983	15.7595	0.4388	16.8935	15.4355	1.4580

Table 7.7: Residuals for Turkey's Imports from its Trade Partners (Panel Import Model)

	Turkey's Imports from																				
	Pakistan			Iran			Kazakhstan			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	14.9384	14.3381	0.6003	16.4399	16.4044	0.0355	14.3656	12.7945	1.5711	18.1265	17.5308	0.5957	17.4159	17.4899	-0.0740	16.1937	15.6643	0.5294	18.5251	18.0723	0.4528
1996	14.3316	14.4821	-0.1505	16.6112	16.5297	0.0815	14.4600	12.8917	1.5684	18.0179	17.7150	0.3030	17.7385	17.6729	0.0657	16.2323	15.9415	0.2907	18.8537	18.2054	0.6483
1997	13.9094	14.5322	-0.6228	16.3375	16.5139	-0.1764	14.9737	12.9460	2.0278	18.2393	17.8700	0.3693	17.7902	17.8024	-0.0122	16.5349	16.0949	0.4400	18.8559	18.1891	0.6668
1998	13.8227	14.3207	-0.4980	15.8439	16.3055	-0.4616	15.3096	12.7740	2.5356	18.0784	17.7335	0.3449	17.6676	17.6743	-0.0067	16.5141	15.9331	0.5810	18.6706	18.0266	0.6440
1999	12.9151	14.1664	-1.2513	16.1341	16.1032	0.0309	15.3691	12.4080	2.9611	17.7118	17.5818	0.1300	17.3707	17.5071	-0.1364	16.4757	15.8104	0.6653	18.3584	17.8290	0.5294
2000	14.5293	14.8146	-0.2853	16.8244	16.7509	0.0736	15.9691	13.1316	2.8375	18.3871	18.3255	0.0617	18.0233	18.2083	-0.1850	17.3083	16.5330	0.7752	18.9984	18.4619	0.5365
2001	14.6223	14.6666	-0.0443	16.7376	16.5858	0.1518	14.5080	13.0595	1.4485	18.0943	18.1452	-0.0509	17.5613	18.0299	-0.4686	16.8349	16.4242	0.4107	18.5865	18.2800	0.3065
2002	14.3902	14.4145	-0.0244	16.4579	16.4099	0.0480	14.9393	12.8372	2.1021	17.6617	17.9055	-0.2438	17.4288	17.8061	-0.3773	16.8526	16.2003	0.6523	18.4888	18.0417	0.4470
2003	14.6652	14.4325	0.2327	16.9363	16.3822	0.5541	14.9935	12.9730	2.0205	17.5671	17.9209	-0.3538	17.5681	17.8849	-0.3169	17.2748	16.3025	0.9723	18.5617	18.1519	0.4097
2004	14.7906	14.7440	0.0466	16.8887	16.6630	0.2257	15.3987	13.3385	2.0602	17.7719	18.1269	-0.3550	17.6773	18.1614	-0.4841	17.7135	16.5365	1.1770	18.7417	18.3964	0.3453
2005	14.9644	14.8048	0.1596	17.3622	16.7566	0.6055	15.5363	13.5132	2.0231	17.8000	18.1165	-0.3166	17.6647	18.1904	-0.5256	18.0475	16.6758	1.3717	18.7307	18.4140	0.3166
2006	15.0496	14.8970	0.1526	17.7457	16.8793	0.8664	16.0119	13.7593	2.2526	17.8525	18.2509	-0.3984	17.6547	18.2790	-0.6243	18.2871	16.8291	1.4580	18.7106	18.4869	0.2237
2007	15.2965	15.0117	0.2848	17.8177	17.0823	0.7354	16.1783	13.9726	2.2057	18.0284	18.3463	-0.3179	17.6289	18.4325	-0.8036	18.5111	17.0344	1.4767	18.7928	18.6387	0.1541
2008	15.3008	15.0700	0.2308	17.9390	17.2119	0.7271	16.6816	14.1522	2.5294	18.3179	18.4213	-0.1035	17.5071	18.4580	-0.9509	18.5859	17.2467	1.3392	18.7627	18.7553	0.0074
2009	15.2934	14.7341	0.5593	16.9986	16.7593	0.2393	15.8473	13.6076	2.2397	17.9216	18.0100	-0.0884	17.0164	17.9228	-0.9065	18.3117	17.4107	0.9010	18.4190	18.3006	0.1184

Table 7.8: Residuals for Kazakhstan's Imports from its Trade Partners (Panel Import Model)

	Kazakhstan's Imports from																				
	Pakistan			Iran			Turkey			USA			UK			China			Germany		
Years	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual	Actual	Fitted	Residual
1995	10.6332	12.5757	- 1.9425	12.9391	14.0284	- 1.0893	15.1289	13.8676	1.2613	14.4770	16.9378	- 2.4608	14.7394	15.2041	- 0.4647	13.8587	15.8848	- 2.0261	15.5939	15.5465	0.0475
1996	8.4312	12.3200	- 3.8888	11.7785	13.7540	- 1.9755	15.0008	13.6760	1.3249	14.1759	16.7222	- 2.5463	14.3198	14.9874	- 0.6675	13.5608	15.7623	- 2.2015	15.2685	15.2799	- 0.0113
1997	8.6945	12.1833	- 3.4888	12.0057	13.5515	- 1.5458	14.9981	13.5705	1.4276	15.1285	16.6905	- 1.5620	14.7731	14.9301	- 0.1570	13.6632	15.7289	- 2.0657	15.7285	15.0768	0.6517
1998	9.1260	11.9388	- 2.8128	11.9953	13.3100	- 1.3147	15.0704	13.3758	1.6946	15.3273	16.5209	- 1.1936	15.1424	14.7690	0.3735	13.8352	15.5341	- 1.6989	15.6491	14.8813	0.7678
1999	10.1109	11.9558	- 1.8449	11.7269	13.2790	- 1.5521	14.3352	13.2969	1.0384	15.5110	16.5406	- 1.0296	15.0876	14.7731	0.3145	14.0885	15.5827	- 1.4942	15.3063	14.8550	0.4513
2000	10.2371	12.1530	- 1.9160	12.1360	13.4758	- 1.3397	14.5187	13.6978	0.8209	15.1737	16.8333	- 1.6596	14.9546	15.0233	- 0.0687	14.5660	15.8544	- 1.2883	15.3636	15.0370	0.3266
2001	9.5023	12.1208	- 2.6185	11.8625	13.4264	- 1.5640	14.3883	13.4158	0.9725	15.3190	16.7688	- 1.4498	14.9883	14.9607	0.0276	14.6165	15.8613	- 1.2448	15.6544	14.9708	0.6835
2002	9.6179	12.1574	- 2.5395	11.9264	13.5392	- 1.6129	14.5692	13.4551	1.1141	15.5467	16.8178	- 1.2710	14.9719	15.0256	- 0.0537	15.1586	15.9261	- 0.7674	15.7856	15.0212	0.7644
2003	10.0510	12.3589	- 2.3079	11.8996	13.6950	- 1.7954	14.6922	13.7436	0.9486	15.5038	17.0167	- 1.5129	14.8658	15.2880	- 0.4221	15.6109	16.2118	- 0.6010	15.9481	15.3150	0.6331
2004	10.0633	12.8204	- 2.7570	11.8474	14.1258	- 2.2784	15.1193	14.2043	0.9150	15.6170	17.3726	- 1.7556	14.9909	15.7143	- 0.7234	15.9144	16.5958	- 0.6813	16.2427	15.7094	0.5333
2005	11.1889	13.0664	- 1.8775	11.9044	14.4047	- 2.5003	15.2011	14.5176	0.6836	16.3041	17.5475	- 1.2433	15.2584	15.9286	- 0.6701	16.3427	16.9203	- 0.5776	16.3796	15.9122	0.4673
2006	11.6228	13.2687	- 1.6460	12.2015	14.6374	- 2.4360	15.4528	14.7148	0.7380	16.1363	17.7919	- 1.6557	15.3549	16.1273	- 0.7724	16.6906	17.1837	- 0.4931	16.6286	16.0952	0.5333
2007	11.4962	13.4148	- 1.9186	12.8180	14.8718	- 2.0538	15.8914	14.9164	0.9750	16.4183	17.9187	- 1.5004	15.6282	16.3121	- 0.6839	17.1883	17.4204	- 0.2321	16.8835	16.2784	0.6051
2008	11.0594	13.5006	- 2.4413	12.9426	15.0289	- 2.0863	15.7454	15.0656	0.6798	16.4330	18.0213	- 1.5883	15.4025	16.3653	- 0.9628	17.2935	17.6602	- 0.3667	16.7198	16.4226	0.2972
2009	11.5298	13.0438	- 1.5140	11.9806	14.4555	- 2.4749	15.1441	14.4235	0.7206	16.0366	17.4891	- 1.4526	15.3513	15.7092	- 0.3579	16.9771	17.7598	- 0.7827	16.4185	15.8470	0.5715

Table 7.9: Pakistan's Exports to its Trade Partners
(Cross-Section Effects Export Model)

Pakistan's Exports		
Countries	**Cross S. ID**	**Effects**
Iran	1	- 0.2342
Turkey	2	0.6534
Kazakhstan	3	- 0.6032
USA	4	1.7324
UK	5	1.5988
China	6	- 0.2299
Germany	7	1.1232

Table 7.10: Iran's Exports to its Trade Partners
(Cross-Section Effects Export Model)

Iran's Exports		
Countries	**Cross S. ID**	**Effects**
Pakistan	8	- 0.3205
Turkey	9	- 0.7230
Kazkhstan	10	- 0.0078
USA	11	- 2.9031
UK	12	- 2.0028
China	13	- 0.5538
Germany	14	0.0567

Table 7.11: Turkey's Exports to its Trade Partners
(Cross-Section Effects Export Model)

Turkey's Exports		
Countries	**Cross S. ID**	**Effects**
Pakistan	15	- 0.4146
Iran	16	0.3349
Kazakhstan	17	1.4059
USA	18	0.6787
UK	19	- 0.2512
China	20	- 1.0535
Germany	21	0.2512

Table 7.12: Kazakhstan's Exports to its Trade Partners
(Cross-Section Effects Export Model)

Kazakhstan's Exports		
Countries	**Cross S. ID**	**Effects**
Pakistan	22	- 2.5708
Iran	23	1.8294
Turkey	24	0.6505
USA	25	- 0.9470
UK	26	0.8398
China	27	1.1727
Germany	28	0.4876

Table 7.13: Pakistan's Imports from its Trade Partners
(Cross-Section Effects Import Model)

Pakistan's Imports		
Countries	**Cross S. ID**	**Effects**
Iran	1	1.5938
Turkey	2	0.2476
Kazakhstan	3	- 1.5082
USA	4	0.3230
UK	5	0.9323
China	6	0.6146
Germany	7	0.9826

Table 7.14: Iran's Imports from its Trade Partners
(Cross-Section Effects Import Model)

Iran's Imports		
Countries	**Cross S. ID**	**Effects**
Pakistan	8	- 0.4708
Turkey	9	- 0.8916
Kazkhstan	10	1.8437
USA	11	- 3.6564
UK	12	0.2455
China	13	1.0098
Germany	14	1.2525

Table 7.15: Turkey's Imports from its Trade Partners
(Cross-Section Effects Import Model)

Turkey's Imports		
Countries	**Cross S. ID**	**Effects**
Pakistan	15	- 0.0403
Iran	16	0.2472
Kazakhstan	17	2.1426
USA	18	- 0.0280
UK	19	- 0.3842
China	20	0.8628
Germany	21	0.3842

Table 7.16: Kazakhstan's Imports from its Trade Partners
(Cross-Section Effects Import Model)

Kazakhstan's Imports		
Countries	**Cross S. ID**	**Effects**
Pakistan	22	- 2.3497
Iran	23	- 1.8274
Turkey	24	1.0133
USA	25	- 1.5801
UK	26	- 0.3499
China	27	- 1.0931
Germany	28	8.4845

Table 7.17: Pakistan's trade to Iran (Data for Gravity Model Analysis)

	Pakistan to Iran															
Year	Exports	Imports	GDP PK	GDP IR	PC GDP PK	PC GDP IR	DISTANCE km	Population PK	Population IR	CPI Pk	CPI IR	ONI PK	ONI IR	Culture v	Border v	PTA v
1995	2,274,335	3,484,745	1,307,492,431	5,252,558,579	10	84	1,178	130,397,376	62,204,642	54.83	21	27.70	30.77	1	1	1
1996	1,111,961	4,493,778	1,180,480,858	4,258,378,612	9	67	1,178	133,701,883	63,186,840	60.52	27	30.04	30.41	1	1	1
1997	279,028	3,074,196	1,065,255,588	3,359,313,298	8	52	1,178	137,208,877	64,162,759	67.41	32	28.29	30.33	1	1	1
1998	281,061	1,278,916	1,009,151,445	2,767,901,468	7	43	1,178	140,849,175	65,120,329	71.61	38	24.65	26.17	1	1	1
1999	141,383	1,065,982	967,764,749	2,434,942,474	7	37	1,178	144,515,881	66,038,143	74.57	45	25.69	29.78	1	1	1
2000	213,669	4,302,355	916,337,322	2,000,314,417	6	30	1,178	148,132,365	66,902,877	77.83	52	28.42	40.35	1	1	1
2001	361,281	2,695,887	846,798,629	1,903,634,414	6	28	1,178	151,681,682	67,712,273	80.28	58	28.60	36.30	1	1	1
2002	503,790	2,461,840	899,108,216	2,047,586,857	6	30	1,178	155,193,548	68,479,898	82.92	66	28.17	35.90	1	1	1
2003	962,295	3,535,764	989,265,537	1,821,108,528	6	26	1,178	158,693,693	69,226,889	85.34	77	29.59	42.38	1	1	1
2004	1,120,944	2,955,074	1,055,959,443	1,939,461,138	7	28	1,178	162,223,869	69,981,682	91.69	88	32.36	45.48	1	1	1
2005	1,784,254	3,631,683	1,092,134,645	2,055,862,057	7	29	1,178	165,815,766	70,764,895	100	100	37.68	48.00	1	1	1
2006	1,656,618	4,106,529	1,171,992,550	2,175,640,746	7	30	1,178	169,469,740	71,584,801	107.92	112	36.97	42.65	1	1	1
2007	1,259,355	3,761,648	1,229,698,078	2,382,757,204	7	33	1,178	173,177,546	72,436,640	116.12	131	35.32	24.87	1	1	1
2008	3,050,903	5,280,639	1,045,735,076	2,237,736,688	6	31	1,178	176,952,125	73,311,798	139.68	165	42.86	22.60	1	1	1
2009	1,588,908	6,023,349	1,009,809,123	1,929,626,932	6	26	1,178	180,808,096	74,195,741	158.7	187	30.66	24.46	1	1	1

Table 7.18: Pakistan's trade to Turkey (Data for Gravity Model Analysis)

	Pakistan to Turkey															
Year	Exports	Imports	GDP PK	GDP TUR	PC GDP PK	PC GDP TUR	DISTANCE km	Population PK	Population TU	CPI PK	CPI TUR	ONI PK	ONI TUR	Culture v	Border v	PTA v
1995	2,490,162	1,584,282	1,307,492,431	4,554,242,903	10	74	5,910	130,397,376	61,206,099	54.83	49.98	27.70	25.18	1	0	1
1996	1,257,289	1,238,791	1,180,480,858	4,959,932,232	9	80	5,910	133,701,883	62,264,906	60.52	49.18	30.04	27.05	1	0	1
1997	879,050	953,476	1,065,255,588	4,917,449,810	8	78	5,910	137,208,877	63,331,833	67.41	51.91	28.29	29.32	1	0	1
1998	822,029	906,591	1,009,151,445	4,729,039,557	7	73	5,910	140,849,175	64,395,635	71.61	56.94	24.65	27.03	1	0	1
1999	528,202	1,924,134	967,764,749	3,991,077,944	7	61	5,910	144,515,881	65,441,666	74.57	62.58	25.69	26.94	1	0	1
2000	1,299,507	1,053,325	916,337,322	6,630,836,944	6	100	5,910	148,132,365	66,459,578	77.83	40.20	28.42	30.63	1	0	1
2001	1,086,186	472,143	846,798,629	4,336,442,379	6	64	5,910	151,681,682	67,444,118	80.28	45.2	28.60	37.11	1	0	1
2002	1,327,729	1,278,963	899,108,216	3,548,458,491	6	52	5,910	155,193,548	68,398,135	82.92	65.53	28.17	37.43	1	0	1
2003	2,346,743	768,440	989,265,537	3,690,722,159	6	53	5,910	158,693,693	69,329,456	85.34	82.1	29.59	38.48	1	0	1
2004	2,392,876	972,582	1,055,959,443	4,319,374,690	7	61	5,910	162,223,869	70,250,173	91.69	90.79	32.36	40.97	1	0	1
2005	2,994,801	1,868,235	1,092,134,645	4,829,859,112	7	68	5,910	165,815,766	71,169,037	100	100	37.68	39.39	1	0	1
2006	3,142,815	1,292,371	1,171,992,550	4,804,247,662	7	67	5,910	169,469,740	72,087,928	107.92	110.51	36.97	42.40	1	0	1
2007	3,843,144	1,376,240	1,229,698,078	5,352,686,365	7	73	5,910	173,177,546	73,003,736	116.12	120.9	35.32	42.86	1	0	1
2008	3,371,118	973,729	1,045,735,076	5,501,923,440	6	74	5,910	176,952,125	73,914,260	139.68	132.74	42.86	45.73	1	0	1
2009	2,565,351	958,754	1,009,809,123	4,352,826,111	6	58	5,910	180,808,096	74,815,703	158.7	141.2	30.66	39.54	1	0	1

Table 7.19: Pakistan's trade to Kazakhstan (Data for Gravity Model Analysis)

	Pakistan to Kazakhstan															
Year	Exports	Imports	GDP PK	GDP KAZ	PC GDP PK	PC GDP KAZ	DISTANCE km	Population PK	Population KA	CPI PK	CPI KAZ	ONI PK	ONI KAZ	Culture v	Border v	PTA v
1995	148,099	37,420	1,307,492,431	618,830,443	10	39	1,040	130,397,376	15,925,885	54.83	33.2	27.70	43.96	1	0	1
1996	257,801	35,295	1,180,480,858	455,212,245	9	29	1,040	133,701,883	15,711,160	60.52	46.21	30.04	48.18	1	0	1
1997	242,371	43,218	1,065,255,588	408,588,609	8	26	1,040	137,208,877	15,480,654	67.41	54.25	28.29	48.66	1	0	1
1998	340,666	11,674	1,009,151,445	380,788,670	7	25	1,040	140,849,175	15,259,068	71.61	58.13	24.65	43.81	1	0	1
1999	103,551	2,811	967,764,749	268,003,449	7	18	1,040	144,515,881	15,077,199	74.57	62.95	25.69	56.37	1	0	1
2000	134,283	11,076	916,337,322	256,729,693	6	17	1,040	148,132,365	14,956,751	77.83	71.25	28.42	74.23	1	0	1
2001	88,455	3,663	846,798,629	286,951,932	6	19	1,040	151,681,682	14,908,696	80.28	77.2	28.60	66.65	1	0	1
2002	136,160	1,090	899,108,216	301,512,649	6	20	1,040	155,193,548	14,927,414	82.92	81.71	28.17	65.85	1	0	1
2003	117,606	619	989,265,537	354,532,515	6	24	1,040	158,693,693	14,996,890	85.34	86.97	29.59	69.14	1	0	1
2004	95,393	8,828	1,055,959,443	464,245,799	7	31	1,040	162,223,869	15,092,092	91.69	92.95	32.36	76.13	1	0	1
2005	99,676	7,457	1,092,134,645	571,236,717	7	38	1,040	165,815,766	15,193,938	100	100	37.68	79.09	1	0	1
2006	78,915	23,627	1,171,992,550	745,960,631	7	49	1,040	169,469,740	15,298,150	107.92	108.59	36.97	76.42	1	0	1
2007	54,139	17,154	1,229,698,078	871,715,292	7	57	1,040	173,177,546	15,408,161	116.12	120.28	35.32	76.71	1	0	1
2008	43,391	318,786	1,045,735,076	946,931,942	6	61	1,040	176,952,125	15,521,493	139.68	140.92	42.86	81.67	1	0	1
2009	26,572	13,582	1,009,809,123	721,938,788	6	46	1,040	180,808,096	15,636,987	158.7	151.2	30.66	65.60	1	0	1

Table 7.20: Pakistan's trade to USA (Data for Gravity Model Analysis)

	Pakistan to USA															
Year	Exports	Imports	GDP PK	GDP USA	PC GDP PK	PC GDP USA	DISTANCE km	Population PK	Population USA	CPI PK	CPI USA	ONI PK	ONI USA	Culture v	Border v	PTA v
1995	22,446,799	19,937,878	1,307,492,431	94,350,000,000	10	349	17,109	130,397,376	270,648,057	54.83	78	27.70	18.40	0	0	0
1996	25,721,013	21,624,240	1,180,480,858	97,298,750,000	9	355	17,109	133,701,883	274,066,829	60.52	80	30.04	18.51	0	0	0
1997	24,279,175	20,336,591	1,065,255,588	100,962,195,122	8	364	17,109	137,208,877	277,567,020	67.41	82	28.29	19.15	0	0	0
1998	25,555,364	18,275,366	1,009,151,445	105,313,253,012	7	375	17,109	140,849,175	281,083,466	71.61	83	24.65	18.59	0	0	0
1999	25,812,380	8,753,498	967,764,749	109,423,529,412	7	385	17,109	144,515,881	284,528,952	74.57	85	25.69	18.84	0	0	0
2000	29,247,558	8,569,699	916,337,322	112,486,363,636	6	391	17,109	148,132,365	287,842,178	77.83	88	28.42	20.59	0	0	0
2001	27,895,746	7,082,141	846,798,629	112,460,439,560	6	386	17,109	151,681,682	290,995,477	80.28	91	28.60	18.67	0	0	0
2002	29,154,510	8,642,987	899,108,216	115,110,869,565	6	392	17,109	155,193,548	294,008,811	82.92	92	28.17	17.90	0	0	0
2003	32,241,869	9,233,983	989,265,537	117,970,212,766	6	397	17,109	158,693,693	296,927,556	85.34	94	29.59	18.29	0	0	0
2004	34,050,832	18,819,961	1,055,959,443	121,776,288,660	7	406	17,109	162,223,869	299,821,165	91.69	97	32.36	19.84	0	0	0
2005	39,794,849	15,309,528	1,092,134,645	125,797,000,000	7	416	17,109	165,815,766	302,740,610	100	100	37.68	20.96	0	0	0
2006	40,246,699	17,474,068	1,171,992,550	129,477,669,903	7	424	17,109	169,469,740	305,696,681	107.92	103	36.97	22.17	0	0	0
2007	33,185,217	22,458,150	1,229,698,078	132,177,358,491	7	428	17,109	173,177,546	308,673,972	116.12	106	35.32	22.69	0	0	0
2008	26,159,245	14,761,211	1,045,735,076	130,630,909,091	6	419	17,109	176,952,125	311,665,999	139.68	110	42.86	24.11	0	0	0
2009	20,295,829	11,344,150	1,009,809,123	128,357,225,258	6	408	17,109	180,808,096	314,658,780	158.7	110	30.66	18.83	0	0	0

Table 7.21: Pakistan's trade to UK (Data for Gravity Model Analysis)

		Pakistan to UK														
Year	Exports	Imports	GDP PK	GDP UK	PC GDP PK	PC GDP UK	DISTANCE km	Population PK	Population UK	CPI PK	CPI UK	ONI PK	ONI UK	Culture v	Border v	PTA v
1995	9,650,338	10,102,478	1,307,492,431	13,455,543,317	10	232	10,934	130,397,376	58,042,339	54.83	86	27.70	42.85	0	0	0
1996	10,392,610	9,348,476	1,180,480,858	13,859,326,923	9	238	10,934	133,701,883	58,200,861	60.52	88	30.04	43.98	0	0	0
1997	9,135,144	7,289,873	1,065,255,588	15,099,412,842	8	259	10,934	137,208,877	58,358,391	67.41	90	28.29	42.98	0	0	0
1998	7,991,737	5,801,890	1,009,151,445	15,998,814,276	7	273	10,934	140,849,175	58,522,384	71.61	91	24.65	39.99	0	0	0
1999	7,561,489	5,267,943	967,764,749	16,333,273,203	7	278	10,934	144,515,881	58,702,979	74.57	92	25.69	38.65	0	0	0
2000	7,721,065	4,509,055	916,337,322	15,887,221,944	6	270	10,934	148,132,365	58,907,407	77.83	93	28.42	42.12	0	0	0
2001	7,825,540	4,476,165	846,798,629	15,648,790,606	6	265	10,934	151,681,682	59,137,851	80.28	94	28.60	41.51	0	0	0
2002	8,592,384	4,255,040	899,108,216	16,968,420,842	6	286	10,934	155,193,548	59,392,008	82.92	95	28.17	39.70	0	0	0
2003	9,870,036	4,722,512	989,265,537	19,184,467,487	6	322	10,934	158,693,693	59,666,955	85.34	97	29.59	37.68	0	0	0
2004	10,568,090	4,796,027	1,055,959,443	22,474,387,976	7	375	10,934	162,223,869	59,957,844	91.69	98	32.36	37.10	0	0	0
2005	9,074,961	7,208,249	1,092,134,645	22,801,123,640	7	378	10,934	165,815,766	60,260,594	100	100	37.68	39.48	0	0	0
2006	8,671,896	6,877,844	1,171,992,550	23,962,256,050	7	396	10,934	169,469,740	60,574,504	107.92	102	36.97	43.00	0	0	0
2007	8,330,856	5,972,495	1,229,698,078	26,771,177,886	7	440	10,934	173,177,546	60,899,158	116.12	105	35.32	37.87	0	0	0
2008	7,162,252	6,210,622	1,045,735,076	24,606,305,998	6	402	10,934	176,952,125	61,230,913	139.68	108	42.86	41.10	0	0	0
2009	5,939,573	4,922,815	1,009,809,123	19,544,906,915	6	317	10,934	180,808,096	61,565,422	158.7	111	30.66	38.44	0	0	0

Table 7.22: Pakistan's trade to China (Data for Gravity Model Analysis)

	Pakistan to China															
Year	Exports	Imports	GDP PK	GDP CHI	PC GDP PK	PC GDP CHI	DISTANCE km	Population PK	Population CH	CPI PK	CPI CHI	ONI PK	ONI CHI	Culture v	Border v	PTA v
1995	2,209,759	9,397,488	1,307,492,431	8,801,862,749	10	7	8,058	130,397,376	1,189,611,647	54.83	86	27.70	37.10	0	1	0
1996	1,964,232	9,488,884	1,180,480,858	9,591,547,742	9	8	8,058	133,701,883	1,201,557,961	60.52	93	30.04	32.50	0	1	0
1997	2,346,818	8,675,233	1,065,255,588	10,368,904,313	8	9	8,058	137,208,877	1,213,020,936	67.41	95	28.29	33.01	0	1	0
1998	2,163,907	5,903,538	1,009,151,445	11,002,096,045	7	9	8,058	140,849,175	1,224,064,227	71.61	95	24.65	31.00	0	1	0
1999	2,423,544	5,991,202	967,764,749	11,836,302,475	7	10	8,058	144,515,881	1,234,636,129	74.57	93	25.69	32.76	0	1	0
2000	3,143,380	7,068,067	916,337,322	12,689,747,513	6	10	8,058	148,132,365	1,244,677,136	77.83	94	28.42	39.76	0	1	0
2001	3,604,636	6,066,466	846,798,629	14,005,935,488	6	11	8,058	151,681,682	1,254,278,737	80.28	94	28.60	38.71	0	1	0
2002	2,850,596	8,424,310	899,108,216	15,634,842,239	6	12	8,058	155,193,548	1,263,462,737	82.92	93	28.17	42.69	0	1	0
2003	3,042,384	11,217,844	989,265,537	17,346,508,176	6	14	8,058	158,693,693	1,272,335,647	85.34	95	29.59	51.64	0	1	0
2004	3,278,231	16,237,033	1,055,959,443	19,760,222,804	7	15	8,058	162,223,869	1,280,977,388	91.69	98	32.36	59.62	0	1	0
2005	4,356,816	23,493,948	1,092,134,645	23,027,191,610	7	18	8,058	165,815,766	1,289,482,679	100	100	37.68	61.75	0	1	0
2006	4,694,609	27,010,065	1,171,992,550	27,523,475,256	7	21	8,058	169,469,740	1,297,847,167	107.92	101	36.97	63.33	0	1	0
2007	5,285,557	35,861,437	1,229,698,078	32,625,782,159	7	25	8,058	173,177,546	1,306,131,566	116.12	106	35.32	62.93	0	1	0
2008	5,202,688	33,920,785	1,045,735,076	39,080,562,373	6	30	8,058	176,952,125	1,314,357,176	139.68	113	42.86	58.04	0	1	0
2009	6,287,676	23,817,071	1,009,809,123	415,368,860,350	6	314	8,058	180,808,096	1,322,614,973	158.7	12	30.66	44.28	0	1	0

Table 7.23: Pakistan's trade to Germany (Data for Gravity Model Analysis)

	Pakistan to Germany															
Year	Exports	Imports	GDP PK	GDP GER	PC GDP PK	PC GDP GER	DISTANCE km	Population PK	Population GER	CPI PK	CPI GER	ONI PK	ONI GER	Culture v	Border v	PTA v
1995	10,241,984	13,396,783	1,307,492,431	28,995,674,342	10	355	11,731	130,397,376	81,622,092	54.83	87	27.70	39.16	0	0	0
1996	10,971,950	9,936,972	1,180,480,858	27,710,962,236	9	339	11,731	133,701,883	81,838,278	60.52	88	30.04	40.31	0	0	0
1997	8,623,382	10,715,071	1,065,255,588	24,006,332,177	8	293	11,731	137,208,877	81,953,931	67.41	90	28.29	44.34	0	0	0
1998	7,724,987	5,859,451	1,009,151,445	24,005,215,314	7	293	11,731	140,849,175	82,001,630	71.61	91	24.65	46.45	0	0	0
1999	7,061,931	5,709,720	967,764,749	23,555,558,931	7	287	11,731	144,515,881	82,030,194	74.57	91	25.69	47.41	0	0	0
2000	6,653,295	5,079,055	916,337,322	20,432,469,438	6	249	11,731	148,132,365	82,074,780	77.83	93	28.42	55.28	0	0	0
2001	5,964,392	5,035,721	846,798,629	19,904,778,905	6	242	11,731	151,681,682	82,146,061	80.28	95	28.60	55.92	0	0	0
2002	5,840,761	5,872,584	899,108,216	21,010,546,938	6	256	11,731	155,193,548	82,232,195	82.92	96	28.17	54.86	0	0	0
2003	7,126,170	6,750,779	989,265,537	25,176,474,378	6	306	11,731	158,693,693	82,318,904	85.34	97	29.59	55.29	0	0	0
2004	7,253,742	7,705,874	1,055,959,443	28,012,396,965	7	340	11,731	162,223,869	82,383,183	91.69	98	32.36	59.37	0	0	0
2005	7,244,125	11,450,401	1,092,134,645	27,883,897,926	7	338	11,731	165,815,766	82,408,688	100	100	37.68	63.01	0	0	0
2006	6,463,483	11,029,269	1,171,992,550	28,613,292,126	7	347	11,731	169,469,740	82,392,695	107.92	102	36.97	70.04	0	0	0
2007	6,251,761	9,708,666	1,229,698,078	32,011,033,568	7	389	11,731	173,177,546	82,342,623	116.12	104	35.32	71.73	0	0	0
2008	6,300,092	10,492,734	1,045,735,076	33,967,546,571	6	413	11,731	176,952,125	82,264,266	139.68	107	42.86	73.47	0	0	0
2009	4,532,133	8,009,736	1,009,809,123	31,121,775,917	6	379	11,731	180,808,096	82,166,671	158.7	107	30.66	62.05	0	0	0

Table 7.24: Iran's trade to Pakistan (Data for Gravity Model Analysis)

	Iran to Pakistan															
Year	Exports	Imports	GDP IR	GDP PAK	PC GDP IR	PC GDP PAK	DISTANCE km	Population IR	Population PK	CPI IR	CPI PK	ONI IR	ONI PK	Culture v	Border v	PTA v
1995	2,090,898	1,353,764	5,252,558,579	1,307,492,431	84	10	1,178	62,204,642	130,397,376	21	54.83	30.77	27.70	1	1	1
1996	1,846,054	1,238,345	4,258,378,612	1,180,480,858	67	9	1,178	63,186,840	133,701,883	27	60.52	30.41	30.04	1	1	1
1997	920,601	708,575	3,359,313,298	1,065,255,588	52	8	1,178	64,162,759	137,208,877	32	67.41	30.33	28.29	1	1	1
1998	936,985	717,631	2,767,901,468	1,009,151,445	43	7	1,178	65,120,329	140,849,175	38	71.61	26.17	24.65	1	1	1
1999	1,113,774	530,765	2,434,942,474	967,764,749	37	7	1,178	66,038,143	144,515,881	45	74.57	29.78	25.69	1	1	1
2000	1,048,391	670,790	2,000,314,417	916,337,322	30	6	1,178	66,902,877	148,132,365	52	77.83	40.35	28.42	1	1	1
2001	1,370,973	1,008,046	1,903,634,414	846,798,629	28	6	1,178	67,712,273	151,681,682	58	80.28	36.30	28.60	1	1	1
2002	1,811,210	1,065,096	2,047,586,857	899,108,216	30	6	1,178	68,479,898	155,193,548	66	82.92	35.90	28.17	1	1	1
2003	1,959,683	1,238,396	1,821,108,528	989,265,537	26	6	1,178	69,226,889	158,693,693	77	85.34	42.38	29.59	1	1	1
2004	1,398,236	999,199	1,939,461,138	1,055,959,443	28	7	1,178	69,981,682	162,223,869	88	91.69	45.48	32.36	1	1	1
2005	2,769,782	1,282,912	2,055,862,057	1,092,134,645	29	7	1,178	70,764,895	165,815,766	100	100	48.00	37.68	1	1	1
2006	2,583,106	1,407,564	2,175,640,746	1,171,992,550	30	7	1,178	71,584,801	169,469,740	112	107.92	42.65	36.97	1	1	1
2007	1,465,292	823,696	2,382,757,204	1,229,698,078	33	7	1,178	72,436,640	173,177,546	131	116.12	24.87	35.32	1	1	1
2008	1,251,127	699,550	2,237,736,688	1,045,735,076	31	6	1,178	73,311,798	176,952,125	165	139.68	22.60	42.86	1	1	1
2009	1,163,337	638,714	1,929,626,932	1,009,809,123	26	6	1,178	74,195,741	180,808,096	187	158.7	24.46	30.66	1	1	1

Table 7.25: Iran's trade to Turkey (Data for Gravity Model Analysis)

		Iran to Turkey														
Year	Exports	Imports	GDP IR	GDP TUR	PC GDP IR	PC GDP TUR	DISTANCE km	Population IR	Population TUR	CPI IR	CPI TUR	ONI IR	ONI TUR	Culture v	Border v	PTA v
1995	7,485,916	12,166,612	5,252,558,579	4,554,242,903	84	74	5,854	62,204,642	61,206,099	21	49.98	30.77	25.18	1	1	1
1996	5,233,495	9,517,653	4,258,378,612	4,959,932,232	67	80	5,854	63,186,840	62,264,906	27	49.18	30.41	27.05	1	1	1
1997	2,817,885	9,034,854	3,359,313,298	4,917,449,810	52	78	5,854	64,162,759	63,331,833	32	51.91	30.33	29.32	1	1	1
1998	4,169,012	7,154,174	2,767,901,468	4,729,039,557	43	73	5,854	65,120,329	64,395,635	38	56.94	26.17	27.03	1	1	1
1999	4,413,886	5,059,948	2,434,942,474	3,991,077,944	37	61	5,854	66,038,143	65,441,666	45	62.58	29.78	26.94	1	1	1
2000	3,798,022	4,458,579	2,000,314,417	6,630,836,944	30	100	5,854	66,902,877	66,459,578	52	40.20	40.35	30.63	1	1	1
2001	1,065,604	4,558,026	1,903,634,414	4,336,442,379	28	64	5,854	67,712,273	67,444,118	58	45.2	36.30	37.11	1	1	1
2002	1,390,015	5,064,914	2,047,586,857	3,548,458,491	30	52	5,854	68,479,898	68,398,135	66	65.53	35.90	37.43	1	1	1
2003	1,507,777	6,033,900	1,821,108,528	3,690,722,159	26	53	5,854	69,226,889	69,329,456	77	82.1	42.38	38.48	1	1	1
2004	1,367,273	7,875,518	1,939,461,138	4,319,374,690	28	61	5,854	69,981,682	70,250,173	88	90.79	45.48	40.97	1	1	1
2005	3,696,595	8,561,123	2,055,862,057	4,829,859,112	29	68	5,854	70,764,895	71,169,037	100	100	48.00	39.39	1	1	1
2006	2,857,848	4,665,032	2,175,640,746	4,804,247,662	30	67	5,854	71,584,801	72,087,928	112	110.51	42.65	42.40	1	1	1
2007	1,554,043	4,382,498	2,382,757,204	5,352,686,365	33	73	5,854	72,436,640	73,003,736	131	120.9	24.87	42.86	1	1	1
2008	1,369,378	3,770,132	2,237,736,688	5,501,923,440	31	74	5,854	73,311,798	73,914,260	165	132.74	22.60	45.73	1	1	1
2009	1,325,760	3,494,995	1,929,626,932	4,352,826,111	26	58	5,854	74,195,741	74,815,703	187	141.2	24.46	39.54	1	1	1

Table 7.26: Iran's trade to Kazakhstan (Data for Gravity Model Analysis)

	Iran to Kazakhstan															
Year	Exports	Imports	GDP IR	GDP KAZ	PC GDP IR	PC GDP KAZ	DISTANCE km	Population IR	Population KAY	CPI IR	CPI KAZ	ONI IR	ONI KAZ	Culture v	Border v	PTA v
1995	1,426,236	4,745,073	5,252,558,579	618,830,443	84	39	3,018	62,204,642	15,925,885	21	33.2	30.77	43.96	1	0	1
1996	1,119,748	6,653,796	4,258,378,612	455,212,245	67	29	3,018	63,186,840	15,711,160	27	46.21	30.41	48.18	1	0	1
1997	1,022,937	3,117,803	3,359,313,298	408,588,609	52	26	3,018	64,162,759	15,480,654	32	54.25	30.33	48.66	1	0	1
1998	776,741	2,295,134	2,767,901,468	380,788,670	43	25	3,018	65,120,329	15,259,068	38	58.13	26.17	43.81	1	0	1
1999	535,677	2,924,343	2,434,942,474	268,003,449	37	18	3,018	66,038,143	15,077,199	45	62.95	29.78	56.37	1	0	1
2000	637,806	5,954,682	2,000,314,417	256,729,693	30	17	3,018	66,902,877	14,956,751	52	71.25	40.35	74.23	1	0	1
2001	545,595	4,655,840	1,903,634,414	286,951,932	28	19	3,018	67,712,273	14,908,696	58	77.2	36.30	66.65	1	0	1
2002	709,886	3,634,929	2,047,586,857	301,512,649	30	20	3,018	68,479,898	14,927,414	66	81.71	35.90	65.85	1	0	1
2003	640,356	3,953,804	1,821,108,528	354,532,515	26	24	3,018	69,226,889	14,996,890	77	86.97	42.38	69.14	1	0	1
2004	429,694	2,365,789	1,939,461,138	464,245,799	28	31	3,018	69,981,682	15,092,092	88	92.95	45.48	76.13	1	0	1
2005	515,463	2,457,759	2,055,862,057	571,236,717	29	38	3,018	70,764,895	15,193,938	100	100	48.00	79.09	1	0	1
2006	635,729	2,527,099	2,175,640,746	745,960,631	30	49	3,018	71,584,801	15,298,150	112	108.59	42.65	76.42	1	0	1
2007	391,940	1,956,257	2,382,757,204	871,715,292	33	57	3,018	72,436,640	15,408,161	131	120.28	24.87	76.71	1	0	1
2008	316,621	1,572,985	2,237,736,688	946,931,942	31	61	3,018	73,311,798	15,521,493	165	140.92	22.60	81.67	1	0	1
2009	282,511	1,339,907	1,929,626,932	721,938,788	26	46	3,018	74,195,741	15,636,987	187	151.2	24.46	65.60	1	0	1

Table 7.27: Iran's trade to USA (Data for Gravity Model Analysis)

		Iran to USA														
Year	Exports	Imports	GDP IR	GDP USA	PC GDP IR	PC GDP USA	DISTANCE km	Population IR	Population USA	CPI IR	CPI USA	ONI IR	ONI USA	Culture v	Border v	PTA v
1995	1,177,818	2,982,174	5,252,558,579	94,350,000,000	84	349	19,876	62,204,642	270,648,057	21	78	30.77	18.40	0	0	0
1996	1,373,756	2,388,209	4,258,378,612	97,298,750,000	67	355	19,876	63,186,840	274,066,829	27	80	30.41	18.51	0	0	0
1997	147,021	1,180,720	3,359,313,298	100,962,195,122	52	364	19,876	64,162,759	277,567,020	32	82	30.33	19.15	0	0	0
1998	93,137	1,586,725	2,767,901,468	105,313,253,012	43	375	19,876	65,120,329	281,083,466	38	83	26.17	18.59	0	0	0
1999	113,021	1,384,254	2,434,942,474	109,423,529,412	37	385	19,876	66,038,143	284,528,952	45	85	29.78	18.84	0	0	0
2000	1,408,646	1,697,627	2,000,314,417	112,486,363,636	30	391	19,876	66,902,877	287,842,178	52	88	40.35	20.59	0	0	0
2001	1,704,786	1,271,752	1,903,634,414	112,460,439,560	28	386	19,876	67,712,273	290,995,477	58	91	36.30	18.67	0	0	0
2002	1,932,593	866,208	2,047,586,857	115,110,869,565	30	392	19,876	68,479,898	294,008,811	66	92	35.90	17.90	0	0	0
2003	1,805,854	867,611	1,821,108,528	117,970,212,766	26	397	19,876	69,226,889	296,927,556	77	94	42.38	18.29	0	0	0
2004	1,239,800	810,706	1,939,461,138	121,776,288,660	28	406	19,876	69,981,682	299,821,165	88	97	45.48	19.84	0	0	0
2005	997,915	952,034	2,055,862,057	125,797,000,000	29	416	19,876	70,764,895	302,740,610	100	100	48.00	20.96	0	0	0
2006	979,789	650,505	2,175,640,746	129,477,669,903	30	424	19,876	71,584,801	305,696,681	112	103	42.65	22.17	0	0	0
2007	893,484	554,775	2,382,757,204	132,177,358,491	33	428	19,876	72,436,640	308,673,972	131	106	24.87	22.69	0	0	0
2008	696,639	459,253	2,237,736,688	130,630,909,091	31	419	19,876	73,311,798	311,665,999	165	110	22.60	24.11	0	0	0
2009	588,901	414,818	1,929,626,932	128,357,225,258	26	408	19,876	74,195,741	314,658,780	187	110	24.46	18.83	0	0	0

Table 7.28: Iran's trade to UK (Data for Gravity Model Analysis)

		Iran to UK														
Year	Exports	Imports	GDP IR	GDP UK	PC GDP IR	PC GDP UK	DISTANCE km	Population IR	Population UK	CPI IR	CPI UK	ONI IR	ONI UK	Culture v	Border v	PTA v
1995	1,459,484	25,515,567	5,252,558,579	13,455,543,317	84	232	10,881	62,204,642	58,042,339	21	86	30.77	42.85	0	0	0
1996	1,164,138	20,623,367	4,258,378,612	13,859,326,923	67	238	10,881	63,186,840	58,200,861	27	88	30.41	43.98	0	0	0
1997	1,271,117	21,295,127	3,359,313,298	15,099,412,842	52	259	10,881	64,162,759	58,358,391	32	90	30.33	42.98	0	0	0
1998	592,096	15,094,349	2,767,901,468	15,998,814,276	43	273	10,881	65,120,329	58,522,384	38	91	26.17	39.99	0	0	0
1999	706,902	9,756,967	2,434,942,474	16,333,273,203	37	278	10,881	66,038,143	58,702,979	45	92	29.78	38.65	0	0	0
2000	515,926	8,234,824	2,000,314,417	15,887,221,944	30	270	10,881	66,902,877	58,907,407	52	93	40.35	42.12	0	0	0
2001	609,387	11,411,221	1,903,634,414	15,648,790,606	28	265	10,881	67,712,273	59,137,851	58	94	36.30	41.51	0	0	0
2002	382,604	10,438,949	2,047,586,857	16,968,420,842	30	286	10,881	68,479,898	59,392,008	66	95	35.90	39.70	0	0	0
2003	408,306	11,518,943	1,821,108,528	19,184,467,487	26	322	10,881	69,226,889	59,666,955	77	97	42.38	37.68	0	0	0
2004	599,767	10,714,295	1,939,461,138	22,474,387,976	28	375	10,881	69,981,682	59,957,844	88	98	45.48	37.10	0	0	0
2005	746,779	10,248,426	2,055,862,057	22,801,123,640	29	378	10,881	70,764,895	60,260,594	100	100	48.00	39.48	0	0	0
2006	637,085	7,509,787	2,175,640,746	23,962,256,050	30	396	10,881	71,584,801	60,574,504	112	102	42.65	43.00	0	0	0
2007	390,080	6,694,238	2,382,757,204	26,771,177,886	33	440	10,881	72,436,640	60,899,158	131	105	24.87	37.87	0	0	0
2008	341,031	5,542,667	2,237,736,688	24,606,305,998	31	402	10,881	73,311,798	61,230,913	165	108	22.60	41.10	0	0	0
2009	327,467	4,920,088	1,929,626,932	19,544,906,915	26	317	10,881	74,195,741	61,565,422	187	111	24.46	38.44	0	0	0

Table 7.29: Iran's trade to China (Data for Gravity Model Analysis)

		Iran to China														
Year	Exports	Imports	GDP IR	GDP CHI	PC GDP IR	PC GDP CHI	DISTANCE km	Population IR	Population CHI	CPI IR	CPI CHI	ONI IR	ONI CHI	Culture v	Border v	PTA v
1995	4,633,301	27,625,794	5,252,558,579	8,801,862,749	84	7	8,966	62,204,642	1,189,611,647	21	86	30.77	37.10	0	0	0
1996	4,076,987	22,349,249	4,258,378,612	9,591,547,742	67	8	8,966	63,186,840	1,201,557,961	27	93	30.41	32.50	0	0	0
1997	1,941,686	12,329,744	3,359,313,298	10,368,904,313	52	9	8,966	64,162,759	1,213,020,936	32	95	30.33	33.01	0	0	0
1998	2,428,745	17,240,509	2,767,901,468	11,002,096,045	43	9	8,966	65,120,329	1,224,064,227	38	95	26.17	31.00	0	0	0
1999	1,753,012	13,626,377	2,434,942,474	11,836,302,475	37	10	8,966	66,038,143	1,234,636,129	45	93	29.78	32.76	0	0	0
2000	2,752,041	12,200,011	2,000,314,417	12,689,747,513	30	10	8,966	66,902,877	1,244,677,136	52	94	40.35	39.76	0	0	0
2001	2,999,574	12,411,550	1,903,634,414	14,005,935,488	28	11	8,966	67,712,273	1,254,278,737	58	94	36.30	38.71	0	0	0
2002	2,846,946	14,515,164	2,047,586,857	15,634,842,239	30	12	8,966	68,479,898	1,263,462,737	66	93	35.90	42.69	0	0	0
2003	2,868,598	18,313,633	1,821,108,528	17,346,508,176	26	14	8,966	69,226,889	1,272,335,647	77	95	42.38	51.64	0	0	0
2004	2,803,025	18,447,274	1,939,461,138	19,760,222,804	28	15	8,966	69,981,682	1,280,977,388	88	98	45.48	59.62	0	0	0
2005	4,947,878	23,644,546	2,055,862,057	23,027,191,610	29	18	8,966	70,764,895	1,289,482,679	100	100	48.00	61.75	0	0	0
2006	8,862,070	21,933,728	2,175,640,746	27,523,475,256	30	21	8,966	71,584,801	1,297,847,167	112	101	42.65	63.33	0	0	0
2007	3,271,429	13,454,264	2,382,757,204	32,625,782,159	33	25	8,966	72,436,640	1,306,131,566	131	106	24.87	62.93	0	0	0
2008	2,889,024	11,657,031	2,237,736,688	39,080,562,373	31	30	8,966	73,311,798	1,314,357,176	165	113	22.60	58.04	0	0	0
2009	2,822,729	10,834,557	1,929,626,932	415,368,860,350	26	314	8,966	74,195,741	1,322,614,973	187	12	24.46	44.28	0	0	0

Table 7.30: Iran's trade to Germany (Data for Gravity Model Analysis)

	Iran to Germany															
Year	Exports	Imports	GDP IR	GDP GER	PC GDP IR	PC GDP GER	DISTANCE km	Population IR	Population GER	CPI IR	CPI GER	ONI IR	ONI GER	Culture v	Border v	PTA v
1995	23,958,237	75,064,070	5,252,558,579	28,995,674,342	84	355	11,677	62,204,642	81,622,092	21	87	30.77	39.16	0	0	0
1996	16,874,410	59,082,082	4,258,378,612	27,710,962,236	67	339	11,677	63,186,840	81,838,278	27	88	30.41	40.31	0	0	0
1997	16,647,835	57,934,516	3,359,313,298	24,006,332,177	52	293	11,677	64,162,759	81,953,931	32	90	30.33	44.34	0	0	0
1998	10,792,195	43,675,961	2,767,901,468	24,005,215,314	43	293	11,677	65,120,329	82,001,630	38	91	26.17	46.45	0	0	0
1999	9,399,942	30,714,428	2,434,942,474	23,555,558,931	37	287	11,677	66,038,143	82,030,194	45	91	29.78	47.41	0	0	0
2000	10,618,055	26,745,593	2,000,314,417	20,432,469,438	30	249	11,677	66,902,877	82,074,780	52	93	40.35	55.28	0	0	0
2001	6,208,189	29,130,518	1,903,634,414	19,904,778,905	28	242	11,677	67,712,273	82,146,061	58	95	36.30	55.92	0	0	0
2002	4,248,966	52,646,106	2,047,586,857	21,010,546,938	30	256	11,677	68,479,898	82,232,195	66	96	35.90	54.86	0	0	0
2003	4,613,098	36,571,247	1,821,108,528	25,176,474,378	26	306	11,677	69,226,889	82,318,904	77	97	42.38	55.29	0	0	0
2004	3,810,836	46,752,897	1,939,461,138	28,012,396,965	28	340	11,677	69,981,682	82,383,183	88	98	45.48	59.37	0	0	0
2005	6,372,515	51,051,701	2,055,862,057	27,883,897,926	29	338	11,677	70,764,895	82,408,688	100	100	48.00	63.01	0	0	0
2006	4,125,101	30,713,615	2,175,640,746	28,613,292,126	30	347	11,677	71,584,801	82,392,695	112	102	42.65	70.04	0	0	0
2007	3,160,697	28,931,266	2,382,757,204	32,011,033,568	33	389	11,677	72,436,640	82,342,623	131	104	24.87	71.73	0	0	0
2008	2,671,365	23,351,917	2,237,736,688	33,967,546,571	31	413	11,677	73,311,798	82,264,266	165	107	22.60	73.47	0	0	0
2009	2,448,602	21,713,810	1,929,626,932	31,121,775,917	26	379	11,677	74,195,741	82,166,671	187	107	24.46	62.05	0	0	0

Table 7.31: Turkey's trade to Pakistan (Data for Gravity Model Analysis)

		Turkey to Pakistan														
Year	Exports	Imports	GDP TUR	GDP PAK	PC GDP TUR	PC GDP PAK	DISTANCE	Population TUR	Population PAK	CPI TUR	CPI PK	ONI TUR	ONI PK	Culture v	Border v	PTA v
1995	1,796,219	3,073,842	4,554,242,903	1,307,492,431	74	10	5,910	61,206,099	130,397,376	49.98	54.83	25.18	27.70	1	0	1
1996	1,580,369	1,675,517	4,959,932,232	1,180,480,858	80	9	5,910	62,264,906	133,701,883	49.18	60.52	27.05	30.04	1	0	1
1997	1,120,342	1,098,448	4,917,449,810	1,065,255,588	78	8	5,910	63,331,833	137,208,877	51.91	67.41	29.32	28.29	1	0	1
1998	1,114,711	1,007,243	4,729,039,557	1,009,151,445	73	7	5,910	64,395,635	140,849,175	56.94	71.61	27.03	24.65	1	0	1
1999	2,053,523	406,421	3,991,077,944	967,764,749	61	7	5,910	65,441,666	144,515,881	62.58	74.57	26.94	25.69	1	0	1
2000	1,296,255	2,041,686	6,630,836,944	916,337,322	100	6	5,910	66,459,578	148,132,365	40.20	77.83	30.63	28.42	1	0	1
2001	689,965	2,240,713	4,336,442,379	846,798,629	64	6	5,910	67,444,118	151,681,682	45.2	80.28	37.11	28.60	1	0	1
2002	874,998	1,776,546	3,548,458,491	899,108,216	52	6	5,910	68,398,135	155,193,548	65.53	82.92	37.43	28.17	1	0	1
2003	856,930	2,338,950	3,690,722,159	989,265,537	53	6	5,910	69,329,456	158,693,693	82.1	85.34	38.48	29.59	1	0	1
2004	951,643	2,651,394	4,319,374,690	1,055,959,443	61	7	5,910	70,250,173	162,223,869	90.79	91.69	40.97	32.36	1	0	1
2005	1,875,542	3,154,630	4,829,859,112	1,092,134,645	68	7	5,910	71,169,037	165,815,766	100	100	39.39	37.68	1	0	1
2006	1,172,729	3,435,362	4,804,247,662	1,171,992,550	67	7	5,910	72,087,928	169,469,740	110.51	107.92	42.40	36.97	1	0	1
2007	1,298,910	4,397,173	5,352,686,365	1,229,698,078	73	7	5,910	73,003,736	173,177,546	120.9	116.12	42.86	35.32	1	0	1
2008	1,168,159	4,416,416	5,501,923,440	1,045,735,076	74	6	5,910	73,914,260	176,952,125	132.74	139.68	45.73	42.86	1	0	1
2009	1,155,194	4,383,490	4,352,826,111	1,009,809,123	58	6	5,910	74,815,703	180,808,096	141.2	158.7	39.54	30.66	1	0	1

Table 7.32: Turkey's trade to Iran (Data for Gravity Model Analysis)

		Turkey to Iran														
Year	Exports	Imports	GDP TUR	GDP IR	PC GDP TUR	PC GDP IR	DISTANCE km	Population TUR	Population IR	CPI TUR	CPI IR	ONI TUR	ONI IR	Culture v	Border v	PTA v
1995	5,313,708	13,795,857	4,554,242,903	5,252,558,579	74	84	5,854	61,206,099	62,204,642	49.98	21	25.18	30.77	1	1	1
1996	6,026,428	16,373,874	4,959,932,232	4,258,378,612	80	67	5,854	62,264,906	63,186,840	49.18	27	27.05	30.41	1	1	1
1997	5,914,297	12,453,132	4,917,449,810	3,359,313,298	78	52	5,854	63,331,833	64,162,759	51.91	32	29.32	30.33	1	1	1
1998	3,399,983	7,601,861	4,729,039,557	2,767,901,468	73	43	5,854	64,395,635	65,120,329	56.94	38	27.03	26.17	1	1	1
1999	2,521,473	10,161,597	3,991,077,944	2,434,942,474	61	37	5,854	65,441,666	66,038,143	62.58	45	26.94	29.78	1	1	1
2000	5,828,893	20,265,406	6,630,836,944	2,000,314,417	100	30	5,854	66,459,578	66,902,877	40.20	52	30.63	40.35	1	1	1
2001	7,976,455	18,579,648	4,336,442,379	1,903,634,414	64	28	5,854	67,444,118	67,712,273	45.2	58	37.11	36.30	1	1	1
2002	4,701,491	14,046,414	3,548,458,491	2,047,586,857	52	30	5,854	68,398,135	68,479,898	65.53	66	37.43	35.90	1	1	1
2003	6,501,659	22,663,615	3,690,722,159	1,821,108,528	53	26	5,854	69,329,456	69,226,889	82.1	77	38.48	42.38	1	1	1
2004	8,950,106	21,610,956	4,319,374,690	1,939,461,138	61	28	5,854	70,250,173	69,981,682	90.79	88	40.97	45.48	1	1	1
2005	9,129,401	34,697,058	4,829,859,112	2,055,862,057	68	29	5,854	71,169,037	70,764,895	100	100	39.39	48.00	1	1	1
2006	9,654,345	50,914,941	4,804,247,662	2,175,640,746	67	30	5,854	72,087,928	71,584,801	110.51	112	42.40	42.65	1	1	1
2007	11,920,514	54,717,898	5,352,686,365	2,382,757,204	73	33	5,854	73,003,736	72,436,640	120.9	131	42.86	24.87	1	1	1
2008	15,290,841	61,772,555	5,501,923,440	2,237,736,688	74	31	5,854	73,914,260	73,311,798	132.74	165	45.73	22.60	1	1	1
2009	14,339,646	24,121,078	4,352,826,111	1,929,626,932	58	26	5,854	74,815,703	74,195,741	141.2	187	39.54	24.46	1	1	1

Table 7.33: Turkey's trade to Kazakhstan (Data for Gravity Model Analysis)

		Turkey to Kazakhstan														
Year	Exports	Imports	GDP TUR	GDP KAZ	PC GDP TUR	PC GDP KAZ	DISTANCE	Population TUR	Population KAZ	CPI TUR	CPI KAZ	ONI TUR	ONI KAZ	Culture v	Border v	PTA v
1995	2,997,294	1,733,421	4,554,242,903	618,830,443	74	39	1,844	61,206,099	15,925,885	49.98	33.2	25.18	43.96	1	0	1
1996	3,319,252	1,905,095	4,959,932,232	455,212,245	80	29	1,844	62,264,906	15,711,160	49.18	46.21	27.05	48.18	1	0	1
1997	4,055,355	3,184,296	4,917,449,810	408,588,609	78	26	1,844	63,331,833	15,480,654	51.91	54.25	29.32	48.66	1	0	1
1998	3,738,852	4,455,082	4,729,039,557	380,788,670	73	25	1,844	64,395,635	15,259,068	56.94	58.13	27.03	43.81	1	0	1
1999	1,542,394	4,728,489	3,991,077,944	268,003,449	61	18	1,844	65,441,666	15,077,199	62.58	62.95	26.94	56.37	1	0	1
2000	2,889,190	8,615,505	6,630,836,944	256,729,693	100	17	1,844	66,459,578	14,956,751	40.20	71.25	30.63	74.23	1	0	1
2001	2,650,333	1,998,732	4,336,442,379	286,951,932	64	19	1,844	67,444,118	14,908,696	45.2	77.2	37.11	66.65	1	0	1
2002	2,421,106	3,076,459	3,548,458,491	301,512,649	52	20	1,844	68,398,135	14,927,414	65.53	81.71	37.43	65.85	1	0	1
2003	2,850,107	3,247,722	3,690,722,159	354,532,515	53	24	1,844	69,329,456	14,996,890	82.1	86.97	38.48	69.14	1	0	1
2004	3,916,622	4,870,507	4,319,374,690	464,245,799	61	31	1,844	70,250,173	15,092,092	90.79	92.95	40.97	76.13	1	0	1
2005	4,599,459	5,588,999	4,829,859,112	571,236,717	68	38	1,844	71,169,037	15,193,938	100	100	39.39	79.09	1	0	1
2006	6,305,520	8,992,204	4,804,247,662	745,960,631	67	49	1,844	72,087,928	15,298,150	110.51	108.59	42.40	76.42	1	0	1
2007	8,932,066	10,620,754	5,352,686,365	871,715,292	73	57	1,844	73,003,736	15,408,161	120.9	120.28	42.86	76.71	1	0	1
2008	6,709,375	17,568,122	5,501,923,440	946,931,942	74	61	1,844	73,914,260	15,521,493	132.74	140.92	45.73	81.67	1	0	1
2009	4,486,567	7,628,030	4,352,826,111	721,938,788	58	46	1,844	74,815,703	15,636,987	141.2	151.2	39.54	65.60	1	0	1

Table 7.34: Turkey's trade to USA (Data for Gravity Model Analysis)

		Turkey to USA														
Year	Exports	Imports	GDP TUR	GDP USA	PC GDP TUR	PC GDP USA	DISTANCE	Population TUR	Population USA	CPI TUR	CPI USA	ONI TUR	ONI USA	Culture v	Border v	PTA v
1995	30,264,515	74,513,086	4,554,242,903	94,350,000,000	74	349	17,464	61,206,099	270,648,057	49.98	78	25.18	18.40	0	0	0
1996	32,874,515	66,846,712	4,959,932,232	97,298,750,000	80	355	17,464	62,264,906	274,066,829	49.18	80	27.05	18.51	0	0	0
1997	39,053,437	83,412,906	4,917,449,810	100,962,195,122	78	364	17,464	63,331,833	277,567,020	51.91	82	29.32	19.15	0	0	0
1998	39,139,504	71,014,975	4,729,039,557	105,313,253,012	73	375	17,464	64,395,635	281,083,466	56.94	83	27.03	18.59	0	0	0
1999	38,943,405	49,221,208	3,991,077,944	109,423,529,412	61	385	17,464	65,441,666	284,528,952	62.58	85	26.94	18.84	0	0	0
2000	76,470,847	96,700,074	6,630,836,944	112,486,363,636	100	391	17,464	66,459,578	287,842,178	40.20	88	30.63	20.59	0	0	0
2001	69,154,947	72,154,426	4,336,442,379	112,460,439,560	64	386	17,464	67,444,118	290,995,477	45.2	91	37.11	18.67	0	0	0
2002	50,920,337	46,816,599	3,548,458,491	115,110,869,565	52	392	17,464	68,398,135	294,008,811	65.53	92	37.43	17.90	0	0	0
2003	45,723,085	42,589,431	3,690,722,159	117,970,212,766	53	397	17,464	69,329,456	296,927,556	82.1	94	38.48	18.29	0	0	0
2004	53,406,137	52,265,904	4,319,374,690	121,776,288,660	61	406	17,464	70,250,173	299,821,165	90.79	97	40.97	19.84	0	0	0
2005	49,108,171	53,755,926	4,829,859,112	125,797,000,000	68	416	17,464	71,169,037	302,740,610	100	100	39.39	20.96	0	0	0
2006	45,799,745	56,654,438	4,804,247,662	129,477,669,903	67	424	17,464	72,087,928	305,696,681	110.51	103	42.40	22.17	0	0	0
2007	34,554,120	67,549,941	5,352,686,365	132,177,358,491	73	428	17,464	73,003,736	308,673,972	120.9	106	42.86	22.69	0	0	0
2008	32,447,146	90,228,445	5,501,923,440	130,630,909,091	74	419	17,464	73,914,260	311,665,999	132.74	110	45.73	24.11	0	0	0
2009	22,904,469	60,709,526	4,352,826,111	128,357,225,258	58	408	17,464	74,815,703	314,658,780	141.2	110	39.54	18.83	0	0	0

Table 7.35: Turkey's trade to UK (Data for Gravity Model Analysis)

		Turkey to UK														
Year	Exports	Imports	GDP TUR	GDP UK	PC GDP TUR	PC GDP UK	DISTANCE	Population TUR	Population UK	CPI TUR	CPI UK	ONI TUR	ONI UK	Culture v	Border v	PTA v
1995	22,699,136	36,611,503	4,554,242,903	13,455,543,317	74	232	5,491	61,206,099	58,042,339	49.98	86	25.18	42.85	0	0	1
1996	25,348,702	50,553,513	4,959,932,232	13,859,326,923	80	238	5,491	62,264,906	58,200,861	49.18	88	27.05	43.98	0	0	1
1997	29,115,630	53,233,392	4,917,449,810	15,099,412,842	78	259	5,491	63,331,833	58,358,391	51.91	90	29.32	42.98	0	0	1
1998	30,035,857	47,093,439	4,729,039,557	15,998,814,276	73	273	5,491	64,395,635	58,522,384	56.94	91	27.03	39.99	0	0	1
1999	29,232,290	34,994,204	3,991,077,944	16,333,273,203	61	278	5,491	65,441,666	58,702,979	62.58	92	26.94	38.65	0	0	1
2000	50,339,941	67,206,016	6,630,836,944	15,887,221,944	100	270	5,491	66,459,578	58,907,407	40.20	93	30.63	42.12	0	0	1
2001	48,117,072	42,341,726	4,336,442,379	15,648,790,606	64	265	5,491	67,444,118	59,137,851	45.2	94	37.11	41.51	0	0	1
2002	45,869,680	37,087,886	3,548,458,491	16,968,420,842	52	286	5,491	68,398,135	59,392,008	65.53	95	37.43	39.70	0	0	1
2003	44,702,710	42,631,123	3,690,722,159	19,184,467,487	53	322	5,491	69,329,456	59,666,955	82.1	97	38.48	37.68	0	0	1
2004	61,063,161	47,550,836	4,319,374,690	22,474,387,976	61	375	5,491	70,250,173	59,957,844	90.79	98	40.97	37.10	0	0	1
2005	59,171,627	46,956,448	4,829,859,112	22,801,123,640	68	378	5,491	71,169,037	60,260,594	100	100	39.39	39.48	0	0	1
2006	61,662,301	46,489,483	4,804,247,662	23,962,256,050	67	396	5,491	72,087,928	60,574,504	110.51	102	42.40	43.00	0	0	1
2007	71,354,642	45,302,749	5,352,686,365	26,771,177,886	73	440	5,491	73,003,736	60,899,158	120.9	105	42.86	37.87	0	0	1
2008	61,464,787	40,108,481	5,501,923,440	24,606,305,998	74	402	5,491	73,914,260	61,230,913	132.74	108	45.73	41.10	0	0	1
2009	41,923,180	24,553,926	4,352,826,111	19,544,906,915	58	317	5,491	74,815,703	61,565,422	141.2	111	39.54	38.44	0	0	1

Table 7.36: Turkey's trade to China (Data for Gravity Model Analysis)

	Turkey to China															
Year	Exports	Imports	GDP TUR	GDP CHI	PC GDP TUR	PC GDP CHI	DISTANCE	Population TUR	Population CHI	CPI TUR	CPI CHI	ONI TUR	ONI CHI	Culture v	Border v	PTA v
1995	1,339,772	10,785,010	4,554,242,903	8,801,862,749	74	7	12,631	61,206,099	1,189,611,647	49.98	86	25.18	37.10	0	0	0
1996	1,323,203	11,209,343	4,959,932,232	9,591,547,742	80	8	12,631	62,264,906	1,201,557,961	49.18	93	27.05	32.50	0	0	0
1997	854,800	15,170,567	4,917,449,810	10,368,904,313	78	9	12,631	63,331,833	1,213,020,936	51.91	95	29.32	33.01	0	0	0
1998	668,033	14,859,384	4,729,039,557	11,002,096,045	73	9	12,631	64,395,635	1,224,064,227	56.94	95	27.03	31.00	0	0	0
1999	585,445	14,298,400	3,991,077,944	11,836,302,475	61	10	12,631	65,441,666	1,234,636,129	62.58	93	26.94	32.76	0	0	0
2000	2,272,052	32,876,163	6,630,836,944	12,689,747,513	100	10	12,631	66,459,578	1,244,677,136	40.20	94	30.63	39.76	0	0	0
2001	4,410,903	20,478,315	4,336,442,379	14,005,935,488	64	11	12,631	67,444,118	1,254,278,737	45.2	94	37.11	38.71	0	0	0
2002	4,052,077	20,844,396	3,548,458,491	15,634,842,239	52	12	12,631	68,398,135	1,263,462,737	65.53	93	37.43	42.69	0	0	0
2003	6,146,477	31,794,130	3,690,722,159	17,346,508,176	53	14	12,631	69,329,456	1,272,335,647	82.1	95	38.48	51.64	0	0	0
2004	4,313,089	49,301,437	4,319,374,690	19,760,222,804	61	15	12,631	70,250,173	1,280,977,388	90.79	98	40.97	59.62	0	0	0
2005	5,497,636	68,853,995	4,829,859,112	23,027,191,610	68	18	12,631	71,169,037	1,289,482,679	100	100	39.39	61.75	0	0	0
2006	6,271,265	87,495,341	4,804,247,662	27,523,475,256	67	21	12,631	72,087,928	1,297,847,167	110.51	101	42.40	63.33	0	0	0
2007	8,598,206	109,463,125	5,352,686,365	32,625,782,159	73	25	12,631	73,003,736	1,306,131,566	120.9	106	42.86	62.93	0	0	0
2008	10,827,210	117,961,433	5,501,923,440	39,080,562,373	74	30	12,631	73,914,260	1,314,357,176	132.74	113	45.73	58.04	0	0	0
2009	11,325,327	89,678,732	4,352,826,111	415,368,860,350	58	314	12,631	74,815,703	1,322,614,973	141.2	12	39.54	44.28	0	0	0

Table 7.37: Turkey's trade to Germany (Data for Gravity Model Analysis)

	Turkey to Germany															
Year	Exports	Imports	GDP TUR	GDP GER	PC GDP TUR	PC GDP GER	DISTANCE	Population TUR	Population GER	CPI TUR	CPI GER	ONI TUR	ONI GER	Culture v	Border v	PTA v
1995	100,717,621	111,002,459	4,554,242,903	28,995,674,342	74	355	6,289	61,206,099	81,622,092	49.98	87	25.18	39.16	0	0	1
1996	104,759,559	154,186,251	4,959,932,232	27,710,962,236	80	339	6,289	62,264,906	81,838,278	49.18	88	27.05	40.31	0	0	1
1997	101,211,154	154,533,436	4,917,449,810	24,006,332,177	78	293	6,289	63,331,833	81,953,931	51.91	90	29.32	44.34	0	0	1
1998	95,701,907	128,397,871	4,729,039,557	24,005,215,314	73	293	6,289	64,395,635	82,001,630	56.94	91	27.03	46.45	0	0	1
1999	87,480,568	93,960,081	3,991,077,944	23,555,558,931	61	287	6,289	65,441,666	82,030,194	62.58	91	26.94	47.41	0	0	1
2000	128,636,132	178,193,393	6,630,836,944	20,432,469,438	100	249	6,289	66,459,578	82,074,780	40.20	93	30.63	55.28	0	0	1
2001	118,731,857	118,040,785	4,336,442,379	19,904,778,905	64	242	6,289	67,444,118	82,146,061	45.2	95	37.11	55.92	0	0	1
2002	89,046,343	107,045,546	3,548,458,491	21,010,546,938	52	256	6,289	68,398,135	82,232,195	65.53	96	37.43	54.86	0	0	1
2003	91,168,460	115,139,632	3,690,722,159	25,176,474,378	53	306	6,289	69,329,456	82,318,904	82.1	97	38.48	55.29	0	0	1
2004	96,324,292	137,852,795	4,319,374,690	28,012,396,965	61	340	6,289	70,250,173	82,383,183	90.79	98	40.97	59.37	0	0	1
2005	94,550,500	136,338,876	4,829,859,112	27,883,897,926	68	338	6,289	71,169,037	82,408,688	100	100	39.39	63.01	0	0	1
2006	87,650,302	133,636,956	4,804,247,662	28,613,292,126	67	347	6,289	72,087,928	82,392,695	110.51	102	42.40	70.04	0	0	1
2007	99,199,607	145,078,205	5,352,686,365	32,011,033,568	73	389	6,289	73,003,736	82,342,623	120.9	104	42.86	71.73	0	0	1
2008	97,569,191	140,779,453	5,501,923,440	33,967,546,571	74	413	6,289	73,914,260	82,264,266	132.74	107	45.73	73.47	0	0	1
2009	69,342,467	99,833,205	4,352,826,111	31,121,775,917	58	379	6,289	74,815,703	82,166,671	141.2	107	39.54	62.05	0	0	1

Table 7.38: Kazakhstan's trade to Pakistan (Data for Gravity Model Analysis)

	Kazakhstan to pakistan															
Year	Exports	Imports	GDP KAZ	GDP PAK	PC GDP KAZ	PC GDP PAK	DISTANCE	Population KAZ	Population PAK	CPI KAZ	CPI PAK	ONI KAZ	ONI PK	Culture v	Border v	PTA v
1995	95,563	41,490	618,830,443	1,307,492,431	39	10	1,040	15,925,885	130,397,376	33.2	54.83	43.96	27.70	1	0	1
1996	263,798	4,588	455,212,245	1,180,480,858	29	9	1,040	15,711,160	133,701,883	46.21	60.52	48.18	30.04	1	0	1
1997	52,107	5,970	408,588,609	1,065,255,588	26	8	1,040	15,480,654	137,208,877	54.25	67.41	48.66	28.29	1	0	1
1998	39,527	9,191	380,788,670	1,009,151,445	25	7	1,040	15,259,068	140,849,175	58.13	71.61	43.81	24.65	1	0	1
1999	33,780	24,610	268,003,449	967,764,749	18	7	1,040	15,077,199	144,515,881	62.95	74.57	56.37	25.69	1	0	1
2000	20,425	27,919	256,729,693	916,337,322	17	6	1,040	14,956,751	148,132,365	71.25	77.83	74.23	28.42	1	0	1
2001	6,338	13,391	286,951,932	846,798,629	19	6	1,040	14,908,696	151,681,682	77.2	80.28	66.65	28.60	1	0	1
2002	5,365	15,032	301,512,649	899,108,216	20	6	1,040	14,927,414	155,193,548	81.71	82.92	65.85	28.17	1	0	1
2003	8,533	23,179	354,532,515	989,265,537	24	6	1,040	14,996,890	158,693,693	86.97	85.34	69.14	29.59	1	0	1
2004	8,004	23,466	464,245,799	1,055,959,443	31	7	1,040	15,092,092	162,223,869	92.95	91.69	76.13	32.36	1	0	1
2005	20,989	72,325	571,236,717	1,092,134,645	38	7	1,040	15,193,938	165,815,766	100	100	79.09	37.68	1	0	1
2006	15,308	111,611	745,960,631	1,171,992,550	49	7	1,040	15,298,150	169,469,740	108.59	107.92	76.42	36.97	1	0	1
2007	113,944	98,337	871,715,292	1,229,698,078	57	7	1,040	15,408,161	173,177,546	120.28	116.12	76.71	35.32	1	0	1
2008	178,944	63,538	946,931,942	1,045,735,076	61	6	1,040	15,521,493	176,952,125	140.92	139.68	81.67	42.86	1	0	1
2009	149,422	101,700	721,938,788	1,009,809,123	46	6	1,040	15,636,987	180,808,096	151.2	158.7	65.60	30.66	1	0	1

Table 7.39: Kazakhstan's trade to Iran (Data for Gravity Model Analysis)

	Kazakhstan to Iran															
Year	Exports	Imports	GDP KAZ	GDP IR	PC GDP KAZ	PC GDP IR	DISTANCE	Population KAZ	Population IR	CPI KAZ	CPI IR	ONI KAZ	ONI IR	Culture v	Border v	PTA v
1995	1,481,876	416,260	618,830,443	5,252,558,579	39	84	3,018	15,925,885	62,204,642	33.2	21	43.96	30.77	1	0	1
1996	1,332,711	130,423	455,212,245	4,258,378,612	29	67	3,018	15,711,160	63,186,840	46.21	27	48.18	30.41	1	0	1
1997	1,535,518	163,678	408,588,609	3,359,313,298	26	52	3,018	15,480,654	64,162,759	54.25	32	48.66	30.33	1	0	1
1998	1,316,700	161,989	380,788,670	2,767,901,468	25	43	3,018	15,259,068	65,120,329	58.13	38	43.81	26.17	1	0	1
1999	1,454,528	123,864	268,003,449	2,434,942,474	18	37	3,018	15,077,199	66,038,143	62.95	45	56.37	29.78	1	0	1
2000	2,852,916	186,473	256,729,693	2,000,314,417	17	30	3,018	14,956,751	66,902,877	71.25	52	74.23	40.35	1	0	1
2001	2,706,280	141,842	286,951,932	1,903,634,414	19	28	3,018	14,908,696	67,712,273	77.2	58	66.65	36.30	1	0	1
2002	3,792,455	151,204	301,512,649	2,047,586,857	20	30	3,018	14,927,414	68,479,898	81.71	66	65.85	35.90	1	0	1
2003	4,727,247	147,208	354,532,515	1,821,108,528	24	26	3,018	14,996,890	69,226,889	86.97	77	69.14	42.38	1	0	1
2004	7,660,149	139,723	464,245,799	1,939,461,138	31	28	3,018	15,092,092	69,981,682	92.95	88	76.13	45.48	1	0	1
2005	8,861,183	147,915	571,236,717	2,055,862,057	38	29	3,018	15,193,938	70,764,895	100	100	79.09	48.00	1	0	1
2006	19,132,494	199,081	745,960,631	2,175,640,746	49	30	3,018	15,298,150	71,584,801	108.59	112	76.42	42.65	1	0	1
2007	20,380,513	368,783	871,715,292	2,382,757,204	57	33	3,018	15,408,161	72,436,640	120.28	131	76.71	24.87	1	0	1
2008	14,472,961	417,753	946,931,942	2,237,736,688	61	31	3,018	15,521,493	73,311,798	140.92	165	81.67	22.60	1	0	1
2009	8,459,019	159,631	721,938,788	1,929,626,932	46	26	3,018	15,636,987	74,195,741	151.2	187	65.60	24.46	1	0	1

Table 7.40: Kazakhstan's trade to Turkey (Data for Gravity Model Analysis)

	Kazakhstan to Turkey															
Year	Exports	Imports	GDP KAZ	GDP TUR	PC GDP KAZ	PC GDP TUR	DISTANCE	Population KAZ	Population TUR	CPI KAZ	CPI TUR	ONI KAZ	ONI TUR	Culture v	Border v	PTA v
1995	2,121,605	3,718,774	618,830,443	4,554,242,903	39	74	1,844	15,925,885	61,206,099	33.2	49.98	43.96	25.18	1	0	1
1996	1,118,409	3,271,739	455,212,245	4,959,932,232	29	80	1,844	15,711,160	62,264,906	46.21	49.18	48.18	27.05	1	0	1
1997	1,884,094	3,262,822	408,588,609	4,917,449,810	26	78	1,844	15,480,654	63,331,833	54.25	51.91	48.66	29.32	1	0	1
1998	1,589,712	3,507,342	380,788,670	4,729,039,557	25	73	1,844	15,259,068	64,395,635	58.13	56.94	43.81	27.03	1	0	1
1999	579,413	1,681,557	268,003,449	3,991,077,944	18	61	1,844	15,077,199	65,441,666	62.95	62.58	56.37	26.94	1	0	1
2000	874,111	2,020,244	256,729,693	6,630,836,944	17	100	1,844	14,956,751	66,459,578	71.25	40.20	74.23	30.63	1	0	1
2001	961,535	1,773,171	286,951,932	4,336,442,379	19	64	1,844	14,908,696	67,444,118	77.2	45.2	66.65	37.11	1	0	1
2002	1,192,619	2,124,833	301,512,649	3,548,458,491	20	52	1,844	14,927,414	68,398,135	81.71	65.53	65.85	37.43	1	0	1
2003	1,140,546	2,402,846	354,532,515	3,690,722,159	24	53	1,844	14,996,890	69,329,456	86.97	82.1	69.14	38.48	1	0	1
2004	1,582,109	3,683,135	464,245,799	4,319,374,690	31	61	1,844	15,092,092	70,250,173	92.95	90.79	76.13	40.97	1	0	1
2005	1,569,754	3,997,373	571,236,717	4,829,859,112	38	68	1,844	15,193,938	71,169,037	100	100	79.09	39.39	1	0	1
2006	3,206,553	5,141,037	745,960,631	4,804,247,662	49	67	1,844	15,298,150	72,087,928	108.59	110.51	76.42	42.40	1	0	1
2007	7,768,246	7,971,424	871,715,292	5,352,686,365	57	73	1,844	15,408,161	73,003,736	120.28	120.9	76.71	42.86	1	0	1
2008	13,509,538	6,888,663	946,931,942	5,501,923,440	61	74	1,844	15,521,493	73,914,260	140.92	132.74	81.67	45.73	1	0	1
2009	5,236,987	3,775,626	721,938,788	4,352,826,111	46	58	1,844	15,636,987	74,815,703	151.2	141.2	65.60	39.54	1	0	1

Table 7.41: Kazakhstan's trade to USA (Data for Gravity Model Analysis)

	Kazakhstan to USA															
Year	Exports	Imports	GDP KAZ	GDP USA	PC GDP KAZ	PC GDP USA	DISTANCE	Population KAZ	Population USA	CPI KAZ	CPI USA	ONI KAZ	ONI USA	Culture v	Border v	PTA v
1995	1,318,641	1,937,655	618,830,443	94,350,000,000	39	349	11,850	15,925,885	270,648,057	33.2	78	43.96	18.40	0	0	0
1996	1,291,443	1,433,892	455,212,245	97,298,750,000	29	355	11,850	15,711,160	274,066,829	46.21	80	48.18	18.51	0	0	0
1997	2,568,789	3,717,182	408,588,609	100,962,195,122	26	364	11,850	15,480,654	277,567,020	54.25	82	48.66	19.15	0	0	0
1998	1,211,090	4,534,884	380,788,670	105,313,253,012	25	375	11,850	15,259,068	281,083,466	58.13	83	43.81	18.59	0	0	0
1999	1,291,437	5,449,082	268,003,449	109,423,529,412	18	385	11,850	15,077,199	284,528,952	62.95	85	56.37	18.84	0	0	0
2000	2,472,919	3,888,953	256,729,693	112,486,363,636	17	391	11,850	14,956,751	287,842,178	71.25	88	74.23	20.59	0	0	0
2001	1,844,719	4,497,475	286,951,932	112,460,439,560	19	386	11,850	14,908,696	290,995,477	77.2	91	66.65	18.67	0	0	0
2002	1,742,899	5,647,503	301,512,649	115,110,869,565	20	392	11,850	14,927,414	294,008,811	81.71	92	65.85	17.90	0	0	0
2003	1,139,169	5,410,297	354,532,515	117,970,212,766	24	397	11,850	14,996,890	296,927,556	86.97	94	69.14	18.29	0	0	0
2004	2,946,993	6,058,517	464,245,799	121,776,288,660	31	406	11,850	15,092,092	299,821,165	92.95	97	76.13	19.84	0	0	0
2005	6,660,284	12,044,757	571,236,717	125,797,000,000	38	416	11,850	15,193,938	302,740,610	100	100	79.09	20.96	0	0	0
2006	4,256,908	10,183,295	745,960,631	129,477,669,903	49	424	11,850	15,298,150	305,696,681	108.59	103	76.42	22.17	0	0	0
2007	3,489,371	13,500,949	871,715,292	132,177,358,491	57	428	11,850	15,408,161	308,673,972	120.28	106	76.71	22.69	0	0	0
2008	4,042,000	13,701,313	946,931,942	130,630,909,091	61	419	11,850	15,521,493	311,665,999	140.92	110	81.67	24.11	0	0	0
2009	4,051,684	9,216,979	721,938,788	128,357,225,258	46	408	11,850	15,636,987	314,658,780	151.2	110	65.60	18.83	0	0	0

Table 7.42: Kazakhstan's trade to UK (Data for Gravity Model Analysis)

	Kazakhstan to UK															
Year	Exports	Imports	GDP KAZ	GDP UK	PC GDP KAZ	PC GDP UK	DISTANCE	Population KAZ	Population UK	CPI KAZ	CPI UK	ONI KAZ	ONI UK	Culture v	Border v	PTA v
1995	3,357,560	2,519,028	618,830,443	13,455,543,317	39	232	5,608	15,925,885	58,042,339	33.2	86	43.96	42.85	0	0	0
1996	4,995,539	1,655,867	455,212,245	13,859,326,923	29	238	5,608	15,711,160	58,200,861	46.21	88	48.18	43.98	0	0	0
1997	10,115,848	2,605,433	408,588,609	15,099,412,842	26	259	5,608	15,480,654	58,358,391	54.25	90	48.66	42.98	0	0	0
1998	8,099,141	3,769,421	380,788,670	15,998,814,276	25	273	5,608	15,259,068	58,522,384	58.13	91	43.81	39.99	0	0	0
1999	2,998,376	3,568,296	268,003,449	16,333,273,203	18	278	5,608	15,077,199	58,702,979	62.95	92	56.37	38.65	0	0	0
2000	3,079,575	3,124,049	256,729,693	15,887,221,944	17	270	5,608	14,956,751	58,907,407	71.25	93	74.23	42.12	0	0	0
2001	3,517,948	3,231,045	286,951,932	15,648,790,606	19	265	5,608	14,908,696	59,137,851	77.2	94	66.65	41.51	0	0	0
2002	1,613,320	3,178,563	301,512,649	16,968,420,842	20	286	5,608	14,927,414	59,392,008	81.71	95	65.85	39.70	0	0	0
2003	1,646,413	2,858,535	354,532,515	19,184,467,487	24	322	5,608	14,996,890	59,666,955	86.97	97	69.14	37.68	0	0	0
2004	2,583,010	3,239,535	464,245,799	22,474,387,976	31	375	5,608	15,092,092	59,957,844	92.95	98	76.13	37.10	0	0	0
2005	3,205,055	4,232,943	571,236,717	22,801,123,640	38	378	5,608	15,193,938	60,260,594	100	100	79.09	39.48	0	0	0
2006	10,533,894	4,661,749	745,960,631	23,962,256,050	49	396	5,608	15,298,150	60,574,504	108.59	102	76.42	43.00	0	0	0
2007	9,421,635	6,127,155	871,715,292	26,771,177,886	57	440	5,608	15,408,161	60,899,158	120.28	105	76.71	37.87	0	0	0
2008	12,852,714	4,888,859	946,931,942	24,606,305,998	61	402	5,608	15,521,493	61,230,913	140.92	108	81.67	41.10	0	0	0
2009	8,168,536	4,644,901	721,938,788	19,544,906,915	46	317	5,608	15,636,987	61,565,422	151.2	111	65.60	38.44	0	0	0

Table 7.43: Kazakhstan's trade to China (Data for Gravity Model Analysis)

	Kazakhstan to China															
Year	Exports	Imports	GDP KAZ	GDP CHI	PC GDP KAZ	PC GDP CHI	DISTANCE	Population KAZ	Population CHI	CPI KAZ	CPI CHI	ONI KAZ	ONI CHI	Culture v	Border v	PTA v
1995	8,552,076	1,044,153	618,830,443	8,801,862,749	39	7	3,685	15,925,885	1,189,611,647	33.2	86	43.96	37.10	0	1	0
1996	9,930,726	775,118	455,212,245	9,591,547,742	29	8	3,685	15,711,160	1,201,557,961	46.21	93	48.18	32.50	0	1	0
1997	8,015,605	858,734	408,588,609	10,368,904,313	26	9	3,685	15,480,654	1,213,020,936	54.25	95	48.66	33.01	0	1	0
1998	6,616,564	1,019,882	380,788,670	11,002,096,045	25	9	3,685	15,259,068	1,224,064,227	58.13	95	43.81	31.00	0	1	0
1999	7,605,432	1,313,913	268,003,449	11,836,302,475	18	10	3,685	15,077,199	1,234,636,129	62.95	93	56.37	32.76	0	1	0
2000	9,411,468	2,118,139	256,729,693	12,689,747,513	17	10	3,685	14,956,751	1,244,677,136	71.25	94	74.23	39.76	0	1	0
2001	8,376,304	2,227,771	286,951,932	14,005,935,488	19	11	3,685	14,908,696	1,254,278,737	77.2	94	66.65	38.71	0	1	0
2002	12,467,016	3,830,956	301,512,649	15,634,842,239	20	12	3,685	14,927,414	1,263,462,737	81.71	93	65.85	42.69	0	1	0
2003	19,007,485	6,021,650	354,532,515	17,346,508,176	24	14	3,685	14,996,890	1,272,335,647	86.97	95	69.14	51.64	0	1	0
2004	21,160,959	8,157,427	464,245,799	19,760,222,804	31	15	3,685	15,092,092	1,280,977,388	92.95	98	76.13	59.62	0	1	0
2005	24,225,066	12,518,378	571,236,717	23,027,191,610	38	18	3,685	15,193,938	1,289,482,679	100	100	79.09	61.75	0	1	0
2006	33,083,287	17,726,704	745,960,631	27,523,475,256	49	21	3,685	15,298,150	1,297,847,167	108.59	101	76.42	63.33	0	1	0
2007	46,856,620	29,159,260	871,715,292	32,625,782,159	57	25	3,685	15,408,161	1,306,131,566	120.28	106	76.71	62.93	0	1	0
2008	54,474,943	32,394,680	946,931,942	39,080,562,373	61	30	3,685	15,521,493	1,314,357,176	140.92	113	81.67	58.04	0	1	0
2009	38,945,718	23,607,990	721,938,788	415,368,860,350	46	314	3,685	15,636,987	1,322,614,973	151.2	12	65.60	44.28	0	1	0

Table 7.44: Kazakhstan's trade to Germany (Data for Gravity Model Analysis)

	Kazakhstan to Germany															
Year	Exports	Imports	GDP KAZ	GDP GER	PC GDP KAZ	PC GDP GER	DISTANCE	Population KAZ	Population GER	CPI KAZ	CPI GER	ONI KAZ	ONI GER	Culture v	Border v	PTA v
1995	5,153,767	5,920,574	618,830,443	28,995,674,342	39	355	4,869	15,925,885	81,622,092	33.2	87	43.96	39.16	0	0	0
1996	3,959,426	4,276,054	455,212,245	27,710,962,236	29	339	4,869	15,711,160	81,838,278	46.21	88	48.18	40.31	0	0	0
1997	6,507,553	6,773,410	408,588,609	24,006,332,177	26	293	4,869	15,480,654	81,953,931	54.25	90	48.66	44.34	0	0	0
1998	4,530,087	6,256,346	380,788,670	24,005,215,314	25	293	4,869	15,259,068	82,001,630	58.13	91	43.81	46.45	0	0	0
1999	5,549,755	4,440,540	268,003,449	23,555,558,931	18	287	4,869	15,077,199	82,030,194	62.95	91	56.37	47.41	0	0	0
2000	7,660,529	4,702,564	256,729,693	20,432,469,438	17	249	4,869	14,956,751	82,074,780	71.25	93	74.23	55.28	0	0	0
2001	6,418,815	6,289,281	286,951,932	19,904,778,905	19	242	4,869	14,908,696	82,146,061	77.2	95	66.65	55.92	0	0	0
2002	2,689,167	7,171,585	301,512,649	21,010,546,938	20	256	4,869	14,927,414	82,232,195	81.71	96	65.85	54.86	0	0	0
2003	1,682,877	8,436,488	354,532,515	25,176,474,378	24	306	4,869	14,996,890	82,318,904	86.97	97	69.14	55.29	0	0	0
2004	2,289,731	11,327,020	464,245,799	28,012,396,965	31	340	4,869	15,092,092	82,383,183	92.95	98	76.13	59.37	0	0	0
2005	4,089,356	12,988,312	571,236,717	27,883,897,926	38	338	4,869	15,193,938	82,408,688	100	100	79.09	63.01	0	0	0
2006	5,075,747	16,660,483	745,960,631	28,613,292,126	49	347	4,869	15,298,150	82,392,695	108.59	102	76.42	70.04	0	0	0
2007	3,261,353	21,497,730	871,715,292	32,011,033,568	57	389	4,869	15,408,161	82,342,623	120.28	104	76.71	71.73	0	0	0
2008	4,358,336	18,251,818	946,931,942	33,967,546,571	61	413	4,869	15,521,493	82,264,266	140.92	107	81.67	73.47	0	0	0
2009	5,940,028	13,504,356	721,938,788	31,121,775,917	46	379	4,869	15,636,987	82,166,671	151.2	107	65.60	62.05	0	0	0

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