BILATERAL TRADE AMONG THE DEVELOPING EIGHT (D-8) COUNTRIES

MOHIM SHEIHAKI TASH

THESIS SUBMITED IN FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

FACULTY OF ECONOMICS AND ADMINISTRATION
UNIVERSITY OF MALAYA
KUALA LUMPUR, MALAYSIA

2013

UNIVERSITI MALAYA
ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: **Mohim Sheihaki Tash** (I.C/Passport No: **R19245551**)

Registration/Matric No: **EHA070027**

Name of Degree: **Doctor of Philosophy**

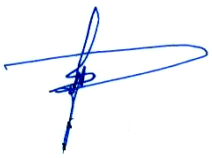
Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):

BILATERAL TRADE AMONG THE DEVELOPING EIGHT (D-8) COUNTRIES

Field of Study: **Development studies**

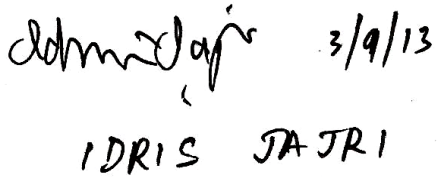
I do solemnly and sincerely declare that:

(1) I am the sole author/writer of this Work;
(2) This Work is original;
(3) Any use of any work in which copyright exists was done by way of fair dealing and for permitted purposes and any excerpt or extract from, or reference to or reproduction of any copyright work has been disclosed expressly and sufficiently and the title of the Work and its authorship have been acknowledged in this Work;
(4) I do not have any actual knowledge nor do I ought reasonably to know that the making of this work constitutes an infringement of any copyright work;
(5) I hereby assign all and every rights in the copyright to this Work to the University of Malaya ("UM"), who henceforth shall be owner of the copyright in this Work and that any reproduction or use in any form or by any means whatsoever is prohibited without the written consent of UM having been first had and obtained;
(6) I am fully aware that if in the course of making this Work I have infringed any copyright whether intentionally or otherwise, I may be subject to legal action or any other action as may be determined by UM.

Candidate's Signature Date 

Subscribed and solemnly declared before,

Witness's Signature Date

Name:
Designation: 

ABSTRACT

The Developing 8 (D-8) is a group of predominantly Muslim developing countries that are all members of the Organization of Islamic Conference (OIC), which have formed an economic alliance. It consists of Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. The group was established after an announcement in Istanbul Turkey on June 15, 1997. The group is designed to gradually reduce tariffs on specific goods between member-states, with a supervisory committee overseeing the process. The purpose of the group is to reduce barriers to free trade between member states, as well as promote inter-state cooperation.

Despite the important role of D-8 countries, the empirical literature analyzing the trade of D-8 members with each other is still rather limited. Thus, it is interesting to investigate the trade among these countries in depth. This dissertation investigates the intra-trade of the preferential trade agreement among the D-8 countries by looking at the possibility of full-fledged trade liberalization through the expansion of the coverage of the preferential tariff reduction. This study applies the gravity modeling approach using panel data in two stages – before and after formation of D-8 cooperation –for a quantitative analysis of the economic effects of a preferential trade arrangement between the contracting countries. An important aim of the research is to appraise whether there will be significant gains in intra-trade amongst the D-8 member countries when tariff barriers and enhancement measures are being entirely dismantled.

The composition of trade determines the level of bilateral matching of commodities of an exporter with the demands of an importer. Obviously, the gravity model does not take into account commodity composition. Instead, we employ the trade intensity index to show the effect of commodity composition on bilateral trade. Using the decomposition method, similar to Drysdale (1967), we aim to show how much of the trade volume effect is due to complementarity (compositional effect) and country bias (average resistance). It is expected that an index that captures the composition of trade could provide better understanding of the effect of trade costs on bilateral trade flows.

The results indicate that all the variables used in the model have the expected sign and are significant. In summary, the results signify that while D-8 intra-trade is expected to increase very substantially, not all countries will experience a welfare gain under a free trade arrangement. Likewise, the impact on the economic sector differs substantially across countries. The findings of this thesis may serve as recommendations for policy makers to improve the bilateral trade flows amongst the D-8 countries as important trading partners.

ABSTRAK

Kumpulan Lapan Negara Membangun (D-8) merupakan kumpulan negara-negara Islam membangun di mana kesemuanya adalah anggota Pertubuhan Persidangan Islam (OIC), telah membentuk satu pakatan ekonomi. Ia terdiri daripada Bangladesh, Mesir, Indonesia, Iran, Malaysia, Nigeria, Pakistan dan Turki. Kumpulan ini telah ditubuhkan selepas pengumuman di Istanbul Turki pada 15 Jun, 1997. Kumpulan ini merancang untuk secara beransur-ansur mengurangkan tarif ke atas barang-barang tertentu antara negara-negara anggota, dengan sebuah jawatankuasa bertanggungjawab menyelia proses tersebut. Kumpulan ini bertujuan untuk mengurangkan halangan kepada perdagangan bebas antara negara anggota, serta menggalakkan kerjasama antara negara.

Walaupun negara-negara D-8 memainkan peranan penting dalam dunia perdagangan, tetapi sorotan kajian empirik yang menganalisis perdagangan antara negara-negara D-8 masih agak terhad. Oleh yang demikian, adalah penting satu kajian yang lebih mendalam mengenai perdagangan di kalangan negara-negara ini dilakukan. Disertasi ini mengkaji perjanjian keutamaan perdagangan di kalangan negara- negara D-8 dengan melihat pada kemungkinan liberalisasi sepenuhnya melalui peningkataan liputan pengurangan tarif keutamaan. Kajian ini menggunakan pendekatan model graviti serta menggunakan data panel dalam dua peringkat - sebelum dan selepas pembentukan D-8 - untuk analisis kuantitatif kesan ekonomi dari perjanjian perdagangan keutamaan di antara negara-negara yang terlibat. Satu matlamat penting kajian adalah untuk menilai sama ada akan wujud keuntungan yang ketara dalam perdagangan di kalangan

negara yang menganggotai D-8 apabila halangan tarif dan langkah-langkah peningkatan sepenuhnya dihapuskan.

Komposisi perdagangan menentukan tahap padanan dua hala komoditi pengeksport dengan permintaan pengimport. Jelas sekali, model graviti tidak mengambil kira komposisi komoditi. Sebaliknya, kita menggunakan indeks intensiti perdagangan untuk menunjukkan kesan komposisi komoditi terhadap perdagangan dua hala. Dengan menggunakan kaedah penguraian, sepertimana Drysdale (1967), kami berhasrat untuk menunjukkan berapa banyak kesan jumlah dagangan adalah berpunca dari saling melengkapi (kesan komposisi) dan bias negara (rintangan purata). Adalah dijangkakan bahawa indeks yang mengambil kira komposisi perdagangan boleh memberi kefahaman yang lebih baik mengenai kesan kos perdagangan terhadap aliran perdagangan dua hala.

Keputusan kajian menunjukkan bahawa semua pembolehubah dalam model yang digunakan mempunyai tanda sebagaimana yang dijangka dan ianya signifikan. Secara ringkasnya, keputusan menunjukkan bahawa walaupun perdagangan di kalangan negara-negara D-8 dijangka meningkat dengan ketara, tetapi tidak semua negara akan mengalami faedah kebajikan di bawah perjanjian perdagangan bebas. Begitu juga, kesan ke atas sektor ekonomi berbeza dengan ketara di antara negara. Penemuan tesis ini boleh dimajukan sebagai cadangan kepada penggubal dasar untuk meningkatkan aliran perdagangan dua hala di kalangan negara-negara D-8, sebagai rakan dagangan yang penting.

ACKNOWLEDGEMENT

In the name of God, the most Gracious, the most Compassionate

The writing of this thesis has been the most challenging undertaking of my life to date. I could not have completed this work without the support and help of many people. It is to them that I owe my deepest gratitude.

I would also like to convey my thanks to the University of Malaya for providing the financial support and facilities.

I am deeply indebted to my supervisor Prof. Dr Idris Bin Jajri for his constant encouragement and guidance throughout this research. His wisdom, knowledge and commitment to the highest standards inspired and motivated me.

I would like to express my special thanks of gratitude to Dr. Mohamed Aslam Bin Gulam Hassan who showed kind concern and consideration.

Dr. Cheong Kee Cheok for his input in this study. He has shared valuable insights into the relevance of the study.

My brother, Dr. Mohammad Nabi Sheihaki Tash, who has always supported, encouraged and believed in me.

My friend, Emad Sadeghinezhad, who inspired my final effort despite the enormous work pressure we were facing together.

My wife, Elham, without whom this effort would have been worth nothing. Your love, support and constant patience have taught me so much about sacrifice.

Last but not the least; heartfelt thanks are extended to my beloved parents for their love, support and encouragement. This would be incomplete without sincere thanks to my Father who always encouraged me to achieve the best, and to my Mother for her support and faith in me during the hardship.

This dissertation is dedicated to my beloved wife Elham and my son Roham, and to all my family.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

ACICIS	Australian Consortium for 'In-Country' Indonesian Studies
ASEAN	Association of South East Asian Nations
AU	African Union
BCEAO	Central Bank of West African States
BNLS	Botswana, Namibia, Lesotho and Swaziland
CAGR	Compound Annual Growth Rate
CET	Common External Tariff
CU	Custom Union
CM	Common Market
COMCEC	OIC Standing Committee for Economic and Commercial Cooperation
COMESA	Common Market for Eastern and Southern Africa
D-8	Developing 8 Countries

DDA	Doha Development Agenda
EAC	East African Community
EEC	European Economic Community
EFTA	European Free Trade Area
EPA	Economic Partnership Agreement
ERM	Exchange Rate Mechanism
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
ICDT	The Islamic Center For Development of Trade
ICFM*	Islamic Conference of Foreign Ministers
ICTM	Islamic Conference of Tourism Ministers
ICT	Information and Communication Technology

IDC	Industrial Development Cooperation
IMF	International Monetary Fund
LMDC	Least Developed Member Countries
LAFTA	Latin America Free Trade Association
MERCUSOR	Southern Common Market
MFN	Most Favored Nation
NAFTA	North America Free Trade Agreement
NTBs	Non-Tariff Barriers
OIC	Organization of the Islamic Conference
REC	Regional Economic Community
RIA	Regional Integration Agreement
RISDP	Regional Indicative Strategic Development Plan
RoO	Rules of Origin
SACU	Southern African Custom Union

SADC	Southern African Development Community
SESRIC	Statistical, Economic and Social Research and Training Centre for Islamic Countries
TDCA	Trade and Development Cooperation Agreement
UNCTAD	United Nation Conference on Trade and Development
WAEMU	West Africa Economic and Monetary Union
WTO	World Trade Organization

* The term is now CFM according to the New Charter designating "Council of Foreign Ministers"

CHAPTER 1

INTRODUCTION

1.1 Background

Despite the apparent orientation of the world economy and markets towards globalization, it is obvious that this process is dominated by the trend of regionalization and large economic blocs. Nowadays, although multilateral trade liberalization is observed to move under the principles of the WTO, regionalization, as a fundamental strategy for the expansion of trade among both developed and developing countries, has been strengthened. These do not set up mutually exclusive phenomena and neither are they conflicting. Needless to say, this inclination towards groupings is dictated by the fierce competition on the world scale, both economically and politically. Almost all of these economic blocs comprise countries with many similarities in their socio-economic and political structure as well as cultural set-up, geographical proximity, and apparent vested mutual interests.

The satisfactory outcomes resulting for the member countries from the formation of the EU and the joining of the eastern and central European countries in the EU led the attention of other countries to the EU. It was because the EU was considered as a successful pattern which could gain remarkable achievements in economic growth, and could obtain a greater share as far as global trade and production were concerned (SESRTCIC, 2003). Moreover, the objectives of the EU members were questioned because of the establishment of the Single European Market and its consequences on

both the global economy and the individual economies of non-member states. The United States (US) and Japan were among the first nations whose reactions were observed. In spite of the fact the US was not previously in agreement with regionalization, it is now a member of both NAFTA and APEC. In other words, in order to save its economic and commercial status by accessing the regional markets, the strategy of multiple memberships was followed by the US.

In conjunction with the multiple membership strategy adopted by the US, the developed countries have paid due attention to regionalization along with their attempts regarding multilateral trade negotiations. In such a global environment, the Eighth Session of the Islamic Summit Conference (IS), held in Tehran, Islamic Republic of Iran, in December 1997, adopted a resolution on the Islamic Common Market. Inter alia, it urged "related bodies and institutions in the OIC, concerned regional and national institutions, and public and private sectors in Islamic countries to study the implications of establishing an Islamic Common Market among member states" (ICDT, 2008).

It was in 1974 at the Second Islamic Summit that the idea to establish an Islamic Common Market among the members of the Organization of Islamic Countries (OIC) was first suggested. It was believed that the idea must be considered as a long-term objective demanding due attention and a comprehensive scrutiny. As an ultimate goal the establishment of an Islamic Common Market was implicitly referred to in the subsequent Islamic Summits and the Islamic Conferences of Foreign Ministers (ICFM). Meanwhile, the OIC countries realized at an early stage the basic need to enhance their efforts of cooperation to move towards this objective through strengthening their

economic and trade relations and overcoming all weaknesses which could jeopardize further trade and economic collaboration.

The acceptance of the Plan of Action[1] (POA 1981) to expand economic and commercial activities among the OIC members was the most important attempt aiming at the intra-OIC economic and trade cooperation, which was followed by establishing the Standing Committee for Economic and Commercial Cooperation (COMCEC) to pursue the plan. Since the adoption of POA, the significant political and economic changes across the world have revised the plan and a new POA was adopted in 1994 including a strategy and a mechanism of follow-up and implementation (Alpay et al. 2011). However, due to the slow progress in its implementation, the POA has remained a problematic issue for the OIC members since then.

The Developing 8 (D-8) is made up from a group of Muslim developing countries, and all are members of the Organization of the Islamic Conference (OIC); collectively, they have formed an economic alliance composed of Malaysia, Indonesia, Iran, Bangladesh, Pakistan, Nigeria and Turkey. D-8 was established in Istanbul, Turkey after an announcement on the 15th of June 1997. This agreement (D-8 PTA) is meant to gradually reduce the tariffs on specific goods between the member-states, which would be supervised by a committee to oversee the process. The agreement is aimed at reducing the barriers between the member-states and promoting inter-state cooperation among them.

[1] The Plan of Action constitutes, at the level of sectors and areas of co-operation, a policy document with detailed indicative action programs, to serve as an operational complement of the Strategy to Strengthen Economic Co-operation among the OIC Member States.

The objectives of the D-8 Organization for Economic Cooperation are to improve the position of member states in the global economy, diversify and create new opportunities in trade relations, enhance participation in decision-making on an international level, and improve standards of living (D-8Secretariat, 2008).The D-8 countries comprise some 961 million people or around 15percent of the world's population, creating a huge market, with a dynamic labor force. The population has rich mineral, energy and agricultural resources; promising tourism capacity; and competitive operational costs, added to which proper planning would enhance trade between the members. Half of the members are cited within the top 25 merchandise exporters of the world.[1] Two of them are members of the G-20.[2] All the D-8 countries are important players in their respective regions. Around 45 percent of the total exports of the 57 membered OIC are realized by the 8 countries of the organization. The D-8 countries, when calculated together, compromise 55 percent of the total GDP of the OIC countries.

Despite the global financial crisis, the trade volume among the member states of the D-8 rose from $35 billion in 2006 to$78 billion in 2008.In addition, according to the latest available statistics, the D-8 countries' total trade volume had reached $1.15 trillion by 2009, of which the intra trade volume was $67 billion, that is, 6.08percent of D-8's total trade volume, which indicated a significant rise, compared to previous years. However, that is far behind D-8's potential. According to the D-8 roadmap, trade volume among member countries will increase to 15 to 20 percent of the organization's total trade by 2018.

[1] Malaysia, Indonesia, Turkey and Iran
[2] Indonesia and Turkey

The entry into force of a PTA would be a key step for further development of D-8 intra-trade by means of both quantity and diversity. In other words, the enforcement of a PTA would cause the member exporters to benefit from preferential tariff treatments provided for some items in the members' market; moreover, it provides the exporters with advantages out of the competition over similar products introduced in non-member countries.

The harmony between setting up a trading bloc and the economic vision ofD-8 countries and the priorities they follow is very well suited. This has been summarized well as follows: "Three of the D-8 member countries –Turkey, Malaysia and Indonesia– are major emerging markets with high growth prospects. Four others –Iran, Egypt, Nigeria and Pakistan– are striving to unshackle their economies from state control. The eighth, Bangladesh, is climbing from the bottom rung of the world's economic ladder" (Aral, 2005).

The beginning rationale behind the establishment of D-8 was not the founding of a bloc that would challenge existing international norms and institutions. Instead, economic and trade cooperation was the main concern of the founders of D-8. As a matter of fact, D-8 was not a reaction against imperialism, it was the result of original motivations shared among the member countries. A reasonable degree of complementarity among the founding states in respect of raw materials and industrial products has surely increased the likelihood of D-8's sustainability.

The study of the impetus that led member countries to contribute to the formation of D-8 shows that the members' interest in material rewards motivated most of them to take respective measures. The establishment of a new international

organization that could contribute to deepening the relationship among Muslim states was also observed as members' intent. Especially, this was observed from Erbakan and his colleagues. Among others, escaping international isolation through D-8 channels led some of the governments to participate (Aral, 2005).

Despite the important role of D-8 countries, the empirical literature analyzing D-8 member's trade with each other is still rather limited. Thus, it is interesting to investigate the trade among these countries in depth. This thesis applies the gravity model to investigate the bilateral trade flows in two stages before and after formation of D-8 cooperation amongst Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. The purpose of the thesis is three-fold: to identify significant factors influencing the levels of trade among D-8, and to test whether there will be significant gains in intra-trade and welfare amongst the D-8 member countries, and also whether trade among them fully exploits their potential or there is still room for more trade. The findings of this thesis may serve as recommendations for policy makers to improve the bilateral trade flows amongst D-8, as important trading partners.

1.2 Significance of Study

According to the WTO (2010) there are over 220 Preferential Trade Agreements (PTAs) in force today whose extent and coverage are different from one another. The differences include flows of trade, membership, and population. Normally, each country belongs to six different PTAs, except for Mongolia, which does not belong to any PTA.

Within the last twenty years, there has been a remarkable increase in the number of PTAs and the share of preferential trade in world trade. At least 197 PTAs have come

into existence between 1990 and 2010, which set up 32% of world trade. The number exceeds the total number of PTAs signed in the previous 50 years (numbering 23) (Medvedev, 2010; WTO, 2011). Moreover, a growing number of these PTAs are signed among developing countries, reaching a total of 110 during this period (compared to 78 for South-North and 9 for North-North PTAs). This growing importance of PTAs in world trade re-ignited the academic interest on the subject. Nevertheless, despite the significant increase in South-South trade integration and their share in world trade, academic research on the determinants and desirability of PTAs remains divided (Bhagwati, 1998; Panagariya, 2000; Baier and Bergstrand, 2004; Magee 2008). The trade literature has long argued that PTAs can benefit member states through economies of scale and comparative advantage, as well as higher competition (Schiff, 2003). However, these arguments are generally reserved for North-North and South-North but not South-South PTAs (Demir and Dahi, 2011).

In 2011, all countries of the European continent are currently members of an entirely common market and some of these countries have stepped into the stage of monetary union. The North America Free Trade Area (NAFTA) was established by Canada, Mexico, and USA. The countries in South America formed (MERCOSUR) and several common markets or customs unions or Free Trade Areas. There are also many ongoing plans in Africa; prominent examples include the Group of Three, and South Africa Customs Union (SACU).South-south co-operation has also been strengthened through the measures taken recently by South Africa, India, and Brazil. Some plans have even been presented to form a customs union among Israel, Jordan and Palestine (Yildiz and Nath, 2010).

Asia has been an important participant in these trends. The region has witnessed an upswing in bilateral, regional, and cross-regional agreements. As of January 2010, 61 FTAs had been concluded in Asia; up from only 3 in 2000, with another 86 new agreements either under negotiation or proposed, thus clearly putting Asia at the forefront of PTA activity (Wignaraja and Lazaro, 2010). In the Middle East, Iran is a member of the Economic Cooperation Organization (ECO), along with nine other countries. These countries have limited economic cooperation with very limited economic privileges. Relatively, the Arab countries in the Persian Gulf, which are members of the Gulf Cooperation Council, have progressed more. Some of the Eastern Asian countries are members of ASEAN Union (Association of South Eastern Asian Nations), which is an economic integration plan and South Asia Free Trade Area (SAFTA).

In the present conditions, the economic integration plans have changed into one of the most important tools for economic development, trade development, defending against regional protectionism, increasing economic power of the group of states, attracting foreign investments, using large markets of the union, economies of scale, increasing economic efficiency, expanding exports and foreign trade, reducing the interference of national governments in the economy and increasing the role of transnational organizations, importance of international organizations and their privilege over national organizations, and, finally, the establishment of monetary unions or economic unions for political or religious reasons.

As regards the Islamic countries, there have been several attempts for economic integration. All Muslim countries are members of the Organization of the Islamic

Conference (OIC).This consists of five major sub-groupings; namely, the Arab Maghreb Union (AMU), Council of Arab Economic Unity (CAEU), Persian Gulf Co-operation Council (GCC), Economic Co-operation Organization (ECO) and Developing 8 countries (D-8).The Islamic Conference Organization is pursuing the plan for creation of an Islamic common market, however, the plan has not yet reached a final conclusion. It is important for the OIC to ensure that the D-8 experiment will succeed, as the eight countries account for roughly 80 percent of the world's Muslim population, notwithstanding the fact that they only represent less than one-seventh of the 54 members of the organization (Hassan, 2003). The D-8, as the main Islamic economic co-operation, after successful experimentation, can be extended eventually to all other OIC members.

The development of the EU and the regionalized growth, which has led to the growth of regional economic blocs has undesirable consequences for OIC members. These schemes cannot be ignored by OIC members because Europe and North America make up the major export markets for OIC members. The most important effect of the EU is on goods and services markets, and on investment and technology transfer. Regional schemes would provide the members with exclusive access to one another's markets. As such, countries that are not a member would witness restriction on access to the market.

The consequences brought up by the developments referred to above, highlight the significance of more constructive co-operation and collaboration among the OIC members that require more access to a polarized market. To this end, the establishment or reactivation of regional integration schemes seems to be among the first priorities.

Although Islam, as the main source, has interwoven D-8 members as a group, the diversity in the economic structure, political systems, development level, andsocio-cultural circumstances of D-8 is not unknown. This diversity has been claimed to be the first barrier for the improvement of economic cooperation, which is believed will provide great exchanges of goods, capital, entrepreneurship, labor, and technology among members, as well as provide a common tariff wall against third parties (Zeinelabdin and Ugurel, 1998).

Although diversity in D-8 members is believed to be problematic, the researcher believes that it could be a strengthening characteristic, if it is thought of positively and manipulated appropriately. Contrary to EC members, membership of low, middle, and high income countries are observed in the D-8 group; however, the cultural and socio-economical similarities shared by D-8 members, as the similarities shared by the EC, NAFTA and APEC countries, is one of the advantages of D-8 countries. Therefore, D-8 members can take great economic benefit from trade liberalization in the region. Hence, the research is going to provide significant implications as far as policy making regarding the D-8 members economic co-operation alternatives are concerned.

Intra-D-8 trade could not be beneficial for D-8 members as much as trading with non-member countries, causing marginal growth in intra-D-8 trade compared to the trade with the rest of the world. Intra-D-8 trade suffered from the tariffs and non-tariff barriers, low level of services and information on trade, and the current trade structure. Moreover, some of D-8 countries fail to create persuasive economic relations with regional partners, mainly due to their unstable and limited export capabilities. To this

we can add D-8 countries weak relationship with other members, because of fulfilling their import and export demands with non-members.

The marginalization of D-8 members along with some other developing countries because of the competitive atmosphere brought about by globalization and regionalization, has accentuated the establishment of an Islamic Common Market. Furthermore, the variety of protectionist practices performed by the major economic blocks of the developed countries necessitates the adoption of a contributive policy by developing countries. The idea to set up the D-8 free trade area or any other form of economic integration seems to be vital for the OIC countries as the main step toward an Islamic Common Market. This would help them to be on the safe side when dealing with the blocks of industrialized countries, which are economically powerful, and would minimize the possibilities of more marginalization (Dabour, 2004).

It is usually agreed that the national markets for most developing countries are too small for the establishment of plants of optimum size and for the realization of economies of scale. Hence, the enlargement of the markets and their protection are seen as prerequisites for a more rapid industrial development. This brings us to the question as to how far a customs union among the D-8 countries is a feasible option. While addressing this question, it is feasible to carry out a broad assessment on characteristic features of groups of countries that could either gain or lose from a customs union. Great achievements await D-8 members in Intra D-8 trade, in the case where member countries complement one another in different aspects, and if they exchange and share their experiences and strengths. In this regard, multiple opportunities are available to D-8 countries to strengthen cooperation, trade and investment among them in various fields including human and rural development, tourism, energy, and agriculture; this is

definitely contributive both to promoting the economies and to the economic integration of D-8countries.

However, among D-8 countries, Bangladesh has a GDP of $1400 m. and a per capita income of $1000. It is not very likely that this country could develop manufacturing industries to stand successfully in an intra-union competition. A system of compensation would have to be devised to help if a customs union is formed among such countries. As regards oil-rich countries, such as, Iran and Egypt, with a per capita income of $6000 or more, they have large financial means, which could allow them to give strong fiscal incentives, subsidies and other governmental support to their industries. In their case intra-group trade liberalization could be to their advantage.

Here it is sufficient to show that it is highly probable that the establishment of a free trade area or customs union would lead to a very uneven distribution of the costs and benefits among different countries of D-8. Therefore, it becomes necessary to look after the interests of those countries that are in danger of losing their manufacturing industrial capacity. This brings us to the question of studying the possible impact of forming a free trade area or a customs union among D-8 member countries.

This is why the economic integration is considered as one of the most important subjects for the present economic research. Considering the wide dimensions of the issue, detailed research has been done (and is still being done) about its miscellaneous aspects. The subject of regional economic cooperation is very important for Individual D-8 members. In other words, the enforcement of PTA would cause the member exporters to benefit from preferential tariff treatments provided for some items in

members' market; moreover, it provides the exporters with advantages out of the competition over similar products introduced in non-member countries.

In the Malaysian context, although Malaysia's largest trading partners are China, Singapore and Japan, it is government policy to expand its export market through the search for new markets by creating a bilateral or multilateral trade area. For example, the government is committed to the development of D-8 PTA. This is proven by its trade data.

The United States economic sanctions have important policy implications for Iran. Diversifying to find alternative export markets and develop new export markets is critical to avoid dependence on the West. As a first step, the D-8 PTA provides a new market alternative when other OIC countries participate in the future. In addition, in the Middle East, at least it can solve many existing political problems of the region. Although the discussion of the political issues is outside the scope of this dissertation, we have investigated its economic aspects, which are significantly important, because a serious decision has been made for regional economic cooperation in the Middle East and Central Asia, and between the Islamic Conference Organization member states; however, various countries have posed many economic questions and ambiguities, for which no answer has yet been provided. The present dissertation is an effort to respond to some of these questions. Other D-8 members also have their individual interests, which we will discuss in the following chapter.

1.3 Research Questions

This research endeavors to determine: can the economic integration plan be used as a policy for the development of exports or does such growth depend on more liberal exports and imports? The theory and experimental research of the present dissertation have been designed to answer these questions. To this end, we have to discover in what form and to what extent the effects of trade diversion and trade creation can occur, what kind of influence the protection levels can have on the degree of these effects, and finally, what kind of changes in a trade policy will effect a better result. Therefore, we can summarize the questions of the present dissertation to fill the research gap and to reach the research objectives as follows:

1. Does the D-8 PTA make sense in the first place?

2. Is the share of D-8 countries trade among themselves more than the proportion of their share of world trade? And, if so, on average, do D-8 members trade more with each other than the world does? Is the intensity of trade among members more than their interest in trading with the rest of the world?
3. Does the export profile of the source overlap the import profile of the destination among D-8 countries? In other words, does the export pattern of one D-8 country match the import pattern of another? Will the trade profiles become more or less compatible over time? Does the trade among the D-8 members fully exploit its potential?
4. Will economic integration between D-8be beneficial for all member countries as a group? And, will the members gain more from D-8?

5. What is the net welfare effect of forming D-8 on Iran's trade? Did the membership of Iran in D-8causetrade creation or trade diversion?

Regarding the first, second and third questions, trade indicators including trade intensity, trade complementarity, and trade bias are estimated. Naturally, because of the solely experimental nature of the research about them, the theoretical assumptions will neither be possible nor have an analytical value. Regarding these questions, we only have to look at the answer to the experimental tests. We will consider the fourth question using the gravity model estimated with panel data. To do this, the theoretical aspects of gravity models have been extracted and proven. In order to answer question five, trade creation and diversion are estimated using trade creation and diversion indices.

1.4 Research objectives

The key objectives of this dissertation are:

- In view of the fact that the empirical aspect of economic integration in D-8 literature has been somewhat ignored, attempts will be made to discuss some significant factors that affect trade among these countries.
- The study also deals with the influential factors in bilateral trade with reference to member states economic structure to offer appropriate policies to improve the bilateral trade among D-8 countries.

- This research endeavors to determine whether we can use the economic integration plan as a policy for development of economic growth and whether such growth depends on more liberal export and import flows.

- Discover in what form and to what extent the effects of trade diversion and trade creation can occur, what kind of influence the protection levels can have on the degree of these effects, and, finally, what kind of changes in trade policy will lead to a better result.

1.5 Research Hypotheses

The testable hypotheses of the present dissertation are outlined as follows:

H1: D-8 country members have more intensity to intra trade rather than trade with the rest of the world.

H2: D-8 countries have high bilateral trade potential. In other words, they could be compatible trade partners.

H3: Forming D-8 and expanding the bilateral trade among member states is beneficial for all the member countries as a group.

H4: Access to member countries' markets is not restricted in D-8 and they could gain advantage from bilateral trade partnership.

1.6 Research Methodology

The theory of Customs Unions was pioneered by Jacob Viner's[1] (1950) groundbreaking work. He invented the two concepts of "the effect of trade creation" and "the effect of trade diversion" in a partial equilibrium model; based on the model, he showed that we cannot definitely conclude whether or not the formation of a customs union, or economic integration, leads to these two effects and ensures higher efficiency of allocation. Trade diversion is the shift of production from efficient external suppliers to inefficient members. In contrast, trade creation is the shift of production from inefficient domestic providers to efficient RTA members. While trade creation is associated with the standard gains from trade, trade diversion can make a trade agreement harmful for both members and nonmembers (Freund and Ornelas, 2010).

Therefore, there are some doubts regarding the effect of economic integration plans on economic development, because it might be the effect of trade diversion that reduces the welfare, rather than the effect of trade creation increasing the welfare, and, accordingly, the principal goal, i.e. efficient allocation of resources as a foundation for long-term economic growth and development, may not achieved.

However, a few years later, Lipsey (1957) and Gehrles (1956) were able to show in a general equilibrium model that the effect of trade diversion may increase welfare. Melvin (1969) and Bhagwati (1971) also achieved similar results with the general

[1]The Viner approach is 'static' because it only concerns the welfare effects of a once-for-all FTA or CU formation instead of considering "time-path' questions. It is a 'benign-government' approach because the formation of the FTA or CU is exogenously specified and the incentives to form them so that they are endogenously determined (as in Krishna (1993)) are not modeled. See Bhagwati (1993) for these analytical distinctions (Krishna and Bhagwati, 1997).

equilibrium model. Therefore, the first conflicts regarding the notion of customs unions began in the 1950s.

Cooper and Massel (1965a) reasoned that any country upon liberalization of general and multilateral trade, instead of economic integration plans, can achieve the same effect from trade creation, without having to suffer the effect of trade diversion. In other words, if instead of discriminatively reducing the tariffs, we reduce them for all countries, i.e. we unilaterally embark on trade liberalization; we will sustain no welfare losses; and, hence, free trade has an advantage over regional economic integration.

An analysis carried out by Lipsey-Gehrles and Melvin-Bhagwati revealed that in specific cases in the general equilibrium model, the effect of trade diversion can increase the welfare, while in other cases it can reduce it. Cooper-Massel's article remained unrivalled for 15 years and showed that the free trade a country starts unilaterally has an advantage over a customs union. This was until Wonnocot and Wonnocot (1981), who used a general equilibrium model to show that with regard to the conditions under which the third countries set tariffs with existing transportation expenses, the customs union or integration plan can have an advantage over unilateral free trade. A few years later, they faced a protest from Berglas (1983). Berglas argued that the Wonnocots had failed to consider two principal assumptions in their analysis; therefore, according to their model we are not able to come up with the result that the customs union or integration plan has priority over unilateral free trade. El-Agra (1984) reasoned that Wonnocots' analysis is not complete because it rules out foreign common tariffs set by customs union member states against third countries.

In addition, numerous experimental researches were carried out about the effects of the formation of customs unions around the world, for example, the formation of the European Economic Community at the end of the 1950s, or other integration plans among developing countries in Latin America and Asia (e.g. MERCOSUR or ASEAN). The research specifically revealed that the integration plans in developing countries have been generally associated with the significant effects of trade diversion. The same issue was discussed as one of the major reasons for the breakup of most initial integration plans among the developing countries.

In 1980, the European Economic Community expanded its realm when Greece, and later, Portugal and Spain, joined the Community. Subsequently, the issue of customs unions and economic blocs formed in this way maintained a significant importance and expansion in the economic literature. Gradually, the number of economic integration plans among developing countries also increased. In the 1990s, two developed countries (Canada and the USA) formed the North American Free Trade Area (NAFTA) with Mexico as a developing country. Following the membership of Austria, Sweden, Norway and Finland, the European Economic Community expanded further. Currently, the Eastern European Countries are gradually joining the European Community and MERCOSUR and ASEAN were reinforced and a large number of additional integration plans were also established in Latin America and Africa. Most of the experimental or theoretical literature so created, deal with its effects on the economic development of these countries; the most recent ones include Soesastro and Hew (2011) in respect of ASEAN countries.

In 1965, Cooper and Massel presented the first official theory on economic integration of developing countries. As argued by Robson (1987), the subsequent literature about developing countries was mostly based on this foundation concerning how the savings resulting from scale or difference of private and social costs of production can be used as a basic reasoning in favor of the formation of customs unions among developing countries. However, Cooper and Massel's theory only discussed the transfer of industries from northern countries to southern countries and how they can be protected within an economic integration plan; particularly, it stressed that it is cheaper to pay subsidies (production or exports) to industries of developing countries than support them through tariffs or non-tariff barriers.

Cooper-Massel's reasoning (1965b) was presented when the developing countries had not yet been industrialized, or were in the primary stages of being industrialized and there was no trading of industrial goods between them. In the 1980s, some developing countries, including newly industrialized countries in East Asia, embarked on trading their industrial goods. Therefore, according to the new theories of international trade, especially the trading of similar industrial goods or intra industry trade, the establishment of integration plans among developing countries was likely to lead to high trade creation and low trade diversion, and, in general, it might increase the efficiency of allocation in these countries. This reasoning was posted by Ahmad (1991).

Bhagwati and Panagarya (1998) argued that the establishment of integration plans is an introduction for multilateral trade liberalization in the world, and that it will finally change the whole world into one Free Trade Area. These theoretical developments once again increased the importance of economic integration for

countries, particularly for developing countries. Specifically, Mrazova (2009) indicated that trade deviation would be decreased, in the case where competition among oligopolistic corporations experience a lower degree; this can also lead to higher Kemp-Wan external tariffs. Therefore, it is more convenient to fulfill the Kemp-Wan requirement by reducing the degree of competition in market.

The customs union theory was used in order to discuss the nature and consequences of the formation of a customs union or a common market, especially the European Economic Community (EC), which was established in the 1950s. Based on the said theory, we are not able to theoretically issue a definite judgment about the effects of customs union formation. Only the experimental measurement or experimental tests will clarify its effects. Thus, researchers or policymakers are not able to judge in advance whether the customs union should be formed, and predict the related effects. This question has to be answered experimentally.

As a result, when the issue of economic integration between developing countries and its feasibility are to be considered as the subject of research, the researcher must directly involve himself in experimental modeling. Because of the countries' resistance towards unilateral trade liberalization, the researcher has to show whether a specific economic integration plans has led (or will lead) to the effect of trade diversion. The answer is basically experimental. Regarding the economic integration of developing countries, several models and theories have been developed (we will discuss them in the review of literature), and plenty of empirical articles relating to the economic integration plans between both developed and developing counties have been published, they have been discussed the allocated static effects, and, as we will see later, there have

been doubts about the methodology and the findings in most of them. This is because the gravity models that have been applied have been criticized from many aspects, and the use of partial equilibrium models for the calculation of the effects of trade creation and trade diversion, or the use of computable general equilibrium models, do not place the policymakers in a reliable situation, because the simulation of these effects is simply inadequate to determine whether or not a customs union should be formed.

In the experimental approach, several methods have been used to research the quantitative effects. First of all, we have to mention the partial equilibrium methods, through two methods for measuring these effects after the establishment of the integration plan or ex-post. These methods include income elasticity methods attributed to Balassa (1989), and the share of imports in apparent consumption. In these two methods, the effects are measured after the integration plan has been developed.

In the partial equilibrium method (Ex-ante), or before formation, the effects of trade diversion and trade creation are measured by employing a simple simulation method based on the own-price elasticities and the elasticities of substitution of different goods in the market of member states (Plummber, 1991a).

The general equilibrium models are also repeatedly used for researching the quantitative effects of integration plans, in which a mathematical model from the relevant economy is solved in numerical form based on the theory of Walrasian General Equilibrium and the effects on welfare and production are measured.

Another frequently used method is the gravity models, in which the trade counter, or the mutual trade streams of the countries area function of the activity

alternatives of the two countries, i.e. income or GDP, population, distance, and Dummy variables like religious, language and cultural similarities, and the Dummy alternative related to the existence of an integration plan between two pairs of countries.

From an econometric point of view, the application of these models is associated with great success, and we can use them to estimate the countertrade potentialities, or counter-export potential power of two pairs of countries towards each other. The first users of these models were Tinbergen (1962) and later Linneman (1966), and, since then, these models have been built for a large number of countries and regions.

To sum up, in this study, according to the Heckscher-Ohlin model, with two countries (Helpman and Krugman, 1987) a primary substantiation of the gravity model is presented. In the next step, through an economic model extracted from national accounting framework, a more generalized gravity model is presented. The mutual exports of the two countries have been extracted as a function of their GDP, and, more important, their protectionism against each other and against the rest of the world.

The form of the gravity model extracted from this theoretical substantiation is different from its previous forms in that it directly incorporates the Linder effect. After studying the Linder effect, we will develop the model and relate it to the levels of imports (and exports) instead of the levels of national income. With this work, the theoretical contribution of the present dissertation to the literature on economic integration becomes evident.

The method used in this dissertation is, to some extent, different. This dissertation is going to determine how it can incorporate the economic integration with multilateral

liberalization of trade, and make a judgment about it, and then test it experimentally. To this end, a generalization of the gravity model is presented. Therefore, the theoretical aspect is developed first, and then the experimental test is performed. In this work, we have followed the conventional tradition in orthodox economics, i.e. “mathematical modeling based on main economic relations, extraction of logical derivatives from the mathematical model, and then experimental testing of these derivatives”.

In this study, it is important to link the relation of the counter exports of the developing 8 countries to each other, and present it in a theoretical model. This is to show the effects of protectionism of the member states on each other, and of the member states against the rest of the world, as well as the trade with third party countries, following which we judge the economic integration and trade liberalization. The mathematical generalization of the gravity model enables us to do this and its experimental testing will make it possible to verify or reject it. In other words, in the generalization of the gravity model and in planning the theoretical foundation for it, and for economic integration of the developing countries, the relation of the mutual imports of two member states, and the relation of exports of third countries to the said two countries, is directly obtained from generalization of the gravity model. The last point, along with the mathematical generalization, refers to this important reality that it is possible to liberalize trade with the rest of the world (in addition to the formation of an economic integration plan) and increase the exports of each member state through other means of protection (for example paying subsidies) rather than tariffs. This concept is shown throughout this study by the term "Customs Union for Exports".

Accordingly, we review a selection of some of the most important indicators. This is used to provide insights into the effect of regional trading arrangements among member states, and also to describe and assess the state of trade flows and trade patterns of D-8 members. These flows and patterns are monitored over time or across regions.

Regarding other questions, the understanding is straightforward and simple, and we will discuss them in the relevant chapter, Chapter IV.

1.7 Economic Integration and Welfare

The issue of welfare costs becomes clearer when we analyze the partial equilibrium or general equilibrium of protection against imports, and then the reduced support as a result of regional economic integration. From a microeconomic point of view, these costs are the degree of desirability lost due to higher prices resulting from protectionism, and the volume of resources that are inefficiently allocated to the production of protected goods (tariff and non-tariff) because of higher prices. The first is called social waste and the second is called waste of resources. These are the effects of setting the tariffs.

At this level, a fundamental question exists: "Does regional economic integration increase the efficiency of allocated resources in member states through the formation of a customs union? In other words, does it increase the welfare in member states?"

If the answer to this question is absolutely "yes", then the level of welfare and efficiency of allocation will increase throughout the whole world. As a result, the regional and global liberalization are located in one line. In this case, the rational

consequence of any type of liberalization consists of a greater combination of the markets at the international level: the market is globalized. However, the answer is not always and absolutely "yes".

In order for an agreement to improve welfare for sure, there must be a few conditions. According to Kemp and Wan (1976), when the adaptation of external tariffs is performed in a way that establishing a Customs union is not influential on trade with nonmembers, the contribution of the union to enhancing welfare would be guaranteed. In other words, by keeping the external trade at a constant level through the adaptation of appropriate tariffs, the trade between members is considered as trade creation (Freund and Ornelas, 2010). In this way, the nonmembers will not be affected by the union. As a general result, the union lump-sum transfers in an appropriate way can even make members better-off; moreover, this is extendable to imperfect competition (Mrazova, 2009), to free trade areas (Panagariya and Krishna, 2002), and to partial liberalization contexts (Neary, 1998).

Following the regional liberalization, the imports by one member state, for example, from another member state, will increase and the imported goods will substitute the production of inefficient domestic goods of the first country. In this case, the efficiency of allocation (welfare) will increase in the first country. However, it is possible that the goods of the second country are still more expensive than the goods of the countries that have not joined the integration plan, and that they produce more efficient goods (with less costs or at lower prices); and, that they are subjected to tariffs that make the prices in the market of the first country higher than the prices in these countries. In these circumstances, the more expensive goods of the member country will

substitute the internationally cheaper goods in the market of the first country, and this substitution will reduce the level of welfare in the first country. This second negative effect may completely neutralize or even exceed the first positive effect (increased imports from the member state). The first positive effect is called "Trade Creation" and the second negative effect is called "Trade Diversion". In this case, the efficiency of allocation (welfare) in the first country (and as a result in the world) is entirely reduced. Therefore, the theory cannot give an effective answer to the question: "the welfare may decrease or increase." Hence, it is the subject of experimental research to specify which case is more likely to happen.

Following the above analysis, the next research question is immediately set forth: "if it is not clear whether the level of welfare in the countries, and in the whole world, increases or decreases, why do the countries insist on following regional integration plans?" Various research answers may be given to this question, but from an economic theory point of view, the more justifiable answer is that since the countries do not have or are not willing to have stimulus (for various reasons) to unilaterally embark on trade liberalization, the regional liberalization would be the next solution that contributes to the pursuit of more liberal trade policies in the world. As a result, the regional integration is finally connected to the economic integration of the whole world (Bhagwati and Panagarya, 1996).

In summary, a regional economic integration will progress economic and social welfare if: (a) a great deal of specialization is produced by members of a bloc; (b) a remarkable reduction is observed in tariffs and non-tariff barriers; (c) the development of trade agreements lead to a reduction in tariffs and non-tariff barriers with third

parties; (d) trade agreements provide the chance for any other country that is interested to participate, in order to increase the scope of net welfare; (e) trade agreements provide an opportunity with member states to begin and increase their liberalization actions; and (f) trade agreements not only play a restrictive role regarding the application of biased trade policies but also neutralize the protectionist effects of archaic rules that downgrade trade competition(Hassan et al., 2003).

We can now make the first conclusion of this part of the report: according to the conventional economic theory, the increase of allocation efficiency is used as a basis for economic development. In other words, the more efficient resources are allocated and the less social costs are incurred for industrialization, the higher will be the economic growth and the more leveled will be the economic development route. This point is the general axis of the predominant viewpoint about economic development that has been strengthened with the achievements of newly industrialized states. Thus, the conventional economic theory sets forth the following viewpoints about the effects of economic integration:

1- The integration plan member countries are unified to form bigger markets, and, each state, without losing their industrial production, will allow other countries to become industrialized (Johnson, 1965).
2- The increased efficiency of allocation constitutes the principal part of economic development long-term strategy (Fontaine, 1992). In such circumstances, the monetary and financial policies, or macro policies of all the countries are set as to prevent the relative prices to fall into disarray. We have already stated that the member states must pursue coordinated policies of macroeconomics so that the

interest rate and inflation rate converge towards one single rate, or a specified range of such rates.

3- Considering that the role of conventional economic theory emphasizes that the role of the settlement of trade disputes resulted from importation substitution policies in the advancement of economic development (that was begun with such pioneers as Viner (1953), and Bauer and Yamey (1957)) and emphasizes the advantage of the free market system that provides the efficient development of resources and economic growth, and escaping from the deficiencies of government domination on economy (Hunt, 1989), the economic integration provides an environment for the development of exports and the reduction of the government anti-market interference.

4- The customs union will enable the industries to maintain savings resulting from scale (including the level of enterprise or level of industry). Thus, concurrent with dynamic effects of economic integration, to move on a long-term average cost curve will contribute to developing countries industries being more competitive.

5- If a customs union is formed that does not deviate the trade, the countries have reached their goal as an increase of the allocation efficiency; and if we can ensure that the trade liberalization plan along with formation of customs office contribute to the increase of countries exports (especially in developing countries), the efficiency of allocation will certainly increase in the whole world; thereby, export-dependent growth will be a tool for achieving economic development (theory of the developed in this dissertation).

6- Finally, if the developing countries are able to maintain equilibrium in the balance of their payments during regional and multilateral trade liberalization, or if they are able to pass the primary imbalances, and increase employment, they will achieve a balanced and stable growth.

In other words, economic theory and economic experimental research seek to answer whether the efficiency of allocation after the formation of an economic integration plan will increase or decrease. This has been the subject of broad economic surveys since the publication of Viner's book (1950). Baldwin and Wyplosz (2006), Lombaerde (2006), El-Agraa (1999), Jovanovic (2005, 2006), and Robson (2006) provide overviews of economic integration theory.

The savings resulting from scale are the basis of one of the arguments that believes the formation of customs union among developing countries is useful; the economic model has been presented on this basis.

The fifth viewpoint is the main subject of this dissertation, which will be discussed by presenting an infrastructural economic theory model and generalizations from the gravity model (in the form of mathematical substantiation) and will be tested experimentally, based on this model.

There has been a radical increase in the number of PTAs across countries since the 1990s, with the South-South PTAs[1] accounting for the majority of them. A similar trend took place with regard to the share of developing countries in the world trade of manufactured goods. Between 1978 and 2005 the share of the South in world

[1] Trading bloc formation among developing countries

manufactured exports increased from 5 percent to 32 percent, while that of South-South manufactured exports reached 16 percent from 2percent. During this period the annual growth rate of real South-South manufactured exports was significantly higher than the world average, reaching 14percent as opposed to 6percent for the latter. Furthermore, as of 2005, 51percent of developing country manufactures exports were exported to other developing countries (Demir and Dahi, 2011a).

Nevertheless, despite the significant increase in South-South trade integration and their share in world trade, academic research on the determinants and desirability of PTAs remains divided (Bhagwati, 1998; Panagariya, 2000; Baier and Bergstrand, 2004). The trade literature has long argued that PTAs can benefit member states through economies of scale and comparative advantage, as well as higher competition (Schiff, 2003). However, these arguments are generally reserved for North-North and South-North but not South-South PTAs. First, it is argued that similar production and trade structures in the South make it more difficult to benefit from economies of scale. Second, given the lower industrial development and research and development activities in the South, greater technology diffusion for the Southern countries can be reaped from South-North integration (Schiff and Wang, 2008). Third, the more advanced members are argued to be the likely winners in the South-South integration, thanks to their higher industrial and institutional development. As a result, lower income Southern countries might be better-off, entering South-North PTAs. It is also claimed that industries with long term development potential are more likely to move to the bigger and richer members, leading to divergence once the barriers are lowered (or removed) under South-South PTAs (Puga and Venables, 1997; Venables, 2003; Schiff, 2003).

In contrast, the classical trade and development literature has a more positive view of South-South PTAs, focusing on their developmental benefits through infant industry development, economies of scale, and decoupling rather than on the static welfare gains (from trade creation and diversion), or the "stumbling block/building block" dichotomy (Myrdal, 1956; Lipsey, 1960; Linder et al., 1967; Lewis, 1980).As reported by Myrdal (1956), the South regional integration is contributive to developing countries during industrialization to settle their concern regarding local market size limitations. Accordingly, given the strongly skill biased structure of output expansion in international trade (Antweiler and Trefler, 2002), market size increase will contribute to developing countries to both enjoy scale effects and to improve the skill content of their exports while reducing the cost of intermediaries, which can help stimulate increasing export penetration into Northern markets in industrial goods (Fugazza and Robert-Nicoud, 2006). Likewise, Lewis (1980), and, more recently, UNCTAD (2005), World Bank (2008) and (Demir and Dahi, 2012) also pointed out that South-South trade would decrease the dependence of the South on North in terms of growth, leading perhaps to decoupling from Northern business cycles. Furthermore, because of the higher technology and capital intensives, the structure of South-South trade is believed to be beneficial in the long term for developing countries (Amsden, 1987; Lall and Ghosh, 1989; Demir and Dahi, 2011). Moreover, a better technology transfer may result from similar patterns of production and resource bases (Amsden, 1980, 1987; UNIDO, 2005; World Bank, 2006).

In addition to the debate above, the effects of PTAs on the structure of trade are of particular importance for long term development and growth. Development economics and the new trade theory provide strong evidence that not all trade is equal

and what you export matters for long term economic performance (An and Iyigun, 2004; Hausmann et al., 2007).According to Hausmann et al. (2007), the possibility of achieving great innovations and human capital accumulation and to find new ways of development is higher from export in more technology intensive industries, compared to lower technology and labor intensive ones.

Turning to the empirical work on PTAs, the majority of research reports a significantly positive effect of PTAs on member trade. Cipollina and Salvatici (2010) reviewed 85 papers including 1,827 point estimates on the effects of PTAs and find that the mean effect is 0.59 (or an 80percent increase in trade) while the median is 0.38 (or a 46percent increase in trade). While the range of coefficient estimates is quite large (-9.01 - 15.41), only 312 estimates out of 1,827 reported negative effects. Nevertheless, despite the diversity of research, there are only a few studies that compare the heterogeneous effects of PTAs between developing countries. Among the few, Kowalski and Shepherd (2006) argued that South-South trade barrier reduction generates a significant increase in South-South exports, while no such effect is present in the case of North-South, South-North, or North-North trade. At the regional level, Soloaga and Winters (2001) reported the heterogeneous effects of nine PTAs on intra-bloc trade during 1980-1996. All Latin American PTAs are found to have positive and significant effects on members' trade.

In this dissertation, the gravity model has been used to test the hypotheses and understand the formation of an economic integration plan including D-8 countries. To make it more explicit, the current dissertation considers the following questions: what influence could the formation of an economic integration plan with the participation of

Iran and other D-8 countries have on their economies? And, what would be the extent of the effects of trade creation and trade diversion?

Following what we already discussed, we will set forth the issue in another way: Iran and other states located in the west and east of Asia have achieved appropriate industrial foundations, but the degree of this achievement is different. For example, the level of industrialization in Iran is not comparable with Egypt, and the level of industrialization in Asian eastern countries is also different from the above-said countries. However, the level allows these countries to enter into Intra-Industry Trade, which reduces the scope of the trade diversion effect.

Therefore, the present study endeavors to both build an experimental model for the D-8 member's economy, that has not been yet developed, using new methods, and also to investigate the counter effects of economic growth and trade on each other within a regional framework or economic integration. In this model, the orientation of trade policies of these countries will be analyzed. This analysis will also specify the scope of the effects of trade creation and trade diversion. By the word "new", we mean application of newer gravity models in a specified way; which is discussed following the previous criticism from traditional gravity models. Another role of this dissertation is to present generalizations or substantiations from the gravity model and build the related theoretical foundation, following which several new alternatives will be added to the gravity model; moreover, new theories will be proposed and examined in addition to what had been considered in the dissertation at the beginning of the work.

Simply, we can discuss the issue in this way: in addition to trade creation and diversion, the formation of an integration plan will rapidly boost the volume of trade

and imports. We have to determine the scope of these effects; at present, this issue is the most important concern of the policymakers, for which no investigations have been carried out within the economic integration plan.

1.8 Research Organization

After this introductory section, to investigate the trade relations among the D-8 countries, in chapter two, we will look over D-8 prospects and review a selection of the most important economic trade indicators and individual member's motivation to join the integration plan. This can be used to provide insights into the effect of regional trading arrangements among D-8.In Chapter three, the literature on economic integration is reviewed and developed, first as a general discussion, and then particularly for developing countries. We try to focus on those aspects that are related to the questions set forth in the present dissertation and its hypotheses. In Chapter four, we will discuss the theoretical framework and the economic model. In this Chapter, the gravity relation is proved using two methods and the economic theory of economic integration and trade liberalization of exports customs union are presented. In Chapter five, we will specify and evaluate the gravity model and trade intensity indices in order to test the hypotheses presented in the dissertation. Chapter six is dedicated to reaching a conclusion and rendering some policymaking advice. At the end, it gives concluding remarks on the topic.

CHAPTER 2

DEVELOPING EIGHT COUNTRIES (D-8)

2.1 Introduction

The Organization of the Islamic Conference (OIC) with its 57 members is the second largest inter-governmental organization after the United Nations (UN). Countries from four continents and different locations set up the OIC. As such, the OIC countries as a group account for one sixth of the world area and more than one fifth of the total world population. A considerable number of the OIC countries are among developing nations, and the various economic conditions of these countries make the group a heterogeneous one as far as economic conditions are concerned.

The divergent economic nature of the OIC members has a heterogeneous structure. Twenty-two of the OIC members are among the world's forty-nine least-developed countries (SESRIC, 2010), and the development of these members is dependent mostly on the export of agricultural commodities. Nineteen members of the OIC are among countries that have a good capacity for exporting fuel, and, consequently, the future development of these members is mostly based on the production and export of oil and gas. This context has led to a deep gap among the OIC members, dividing them into poor and rich countries. According to the World Bank classification twenty-two OIC nations are categorized as low income nations, twenty-eight nations as middle income nations, twenty nations as lower middle income, and eight members as upper middle income. However, just seven nations from high

income nations belong to the OIC (SESRIC, 2010)[1]. Accordingly, a considerable amount of both income and trade of the OIC group is dependent on just a few members. In 2009, around seventy percent of the OIC income as well as some seventy-three percent of the group export were dependent on just ten members.

The potential economic capacity of the OIC members in terms of energy and mining and agriculture make the group a large strategic trade area. However, this potentiality has not changed to acceptable developments in terms of economics and humanity in many of the OIC members, and, further, in the OIC as a group. As of 2009, the OIC collectively stands for 22.5 percent of the world population, 7.2 percent of world GDP, 10.4 percent of world total merchandise exports, (see Figure 2.1) and 12 percent of intra trade (measured in current US Dollars). However, when compared to the EU, which comprises only 8 percent of the world population, it commands a world trade share of 35 percent and an impressive intra trade of 60 percent. Furthermore, the OIC imports increased from an average of $364.4 billion in the 1990s to an average of $594.8 billion in the 2000s, which represents an increase of 63 percent. The OIC share in world imports followed the same trend, increasing 55 percent compared to the 1990s

[1]Income classification of countries is based on GNI per capita of the year 2008. High Income Countries: $11,906 or more; Middle Income Countries: between $976 and $11,905; Upper Middle Income Countries: between $3,856 and $11,905; Lower Middle Income Countries: between $976 and $3,855; Low Income Countries: $975 or less.

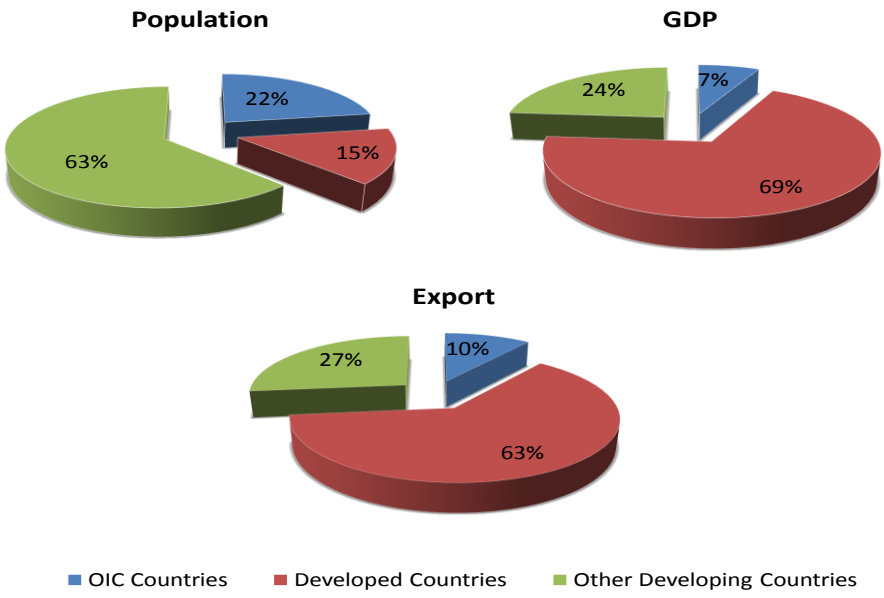


Figure 2-1 Share of OIC Countries in the World's Population, Output and Exports (Percent)

Data Source: (SESRIC, 2010)

Intra-OIC trade stands at only about 12 percent of the total trade. However, in recent years there have been clear efforts to enhance trade among OIC member states. Especially relevant is the OIC Ten-Year Program of Action, adopted in 2005, which identified increased economic cooperation among OIC members as a key strategy for higher economic growth and welfare (Acar et al., 2009). So far a dozen member states have signed the Protocol on Preferential Tariff Scheme (PRETAS)[1], which proposes a preferential trade regime among the member countries is effective as of January, 2009. A special grouping within OIC –the so-called D-8 (developing 8) group – was established in 1997 to strengthen economic relationships and to provide the impetus for greater economic integration within the larger OIC community.

[1] Namely: Bangladesh, Cameroon, Egypt, Guinea, Iran, Jordan, Lebanon, Libya, Malaysia, Pakistan, Senegal, Syria, Tunisia, Turkey, Uganda and United Arab Emirates.

2.1.1 OIC Institutionalizing Cooperation with D-8

The Developing 8 (D-8) comprises 8 developing countries with large Muslim populations that have formed a freer trade alliance, all of which are OIC members. Among its objectives are to create new opportunities and to enhance intra-trade relations while providing better standards of living amongst its citizens.

The hard fact is that Muslim countries do not trade with or invest in each other's economies the way they do with the industrialized or other developing countries. Ironically, when seen from the standpoint of the ownership of global crucial resources, the OIC's potential is impressive with more than 70 percent of the oil and nearly 50 percent of the natural gas reserves of the world. Among the D-8, six of the eight countries, namely, Malaysia, Indonesia, Iran, Egypt, Nigeria and Turkey are crude oil producers. According to the data for the Association of Petroleum Producers Countries (OPEC), in 2006, they contributed about 12 per cent of total world crude oil production.

The D-8 group comprises eight major countries within OIC –Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. The D-8 member countries have signed a Preferential Trade Agreement on 14 May 2006 at the fifth D-8 Summit at Bali, Indonesia with the aim of strengthening intra-trade and their economic relationships for improvements in living standards as well as for world harmony and stability. Various sectors have been identified for cooperation and project development in this trade agreement. These include intra-trade, industry, telecommunications and information, finance, banking and privatization, rural

development, science and technology, poverty alleviation and human resources development, agriculture, energy, environment and health (D-8 Secretariat, 1997).

Of the many objectives, the aims of the D-8 countries are to make a full use of their member's potentials. The D-8 countries are countries with rich natural resources, populated, with a distinctive, abundant and beautiful landscape attracting tourism, and have economic potential with historical and similar religious values. There is a vast potential for development due to a large land mass, plentiful inexpensive and skilled workers, human capital and a market consisting of a billion people. Increased cooperation of intra trade between members is one of the objectives of D-8 countries. As such, intra-trade between the D-8 countries have increased significantly from US$14.5 million to US$78 billion from the year 1997 to 2008, accounting for more than a 200% increase.[1]Basic data in respect of the D-8 countries gathered from the D-8 Secretariat are shown in Table 2-1.

Table 2-1 Some Basic Information about "D-8" Member Countries (D-8 Secretariat)

D-8 Countries	Region	Income level	Regional Trade Agreements	The Date of Membership In OIC	The Date of Membership In GATT	The Date of Membership In WTO
Bangladesh	South Asia	Low income	SAARC	1974	1972	1955
Egypt	Middle East & North Africa	Lower middle income	AEC-AMU	1969	1990	1955
Indonesia	East Asia & Pacific	Lower middle income	ASEAN-EAEC	1969	1950	1955
Iran	Middle East	Upper middle income	ECO	1969	-	Observer
Malaysia	East Asia & Pacific	Upper middle income	ASEAN-EAEC	1969	1957	1955
Nigeria	Sub-Saharan Africa	Lower middle income	AEC-ECOWAS	1986	1960	1955
Pakistan	South Asia	Lower middle income	ECO-SAARC	1969	1948	1955
Turkey	Europe & Central Asia	Upper middle income	ECO-BSEC	1969	1951	1955

[1]Data Source: (SESRIC, 2010)

In order to facilitate joint cooperation and bilateral exchanges between the two organizations, the Secretary General of OIC, and the Secretary General of D-8 signed a Memorandum of Understanding (MoU) during the 26th Session of COMCEC in Istanbul, Republic of Turkey, on 7 October 2010.

The two organizations share common economic objectives and are desirous of collaborating in such areas as agriculture and food security, trade, energy and micro-finance. It is envisaged that collaboration between the two organizations would promote synergies and optimization of resources, while avoiding duplication and over-lapping. In this context, the MoU seeks to encourage the development of joint programs and projects in all sectors through utilization of the human and material resources of both organizations. They are also poised to exchange experience and expertise to ensure the speedy implementation of their various economic development programs.

The OIC General Secretariat has communicated to the D-8 ideas on some priority areas that require the attention of both sides, including development of strategic agricultural commodities, such as cotton, wheat, and maize, in the form of joint studies and partnership funding; infrastructure development and appropriate technology transfer; joint staging of trade fairs/ B2B forums; trade and tariff preferential; trade financing schemes/aid for trade programs; capacity building on multilateral trade negotiation; export credit and insurance; joint organization of tourism investment forum; joint implementation of cross boarder projects on rehabilitation and conservation of parks, museums, monuments, historical sites, etc.

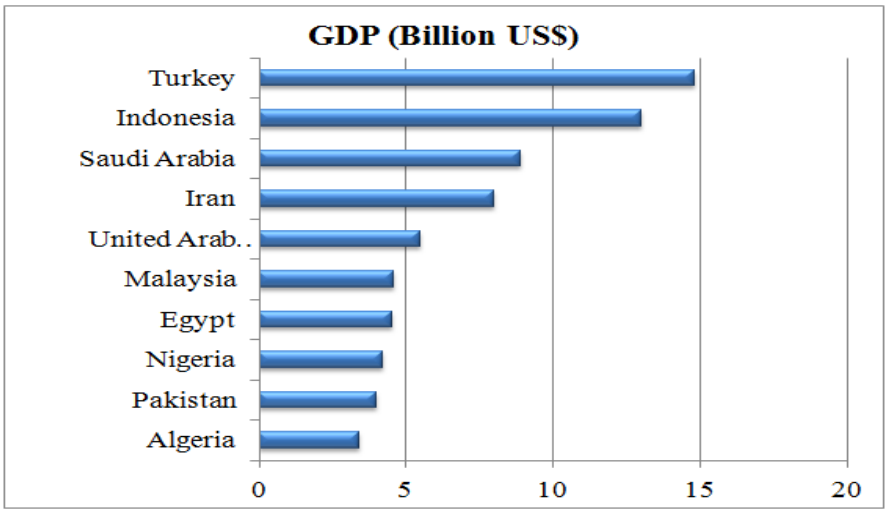


Figure 2-2 Top 10 OIC Countries in terms of Gross Domestic Product, 2009*

Data Source: (SESRIC, 2010)

* The numbers in brackets represent the percentage share of the country in total GDP of the OIC.

Observations reveal that the total output (GDP) of the OIC members is dependent on a few members. The top 10 OIC producing countries (Figure 2.2) produced 70.9 percent of the total OIC output in 2009, though they accounted for 56.9 percent of the total OIC population. The list of the top ten OIC countries in terms of gross domestic product 2009 includes seven D-8countrymembers take account of Bangladesh which produced more than 55 percent of the total OIC output. Taking this into account, it seems that the overall performance of the OIC countries as a group is highly influenced by the developments of these countries, which are either oil exporting or middle/high income countries (Figure2.2).

On the other hand, it is observed that the D-8 countries, as a group, were able to maintain higher growth rates in average real GDP per capita than their average population growth rates in the period 2005-2008. To some extent, this can be considered

as a sign of improvement in the standard of living in the D-8 community. Averaging at 3.2 percent in this period, the growth in real GDP per capita of the D-8 countries was recorded at 4.1 percent in 2005, yet it slowed down to 2.5 percent in 2008 and stayed constant in 2009 (Figure 2.3). Although the D-8 countries, as a group, maintained a good pace with the world average and even performed better than the developed countries in the period under consideration, their performance, in terms of growth in real GDP per capita, remained poorer than that of the developing countries as a whole. Projections for 2010 signal for an average of 3.4 percent increase in real GDP per capita for D-8.

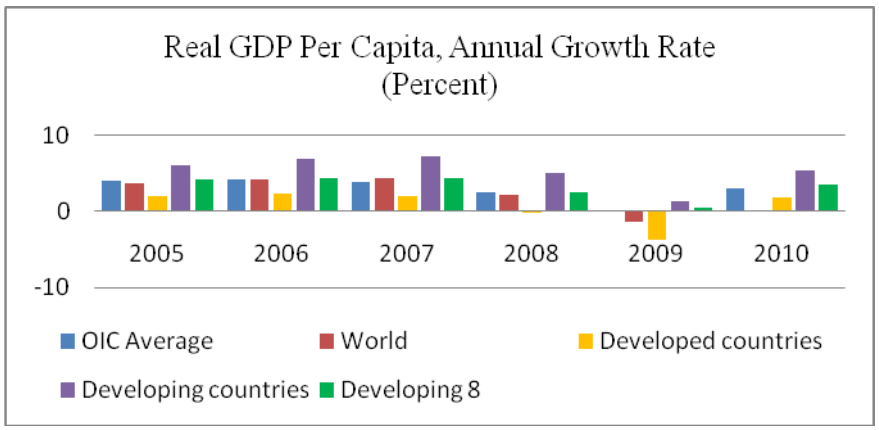


Figure 2-3 Real GDP Per Capita, Annual Growth Rate (Percent)

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

The list of the top ten growing OIC countries in 2009 includes Nigeria and Bangladesh, both with growth rates ranging between 5 and 10 percent. Together with Egypt these threeD-8 countries were among the top 25 fastest growing economies in the world in 2009.[1]

[1] Calculations are based on data from IMF's World Economic Outlook Database of April 2010.

Against this background, the rest of this chapter examines in detail the trends in the major economic indicators of the D-8 countries as a group during the latest six-year period for which the relevant data are available and compares them to their counterparts in both the developing and developed countries as well as the world economy as a whole.

2.2 Motivation of Individual D-8 Member States

Three distinct reasons motivate the formation of integration. Firstly, integration is contributive to small countries to remove barriers resulting from domestic small markets. Secondly, integration helps small countries to take advantage of increased domestic and foreign investment, scale economies, and stronger competition. Thirdly, through integrating labor markets and removing the constraints of enterprises investment, economic integration is helpful to avoid poor growth. The amount of institutionalization and formalization is a decisive factor based on which economic regional integration generates single market economies; the single market economies enjoy a series of features including a harmonized application of standards and norms or aligned rules for foreign investors and common procedures of jurisprudence and administration. Investment stimulation can be resulted from the creation of these solid and effective frameworks (GTZ, 2008).

As nations start a negotiation as an interconnected group, strategic gains play a significant role in trade agreements of a multilateral nature. A lot of states do not have enough capacity, which causes international negotiations and appropriate time for the states to cooperate and strengthen their bargaining capabilities and visibility.

Regional public items that are not adequately known individually find a place to be introduced and tackled as a result of integration. The adoption of a regional approach that is well integrated and addresses regional public goods provision, can lead to gains in both development and the environment. Moreover, conflict among regional states will be reduced as economic integration among neighbor countries can bring about bilateral interests resulting from the economic ties. Accordingly, economic integration in a region can provide further support for current peace building attempts and the management of regional goods. The compensation for the weak development of multilateral trade regimes can also be provided by an increase in the economic cooperation among regional countries (GTZ, 2008).

Another advantage of regional integration is growth spillovers coming from across borders. When member states' bazaars are reachable more conveniently, the long term growth development of states will be interrelated. Domestic growth will be strengthened as a result of member states growth, and, consequently, will benefit other members. Since 1970 to 2000, the spillover of growth was reported to be 13.6% to 15.3% for membership in a common regional trade agreement (RTA) among neighbors; so, "every percentage point increase in the average growth rate of RTA partners brought a growth bonus of 0.14% to supplement domestic growth" (GTZ 2008). Associated with this is a spatial multiplier of 1.14 to 1.18, with regional integration increasing the effectiveness of growth-promoting domestic policies by 14 to 18%. Europe and East Asia with the strongest regional integration have even witnessed larger benefits within

the previous few decades. The countries in these areas have enjoyed a growth spillover of 15.3% to 17%[1] since 1970 to 2000.

2.2.1 Turkey

Turkey's economic development has great significance given its size, its strategic role in the region and as the largest economy in, and leading member of, the Organization of Islamic Countries. Turkey has been introduced as one of the ten most progressive economies by the Department of Commerce (DOC) in the United States; it has also been identified by the World Bank as one of the ten states that will most possibly move into the top tier of the world economy (Council, 2008).Turkey's development is also significant as it is the only D-8 member country represented in the Organization for Economic Co-operation and Development (OECD) and a candidate for European Union membership. In 2008, Turkey ranked as the 17th largest economy in the world with a nominal GDP of US$734.9 billion. The World Bank classifies Turkey, with a GDP per capita of US$9,942 (in current US$) in 2008, as a high middle-income country.

Recently, Turkey developed a private sector with a rapid growth; Turkey is known as a pioneer producer across the world in terms of textiles, construction materials, automotive and transportation equipment, agricultural products, consumer electronics, apparel, and home appliances. As for agriculture some 9% GDP is reported for Turkey, for industry 26%, and for services 65% GDP is reported for Turkey.

[1]World Development Report 2009 "Reshaping Economic Geography"

Turkey made remarkable progress in economic management between 2002 and 2007, greatly improving macroeconomic stability, and facilitating strong economic growth.

Trade volume is one of the most important factors enabling global economic integration. Turkey has one of the largest international trade volumes among the D-8 Member countries. Exports and imports of Turkey reached US$132 billion and US$202 billion, respectively, in 2008. Turkey's exports, which fell by around 23% in 2009, and confidence are recovering, but there also are concerns about inflation. Exports grew by 6.4% in the fourth quarter of 2009 but so did imports, which rose by 10.5% in the same period and 28.3% in February of 2010. As a result, the current account deficit was 33.8% higher in February 2010 compared to a year earlier. The recovery is becoming broader based with consumer and investor confidence improving, unemployment stabilizing (at 14.5% in February 2010 compared with 16.1% in mid-2009), foreign inflows recovering, and industrial output rising (Aral, 2005).

Both D-8 Group and Turkey will benefit from this reverse linkage, through interventions proposed within the reverse linkage framework. The benefits to Turkey include: (a) business opportunities for Turkish firms, (ii) enhanced image of Turkey in D-8 and OIC member countries, (iii) new export markets for Turkish goods and services (Aral, 2005). Turkey enhanced opportunities for investment and trade in the Southeast Asian countries, potential opportunities for Turkish contractors and consultancy companies in D-8 Member Countries.

Erbakan believes that the establishment of the D-8 could revitalize the ties between the Islamic world and Turkey. To Erbakan, the unity of Muslims across the

world is one of the primary goals that the D-8 is committed to achieve. The impetus behind this goal, as believed by Erbakan, was for Turkey to consider itself as the leader of a reunion among Muslim countries. However, Turkey did not deal with the goal adequately and in time it disappointed the international system. One of the encouraging impetuses for Turkey to introduce its products in the new markets was Erbakan's desire, which was of great significance.

2.2.2 Iran

Since the Islamic revolution, Iran has suffered from the strangulatory policies imposed by the United States that target the country's economy and politics (Aral, 2005). The external strangulation led Iran to investigate all the opportunities through which the country could find new markets for its products and develop its technology.

Iran's economy is critically dependent on oil. Therefore, the government is doing its best to find other sectors to improve its investment revenue. Among the sectors in which the government is investing are the automobile industry, nuclear power, aerospace, petrochemicals, and consumer electronics. Moreover, Iran has great potential in the development of information and technology, mining, and tourism. In Iran farming, small workshops and services have set up private businesses (Ehteshami, 2002).

Although at the moment Iran is the 18^{th} largest economy worldwide by purchasing power parity (PPP), by 2015 the country is expected to move to twelfth place (Ahmadi and Mohebb, 2012). The nature of the economy in Iran is transitional, consisting of a large public sector with around half of the economy being centrally

planned. The economy also enjoys a diversionary nature, which enriches Tehran Stock Exchange by more than forty industries. While Iran suffered from international sanctions imposed because of its nuclear program, the country was among the few prominent countries with a positive growth even in the 2008 global financial crisis and its subsequent consequences.

Abbas Maleki, the then deputy foreign minister (1977), reported that Iran aims at expanding its friendly relations with neighbor countries in the Persian Gulf, Caucasus, Afghanistan and Central Asia. The other policy that Iran is following is developing relations with Muslim nations in Russia and South-East Asia. The third policy which Iran was interested in consisted of the developing countries. Since Muslim countries set up D-8, and the group's priorities supported Third World demands aiming at a fairer distribution of resources worldwide, D-8 priorities were very much in keeping with Iran's plans and priorities.

In 1997 when the D-8 was proclaimed to the world, Iran was the subject of USA's "dual containment" policy alongside Iraq, an initiative launched in 1993. From the United States' perspective, Iran was a threatening country not only to the region but also to the world, and, consequently, was considered as a "rogue state". Therefore, since 1994, companies that had investment of more than a certain level determined by the US, were subjected to the US sanctions. In 1997, when the imposed war against Iran was over, Iran was able to concentrate on economic growth, because of the stability that had returned to the country's borders. In addition, Iran was also interested in finding new markets for its considerable resources of oil and gas. Accordingly, Iran's different interests were enriched by D-8: first, D-8 could be read as a sign of support that the

Islamic world extended to Iran against the latter's strangulation by the US as a result of the economic embargo; secondly, D-8 provided a new market for Iran's major products, that is, oil and gas; thirdly, Iran's integration into the region was enhanced by its membership ofD-8 alongside such Middle Eastern countries as Turkey and Egypt.

2.2.3 Egypt

The structure of the Egyptian economy is one of the most diversified and developed within the sub regions of Africa and the Middle East. It comprises a large industrial sector with a fast evolving service sector. Although the Egyptian economy traditionally hinged on agriculture, due to its rapid growth and industrialization; its share was reduced to 13.1% of GDP in 2010. According to the African Development Bank (2010), more than 90% of the Egyptian workforce was employed in the agricultural sector in the 1970s, while, presently, it can only boast 32% of the labor force. Approximately 17% are employed in the industrial sector, which constitutes 37% of GDP. Egyptian companies range from electricity, steel, oil exploration and refining, domestic goods, automobiles and chemicals. The IT industry has received appreciable growth. The largest contributor to the Egyptian economy is the service sector, contributing in excess of 49%. This, however, offers employment to about 50% of the population. Construction, canal trade, tourism and the administrative sector are the major service sector areas. In the Middle East and North Africa, Egypt has the most stable economy with a growth that has averaged 4-5% in the last quarter century.

As one of the strong voices and most populous Arab nations, Egypt was pleased to take its rightful place in the D-8, and did not hide its lack of strong feeling against Turkey's influential role in the materialization of the project. However, Egypt had many

misgivings concerning Turkey and its motivation in the context of D-8; it was sad about the military cooperation between Turkey and Israel, and Turkey's military presence in Northern Iraq, as well as being suspicious of the motives of Turkey (Aral, 2005). Egypt hoped that the D-8 could perhaps resolve the deep financial and social crisis that it suffered. Through D-8, Egypt has improved its ties with Iran, which were severed in 1980, a year after the Iranian revolution.

2.2.4 Indonesia

Indonesia is one of the upcoming world market economies and the largest in South East Asia. It is also one of major economies of G-20. Indonesia has a market economy in which the government plays a pivotal role. In view of the consequences surrounding the financial and economic crisis, which started mid-1997, the government took control of a major portion of private sector assets, engaging in the buying of non performing bank loans and corporate assets through the debt returning process (ACICIS, 2011). The country's economy was restricted and has passed through another period of rapid economic growth. Since 1988, exports have grown more than seven times in Indonesia attaining up to157.7 billion USD in 2010. The recent non-oil/gas export drive, seems to be mainly due to the increase in the share of other main commodities including palm oil, coal and copper. Indonesia's intra-trade with D-8 members increased from 21% in 2005 to 25.4%, or 13.97 million USD in 2010, compared to Japan,12.4%, and China, 9%, as its major trading partners (Aral, 2005). The relatively low intra-trade volume with members of D-8 results in lower value in trade complementarities and intra industry volumes of trade. In the past five years, the

income and services deficit has been compensated by the surplus from goods and remittances.

However, notwithstanding the trade surplus recovery, which was estimated at 22 billion USD in 2010, the growth of Indonesia's exports averaged at 145 from 2005 to 2010 (World Economic Outlook, 2011). Indonesia's major exports include textiles, palm oil products electrical appliances and metal products, as manufactured goods, while coal and copper are mined products, and coffee, cocoa, and shrimps are agriculture and marine products. This approach was validated because Indonesia represented a major 24.5% overall D-8 intra trade in 2010.

Using the IMF directive on trade statistics and Dinar Standard Analysis, a look at the totality of trade exports and imports from 2005 to 2010 for Indonesia was undertaken. It was observed that during the said period, it attained a significantly higher trade growth with the D-8 country members compared to the rest of the world. Between 2005 and2010 imports from the member countries of D-8 to Indonesia increased (CAGR) 21.5% compared to 15% with the rest of the world. Indonesia's trade with the D-8 members had increased compared to the rest of the world. The trend in Indonesia is a reflection of the overall low percentage of trade between D-8 countries. According to the Islamic development banks' annual report 2010, Indonesia's overall share of trade with otherD-8 members was a mere 7% (Islamic Development Bank, 2011).

The most populous of the D-8 members is Indonesia, its per capita income in 1996 stood at roughly 1000 USD. However, it had a diversified economy as would be expected of a nation with a population of 200 million and sizeable territory. During the inauguration of D-8 in 1997, Indonesia, headed by Suharto's quasi-autocratic rule, was

at the point of collapse economically. In the late 1980s, Indonesia significantly changed its regulatory framework to encourage economic growth driven by private investment, both domestic and foreign. TheD-8then offered it partial relief from isolation, which it had borne for some time. It hoped to reap benefits economically due to the large market offered by trade agreements with the D-8 (Wie, 2006).

2.2.5 Malaysia

Malaysia's economy has improved greatly, from being relatively state driven to a newly industrialized market economy. Malaysia plays a significant but declining role in leading economic activity through the micro economic plans. Malaysia's economy was the third largest in South East Asia in 2007 and 29th largest economy in the world, adjudged by the purchasing power; its gross domestic product in 2008 was 22.2 billion USD, with a growth rate of 5% to 7% since 2007. Malaysia's GDP per capita in 2009 was USD 14,900. The nominal GDP in 2009 was USD383.6 billion and nominal per capita GDP was USD 8,100. South East Asian nations experienced an economic boom and Malaysia underwent rapid development during the twentieth-century with a GDP per capita of 14,800 USD and is considered a newly industrialized country.

Among the D-8 countries, Malaysia is the least populous with a population of about 27 million. Malaysia has received promising economic growth since the 1970s. The Muslim population is dominant in Malaysia at nearly 60% and the Malays are the major ethnic group identifying with Islam. As one of the countries that control the Straits of Malacca, International trade plays a pivotal role in the drive to the country's economy. Malaysia is the world's largest Islamic banking and financial center. Malaysia hopes to

benefit from an outlet for its regular and competitive industrial exports while obtaining cheap raw materials and labor from the D-8.

2.2.6 Bangladesh

Since their independence from Pakistan in 1971, Bangladesh has faced huge political and economic problems. It was and still is among the world's poorest countries with a per capita income of around 260 USD in 1996. The market based economy of Bangladesh is rapidly developing. It was estimated that the per capita income for Bangladesh in 2010 was USD1.700 (adjusted by parity with purchasing power). According to reports from the International Monetary Fund (IMF), in 2010 Bangladesh was ranked 47thas world's largest economy among the N-11 Goldman Sachs and D-8 economies with a gross domestic product of USD 269 billion. In recent years, economic growth recorded 6-7% p.a. More than a half of the GDP is for the service sector, a considerable number of the population of Bangladeshis employed in the agricultural sector with RMG, fish, leather, vegetables, textiles, ceramics among other major produce. It is important to state that Bangladesh has been taking an active role at meetings between the least developed economies and the United Nations. As published by the Ministry of Foreign Affairs of Bangladesh, the initiating principles of the foreign policy of Bangladesh at contrary to theD-8 objectives. "Support oppressed peoples throughout the world" waging a just struggle against imperialism colonialism or racialism and the State shall endeavor to consolidate, preserve and strengthen fraternal relations among Muslim countries based on Islamic solidarity." As it is the most poor of the D-8 members, Bangladesh hoped to obtain financial and economic assistance from the rich D-8 members.

2.2.7 Pakistan

Pakistan is one of the foundation members of D-8 and has played a significant role in its socio economic development. Presently, the population of Pakistan stands at 173.5 million and it is the sixth most populous country in the world. The main natural resources are arable land, hydroelectricity water and natural gas. About 28% of the land area in Pakistan is under cultivation. The major crops are wheat, sugarcane, cotton, rice, millet, vegetables and fruits. In 2000, Pakistan experienced high volatile economic growth caused by external and internal shocks, from the peak level of 9% in 2004/05 to 2007/08 and 1.2% in 2009/10 to 41%. Although over the years Pakistan's external image has improved, the current account balance has been pressured due to high energy prices and reconstruction following flooding. There has been a significant improvement in its current account deficit from the highest level of 8.7% of GDP in 2007/08 to 2.3% in 2009/10,which is expected to increase gradually to 4.4% of GDP by 2016 (IMF WEO April 2011) due to the improved demand for the import of basic commodities and construction materials. Goods exported as a percentage of GDP declined from 13.2% in 2004/05 to 11.0% in 2007/10 while imports increased from 17.1% in 2004/05 to the maximum level of 24.4% in 2007/08 and later declined to 19.8% in 2009/10 leaving a trade deficit of6.5% of GDP in 2009/10.

With a GDP per capita of less than 500 USD in 1996, Pakistan was among the poorest of D-8 member countries. D-8 however, reinforced Pakistan's ties with the Islamic world which partially substituted its lack and isolation caused by financial and economic hardship. About 10% of Pakistan's international trade lies within the developing group. However, the balance of trade is in favor of the trading partners. On

average, Pakistan extends to nearly 1 billion USD on import payments to the D-8 group. When a country faces a negative balance of trade with respect of another, engaging in a free trade agreement worsens the deficit. From Pakistan's point of view, if Malaysia and Indonesia are not part of the calculation, Pakistan's trade balance amounts to roughly 3.5 billion USD for the past 5 years with D-8 members. Therefore, it would be more reasonable for Pakistan to negotiate with Egypt, Bangladesh, Iran and Nigeria for free trade agreements (Aral, 2005). However, PTAs offer more than just timely availability of essential commodities, deep relationship between the participating countries. Therefore, commerce policymakers need to consider whether strengthening trade relations trump balancing trade. In addition, the trade competitiveness for Pakistan and Turkey needs to be improved, contrary to the conventional market in Europe and the US.

2.2.8 Nigeria

Nigeria is Africa's largest democracy with a population of well over 155 million. It has the second largest economy in Africa, and being an oil rich country is known as the "land of opportunity" due to its huge economic potential. In 1994, Nigeria made laws to liberalize its trade regime and to get rid of some of its barriers to foreign investment. From the emergence of the military regime in Nigeria onwards, it was more or less cut off from the international community before the emergence of D-8 in 1997. D-8, however, gave some recognition to the Nigerian regime out of its respect for the Islamic world. Nigeria was among the poorest D-8 members with a per capita income of around 300 USD in 1996. Therefore, it hoped to benefit from financial and economic backup from wealthier D-8 members (Aral, 2005). Nigeria saw the D-8 as a useful

enough avenue to echo concerns for poor African nations including the demand for debt relief.

2.2.9 Challenges and Opportunities for Cooperation

The goals and motivations for each member of D-8, as examined above, showed that they do not represent a united front with clear, well defined and unified objectives. Rather than the members of D-8 representing the general will of the foundation members, each has its own reason to be part of the scheme. It is a fact that D-8 members like to take more prominent roles in the Islamic world. Moreover, they would like to feel exuberance in terms of prospects concerning trade expansion, financial and economic ties for D-8 members. It is therefore thought that members would be satisfied when the Islamic world gets a share of the world's resources instead of the small proportion the figures suggest. However, the good will did not translate into a common language of shared organizational principles, plan of action and the measures to achieve them. The goals and motivation of D-8 members make it clear that it was designed to constitute a major future for an Islamic common market (Aral, 2005). Erbakan repeatedly suggested that D-8 members were open to newcomers, and that it was not meant to serve as an alternative to other international organizations. However, D-8 resembles the group of non-Allied Nations as they emphasized justice, freedom and peace instead of oppression and economic exploitation; such discourse was not matched with radical strategies designed to lay down the foundation of a new economic and political bloc. Neither the terms nor the mechanism envisioned by D-8 occasioned such an eventuality. D-8, apart from imposing economic cooperation and stimulating trade among member states, rested on the principles of the economies of scale that promote

specialization in areas that member states feel themselves to hold an advantage. D-8 members hoped to lessen the income and technology disparity among themselves using the D-8 scheme and for the more advanced world economies. In the Istanbul declaration in 1997, a product of the inaugural D-8 summit identified the major goals and areas of communication by the D-8 as well as the principles on which the cooperation was based (D-8Secretariat, 2010). In line with these principles, the main objective of the D-8 declaration for socio-economic development include: dialogue as against confrontation, justice in place of double standards, peace instead of conflicts, cooperation instead of exploitation, democracy in place of oppression, and equity instead of discrimination. As a result of the desire to improve the volume of trade insufficiency among country members of D-8 and improve the group's world trade exports, recognizing the need to overcome trade barrier difficulties facing member states formed the basis of the summit meetings of 1997, 1999, 2001, 2004, 2006, 2008 and 2010. Member countries reaffirmed their commitment to pursue the goals set out in previous declarations. This year's summit will reinforce and polish the economic cooperation of member countries by sharing expertise in the field of energy, tourism, transport, infrastructural development, etc. Such cooperation is aimed at improving the well being of the people in the global economy. Moreover, it will assist in boosting participation of member countries in the decision making process at the international level. The coming together of the D-8 was necessary due to the fact that it failed to cater to the needs of the developing countries, for example, the Dhaka declaration showed the displeasure of member states with the world's trade regime because it failed to fully consider the need of developing countries. The Cairo Declaration registered the call for the abrogation of the protectionist policy of trade for developed economies while it underlined the need

for stronger cooperation and increased international financial system in a democratic and transparent manner by ensuring the participation of developing countries. Criticism of such a prevailing economic and financial system as well as a call for action was not couched in the confrontational language that smacked of anti-Westernization. The choice of D-8 members' terms and agreement declaration of inter alia, was a reminder to the developed economies that they should be more concerned with the plight of the developing world; however, restructuring of things was not sought. In an effort to achieve economic integration, the difficulties faced by the D-8 member countries include:

A) Stronger coordination of regional investment. This, however, is important in reduction of production cost through the establishment of regional industries, integration gains, equal distribution and creation of equal economy among member nations.

B) The need to compensate member countries that have suffered losses in the entry stage. Economic integration was meant to mediate the gap in the economic divide among member states. The measures of financial compensation should be put in place to compensate economically weaker members. As most of the D-8 is emerging economies, it is difficult to compensate members without external help. The drive towards a gradual handover of power by member countries to take economic and social decisions at the regional level involves the agreement to stop all tariffs on each other's exports and follow a common policy tariff for their imports from other parts of the world, as well as allowing a free flow of goods and services and other factors of production (Aral, 2005).

2.2.10 D-8 Roadmap 2008-2018

The D-8 PTA which was agreed at the Fifth council of the D-8 summit in Bali, Indonesia in 2006aimed to give special attention to tariff reduction on selected goods for member countries. PTS is basic for the formation of free trade agreement (FTA). The implementation procedure for D-8 PTA is similar to the concept for the formation of the ASEAN Free Trade Area (AFTA). A focus on the Islamic Nation's FTA, initially chaired by Malaysia at the sixth summit, discussed in detail the D-8 PTA, which mainly included the rules of origin (ROO) and operational certification procedure (OCP) for ROO. Finalizing the steps of OCP and ROO are necessary for D-8 PTA implementation so that tariff reduction policies for member countries are carried out on schedule.

At the Kuala Lumpur summit of July 2008, the D-8 adopted a roadmap for economic cooperation for the decade (2008-2018), as the vision or guide to programs and activities for the next ten years. This roadmap is as follows:

"At the end of D-8 cooperation 2008 to 2018, the dynamism of socio economic cooperation will achieve significant economic development by improving intra trade social welfare" (D-8 Secretariat, 2008).

The scope for D-8 activities from 2008 to 2018 and the guide for the mobilization of resources and support for the general community of D-8, include the private sector and economic groups cooperation initiative. The roadmap as endorsed in Kuala Lumpur summit aims at encouraging greater economic integration for member states and assisting in the mobilization of resources from the governmental and private sectors, for

D-8 project implementation. After 2010 summit, the Abuja declaration was released, which addressed issues that help cushion the effects and challenges facing D-8 member countries during the world economic recession, climate change, world energy question and global warming as they affect agriculture and food security, transport and world trade concerns. D-8 potential sectors to the D-8 Priority list of Area Cooperation in five sector such as Trade, Agriculture and Food Security, Industrial Cooperation and SMEs, Transportation, Energy and Minerals (Figure 2.4).

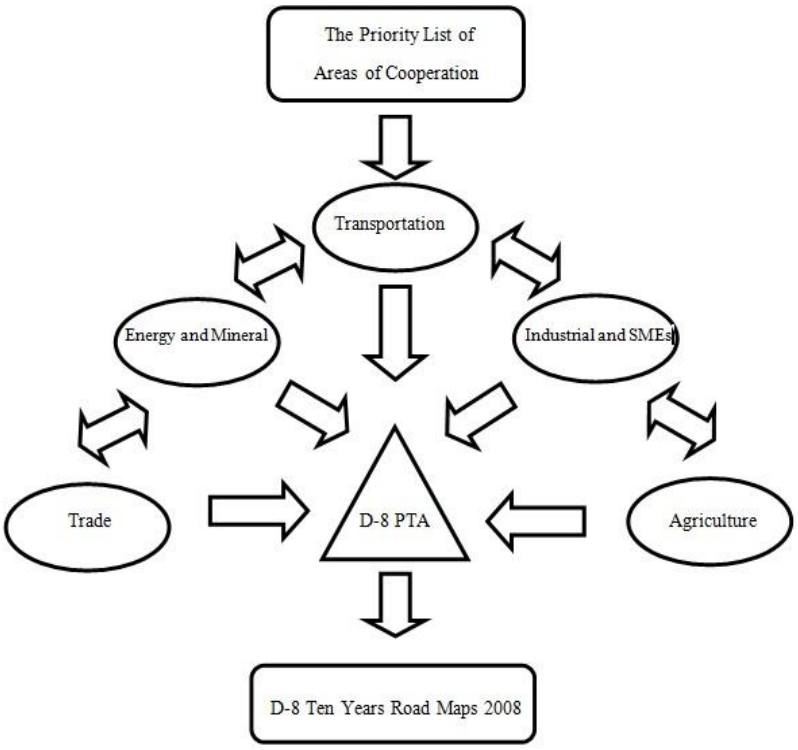


Figure 2-4 The Priority List of Areas of Cooperation

Sources: (Harun, 2010).

An above figure as over view for the relationship between D-8 PTAs and the potential sector. That particular analysis sector, basically as a main stream for D-8 PTAs as well as D-8 Ten Years Road Maps.

2.3 Economic Indicators of D-8 Member Nations

There are various static factors to examine that impinge on the ability of D-8 countries to be an effective force in promoting mutual and beneficial trade amongst each other. With the criteria of theoretically favoring the formation of a customs union between the D-8 countries in the preceding section, therefore, consequently allowing examining the extent of D-8 countries satisfying this criteria.

Table 2-2 Main Economic Indicators for Individual "D-8" Member Countries (WTO) 2010

Country	Population (million)	GNI per capita in PPP (US$)	GDP Growth			Value added (% of GDP)									GDP (US billion$)
						Agriculture			Industry			Services			
	2009	2008	1983-1993	1993-2003	2003-2009	1983	2003	2009	1983	2003	2009	1983	2003	2009	2009
Bangladesh	162.2	1,450	3.8	5.1	6.2	30.7	21.8	18.6	21.9	26.3	28.6	47.4	52	52.8	89,3
Egypt	83	5,470	4.2	4.6	5.7	19.6	16.1	11.5	30	34.6	35	50.4	49.2	53.5	188,3
Indonesia	230	3,590	7.1	2	5.5	22.9	16.6	14	39.8	43.6	47	37.3	39.9	39	540,2
Iran	73	11,240	2.2	3.7	4.6	18.1	11.3	10.5	34.9	41.2	44.5	47	47.6	45	331
Malaysia	27.4	13,730	7	4.7	4.5	20	9.7	8.7	38.5	48.5	55.4	41.5	41,8	35.9	191,6
Nigeria	154.7	1,980	4.9	2.9	6.3	33.2	26.4	32.8	29.7	49.5	40.6	37	24.2	26.6	169
Pakistan	169.7	2,590	5.8	3.4	5.5	30.3	23.3	20.8	22.1	23.5	24.3	47.7	53.2	54.9	166,5
Turkey	74.8	13,420	5	2.7	4.2	21.4	13.4	9	25	21.9	28	53.6	50.7	63	617,1
Total D-8	978.8	53,470	5	3.64	5.31	-	-	-	-	-	-	-	-	-	2293
World	6,775.2	10,414	-	-	-	-	-	-	-	-	-	-	-	-	58,228,200

Customs union theory claims that the larger the collective range of countries, the larger is the possibility of trade creation. Although D-8 consists of countries that together are smaller than the North American Free Trade Agreement (NAFTA) or the European Union (EU), it is large enough to be an efficient customs union. The World Bank (2009) data on the D-8 countries population and gross national income (GNI) comprise 15% of the world's population with the Gross National Income (GNI) per capita of US$53.5 million in Purchasing Power Parity (PPP) terms. Despite the absence of objective criteria to consider the optimal number of countries involved or

the size of total market for the countries, the D-8 still appears to overtake the experiment in this matter. The main economic indicators for the individual D-8 member countries are given in Table 2-2.

2.4 Foreign Trade and Balance of Payments

The steady expansion in the trade of world merchandise was interrupted by the global financial and economic crisis, which started in mid-2008. As a result, the trade of merchandise witnessed a declining trend across the globe in 2009. According to the latest estimates, after bottoming out in 2009, the trade of world merchandise started to recover in 2010 and increased to $30.5 trillion compared to $25.1 trillion in 2009. In line with the global trend, the total trade of merchandise for D-8 member countries also rebounded to $711 billion in 2010. However, despite this impressive recovery, it remained below the pre-crisis level of $734 Billion in 2008. During the period under consideration, the share of D-8 in world trade increased from 4 percent in 2006 to 5 percent in 2010. However, the share of D-8 in OIC trade remained at 45 percent in 2010 (WTO, 2011).

2.4.1 Exports of Merchandise

Figure 2.5 demonstrates that the total exports of merchandise for the D-8 countries increased significantly to reach $711 billion in 2008 before declining to $560 billion in 2009. The share of D-8 countries in the world export market increased from 4 percent in 2005 to 5 percent in 2010. In this 5-year period, the share of D-8 countries in the OIC export market averaged at 44 percent. Their share in the total exports of OIC

countries also peaked in 2009 at 45 percent, however, in 2010, it declined to 42 percent.

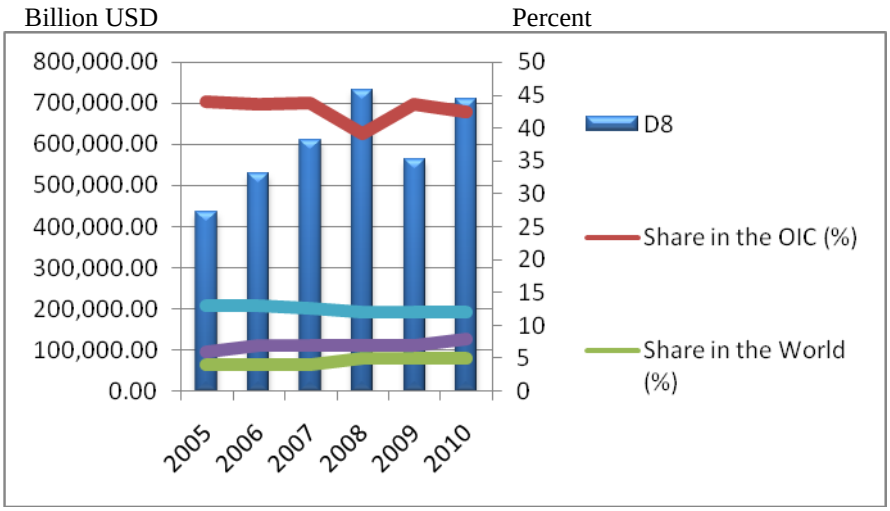


Figure 2-5 Export of Merchandise

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

Although the exports of OIC countries grew at a higher rate than those of all other groups of countries in 2008 (due to sharp increase in oil prices) this trend was reversed in 2009, which was mainly due to the decline in demand for oil caused by the economic crisis (Figure 2.5). In 2009, the exports of both developing 8 and other developing countries declined substantially, 23.3 percent and 24.5 percent, respectively; however, the decline in exports of OIC countries was much deeper (32.9 percent), which explains the decrease in their share both in the world export market and in the total exports of developing countries in that year. This clearly shows how heavily the exports of OIC countries, the majority of which consist of oil, are dependent on fluctuations in oil prices. However, the recovery in global economic activity in 2010 resulted in a steeper growth in the exports of member countries (32.2 percent).

(Annual % change, at current prices)

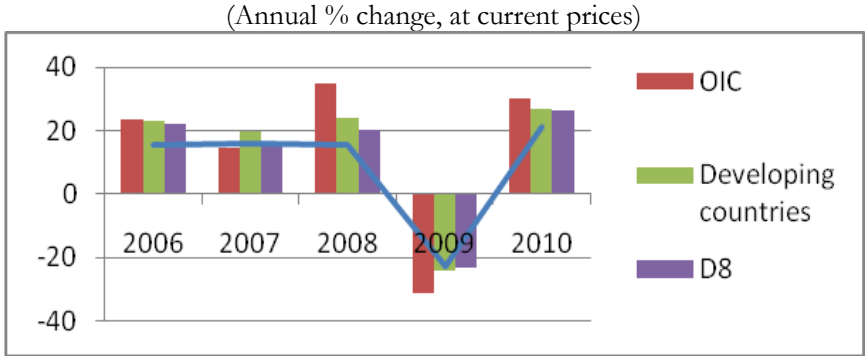
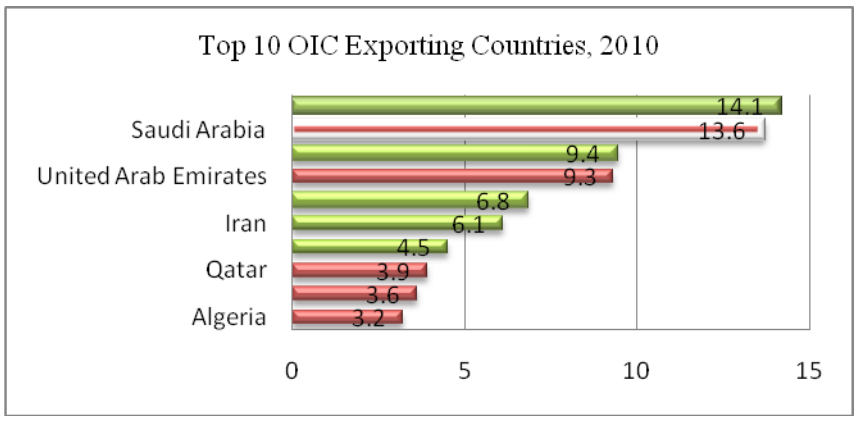


Figure 2-6 Export of Merchandise

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

Observationally, the bulk of merchandise exports of the OIC countries are greatly dependent on a few countries, as in the case of the output. The top 10 exporting member countries, which are almost the same top 10 countries in terms of production, accounted for 74.5 percent of the total merchandise exports of the OIC countries in 2010 (Figure 2.6). Malaysia, with more than $200 billion of exports took the lead and Indonesia, Turkey, Iran and Nigeria, each as top 10 OIC exporting countries, as well as Bangladesh, Egypt and Pakistan, together, accounted for over 44percent of the total exports of OIC countries. Over the years, the current account balance to GDP ratio has declined across the regions (Figure 2.7).



The percentage share of the country in total exports of OIC

Figure 2-7 Top 10 OIC Exporting Countries, 2010

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

2.4.2 Imports of Merchandise

A similar pattern is observed in the case of the import performance of the D-8 countries. Within the time span under investigation, the total imports of merchandise for the D-8 countries increased significantly during the first four years before declining to $594.3 billion in 2009. In 2010, the imports of member countries climbed back to $721 billion in 2010 (Figure 2.8). However, unlike the case of exports, the share of D-8 countries in global merchandise imports continued to increase throughout the period in consideration and reached 7 percent in 2010. Their share in the total imports of the developing countries witnessed a mixed trend reaching 14 percent in 2009 before declining to 13 per cent in 2010.

Overall, the exports and imports of D-8 countries as well as the other groups of countries declined in 2009 due to the global crisis and recovered substantially in 2010. The share of D-8 countries in total exports of developing countries and in the global exports declined in 2009, whereas their respective shares in imports continued to increase. This indicates that the exports of D-8 countries were more affected than their imports compared to other countries. It is worth noting here that the shares of the D-8 countries in the imports of both the world and the developing countries are more than their respective shares in the case of the exports.

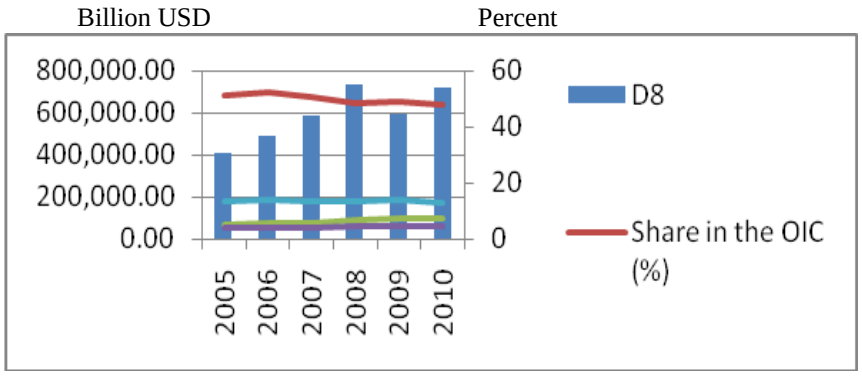


Figure 2-8 Imports of Merchandise

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

During the period 2005 through 2010, the D-8 countries recorded the highest average growth rate of imports in 2008 (Figure 2.8). That year, the imports of D-8 countries grew by 26 percent, which was higher than both the average for other developing countries (23.8 percent) and the world average (15.4 percent). In 2009, imports declined all over the world and also in D-8 countries as a result of the slowdown in economic activity.

The imports of OIC countries fell by 19.2 percent while the decline in both other developing countries and developed countries was even deeper, 20.3 and 24.1 percent, respectively. In 2010, all groups witnessed a significant improvement in imports. D-8 imports increased by 21.3 percent compared to 21.8 percent for the world, 17.6 percent for developed countries and 29.9 percent for developing countries.

(Annual % change, at current prices)

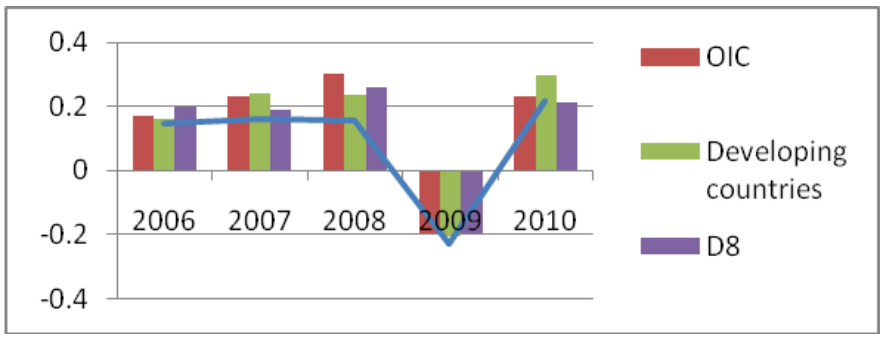
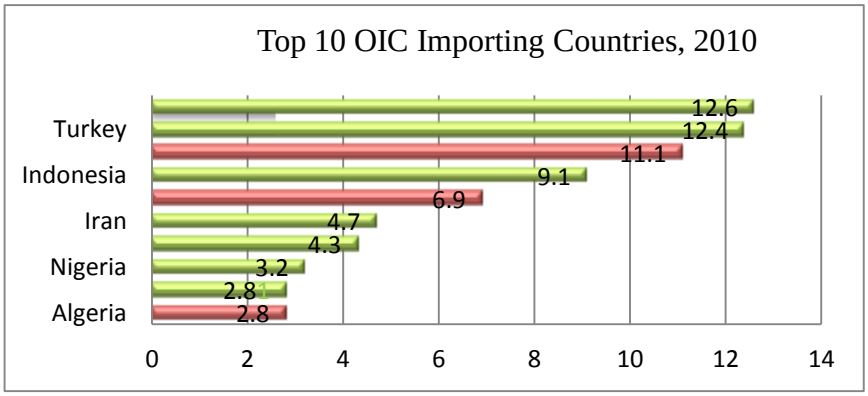


Figure 2-9 Imports of Merchandise

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

As in the case of exports, the imports of merchandise for OIC countries are also greatly dependent on a few countries. The top 10 OIC importing nations in 2010 are shown in Figure 2.9. Accordingly, Malaysia took the lead as the top OIC importer country, with $189 billion of imports, which corresponded to 23 percent of the total imports of D-8 and 12.6 percent of the total imports of OIC countries. The imports of Malaysia, together with Turkey, Indonesia, Iran, Egypt, Pakistan and Bangladesh accounted for 48 percent of the total OIC imports (Figure 2.10).



The percentage share of the country in total import of OIC

Figure 2-10 Top 10 OIC Importing Countries, 2010

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

2.4.3 Trade Balance

The OIC countries recorded a trade balance surplus in each year from 2005 through 2010 (Figure 2.11). The highest trade surplus of the OIC group ($379 billion) was recorded in 2008 while the lowest ($53 billion) was recorded in 2009. The trade balance surpluses of D-8 countries –recorded at $24.3 billion in 2005– also melted down in 2008 and became negative. The trade balance surpluses of other developing countries –recorded at $170 billion in 2006– also melted down to $27 billion in 2009 before recording a deficit of $16 billion in 2010. In contrast, the group of developed countries experienced trade deficits in all years of the period under consideration, although it declined to $454 billion in 2009. However, as exports and imports recovered from their depressed levels of 2009, the trade deficit for developed countries increased to $676 billion in 2010.

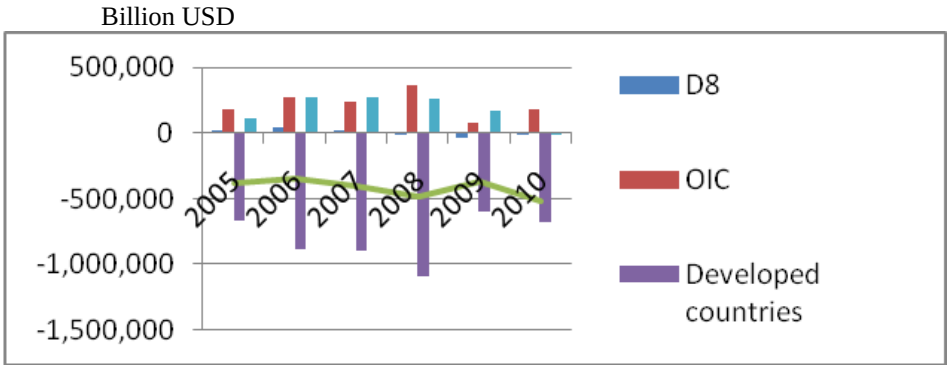


Figure 2-11 Trade balance surplus

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

During the period under consideration, the trade balance to GDP ratio declined across the regions. For D-8 member countries, the trade balance surplus accounted for only 3.6 percent of GDP in 2010 compared to 8.7 percent in 2006. On the other hand,

the trade deficit for other developing countries accounted for 0.1 percent of their GDP in 2010 compared to the trade surplus, which accounted for 1.6 percent in 2006; in comparison the trade deficit for developed countries accounted for only 1.6 percent of their GDP in 2010 compared to 2.1 percent in 2006.

2.4.4 Current Account

A similar trend can be observed for current account balance of the D-8 countries (Figure 2.12). Similar to the other developing countries, D-8 countries had current account surpluses for all the years of the period under consideration. However, these surpluses decreased significantly in 2008 before registering some improvement in 2009.

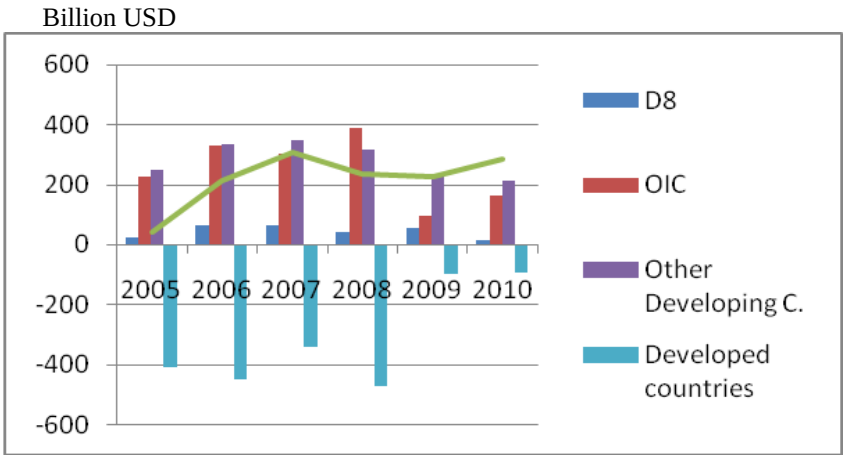


Figure 2-12 Current account balances of the D-8 countries

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

After exceeding $349 billion in 2007, the current account surpluses of the other developing countries witnessed a continuous decline in the subsequent years and dropped to $214 billion in 2010. In contrast, the surpluses of the D-8 countries surged

to $93 billion in 2009 from the level of $42 billion in 2008. Over the years, the current account balance to GDP ratio declined across the regions.

For D-8 member countries, the current account balance surplus accounted for only 3.3 percent of GDP in 2010 compared to 10.2 percent in 2006. Similarly, the current account surplus in other developing countries accounted for 1.3 percent of their GDP in 2010,comparedto3.5 percent in 2006; whereas the current account deficit in developed countries accounted for only 0.2 per cent of their GDP compared to 1.2 percent in 2006 (WTO, 2011).

2.4.5 Integration plans, Instruments and Intra-D-8 Merchandise Trade

After witnessing an increasing trend over the past 20 years, intra- D-8 trade volume declined to $67 billion in 2009. However, in parallel with the improvement in trade all over the world, it rebounded to $101 billion in 2010. Throughout the period under consideration, the share of intra-D-8 trade in D-8 total trade continued to increase and intra-D-8 trade accounted for 7 percent of member countries total trade in 2010, corresponding to an increase of 2 percentage points from 2009. In the period 2006-2008, intra-D-8 exports increased from $24.3 billion to $39 billion, which was reflected in an increasing share in total exports of D-8 countries from 4.5 percent in 2006 to 5.3 percent in 2008.

In 2009, however, despite the decline in intra-D-8 exports volume to $31 billion, the share of intra-D-8 exports in total exports of D-8 countries slightly increased to 5.5 percent, indicating that D-8 countries' exports to non-D-8 countries fell more than the exports to D-8 countries. In 2010, although intra-D-8 exports recovered back to $48.5

billion, their share in D-8 total exports witnessed increased slightly to7 percentage points.

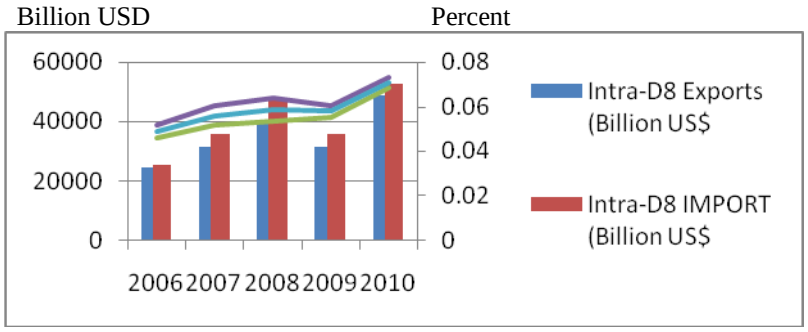


Figure 2-13 Intra-D-8 Merchandise Trade

Data Source: SESRIC, BASEIND Database; IMF, WEO Database, 2011.

Similarly, intra-D-8 imports increased to $47 billion in 2008 compared to $25 billion in 2006, corresponding to an increase of the share in their total D-8 imports from 5 percent to 6.3 percent. In 2009, however, the decline in intra-D-8 imports to $35.8 billion led to a decline in this share to 6 percent. In 2010, intra-D-8 imports started to increase again and reached to $52.6 billion corresponding to 7.3 percent of D-8 total imports (Figure 2.13).

According to the latest available statistics (2008), total trade volume among D-8 countries was 78.3 billion USD while total trade of D-8 countries to the world was 1.3 trillion USD. The share of intra trade in total trade of D-8 countries is 6.08% at the moment. In light of the objectives and goals that D-8 set forth in the Roadmap, intra-trade will be 15-20% of total trade by 2018. With the D-8 Preferential Trade Agreement, Customs and Visa Agreements coming into force as well as enhanced cooperation among D-8 private sector, particularly in Working Group meetings, the share of intra-trade will increase to the levels stated in the Roadmap.

Statistics show that Malaysia ranked first, Turkey second and Indonesia was in third place in terms of their total trade performance among D-8 countries. However, when we assess the intra-D-8 trade, Indonesia ranked first (16 bl. USD), Malaysia was second (15 bl. USD), and Turkey was in third place (14 billion USD) in 2007.

Table 2-3 depicts the intra trade levels among the D-8 countries in comparison with other OIC countries (ROIC) and the Rest-of-the-World (ROW) aggregate. It clearly indicates that intra trade among D-8 countries has been dismally minute ranging mainly from 6 percent of their respective total trade. However, trade with ROW is overwhelmingly high at about 90 percent on average. Among the D-8 countries, Indonesia-Malaysia trade has been the top trading pair. Malaysian trade with Indonesia accounts for 1.7 percent of total trade while Indonesian trade with Malaysia is somewhat larger at 3.9 percent. Pakistan is the second biggest Malaysian trade partner followed by Turkey.

The second top trading pair within the D-8 grouping is between Iran and Turkey. Iran's trade with Turkey comprises 3.5 percent of its total trade. All other bilateral trade between the D-8 countries has only been 'microscopic'; mainly less than 1 percent of each country's total trade. As noted at the outset, it will be interesting to examine whether the removal of trade impediments, particularly tariff barriers will substantially enhance intra-trade among D-8 countries.

Table 2-3 Decomposition of Trade among D-8, ROIC and ROW (percentage) GTAP V7 database

Country	Partner Country										Total
	Malaysia	Iran	Turkey	Indonesia	Nigeria	Pakistan	Bangladesh	Egypt	ROIC	ROW	
Malaysia	0	0.25	0.36	1.69	0.06	0.47	0.26	0.24	3.07	93.59	100
Iran	0.45	0	3.47	0.37	0.04	0.7	0.27	0.04	7.48	87.17	100
Turkey	0.31	1.05	0	0.25	0.14	0.16	0.07	0.51	13.22	84.3	100
Indonesia	3.88	0.25	0.57	0	0.21	0.53	0.41	0.26	3.42	90.47	100
Nigeria	0.06	0.02	0.05	0.35	0	0.08	0.02	0.02	1.42	97.97	100
Pakistan	0.57	0.71	1.45	0.49	1.88	0	1.4	0.14	11.28	82.08	100
Bangladesh	0.23	0.41	0.72	0.21	0.04	0.47	0	0.13	2.57	95.24	100
Egypt	0.43	0.08	1.32	0.44	0.17	0.35	0.09	0	12.64	84.49	100
ROIC	0.47	1.44	1.89	0.63	0.1	1.15	0.18	0.32	7.37	86.44	100
ROW	1.04	0.33	0.89	0.73	0.2	0.2	0.11	0.21	3.77	92.52	100

Table 2-4 D-8 Intra-Trade, Trade Analysis System ON Personal Computer (PC /TAS, 2008)

Country	Exports	Imports	Trade Volume	Trade Balance
Bangladesh	401.11	1,810.66	2,211.79	-1,409.57
Egypt	1,553.21	2,615.32	4,168.53	-1,062.11
Indonesia	10,847.55	10,832.39	21,679.94	-1,5.16
Iran	6,122.00	1,357.07	6,479.07	3,764.95
Malaysia	11,026.55	8,488.15	19,513.68	2,637.42
Nigeria	310.98	301.5	612.71	9.25
Pakistan	1,645.56	4,110.92	5,756.48	-2,465.56
Turkey	4,342.00	13,618.00	17,960.00	-9,276.00
D-8 Intra Trade	35,247.96	43,134.24	78,382.20	-7,916.6
D-8 Total Trade	658,841.22	630,719.30	1,289,560.52	28,121.92
Share (percent)	5.35	6.48	6.08	-28.15

With the exception of Iran, D-8 countries are largely dependent on the US market. US exports to Nigeria is the highest, almost 50 percent of total exports. This was followed by Egypt (32 percent), Bangladesh (26 percent), Pakistan (24 percent), Malaysia (20 percent) and Indonesia (13 percent).

Turkish exports to the US are the lowest (four percent). This is because the bulk of Turkish exports are to the European Union (EU), which is 35 percent of exports. In fact, Turkey will become a member of the EU member in the future.

For Iran, the US has imposed economic sanctions on it. However, the main export markets are Japan (24 percent), China (23 percent) and EU (20 percent). This means that Iran is still able to develop its economy despite the US imposing unilateral economic sanctions (Table 2-3 and Table 2-4).

The US economic sanctions have important policy implications for Iran. Diversifying to find alternative export markets and developing new export markets is critical to avoid dependence on the West. As a first step, the D-8 PTA will provide a new market alternative when the other OIC countries participate in the future.

In the Malaysian context, it is government policy to expand its export market through the search for new markets by creating a bilateral or multilateral trade area. For example, the government is committed to the development of D-8 PTA. This is proven by its trade data.

In 2008, the total trade with other D-8 was about 19,576.6 million dollars from 15,916.03 million dollars in 2007. Exports and imports increased respectively to 11,071.83 million dollars and 8,504.77 million dollars, with other members of the D-8, in favor of Malaysia. Thus, the D-8 PTA is the best platform for the government to improve the country through foreign exchange earnings. Therefore, the OIC is the best platform to consolidate and expand its free trade area and D-8 PTA is the first step towards that.

2.4.6 Trade and Development

In 2005, the Trade and Development Index (DCIT-TDI 2005) was introduced in Developing Countries for International Trade. The index is a helpful instrument for assessing and making new policies in developing countries; it sets up a framework through which developing countries can improve the requirements for the development of both the economy and the society. In the context of globalization, the index also provides the framework through which developing countries can find an opportunity to improve a beneficial interplay of mutual nature between development and trade.

"Analysis through the TDI framework brings country-specific constraints to the forefront by simultaneously identifying structural, institutional, financial, trade and development policies that allow developing countries to maximize benefits and minimize costs from trade liberalization and globalization" (Mercredi, 2007).

Trade could be conducive to development with regard to the conditions in which trade is going on and with regard to the objectives that trade is going to achieve. There has been no growth for any nation that lacks trade. Moreover, the significance of trade

in development is more conspicuous, while economies are more open than before against the globalization backdrop.

TDI would be useful providing that the following three functions can be integrated: monitoring the trade and development performance of countries; diagnosing and identifying the factors affecting their performance; and providing a policy tool for national and international action to keep trade focused on development and poverty reduction. “The trade and development index is an attempt by the UNCTAD secretariat to capture the complex interaction between trade and development and, in the process, to monitor the trade and development performance of countries… The TDI is designed as a mechanism for monitoring the trade and development performance of countries, a diagnostic device to identify factors affecting such performance, and a policy tool to help stimulate and promote national and international policies and actions” (Panitchpakdi, 2005).

Table 2-5 Trade and Development Index(World Bank, 2011).

Country	Trade and Development Index	TDI rank
Bangladesh	294	93
Egypt	409	79
Indonesia	413	78
Iran	458	63
Malaysia	631	28
Nigeria	172	108
Pakistan	275	95
Turkey	431	73

The estimates and corresponding ranking of the Trade and Development Index (TDI) for the D-8 countries are shown in the above table. As can be seen, Malaysia is in

the top 30 in the world and the TDI scores for Turkey, Egypt, Indonesia, and Iran are particularly close.

An increase in the TDI results in a decrease in the variation between different dimensions. To put it more simply, a good score on trade policies by a country, corresponds to a good score in terms of institutional and structural priorities in the country.

As stated by the chief of UNCTAD's Trade Analysis Branch, Khalil Rahman, this is the key finding. That is to say, for a country to be right in a dimension, it has to be good in all. As indicated by the results obtained by TDI, less variability in the contribution of specific components is observed among countries with a high TDI score; however, this variability is increased for countries with a lower TDI score. As a rule of thumb, one can conclude that the stability of policies is more influential than any temporary good action in a specific area. Accordingly, for D-8 members with a low score, to be successful, they need to have multiple objectives in a framework that leads to a coherent trade and development strategy; in other words, such restricted objectives as trade liberalization, while other goals are not considered, would lead to insignificant development gains, if any. As the analysis indicates, significant variation highlights the key role played by country-specific approaches to trade, development and poverty reduction strategies (Table 2.5).

2.4.7 Economic Freedom

The Heritage Foundation along with the Wall Street Journal developed the Index of Economic Freedom that consists of ten economic measurements. The

objective that is supposed to be achieved by the index is the measurement of economic freedom among the countries across the world.

The Index's definition of economic freedom is as follows: "The highest form of economic freedom provides an absolute right of property ownership, fully realized freedoms of movement for labor, capital, and goods, and an absolute absence of coercion or constraint of economic liberty beyond the extent necessary for citizens to protect and maintain liberty itself" (Miller and Kim, 2011).

According to the index countries are evaluated based on a ten-factor criterion related to economic freedom through the statistics obtained from such organizations as the Economic Intelligence Unit, the World Bank, and the IMF. The factors include freedom in the areas of finance, trade, labor, investment, monetary, fiscal, business, and such factors as government size, property rights, and freedom from corruption.

Each factor is given a score ranging from 0 to 100, in which the maximum freedom in a factor gets 100. Then the average score out of the total scores obtained from the ten scores is calculated. A score of 100 indicates an economic situation or a series of policies that are contributive to economic freedom.

Table 2-6 Index of Economic Freedom (World Bank, 2011).

Country	Index of Economic Freedom World Rankings	FREEDOM SCORE	CHANGE FROM PREVIOUS
Bangladesh	137	51.1	+3.6
Egypt	94	59.0	+1.0
Indonesia	114	55.5	+2.1
Iran	168	43.4	-1.2
Malaysia	59	64.8	+0.2
Nigeria	106	56.8	+1.7
Pakistan	117	55.2	-1.8
Turkey	67	63.8	+2.2

Table 2-7 Distribution of Global Economic Freedom

0-49.9	50-59.9	60.69.9	70-79.9	80-100
REPRESSED	MOSTLY UNFREE	MODERATELY FREE	MOSTLY FREE	FREE

The newest rankings indicate that global trade freedom is the highest that it has ever been. It is interesting that those nations that have more degrees of trade freedom, also have a greater degree of economic prosperity. However, the newest average score forD-8 members indicated a minor development (Table 2.6 and Table 2.7). As can be seen, the economies of Malaysia and Turkey are moderately free in contrast to most of the other D-8 members. Therefore, D-8 countries should reduce trade barriers that protect politically powerful elites at the expense of the general population. In fact, more income, more employment, and more equality will result from trade with a greater degree of freedom.

2.4.8 Ease of Doing Business

The World Bank put forward the Ease of Doing Business Index. According to the index, the regulatory context is contributing to beginning and inaugurating local

firms, when the ranking is high on the index. The index indicates the nation's percentile rank on nine topics, which consist of a number of indicators, in which each one receives equal weight.

The main function of the Ease of Doing Business index is measuring the regulations that are directly influential on business; it is not supposed to measure other factors, such as infrastructural quality, a country's proximity to large markets, crime, or inflation. Accordingly, the rank of a country on the index depends on the average of ten factors as follows:

1. "Starting a Business – procedures, time, cost and minimum capital to open a new business;
2. Dealing with construction permits – procedures, time and cost to build a warehouse;
3. Employing workers – difficulty of hiring index, rigidity of hours of index, difficulty of redundancy index, rigidity of employment index, redundancy costs;
4. Registering property – procedures, time and cost to register commercial real estate;
5. Getting credit – strength of legal rights index, depth of credit information index;
6. Protecting investors – indices on the extent of disclosure, extent of director liability and ease of shareholder suits;
7. Paying taxes – number of taxes paid, hours per year spent preparing tax returns and total tax payable as share of gross profit;
8. Trading across borders – number of documents, cost and time necessary to export and import;

9. Enforcing contracts – procedures, time and cost to enforce a debt contract;
10. Closing a business – index of recovery rate, which is a function of time, cost and other factors, such as lending rate and the likelihood of the company continuing to operate" (World bank, 2011).

Table 2-8 Ease of Doing Business(World Bank, 2011).

Country	Ease of Doing Business		
	2010	2011	REFORMS
Bangladesh	111	107	2
Egypt	99	94	2
Indonesia	115	121	3
Iran	131	129	3
Malaysia	23	21	3
Nigeria	134	137	0
Pakistan	75	83	1
Turkey	60	65	0

The previous 5 years indicate that some eighty-five percent of economies across the world have facilitated the operation of local entrepreneurs; amongD-8 members only Malaysia is ranked at the top according to the index (Table 2-8). When the ranking improves, it shows that the business improvement is because of the accurate institutional strengthening in the public and private sectors. The launch of business was facilitated in Malaysia through providing more services online; this was also complemented by a reduction in the time and cost to transfer property through online stamping.

A low rank on the index indicates that the local firm start-up for other D-8-countries is not appropriate in terms of regulatory environment. A business reform facilitates doing business; it is also effective on the other important factors of the index.

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

Both static and dynamic consequences can be observed as the result of entry into a regional integration scheme. While resource allocation for changing relative prices leads to static consequences, dynamic consequences stem from efficiency changes, taking advantage from economies of scale, and investment as well as level of growth.

While the static consequences of trade integration seem to have a lot of theoretical literature, particularly on customs unions, a greater review of the static consequences stemming from the effects of regional integration is one of the priorities of this chapter. Moreover, since changes resulting from the dynamic consequences are cumulative and cover all adjustments, they are considered as important in this chapter and due attention is paid to them. In spite of the significance of dynamic factors, they have not been treated as a single adequate model because they are too complicated to model. However, developments observed in recent theories provide an opportunity for us to deal with some of the important issues. Therefore, in the following section the static effects are presented, before the chapter devotes a section to dynamic consequences (Negasi, 2009).

In the present thesis, emphasis is given to whether or not free trade is preferable to a customs union, and, in the next level, the consequences of the trade diversion effect on welfare. In order to make a perfect differentiation of the theory presented in this

dissertation from the current theories, and also the consequences of generalization and substantiation of the gravity model, which will be presented in Chapter IV, the evaluation of the model and tracking its restrictions become of significant importance. As a result, a continuation of the discussion is more dependent on the advancements and the texts that have moved in this direction.

3.2 Theory and Models

The definition of economic integration is presented in the following subsection followed by the theoretical considerations of economic integration. Furthermore, due attention is given to the factors that contribute to the feasibility and value of integration from a theoretical point of view.

3.2.1 Economic Integration– Definition

Any activity through which different economies in a region are able to remove the limits of free exchange of capital, goods, labor, and services is called regional economic integration. As such, reinforcing the flow of goods among the countries of a region through reducing or removing non-tariff and tariff restrictions will definitely enhance economic integration (Park, 2007). Moreover, regional economic integration can be reinforced through reducing or removing the barriers that impede the flow of capital, labor, and services internationally.

Obviously, such a definition and its related explanations have prescribed levels to reduce or eliminate the trade barriers.

3.2.2 Types of Economic Integration

Economic integration consists of different sorts and stages. Lombaerde (2006) introduced six kinds of integration – Common Market, Preferential Trade Agreement (PTA), Customs Union, Monetary Union, Free Trade Area (FTA), and Economic Unions.

1. Preferential trade areas are those in which members use a preferential treatment by reducing customs tariffs for designated product categories from the member countries relative to all non-member countries. Higher tariffs would remain in place for all other non-designated product categories.

2. In free trade areas the objective of members is developing trade activities among member countries by eliminating customs tariffs on the products they produce themselves. In order to avoid importing products from non-members, the members design and develop complex rules of origin that freeze the penetration of third countries' products into the grouping because of the lowest tariff in the customs of the member countries; because such goods may be re-exported to the other member states.

3. Customs unions seek to eliminate the deficiency of free trade areas by not only abolishing/reducing tariffs among member states but also by setting a common external tariff policy against third parties. This guarantees the member countries free or privileged flow of tradable goods amongst themselves by forming a trade bloc that discriminates between member and non-member states. The coordination of policies for trade among members is the first priority and the development of rules of origin is not considered as a concern.

4. In common markets the free flow of services and goods are allowed and factors of production among members are provided. In order to militate the coordination of industrial and commercial policies, establishing a common external tariff against non-members is a policy followed by common markets. Moreover, there would be no restriction for those citizens of a common market to work and invest in any member country.

5. Monetary unions establish a central monetary authority to design, develop and coordinate the monetary policy for all member states and issue a common currency that circulates among the member countries.

6. Free mobility of capital and labor is among the characteristics of economic unions. They also establish common external tariffs among members and provide free trade in goods and services; moreover, to form a single economic unit, they harmonize national economic policies. The European Union (EU) is the best example whose integration efforts have been extended to harmonization of social policies.

Table 3-1 Stages of Economic Integration

Economic Integration	preferential trade Agreements (PTA)	Free Trade Agreements (FTA)	Customs Union (CU)	Common Market (CM)	Monetary Union (MU)	Economic Union (EU)
Reduction of tariffs and non-tariff barriers among the member states	✓	✓	✓	✓	✓	✓
Elimination of tariffs and quantitative restrictions imports from member states	-	✓	✓	✓	✓	✓
Imposition of common external tariffs on imports from third countries	-	-	✓	✓	✓	✓
Removal ofbarriers on flow of production factors	-	-	-	✓	✓	✓
Adopting a common currency and a common central bank system	-	-	-	-	✓	✓
Common monetary and fiscal policies, regional development	-	-	-	-	-	✓

Source: Extracted from Lombaerde (2006).

As stated by Bhagwati and Panagariya (1996), and further confirmed by Krueger (1997), and Grossman (1995), FTA member countries decline or eliminate tariffs and non-tariff barriers for a category of products (if not all), for instance, industrial products. In this case, these countries have formed a Free Trade Area (FTA), which is the first level of economic integration. In this case, any of the states follow their specific trade policy, tariff, and trade barrier against the rest of the world. When countries form an FTA, their government lowers tariffs vis-à-vis their FTA partners and there is no reciprocity from the non-members. Such external trade liberalization following an FTA appears especially important in developing countries (Estevadeordal et al., 2008). Examples include the Asia-Pacific Trade Agreement (APTA), ASEAN-China , ASEAN-India , South Asia Free Trade Agreement (SAFTA), Commonwealth of

Independent States Free Trade Agreement (CISFTA), and Central European Free Trade Agreement (CEFTA).

In the next step, these countries may abolish the trade barriers on all transacted goods and establish a common external tariff (CET) against other countries of the world. In this case, the countries have formed a customs union, which is the second stage of economic integration. It is called a customs union because the participant countries set up a single customs policy and a common base for receiving customs duties on imported goods from other states of the world. At international trade rounds or conventions, the participating states set up a single unit in trade negotiations (Krueger, 1997; 2004). The customs revenue is distributed among the member states, according to one single principle, and in the same order specified in the Trade Pact for forming the Customs Union, based on the profit or loss made by the countries as a result of customs union formation. The European Union-Turkey Customs Union is an example of a customs union.

If the Free Trade Area (FTA) or customs union is not terminated, for whatever reason, the countries may also remove the barriers on the movement of the production factors, i.e. labor and capital among themselves, and, in this case, a Common Market will be formed among them. The movement of production factors between the countries will lead to the reallocation of resources and boosting of the economic efficiency within the union. Here, we disregard the theories of capital flows and we would like to only mention that the shifting of labor and capital is the result of a difference in the salary and interest rate existing in different sections of the Common Market. As a result, the relocation of enterprises and geographical distribution of capital will happen in the

Common Market. In accordance with the new literature, the theory of international trade and geographical location of industries will be a function of states' trade policies. From this area, the integration of the theory of geography and theory of international trade emerges. It is said that the theory of international trade is actually a part of geographical (industrial) theory. Thus, the theory of economic integration has an important consequence for the development of economic policy. Paul Krugman (1995) is the pioneer of the theory of geography and international trade integration.

After the common market phase, the member states, if interested, will enter into the stage of monetary union and economic union. There exists a conflict of opinions regarding which one has greater priority. In the European Union, the monetary union has precedence over the economic union. In the present conditions, the European countries have formed a monetary union.

The monetary union is based on two factors: adopting a common currency and a common central bank system. Usually a single central bank is formed for the whole union (like the European Central Bank) that coordinates the monetary policies of member states. The common currency and the central bank of the union will contribute to price stability throughout the union. Price stability is the most important target of a monetary union. In this case, a coordinated system is established to allocate resources throughout the whole union, which facilitates the efficiency of the allocations. The interest rates and inflation rate throughout the whole union usually lean towards a common rate. The wage rates are also converged in one single rate in the common market stage. There is a single price level throughout the whole union and a single currency rate (against foreign currencies) is used in the whole union.

At this stage, it is usually said that the countries lose the independence of their monetary policy to the interest of the central bank of the union, which is a transnational bureaucratic body, and they do not have full independence to regulate their own monetary policies. In case a country infringes the monetary regulations of the whole union, it will reach an inflation rate (and, as a result, an interest rate) different from the union, which will have a serious consequence for the allocation of resources, efficiency, and geographical distribution of that state's industries. In other words, the economic necessities dictate that the countries must reach higher levels of integration. This is the core of the functionalists' theory about the causative necessity for countries of the union to move towards higher levels of integration (Hitiris, 1994).

In principal, the same explanation is given for the world's economy. A world that is essentially moving towards integration because of economic or technologic reasons; economic in terms of "not-to-dos" (what must not be done) and "to-dos" (what must be done or policies that must be adopted); and technologic because the efficiency of technology in the whole world must be converted into one single currency. The difference of technology efficiency in its first stages of creation, will lead to constant distribution, or constant shifting of industries in the world and it is more powerful than the ambitions of individual governments or national policy-makers. In the next step, the rate of efficiency is converged and the industries are redistributed; and, thereafter, another technological creation takes place so that the regained energy is grown and stored. In fact, it is the same interpretation as we say that necessity means that the countries have no other choice but to join this trend.

In the stage of economic union, all economic policies of member states are unified and the countries, in terms of economic policies, will be like different provinces of one country. In this stage, the interest, inflation and wage rates, as well as currency rate are equalized in all countries. In other words, the promise of the theory of international trade for the equality of the wages of production factors, including labor, will be realized after the free trade.

The issue of wages (or, in general, the income of production factors in the theory of international trade) comes with the question of whether, as a result of the integration process, wages, or the income of the production factors, or, more importantly, the labor income, will become unified. Traditionally, the essential consequence of the theory of trade for economic development is that the wages of labor, or income of labor, will be equalized throughout the world after liberalization of trade across the whole world, or in a more precise interpretation, after the beginning of international trade.

The certain reality is that after several centuries of international trade growth, the labor income in developed and developing countries, has, under no circumstances, been converged to form a single rate. Krugman and Venebels (1995) refer to a situation in which, in the course of globalization, the wages of developed and developing countries first show signs of convergence (though the difference still continues), but after a while they become diverged and the wages of developing countries will decrease compared to those of developed countries. Krugman (1980) used to show that the number of enterprises in a country with wider market scale is more than other countries. This is called the “Home Market Effect”. However, under specific hypotheses, the Home Market Effect may be reversed (Markusen and Feenstra, 1998; Markusen, 1981).

These two theories are followed by important consequences for the development of policy in the developing countries. So far, and based on the theoretical foundations already mentioned, the globalization process may experience an increase of inequality in terms of both labor wages and number and distribution of industries.

Therefore, we have to discover how an economic integration plan can contribute to the developing countries in order to attract more industries, higher employment rates, diversification of production and the use of trade as a driving force for growth and development. In any of these stages of integration, as already defined, the mutual trade of member states will increase and the economic policies will be regulated and coordinated throughout these states in a way so as to contribute to the process. In this respect, the economic integration plan, besides the strategy of a substitute for imports, can be within the access of policymakers of the developing countries, or, for example, be considered as a strategy for the development of exports.

In this way, the question is “to what extent will the integration plan reduce the costs for economic development?” The Import Substitution Strategy requires plenty of welfare and social expenditure (such as the costs of social waste and waste of resources), and selecting a unilateral trade liberalization policy for the execution of the strategy of exports development will also require a huge primary investment and some social costs.

As regards the setting of economic macro-policies, the integration plan member states are committed to implement the policies that will develop free trade (at least among themselves). If the free trade would have developed multilaterally, this would have been desirable from the economic theory point of view, but this may not be the

case in regional integration plans, and the same story happens under a microeconomic theory point of view. The microeconomic theory of customs union uses the concept of welfare costs to create doubts about the desirability of regional integration, which is something we will consider in the next chapter. In other words, we cannot always be certain in an economic integration plan, whether its advantages will exceed its deficiencies, and the volume of trade will deviate as a result of discrimination.

3.2.3 Theory of Custom Unions

Hence, we first give a brief history of these texts and then we come to the main discussion. A short time after dissemination of the Viner's effect, Lipsey and Meade showed that the theory of customs unions is a state of the general theory "Second Best Optimum".[1] According to this theory, when other disturbances remain and we have demolished one or more disturbances, we cannot achieve Pareto optimality. Here, other disturbances include common external tariff, which is implemented for the rest of the world, and the disturbance that the existence of first or second will not lead to general optimality, and, for the same reason, we are not able to make a definite judgment whether the customs union increases or decreases the welfare. Since no more description is provided for this research, we are not going to discuss it anymore. We mainly focus on important developments within this analytical framework, including articles by Lipsey (1957), Gehrles (1956), Melvin (1969), and Bhagwati (1971), who showed that the effect of trade diversion might increase the welfare, and the articles of Cooper and Massel (1965a)who showed that we can achieve the effect of trade creation

[1]International economic integration is treated as the second best solution, since it provides a degree of trade advanced according to stages of economic integration (gradual abolishment of customs tariffs, non-tariff barriers, such as registration rights, etc. due to the coherent policy of economic unions). It seems that the first-best option (free trade) is achieved as to gains from trade when economic integration reaches a stage of political union (EU in 2009).

through the liberalization of unilateral trade, without any need to incur the effect of trade diversion. Therefore, free trade is preferable to a customs union. We will then present the article of Wonnocot and Wonnocot (1981), who established doubts concerning this issue, the criticism set forth by Berglass (1983) over them, and, finally, the conclusion of El-Agraa (1999). In the meantime, we will also discuss the important advancements made by Johnson (1965) and several other important articles. Then, we will discuss the new trade theories and explain the gravity model.

The significant characteristics of a customs union mentioned in the literature review are as follows:

1. Imports from member states are facilitated by eliminating tariffs and quantitative restrictions.
2. Imports from non-members are exposed to common external tariffs.

In fact a customs union is differentiated from a free trade area by imposing common external tariffs against third countries and free trade; however, each country in a free trade area has its tariffs against third parties. Therefore, a free trade area can be considered as a variety of a custom union and vice versa. Although customs unions and free trade areas are not entirely similar, the required theoretical framework for investigating free trade areas can be extracted from the theory of customs unions.

3.2.3.1 Partial Equilibrium Model

Developing specialization and trade are among the potential advantages of a customs union. However, welfare implications include positive effects as well as negative ones. The positive effects or trade creation is the substitution of reasonable cost imports from member states for expensive domestic products (Park, 2006).The

replacement of lower cost sources of supply is helpful because it paves the way towards freer trade. The case of D-8 is a good instance; importing computer inputs and outputs from Malaysia instead of local manufacturing could contribute to Iran to be better-off from the one hand, and, from the other hand, Malaysia could be better off when it began importing carpets from Iran and stopped its domestic production of carpets.

Contrary to a customs union, trade diversion is a process through which expensive products of member countries are preferred to imports that are produced by non-member states at a low cost. The higher tariffs against non-member states compared to tariffs of customs union members give rise to this diversion. The differential tariff treatment diverts trade away from non-members toward members. One of the consequences of trade diversion is its hard effect on welfare because of the shift of consumption to sources of supply at higher cost. In this sense, it is a move toward protectionism and away from free trade. Again, the D-8 customs union provides a good example; the import of mutton from Indonesia instead of New Zealand could lead Iran to be worse off.

Depending on the magnitude of the negative or positive effects, it would be possible to estimate whether or not a customs union would result in any net gain. In fact, establishing a customs union can be considered as a move that contributes to both greater protectionism and freer trade. Consequently, both positive and negative and even neutral net effects on welfare could result, based on the creation of trade and magnitude of the diversion. The net static welfare effect of a customs union is dependent on which of the two effects dominates (Jovanovic, 2006; Viner, 1950). There will be an increase in welfare, provided that the effect of trade creation is more than that

of the trade diversion. Otherwise, the members will suffer from harmful consequences of the formation of a customs union.

3.2.3.2 Static Factors

As explained above, the overweight of trade creation on trade diversion will determine whether or not a customs union is beneficial. There are a few factors that can lead one to compare one-shot changes resulting from the formation of a customs union, both prior to its formation and after its formation. The factors that are static in nature are not subject to any change in the course of time. More specifically, as explained in El-Agraa (1984, 1999) and Robson (1998, 2006), a customs union is more likely to raise rather than reduce welfare.

The important characteristics of static factors are as follows:

1. The larger the size of the market
2. The higher the pre-union level of tariffs among members, and the lower and the less disparate the pre-union level of tariffs against non-members
3. The greater the pre-union level of intra-regional trade
4. The more similar the levels of economic development
5. The closer the members are geographically and the better the transportation infrastructure
6. The greater the substitutability between products of member states and products of non-member states

7. The smaller the pre-customs union shares of extra-regional trade in total trade

8. The more complementary the economic structures of the member states (Park, 2006)

3.2.3.3 Dynamic Factors

The creation of a customs union includes the removal of the trade barriers and the restructuring of the economy, which will possibly result in dynamic factors. Compared to static factors, dynamic factors are not associated with one-shot changes observed in welfare, and they emerge in the course of time gradually (Park, 2006).For instance, to become more efficient, some companies and industries in a nation may become more engaged in competition compared to their counterparts in neighboring countries once a customs union is formed; however, such efficiency gains are not possible within a day or a week. It is a complicated process to measure dynamic factors and they are consequently overlooked most of the time. As reported by Jovanovic (2006), Lombaerde (2006), and Lang and Ohr (1995) some of the characteristics of dynamic factors are as follows:

1. More competition, and, consequently, an improvement in efficiency results.

2. More specialization, economies of scale, and learning-by-doing will result in more gains.

3. Costs of intra-regional transactions are reduced.

4. Some protection from adverse developments in the world markets.

5. Bargaining power in relation to industrialized countries.

The dynamic cost of polarization must not be ignored, although there are potential dynamic benefits. For example, in case countries that integrate to establish a customs union that are different in terms of level of income and development, they will not receive an equal distribution of gains. The tendency of more developed and advanced countries to have a greater share of gains, compared to less developed countries, can give rise to tension and resentment among them. Furthermore, when the member states have the impression that the losses or benefits of setting up integration may only fall upon a nation or a sub-group of the members, they may withdraw or give up; accordingly, these instabilities can jeopardize the viability of the union in the course of time.

3.2.3.4 Non-economic Factors

In addition to the economic factors explained above, the success or failure of economic integration is dependent on a lot of non-economic factors. The case of EU indicates the significant role played by non-economic variables in economic integration, as reported by Baldwin and Wyplosz (2006b), Jovanovic (2005), and Molle (2006). Some of the non-economic factors include the common desire shared among countries in the region to have equal power, the desire to finish any violence that gives rise to tension among the members, responsible politicians who have a good command of the common problems that need a common solution, and a shared feeling of vulnerability among member countries. The commitment shown by leading politicians to integration and cooperation has been considered the most significant non-economic factor so far. In other words, a strong dose of will displayed by the politicians of the member countries

is the first determinant. Therefore, the success of the EU and NAFTA could have been threatened if the members' governments did not hold a strong political will in this regard. This also holds true for D-8 members whose governments' due political commitment to the issue provided the pre-condition for success.

3.2.4 Cooper and Massel Model

From the discussion proposed by Cooper and Massel (1965a), it is clear that the unilateral liberalization or "free trade" is preferable compared to customs unions, and it will undoubtedly lead to an increase in welfare.

According to Cooper and Massel (1965a), the effects of customs union welfare can be divided into the following parts: the effect of tariff reduction and the effect of full trade diversion.

1. The effect of tariff reduction is the only source for increasing the consumer welfare that we can expect from the customs union (it also includes trade creation effect and consumption effect).

2. From a non-discriminative policy point of view, the customs union always leads to trade diversion (the tariff reduction effect is however related to non-discriminative liberalization policy; in comparing the two notions, customs union and free trade, the tariff reduction effect is related to free trade).

3. The free trade viewpoint existing in Viner's analysis does not explain why the customs union must be preferred over a non-discriminative trade policy.

4. If the goals of tariff-setting are identified, we can find a justification for the existence of a customs union, and expand the customs union analysis to more diversified subjects (Cooper and Massel, 1965a).

This analytical tool clearly shows that any increase in the consumer welfare following the formation of customs union, whether due to the effect of trade creation, or the desirable effect of consumption will totally return to the tariff reduction element.

As it will be discussed in the next chapter, this conclusion is in coordination with and supports the generalization of the relation of gravity and counter exports of the countries to each other. The theory of regional integration and trade liberalization (globalization) will be correlated and tested in the fourth chapter of theory. Returning to the important discussion of Coopers and Massel, according to their model, instead of the situation that could be achieved through a non-discriminative reduction of tariff, the formation of a customs union will be followed by absolute trade diversion:

"Utility of the formation of customs union in general (and in comparison with the original non-discriminative tariff) depends on the effect of tariff reduction to neutralize the effect of pure trade diversion"

Therefore, the discussion set forth by these two scientists emphasizes that free trade is preferable to a customs union. In considering the terms Viner used to describe the effect of trade creation (beneficial) and the effect of trade diversion (harmful), and also since Viner argues that the original tariffs are an ineffective media for generating income for the government (Lipsey (1957) assumed it would be redistributed to the consumer), although it is possible that the customs union will yield benefits, perhaps

more benefit can be gained through reducing the tariffs directly and non-discriminatively.

As we can see the nature of analysis is not absolute and the combination of free trade with a customs union, cannot reach a final result that supersedes the experience. This issue will be discussed in detail in the next chapter.

3.2.5 Lipsey-Gehrles Model

In replacing the analytical tools from partial equilibrium to general equilibrium, there is a noticeable point, which shows that trade diversion can increase the welfare. Lipsey (1957) starts with the important issue that changing of tariffs as a result of union formation will change the comparative prices, with two important effects: 1) the production effect, because of production relocation and change of the production model; 2) Consumption effect, because of consumption relocation. Even if the global production is stable, the consumption model will change due to comparative price alterations.

However, to describe the effect of customs union as good or bad, we need to make a welfare judgment. The effect of customs union on welfare is a combination of its effect on location, and, as a result, the cost of global production and on location, and, as a result, the utility of global consumption. Especially when the consumption effect (as disregarded by Viner) is taken into account, this simple impression that the effect of trade creation is good and the effect of trade diversion is bad does not apply any more, and although it is essential to differentiate between trade creation and trade diversion in order to classify the production change (Production Model) as a result of union

formation, we cannot derive welfare conclusions from that (another important point from the viewpoint of the present dissertation).

Therefore, we can show that the welfare interest of the trade-deviating customs union includes the country whose imports have been diverted, including both the whole customs union and the whole world. This is something shown later by Gehrles (1956). In the Model presented by these two scientists (Lipsey and Gehrles) the curve representing the production-possibility frontier is a straight line. Later, Melvin (1969) and Bhagwati (1971) also repeated the discussion and made the same conclusion with a concave curve representing the production-possibility frontier in relation to the origin of coordinates, showing the cost of increasing opportunity.

According to Chacholiades (1978), Lipsey (1957) uses the differentiation between the two effects to show how the welfare in Country A may actually increase following the formation of a customs union. First, the imports of A are more expensive. Second, after the formation of the union, the difference between the relation of domestic price in country A and the relation of transaction of country A is decreased. Thus, the consumers of A are able to make their purchases through a trade relation that is equal to the marginal rate of substitution. The first effect, which is a production change from lower cost to higher cost, is undesirable, while the second effect, which is the consumption effect, is desirable. The outcome depends on which one of these two effects is more powerful.

The issue of the change of the world's welfare can be shown by some assumptions. Let us suppose B and C are two countries that form the rest of the world in the model; both of them are big and they produce the goods Y and X under the fixed opportunity cost. B and C do not have a prohibitive tariff against each other and the trade only occurs between A and C. However, C is a producer of the two goods and so the trade occurs at a comparative price applicable in country C. After the formation of the customs union between A and B, A only transacts with B. So, C incurs no losses as a result of the elimination of trade toward which it is indifferent, because the trade has occurred under its internal trade relation. In addition, Country B still produces the two goods of X and Y, so it gets no benefit from the new trade with A. So, the whole trade benefit is achieved by Country A either before or after the formation of the union. If the trade deviating customs union increases the welfare in A –as the possibility has shown –the welfare in the world will also increase.

3.2.6 Melvin-Bhagwati Model

The analysis by Lipsey reveals how Viner disregarded the effect that increases the welfare of trade deviating customs union, because he assumed that consumption is a fixed coefficient. In other words, he did not consider the substitution in consumption.

As stated by Bhagwati, considering no substitution in consumption is not an adequate condition for the trade union to reduce welfare. In fact, through considering consumption substitution, we can show that it could increase the welfare. Production diversity can also be regarded as the origin of benefits to be gained from the formation of a custom union.

In Lipsey's analysis, consumption does not change over a straight line from the origin of coordinates; this condition shows changeability of consumption and rejects the possibility of consumption with a fixed coefficient. Now, consider the condition in which imports are also fixed. In this case, the trade deviating customs union again reduces the welfare. Bhagwati argues that the consumption condition with a fixed coefficient is not an adequate condition for welfare reduction as an effect of trade union. The adequate condition is the fixed imports.

In their article, Bhagwati and Melvin only discussed their constrained models in which either the consumption is a fixed coefficient or import.

If we do not consider the assumption of consumption with a fixed coefficient or fixed imports, the new consumption equilibrium, clearly shows that the welfare in Country A increased after the formation of the union.

3.2.7 Wonnocot and Wonnocot Model

Wonnocot and Wonnocot (1981) basically argue that "the unilateral tariff reduction is not preferable to a customs union", not based on a logical error, but due to a series of assumptions that negates the basic benefits of a customs union. For example, in the previous analyses, we assumed that Country C does not apply a tariff and also no transport costs exist, and we strongly assumed that Country A cannot benefit from having access to the market of Country B. Now suppose in Country C (rest of the world), a tariff and other trade barriers exist. In such circumstances, the analysis of the effects of free trade among the members of the trade union, with the assumption that there are no barriers for trading with C, is meaningless. Also it is meaningless if we

analyze the customs union, especially if we compare the customs union and unilateral tariff reduction, unless we assume that all countries have set tariffs.

These two scientists argue that if the following hypotheses are rejected, the statement that “unilateral tariff reduction is preferable to customs union”, will no longer be applicable. In this case we can disregard:

1. The tariff set by the partner country,
2. The rest of the world does not set a tariff,
3. There is no transport cost between the members of customs union and the rest of the world (EL-Agraa 1999).

Their method is not based on the effects of the relation of transaction or economies coming from scale, which are two favorable effects of customs union, and unless these three hypotheses are left out, their analysis is completely within the general equilibrium of two goods and three countries (like the previous analyses).

With this model we can show that from a customs union we receive a benefit, which we cannot receive from a unilateral tariff reduction. Considering the transport cost with Country C and the tariffs of Country C, now country C has got two offer curves rather than one, while the comparative price in Country C is equal to the slope of the trade offer curve of Country C.

Therefore, the transport cost and tariff in Country C create a gap between the offer curves of Country C (in the same way it creates gaps between the internal and international prices in the simple supply and demand model). If this gap is large enough so that the two countries of A and B do trade "with each other" within this gap before

and after the trade union, it seems as if Country C never existed and its predominance over trading with A and B disappears. So the issue of formation of customs union between A and B that now covers the whole world (or the rest of the world, upon leaving out C) is connected to the issue of unilateral free trade. “In this case a CU can easily be shown to be beneficial under standard assumptions; both countries have a higher welfare” (Wonnocot and Wonnocot, 1981). Both countries have a higher level of welfare in a new equilibrium. In addition, for both countries the customs union is preferable to the unilateral tariff reduction: In Point E, Country A has a higher level of welfare than M and Country B has a higher level of welfare than W (in this case the existence of transport cost between the two countries of A and B does not change the final result and it has not been considered for simplification purposes).

Therefore, it seems the article of these two persons is contrary to that of Coopers-Massel’s, which remained unrivalled for 15 years and is still used to recognize unilateral tariff reduction being preferable to a customs union. However, Bergrlas (1983) set forth several criticisms of Wonnocots' article. He emphasized that the Wonnocots had forgotten two alternative hypotheses that are implicitly considered in the analysis of a customs union:

1. Trade before and after the formation of customs union, must move in one direction, This means the direction of trade must not change with the formation of customs union (the analyses by Viner, Coopers and Massel were based on the same assumption),
2. All three countries should have participated in trading.

He concluded that we can consider Wonnocots' analysis as a special case, under which when the direction of trade changes, the statement "free trade is superior to the customs union" might not be applicable anymore; however, the statement that if we incorporate the transport cost and tariff, is an incorrect conclusion. Subsequently, Wonnocot and Wonnocot (1984) interpreted Berglas's discussion in a way that supports a weakened form of the statement that unilateral tariff reduction is sometimes preferable to a customs union and a customs union is sometimes preferable to unilateral tariff reduction.

Later, El-Agraa (1984) claimed that the Wonnocots' analysis is incomplete not only because of Berglas's argument, but also because of ignoring a common external tariff in their analyses. El-Agraa (1999) showed that when the common external tariff is established, Country A will unambiguously receive a loss from the formation of a customs union (in comparison to unilateral tariff reduction), and although Country B benefits from the customs union, there is no transfer of revenue between the two countries (so B compensates losses of A out of its benefits) that could be executed upon and along the customs union, and could establish benefits for both countries A and B simultaneously from the formation of a customs union. Especially when it is compared to when A follows the free trade, after which B implements the optimum policy of unilateral liberalization.

Thus, this case is pure trade diversion, and if there is to be no mechanism for the transfer of revenues from B to A, A will have no motivation to form a customs union with B, even if it recognizes this as the only trade policy option. However, since it is not

reasonable to restrict the scope of economic policymaking options, both countries will benefit from unilateral tariff reduction.

In other words, when in the customs union, there are no possible arrangements for the transfer of income that are preferable to a unilateral tariff reduction. From the Pareto optimality point of view, although B will gain benefit, and A will receive losses, if A applies the optimal policy of unilateral tariff reduction, B is not able to do anything better than follow the optimal policy for the two countries.

The more important issue in El-Agraa's analysis (1999) is that if the common external tariff is in any manner bigger than zero, by reducing it to the level of tariff in Country A, it will change the internal trade relation to the benefit of A and will have the effect of trade creation because the foreign trade of customs union (with the rest of the world) grows faster than the reduction of trade within the customs union. In this case, Country B will receive welfare loss, and the lower the level of common external tariff, the more benefits might be gained by A (the whole discussion is in comparison with the case when customs union is formed but common external tariff is not reduced). However, as long as the common external tariff is positive, A might receive losses through membership in the union (compared to unilateral tariff reduction) and although B gains benefit, we cannot find a potential system for the transfer of revenue that could benefit both countries.

3.2.8 Development of Export, Tariff Negotiations and the Models of Coopers-Massel and Wonnocot

According to Coopers-Massel's discussion that each country has a set of imported and exported goods, and that it will have the potential for increasing the exports of some of its goods (due to comparative advantage theory), and the point that although A as an importer will incur losses, but its partner, B, will benefit due to increased exports, and A also has some exports to B in return; because for A as an importer, the effect of trade diversion will entail loss in the trade relation (change of the equilibrium point as the intersection place on the trade offer curves of A and B countries, entailing a loss for A, out of which we can measure the trade relation), leading to benefits for Country B, as an exporter. Therefore, loss due to the effect of trade diversion coming from imports is neutralized with the benefit gained out of exports.

If the loss from trade diversion can be mutually neutralized, then considering a series of exported and imported goods, it might be that the net effect is neither zero nor negative. Such reasoning provides a basis for the presentation of evidence in favor of a Customs Union rather than unilateral tariff reduction. Membership in a customs union is, in fact, a method for giving benefit from the positive effect of trade diversion while the member state is not faced with problems in trade balance and payment balance (this issue, which forms the basis of the first hypothesis in the present dissertation, will be discussed in Chapter IV and the effect of trade liberalization on trade balance will be estimated).

The benefit coming from trade creation makes the resources to be redistributed from the production of inefficient goods to the production of exportable goods with higher efficiency, the cost of which is comparatively lower than the cost of the world's production. In practice, there might be some delays in the relocation of the resources due to unilateral tariff reduction, and we might be unable to increase exports along with increased imports. Consequently, there might be short-time unemployment, but membership in a customs union allows trade to become balanced. It also accelerates the redistribution of resources due to the formation of the customs union; the export markets are opened for the member state, thereby allowing the reduction of unemployment (this is the third hypothesis of the present dissertation, which could be confirmed or rejected by estimating the short-term and long-term elasticity of income coming from exports and imports).

Thus, after the formation of a customs union, when the resources are redistributed from inefficient industries to efficient industries, the production model will match the comparative advantage (or competitive advantage) model of each member state and the country will be more prepared to move towards multilateral tariff reduction.

In essence, the discussion matches the articles written by Johnson (1965), Bhagwati and Panagarya (1996). Johnson considers the reasoning behind the preference for industrialization for each country as a motivation for the formation of a customs union, or a reason for its justification. Each country, without losing its industrial production, allows the partner country to achieve the industrialization model, and also makes itself industrialized. In fact, this preference for industrialization, which shows

itself in the utility function, will cause a preference for customs unions over free trade. Bhagwati and Panagarya (1996) reasoned that taking into consideration Coopers-Massel's model, Kemp and Van's (1976) model, Brecher and Bhagwati's (1981) model, Grossman and Halpman's (1993) model, and Krishna's (1997) model, the regional economic integration will finally lead to free trade throughout the world (responding to the claim that the world will be divided into regional economic blocs rather than a free trade area).

Hence, the main question is: does the trade diversion cause the reduction of welfare in member states? The effect of trade diversion will have a negative impact on the importing country, but the exporting country gains profit from higher prices out of its exports in such a way that the producers' surplus will increase (at the same time the consumers' surplus welfare will decrease). The net effect in the exporting country might be positive or negative. The effect might be negative if at the world's prices, the partner country is an importing country. Thus, the net trade diversion may decrease the welfare of the two countries, the union and the world.

The second question is: If the partner country (exporting country) gains profit from the effect of trade diversion, is it possible that its benefit is more than the loss of the member state (importing country)? The answer is no. So, the net trade diversion always has a welfare reducing function.

Hence, the first country (importing country) may not be willing to form a customs union. However, it is possible that the production resources in the importing country may not have full movement and the same country may face some short-time problems in the trade balance equilibrium (in the case it would unilaterally eliminate the

tariffs). In these conditions the importing country may accept the loss from stoppage of welfare in order to achieve benefits resulting from the effect of trade creation for its exported goods and decide to form a customs union. In addition, in the customs union, the exporters might be confident about having access to export markets rather than to world markets. In this case, the increase of exports and its adjustment with the relative advantage model is easier than unilateral tariff reduction.

Wonnocot reasoned that in addition to customs union member states, other countries of the world also set a tariff. If we consider the customs union as one single country, it is like all the countries of the world setting a tariff for them, which is not an optimal condition. The optimal condition is when the whole world moves towards free trade. In this case it is not surprising if the formation of a customs union entails benefits from exports (especially for developing countries). The issue in question is how countries within the union compensate for the negative effects with each other, and further benefit from the dynamic advantages of a customs union as well as the economies of scale and improvement of trade relations with the rest of the world. Here, the reasoning is close to the discussion of Bhagwati and Panagarya. Although, theoretically, we cannot make a final judgment that the unilateral free trade is always preferable to a customs union, or the customs union unambiguously increases the welfare, it directs the world's economy to move towards the redistribution of resources to more efficient activities. The rest of the world will then be motivated to change into a big customs union (Kemp and Van, 1976).

Therefore, Wonnocot stated that there is one hypothesis embedded in the context of a customs union in which the prices are compared with one single international price;

in other words, there is one single price for every good in the world market. Then, they reasoned that there are many countries outside of the union who operate separately in the world market, in a way that the tariff of every single country is totally paid by the consumers and they have no impact on international prices.

When we consider the tariff or third country, there exists one point that we have to discuss: first, the third country (Country C in the analysis) might be a large country with respect to the goods referred to in the figures herein, but it is not large in all goods. From the tariff negotiations point of view, the third country might set a tariff on the goods in question in order to take tariff-related privileges from it strade partners.

Therefore, the important advancement of Wonnocot is that in a world with tariffs, some welfare interests are expected from the customs union that we do not expect from unilateral trade liberalization. This interest is associated with the point that the exporting members of a customs union are low-cost producers, and that before the formation of a customs union they are not able to benefit entirely from their comparative advantage because of the tariffs set by other countries.

Now, if other countries eliminate their tariffs, the exporting countries of the customs union are able to benefit from their own comparative advantage completely. The importing country is likely to incur a loss, but this loss might be less than the benefit gained by the partner country from exports. Hence, the elimination of tariff in the world will increase the welfare of a customs union, with the assumption that the loss will be compensated by members.

3.2.9 Free trade agreements versus customs unions

Because the integration of Europe as well as North America led to success, since the late 1980s, RTAs have been revitalized. The static and dynamic effects of RTAs have been investigated in a number of theoretical and empirical studies (e.g., Lee, Park, and Shin, 2008). However, the trade and welfare effects resulting from different types of RTAs still call for further analysis. One of the pioneer figures, who compared RTAs of various kinds in general, and FTAs and CUs in particular, is Kruegar (1997).Through the analysis of static net welfare gains and dynamic evolutionary paths, Kruegar (1997) claimed that "CUs permanently lead to preferable results compared to FTAs. The shortcoming of FTAs is because of the spaghetti bowl phenomenon expected from the hub-and-spoke type of overlapping FTAs. The welfare-reducing trade diversion effect and the high costs of verifying rules of origin (RoO) may overwhelm the gains from freer trade with FTAs". This additional cost may cause larger negative welfare effects in addition to the traditional trade diversion effect and may not trigger the domino effect of regionalism because of the difficulty in accommodating new entrants into the existing RoO regimes.[1] Mirus and Rylska (2001) corroborated Krueger's claim by providing a detailed description of the disadvantages and advantages of FTAs and CUs, concentrating on RoO and CET (Park and Park, 2009).

Through a modified Meade model of endogenous external tariff protection, Panagariya and Findlay (1996) further made a theoretical comparison between the welfare effects of FTAs and those of CUs. The authors argued that a CU is a less

[1] See Baldwin (1993) for the domino effect of regionalism.

protective and superior form of RTA to a FTA. They identify a possible free-rider problem in lobbying for protection that makes a CU less effective than a FTA, as stated by Richardson (1994).

As stated before, the number of studies conducted on the static net gains resulting from the establishment of RTAs and the dynamic evolution of RTAs toward global free trade are remarkable. In spite of these investigations, however, there is still a lack of empirical studies to prove that CUs are preferable to FTAs. The larger effects of greater RTAs on the volume of regional trade between various types of RTAs have been highlighted in a few empirical studies. For example, Ghosh and Yamarik (2004b) and Kandogan (2008) found stunning results regarding the effect of economic integration on intraregional trade. They found the coefficients for CU and CM membership dummies both negative and significant in several specifications. However, the authors did not control for multilateral resistance terms, and, more importantly, for self-selection into RTAs. As reported by Baier and Bergstrand (2004), and further corroborated by Vicard (2008),"studies on the determinants of RTAs suggest a 'market for regionalism' view of regional trade integration, where countries choose their partners and the form of the RTA according to economic and political determinants".

Using a gravity regression analysis, Ghosh and Yamarik (2004b), and Magee (2008) evaluate intra-bloc and extra-bloc trade effects of different types of RTAs. The authors could show that the RTA type significantly leads to different trade effects .Gosh and Yamarik (2004b) found that compared to a FTA, a CU gives particular rise to more intra-bloc trade and less extra-bloc trade estimating proposed RTAs. The trade effects patterns are, however, reversed as far as real RTAs are concerned. According to Magee

(2008), compared to CUs, FTAs have a greater impact as far as the net trade-creating effects are concerned; however, the author found the reverse result when he estimated "the cumulative effects with lags because of the strong post-enactment intra-bloc trade-creating effect and weak anticipatory trade-diverting effect of CUs". So, the question as to whether CUs lead to more intra-bloc trade and less extra-bloc trade and are better compared to FTAs remained an unanswered question. Through a gravity regression analysis, Park and Park (2009) answered the question. The quantitative estimation of the trade effect of CUs and FTAs provided by the authors showed that as far as more intra-bloc trade and less extra-bloc trade are concerned CUs are preferable to FTAs. The results of Park and Park (2009) indicated that while an FTA provides 14.2% gain with members and 14.5% with non-members, a CU provides 32.6% gain with members and 5.9% gain with non-members with no trade diversion.

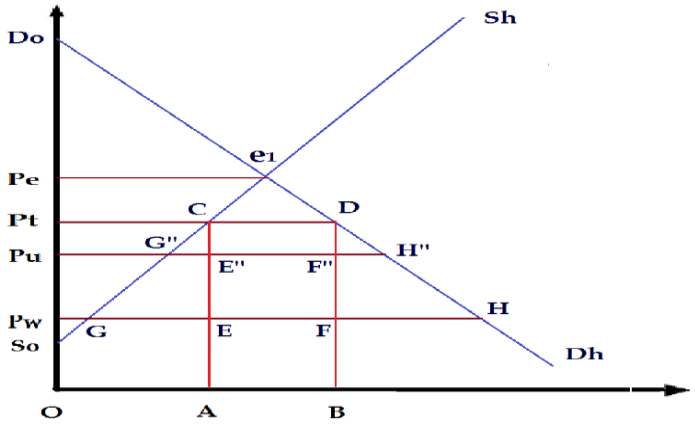
Contrary to the free riding effort of lobbying for protection, as stated by Panagariya and Findlay (1996), and Richardson (1994), if the lobbying effort becomes successful, a CU may raise the CET and make the CU more protective than a FTA.

3.3 Theoretical Models

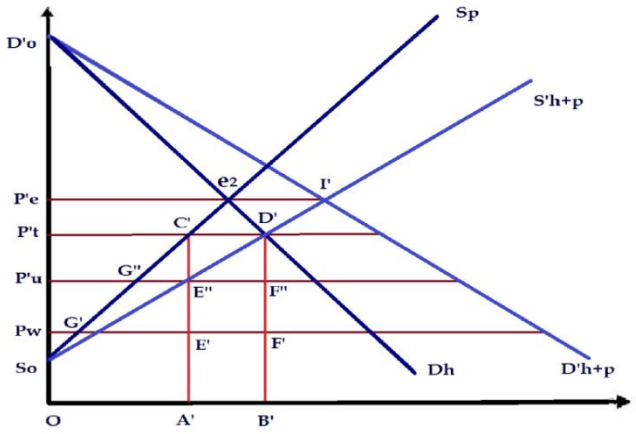
In this part, the theoretical model is to be founded on economies of scale, or the difference between the special and social costs of production, which are basically the logic for formation of customs union for developing countries, and we will study its link with the gravity extraction relation.

In figure (3.1) the supply and demand curves have been drawn for one hypothetical product. It is assumed that the two countries only produce one single

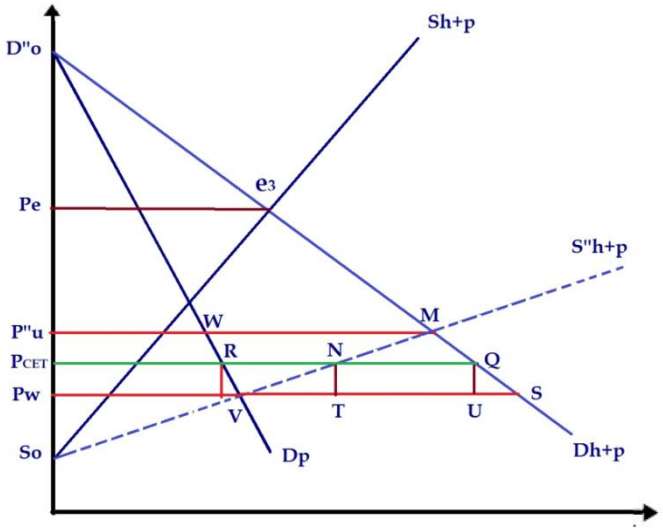
product and they include only one consumer. The global supply curve has been drawn as a straight line, i.e. the assumption of a small country and lack of influence on the world's price has been adopted. Also the customs income is redistributed to the consumer. As Corden (1974), Robson (1998) and other texts that assume economies of scale or deficiencies of the market, it is possible that after formation of a customs union the demand curve of the whole union drawn in Part (C) of Figure 3-1, is moved towards the right. In order to coordinate with the extracted gravity model, we assume that both countries import the product in question, in other words, we assume a similar structure for imports. The situation before the formation of the union in the two countries is drawn in part (A) and (B). Like before, the quantities of production, consumption and imports, either subject to tariff or exempt, could be perceived.



(A)



(B)



(C)

Figure 3-1 Export Customs Union of Developing Countries

Again, the price of the cheapest world resource is P_w and the price subject to tariff in both countries h and p are P_t and P'_t, respectively. The volume of imports of the

two countries are equal to AB and A'B' and ECDF and E'C'D'F' is the customs income each country collects. OA, O'A' are the domestic production of the two countries. Now let us assume these two countries form a customs union, and, at present, we do not speak about determining P_u and P'_u in figures (A) and (B).

In this case, S_{h+P} is the aggregated supply curve of the two countries and D_{h+p} is the aggregated demand of the two countries. Once again, we assume that these two countries have no effect on the world's price, either separately or collectively. So, the effect of exchange relation is equal to zero and the straight line P_w still shows the global supply curve. (This hypothesis is adopted here in order to simplify our discussion, however, if the effect of the transaction relation also exists, the results will be verified in a better way). If the two countries establish prohibitive common external tariffs, the equilibrium is in point e_3 and the price of the good is equal to P_e (figure C). The whole consumption is supplied from the internal production of the union. However, it is not clear in which country the production is centralized. If, following the formation of a customs union, the said industry is transferred from h to p, production in h will be equal to zero, and, generally, the domestic consumption will be provided out of the imports from p. In this case, in country h, the customs income ECDF is lost, the surplus of the consumer welfare is reduced by $P_tDe_1P_e$ and the surplus of the producer (and employment of generating resources) is lost.

The figure is clearly drawn in a way in which in the price P_e neither of the two countries are transferred into exporters to the rest of the world. Based on this assumption, the figure is drawn in a way so that both countries are importers. This action is consistent with the theory of the similarity of imports.

Now, under these conditions, what incentive does country h have to take part in a customs union? This is the same case mentioned in Brown's (1961) and El-Agra's (1999) models, under which if a country incurs a loss from actual income, it will have no motivation to take part in the customs union. Even the compensation for loss by the country to which the production is transferred will not be able to stimulate it to participate in a customs union (in other words, even giving a bribe may not work) because the said country loses the employment of generating resources.

Please note that the analysis is much more complicated in the country to which the production is transferred. We assumed that the production is transferred to country P. In this case, in figure (B) the supply curve moves towards the right and will be exactly parallel and equal to S_{h+p} in figure (C), which we show by S'_{h+p}, and we assume that after formation of the union, the prohibitive tariff is set. In this case in figure B, P'_eI' is equal to the volume of production, which will cover the aggregation of demands p and h. P'_ee_2 will be equal to the consumption in country P, and e_2I' will be equal to the consumption in country h, i.e. P_ee_1 in figure (A). In the case of a prohibitive tariff of the second country, p is transformed to exporter. The surplus of the consumer welfare in country p decreases by $P'_tD'e_2P'_e$ but the surplus of producer welfare increases to $S_oI'P'_e$, the $e_2D'I'$ of which is obtained as a result of exports to country h.

It is clear that as a result of this transfer of industry, country P has lost the customs income for C'E'F'D' compared to the case where the price subject to tariff is equal to P'_t. It is likely that the interest in surplus of the producer will compensate the loss from the customs income in country P, and, in this case, country P will benefit from the formation of the customs union (considering that the total reduced surplus of the

consumer is transferred to the producer, this is more possible); in addition, it has also turned into an exporter.

However, country h has suffered a total loss because it has lost the customs income, both surplus of consumer welfare by $P_tDe_1P_e$ and surplus of the producer. Setting a prohibitive common external tariff is clearly a puzzle for the formation of a union. If country P pays the aggregate of all these to country h, it is still difficult for country h to accept the customs union plan, because of job preferences or industrial production.

Now, let us assume that in the whole union in figure (C), because of the difference of private and social costs, upon payment of subsidy the total supply curve is transferred to S''_{h+p}, and also, let us assume that the said industry is centralized in one country. In this case, the new equilibrium in figure (C) will be, for example, on point M, and the price of P''_u is determined at this point, which is the place where D_{h+p} and S''_{h+p} cross, as reflected in figures (A) and (B). At this price, the customs union is also self-sufficient. It is observed that price P"u is less than price P'_t and P_t, and, in this case, country P is still an exporter.

The price of P_u, i.e. the price of a customs union, is specified here and for the same reason the price P_u has not been assumed separately for the two countries before. In this case from the whole production P''_uM in figure (C), P''_uW is the consumption of p and WM is the consumption of country h. The surplus of consumer welfare in country h increases by $P_tDH''P_u$, and, in this country, only E"F"FE suffers the effect of trade diversion. It is completely likely that the interest of consumer welfare would neutralize and even exceed the effect of trade diversion and the formation of a union would be

beneficial to country h. It is highly possible that country p will also benefit from welfare because the surplus of consumer welfare is increased from $D'_oP'_eI'$ to $D'_oP'_uM'$, the surplus of producer welfare is increased and only the customs income is lost at C'D'E'F'. The only issue is the production lost in country h to the benefit of country p.

Here we can declare that as a result of customs union formation, either of the two countries in any case was transformed into an exporter (country p in the example) and could expand the supply to P'_uM in figure (C) due to foreign economies or the difference of private and social costs of production upon payment of subsidy. Here, a subsidy paid on production could properly neutralize the negative effects of prohibitive protectionism, and, as stated by Corden (1974) and Hunt (1989), a subsidy support is changed into a developmental policy that could eliminate the high expenses of protectionism with prohibitive tariffs that would the price in P_e (in three figures) and would impose plenty of losses on either of the two parties.

Now suppose a multiproduct world, in which all assumptions of this model apply and all other conditions are stationary. It is entirely likely that country h that has lost the production of the product in question in figure (3-1) is able to obtain the production of another product, under the same conditions discussed above. In this case, the two countries will complement each other in the demand structure (as well as production). If the events we mentioned above happen for another product in country h, both countries will benefit from the formation of a customs union, both countries are transformed into an exporter of the goods in question based on their own relative preference model and they will achieve plenty of welfare interests. According to De Melo and Panagarya (1992), when two developing countries complement each other in

the demand (and supply) structure, the formation of a union will bring them plenty of interest. In this case, the production of two countries will be dissimilar. And there will be high complementariness in demand, which will entail plenty of interest for developing countries. So, the issue of complementariness in demand becomes clear with this model. As reasoned by De Melo and Panagarya, the developing countries are more involved in inter-industry trade. In the above-said model, in which specialization occurs in two different goods in two countries and inter-industry trade will be intensified between these countries, they will each become an exporter. This is why since the beginning of the model, and before the formation of a union, we supposed that the imports of the two countries are similar; this is the same conclusion obtained from the gravity equation. Thus, full specialization in production in this model is consistent with the gravity model; both countries will have exports to each other and the reduction of prices in the union will lead to mutual trade between the two. However, we have not yet discussed the exports of third countries to these countries. Further, we have not studied the issue of the centralization of enterprises in the two countries.

Now, let us suppose the two countries form a customs union and the supply curve is also S''_{h+p} (in figure C) and they also establish a Common External Tariff (CET) that would place the price at P_{CET} level in the union, which is lower than $P_{u.}$ In this case, the total supply of the union is reduced to $P_{CET}N$, and, out of this value, $P_{CET}R$ is consumed in country P, and RN is also the exports of p to h. The NQ is the imports of h from the world's cheapest resource (rest of the world) at the price P_w, and country h would collect a value of NQUT of customs union, albeit RNTV will also suffer the effect of trade diversion. In addition, a high volume of the surplus of producer will be

redistributed to the consumer at the price P_{CET} in country h (figure A). So, positive welfare effects will occur with a reduction of price from P_u to P_{CET} and the two countries may benefit from this. In this case, trade with the rest of the world is not eliminated, and, even, it is likely that the trade with rest of the world will also increase. Because in a self-sufficient trade union there is no import from the rest of the world and it is possible that NQ is even more than CD+C'D', which depends on the level of original tariff P_t, and the elasticity of supply curve S_{h+p}, the elasticity of the demand curve D_{h+p} and the level of tariff P_{CET}. The higher the level of the original tariff and the lower common external tariff, the higher the possibility for the effect of trade creation, and, based on the situation in developing countries in terms of protectionism, this probability is not so far-reached.

Therefore, the increase of trade of the third country (rest of the world), which was incorporated in the gravity model could show it simply in the theoretical model. It is expected that in the estimation of the gravity model, the effect of exports of the rest of the world to the two partner countries is positive on their mutual trade. This is one of the important assumptions of the present dissertation, and we will address it in the next chapter.

Hence, the dynamic effects will still continue, and, gradually, as resources are reallocated over the time, we expect the countries to be specialized in production of goods and achieve higher production capacity. In these conditions, after a while, trade will increase speedily. Intentionally, we inserted into our discussion the issue of a once-forever reallocation of resources that will be followed by the once-forever effect of trade creation or trade diversion, in order to classify the speed of trade growth in the

short term and long term. In the gravity model, we measure the speed of trade growth, i.e. exports and imports, by the elasticity of trade against Y_i and Y_j (GDP of the two countries i and j). It is clear that in this analysis we have considered a time scope for the reallocation of resources in order to ensure that we have considered the delay in the allocation of resources and transfer of resources among sections, which could occur for different reasons, including fundamental reasons, for the developing country.

Now we pose another question, what will happen if the goods the two countries h and p produce are differentiated (in terms of quality)? For example, both countries manufacture automobiles but the model and type of these automobiles are different from each other, now, what will happen if both countries form a customs union?

Here, it is likely that full inter-industry specialization does not happen. When the markets of the two countries are open to each other, the possibility of intra-industry trade will prevent full specialization of auto manufacturing because the consumers will like various models of the cars and they prefer diversified models; this is called economies of scope, which is a factor for intra-industry trade. In this way, in addition to domestic consumers, the consumers of the partner country are also added to the consumers of the product produced in country h or p. In this case, the curves Dh and Dp, related to each country, will move towards the right. The move of the demand curve to the right side will provide a high possibility for welfare interest resulting from intra-industry trade. It is likely that the number of enterprises or the production capacity will increase in order to meet the new demands. In any case, either the supply curve is transferred towards the right, or the production expenses will decrease, which will have the same effect. This situation is shown in Figure 3-2.

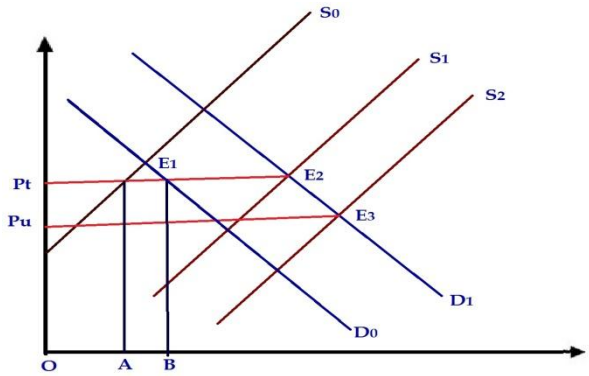


Figure 3-2 The effect of customs union on differentiated goods

In this case, for example, if the equilibrium moves from E_1 before the formation of the union to E_2, the production has increased, and it will meet the consumption in the domestic market and also export to the partner country. This is because D_1 includes the demand of the domestic and partner's consumers and it can even include consumers outside of the customs union, because we supposed the product is differentiated and the world's lowest price is not drawn in the model. The more demand and supply curves are transferred, the more interest is gained from the customs union in each country. It is emphasized that there is no full specialization in the model (corner equilibrium will not occur in the convex production facilities curve). In addition, the industries will benefit from the bigger market of the union and economies of scale, which is the second factor of intra-industry trade. Once again a customs union is formed that has changed countries into exporters. The formation of a customs union and the low level of common external tariff on the competitive goods of the rest of the world can even boost the exports of the rest of the world to the customs union and its member states; this issue is consistent with the theoretical substantiation of the gravity model. Trade liberalization along with the possibility for intra-industry trade, will also increase the possibility of the volume of trade among member and nonmember states as well as the rest of the world.

Usually, the production of distinguished goods and their consumption are common in those countries that maintain a higher level of income. For countries with high revenue, the closer their per capita income means the more possibility for intra-industry trade. The more similarity in the structure of demand, the more interest will be gained from the formation of a customs union. According to Linder's theory, this is the necessary condition for increasing trade among similar countries. In this model, first we imagine the status of the two countries, only for comparison, according to figure (A) and (B), figure (3-1). In this case, the two countries will be similar in terms of imports and provided there are preferences in two countries for different models of the differentiated goods, the similarity in imports is the adequate condition for increasing counter trade (counter export) between the two countries. This is the same discussion discussed in the gravity model. Therefore, the possibility of intra-industry trade could also be explained with the gravity model, or more precisely, it is consistent with the gravity model.

In the above discussions, the distribution of industrial production among two countries being in the state of inter-industry trade, the distribution of enterprises in each country was not determined. Krugman's (1980) "Home Market Effect" says that after trade liberalization, the entities will be centralized in those markets that are bigger than other markets (by market we mean country). This discussion is the new trade geofigurey, which was founded by Krugman and was mentioned in the preamble, Chapter 1 of this dissertation. Krugman's economic geofigureical model is presented in Krugman (1991a). In reply to Krugman's home market effect, Markosen (1981) and Davis (1998) showed that under specific conditions it is likely that the home market

effect is reversed or exterminated. In practice, there are a large number of manufactured goods and it is possible that the pattern of distribution and centralization of industries within the customs union do not fully follow home market effect; however, there will be some industries that are distributed among the countries based on a special pattern that is a function of relative advantage. Yung Hur (2001) showed that the low trade expenses, or low common external tariff, as set forth in the present dissertation, against customs union nonmember states, are necessary to guarantee the distribution of industries in different regions of the customs union. Hence, the lower the level of common tariffs, the distribution will maintain a more balanced pattern. This is why, earlier, Krugman and Venebels (1993) showed that Europe's industries, like the US industries, have not changed into Silicon Valley industries, due to trade barriers in European countries.

However, in summary, the less protectionism among developing countries after the formation of a customs union, the more possibility for the effect of trade creation and the more counter exports the member countries will have to each other (and to the rest of the world). In the current situation, the developing countries have also entered into the stage of intra-industry trade (Ahmad and Ahmed, 2005) and are more likely to benefit from the formation of customs union. In the 1960s and 1970s, most of the regional integration plans among developing countries that had been recently created, were broken up, due to the high effect of trade diversion and the disagreement of the members regarding the distribution of interests. However, in the 1990s, especially the economic integration between these countries continued more intensely. In this chapter, the theory of globalization (with the definition given for trade liberalization and low

preference margin) and the customs union are linked to each other so that its effects on counter trade inside, and inside and outside of the union, can be explained. It has become clear, that the more similar the level of members' imports to each other, the more possible is the increase of exports, or the effect of trade creation. In addition, the exports of the rest of the world to member states will also have a positive influence on their counter exports to each other and to the rest of the world. We also discussed the elasticities of trade income (exports and imports) in the short-term and long-term. In the next chapter, the hypotheses extracted from the gravity equation and the theoretical model will be put for the accuracy of the plan and also tested. Regarding the industry distribution pattern, this dissertation cannot enter into further discussion on this.

3.4 Economic Integration in Developing Countries

Market access has been facilitated and new market opportunities have been developed across the world because of the extensive tariff liberalization initiated since the mid-1980s. In 2001, the average tariff rate reduced from 9.8% in 1980 to 3.7%in developed states. In developing countries, the average rate reduced from 30% in 1980 to 12.7% in 2000.

Despite the reductions, manufactures among developing countries still observe high tariffs on trade. Compared to developed countries, exporters from Latin America encounter tariffs in neighboring Latin American markets that are seven times higher. For instance, Sub-Saharan Africa observe tariffs six times higher, and Asia experience tariffs two times higher (World Bank, 2004). Developed countries impose tariffs on manufacturing on exports from developing states, which are higher compared to tariffs

among developed countries. A 2% increase was observed in the tariffs for Latin American exports and an 8% increase was observed in tariffs for South Asia exports.

According to the Economic Analytical Unit (2004), South-South trade would be among the particular beneficiaries because of the greater reduction in tariffs for developing countries compared to developed countries resulting from further economic integration. Based on the estimations provided by the World Bank (2005), by 2015, developing countries will obtain some $300 billion, which makes up 45% of gains obtained from serious trade reforms. Moreover, productivity would be stimulated because of the increase in competition.

Developing countries have made significant attempts in the last few years to get further regional economic integration. The attempts include the revitalization and expansion of current regional arrangements or the formation of new groups observed among various developing countries.

The capacity for trade policy analysis is not enough in developing countries. Developing countries are not very aware of the effects of trade agreements on economy and society. Moreover, experts in the field who leave their job for better-paid posts impede knowledge accumulation in developing countries. Hence, in order to decide on strategic interests, governments have to get international consultations from firms, which are not only expensive but also unsuitable for the local context. Consequently, because of inadequate knowledge of trade issues, developing countries do not consider trade as a development tool. Developing countries are generally tardy in concluding trade agreements, and the reluctance of developing countries to give commitment results in the formation of agreements that are often unsuitable to their local context. The idea

that developing countries need to develop their analytical capacity was highlighted in the inauguration declaration of the Doha Round in 2001.

"We accept industrialization as a legitimate policy goal and consider how membership in a CU may enable a less developed country to achieve more economically the ends served by protection". This is the fundamental viewpoint of the article of Coopers and Massel (1965b). We may also consider some other foundations to analyze the theory of customs unions for developing countries: for example, increased exports, optimal distribution of Pareto resources, more access to the markets of the partner countries, using better trade relation, using economies of scale, monopoly in the international stage, pursuing political and ideological goals, practicing the increase of competition, attracting foreign investments, and attracting multinational companies and the like. Balasubramanyam and Greenaway (1993) stated the need to attract foreign investment as an impetus for RTAs. The authors' aim was to reduce trade barriers. Recently, however, there have been efforts to move beyond the trade barrier reducing exercise, and to include specific commitments on investment. Therefore, the new wave of RTAs is generally referred to as 'new regionalism' (see Burfisheret al., 2004; and Holmes et al., 2006 for discussion).

These accords are sometimes referred to as "comprehensive preferential trade and investment agreements" or PTIAs (UNCTAD, 2006) or "new generation RTAs". The nucleus of development strategy is made up of economic integration in the form of PTIAs, especially for developing countries. Compared to developed countries, which were included in 54 percent of PTIA at the end of 2005, developing countries were parties to 79% of the PTIA network, as reported by UNCTAD 2006. At the end of 2005,

a number of 86 RTAs were reported by UNCTAD (2006) for South-South PTIAs. Moreover, from the July 1, 2006 onwards, some 67 PTIAs were under negotiation, including some 106 countries (Aggarwal, 2008).

In any of these issues, once again we come across different and opposing conclusions (as summarized in Langhammer and Hiemenz, 1998). Hence, from the beginning we have to emphasize that we cannot integrate all these issues in one integrated economic model. For example, if one underdeveloped country encounters the issue of industrial development, the country may determine to follow the imports substitution policy and defend infant industries in order to employ its extra and idle production resources. In this case, membership of a customs union can, on the one side increase the speed of industrialization through increasing the market size, and, on the other side, suffer the welfare loss through reducing the real income in some of its industrial activities with no comparative advantage over the partner country in the union; especially if the redistribution of resources from industries without advantages throughout the union to advantageous industries, is time-consuming and difficult and would require lots of cost and capital.

For a developed country, the customs union will only entail the welfare, but for a developing country the welfare profit and loss resulting from the effect of trade creation and trade diversion cannot be used as the only basis for investigating the economic integration for these countries (Robson, 1998). The issue becomes more difficult when different price disturbances, exclusivities, market deficiencies, shortage of foreign exchange, shortage of skillful manpower (or supply constraint) also exist, and the

developing country is determined to face and fight these disturbances or constraints that could divert the distribution of resources.

The next problem, in case the customs union is able to contribute to industrialization, is the distribution of industrial activities among regional member states that often creates serious deadlocks in the negotiations of a customs union among these countries. The article of Langhammer and Hiemenz (1998) reviews all these problems and questions many of the theories set forth by advocates of customs unions among the developing countries and brings about some counter opinions.

Even the social preference with respect to an activity, that could cover the whole customs union of the developing countries (as discussed by Johnson, 1965; Coopers and Massel, 1965b), produces the next problem: when, for instance, the industrialization preference leads to the creation of industries with new advantages, there will be a dispute regarding its location, or spatial distribution among member states.

It might be argued that the policymakers of developing countries will, to some extent, accept the decline in their national income for achieving industrialization through integration (Johnson, 1965; Coopers and Massel, 1965b). However, there will be major disputes on behalf of those countries that asymmetrically benefit from such industrialization over how this decline in income should be compensated and the like before it might result in failure of the integration plan.

In addition, because of numerous institutional barriers and disturbances existing in the developing countries, the trade of developing countries with each other will be carried out with difficulty (Ahmad, 1991). According to the theory of customs unions,

the more the member states are competitive in terms of production, but potentially complement each other (in terms of consumption), the more will be the effect of trade creation; in addition, if members of the customs union carry out most of their trade with each other (like the members of the EEC in 1958), the more will be the effect of trade creation. It is unlikely that such conditions are established in the developing countries.

Furthermore, the major part of the effect of the creation of a customs union is necessarily the trade diversion, because many of the developing countries took initiatives to become industrialized when they were used to importing all their industrial products from industrially developed countries; or currently importing their required products from newly-industrialized countries like South Korea, Singapore, Hong Kong, Taiwan, and, more recently China, Malaysia and Indonesia. In addition, sometimes it is argued that the most important barrier for industrial development of developing countries is the size of the market, so it is essential to increase the market size with economic integration to ensure optimality for establishment of industrial capacity. El-Agraa (1999) stated:

Neoclassic analysis of integration of developing countries basically begins from the developmental (differential) viewpoint. It is assumed that there is a suitable reason to support specific activities. Especially industrial activities which are done either to increase income or a higher growth rate or to achieve some noneconomic goals and are pursued only for the same reason. In order to achieve these economic goals, perhaps we have to ignore the income, but this also does not negate the said reasoning. We can investigate the consequences of economic integration on this basis within a broader framework than what is often applied, in which the economies of scale and "…the

difference between social and private costs of production are taken into consideration". The benefits resulting from integration can be discussed within a (particularly valid) framework of opportunities for using economies of scale that we cannot benefit from the market of one single country and the consequences of market deficiencies (difference between social and private costs) can also be incorporated into the analysis. The market deficiencies come into existence usually when specific goods or services do not entirely pass the market and thus lead to foreign economies or lack of foreign economies, or when the government's policies have disrupted the prices of elements and goods.

The economies of scale are the basis of Robson's (1998) economic model for developing countries. According to this model, the industry average cost curve, as a result of economic integration, declines to the level at which the production cost is equal to the world's low price or decreases even more than that. In cases before the integration, the price of the importing country is P_h, while upon the integration of two countries, in the figure on the right, the demand curve is changed into D_{p+h} and intersects ACp, for example, in Pw (or higher or lower than that).

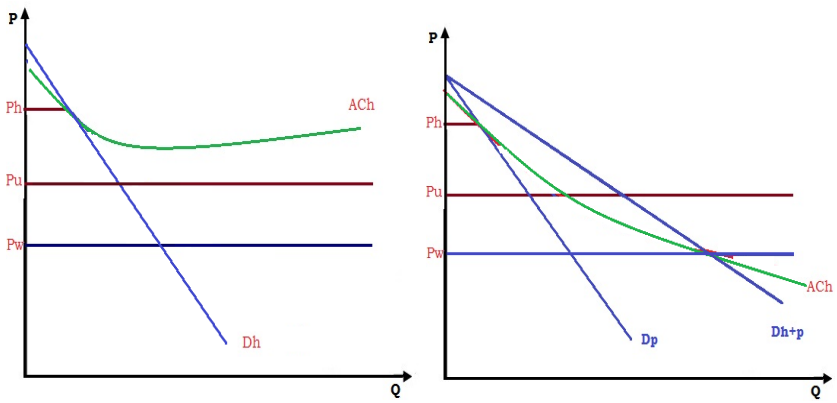


Figure 3-3 Economies of Scale in Customs Union

Before the formation of a union, the made-to-measure tariff kept the prices in the two countries equal to P_h and P_p. This is the basis of the logic presented by Robson (1998) for integration of developing countries. Of course, again, according to El-Agraa (1999), it is not clear how the two countries can solve the issue of the transfer of production from Country h to Country P, because the economies of scale cause the centralization of industries in comparatively more powerful developing countries, because it is essential to achieve the optimal size of capacity in one factory. These more powerful countries usually started the industrialization stages earlier. This is called the effect of "back-wash", which was previously remarked upon by Midrall and others.

The difference between private and social expenses of production, as discussed by Corden (1974 and 1997), begins with the reasoning that due to the social benefits of production, that are not reflected in private expenses, the social supply curve is located lower than the private supply (in Figure 3.1 and Figure 3.3). Therefore, it is economical for the government to subsidize production in order to achieve the social optimal level of production (in Figures 3.2 and 3.3, the supply curve is transferred to the right direction, which has not been drawn to ensure briefness, and we have postponed the discussion of it to the section for presentation of theory in the next chapter).

Coden's reasoning was used as the basis of the neoclassical theory, which was changed into a theory for economic development and industrialization by Hunt (1989) along with other rival models of development, as we already mentioned in the introductory part of this dissertation.

Once again, as we will see, if a country in which the private and social costs of production are different from each other, forms a customs union with another country

that produces the same goods without this condition, and the first country pays the subsidy on production, the said industry will be transferred to the first country and once again it will set forth the issue of the distribution of industries among countries. Hence, as it is also confirmed by Brown's (1961) and El-Agraa (1999) models, some countries might incur losses from a customs union, and, in this case, there must be a fair mechanism in place for distribution of interests accruing to one or several parties. "According to protectionism-based industrialization, there exists no economic logic for the formation of a customs union among developing countries."

The article of Coopers and Massel (1965b) deals with the formation of a customs union among countries of the North and South and the possible losses or benefits from the formation of such a union. According to the preference for industrialization and the transaction between this preference and the income that must be paid for by protection with regard to industrialization, the hierarchy of the industries that are allocated to the South, is specified. Then, based on this initial model, we can find optimal tariffs, or Pareto semi-optimal tariffs that will protect the industries and the transferred payments to be transacted between North and South for the compensation of possible losses between the North and South. Under specific circumstances, it becomes clear that the customs union might benefit the two countries:

"If the degree of inter-group overlapping of tariff-supported products in the two countries is higher it is more likely that the customs union will lead to net welfare benefit. With a high degree of overlapping, the effect of trade creation will probably neutralize the effect of trade diversion. However, if the two countries complement each other, it is likely that various industries are supported in each country and the customs

union will totally lead to trade diversion, which is accompanied by loss of efficiency (and welfare), as stated by Viner."

Cooper and Massel also investigate the effect of subsidy. These subsidies are paid for exported goods. Practically, the subsidy paid on exports creates more space for industrialization compared to a customs union. "If the payment of export subsidy opens the world's markets on the exports of developing countries, the support cost will still be less than when the customs union is formed". In addition, the subsidy on exports will be followed by more efficient professionalism. However, Cooper and Massel emphasize that in the real world, the complexities provide a situation in which the establishment of one industrial sector based on subsidy on exports might be very difficult and its protection is extremely difficult. Not only are the markets of developed countries barely opened for developing countries, it is also extremely difficult to obtain the political cooperation required for such work.

The discussion of Cooper and Massel with regard to subsidies is close to the discussion of Corden, which was previously discussed. The difficulty in opening the developed countries' markets for developing countries, in new protectionism literature, has been stated as the unspecified consequences of globalization, and the imbalance of the results of the Uruguay-GATT round, as reported by Krugmann (1995).

Instead of the formation of PTAs between developing and developed nations (that is, north-south countries), most of the PTAs have been set up between similar states (the so-called north-north agreements between developed states; south-south agreements between developing states), as reported by a few researchers including Bhagwati and Panagariya (1996), Ray (1998), and Das and Ghosh (2006). As Stiglitz

(2003) argued, “even though there is more to gain from North-South trade in theory, just as north-north trade agreements have intensified, there is no question that south-south trade agreements can also flourish”. Yildiz and Nath (2010) showed that even when the external tariff of the member countries fall under the CU relative to no agreement, the welfare of the north nations would be decreased because of the formation of a south-south CU. They show that there are normally incentives among south countries to establish a CU among themselves, under which North Countries are often worse off relative to no agreement.

With this discussion, now we come back to Jalal Ahmad's model. The article begins by referring to new elements in South-South trade, in which emphasis has been placed on the increasing role of developing countries, especially newly-developed countries, export of industrial goods to developed and developing countries and the substitution of these countries in place of developed countries in the export of industrial products. His model is an "export-oriented" model, which is closer to the model and theory presented in this article in the next part and in the mathematical substantiation in the next chapter. His emphasis is particularly closer to the role of intra-industry trade in export development and South-South economic integration with the theory and model in the present dissertation.

In his model, for the two goods of R and M, the newly-industrialized countries and the rest of the developing countries have two different ratios of production elements and two different production facilities curves, which do not trade with each other from the beginning and they only have trade with advanced countries and their trade is

carried out in the opposite direction (the trade of each of these two groups of developing countries, with developed countries).

When there is a possibility of mutual trade in the group of developed countries, the image changes. In this case, the facility curves of each individual country are gathered together and a new facility curve is created. In the international price scale, after this, part of their trade with developed countries will decline and the intra-industry trade among these two groups of developing countries will begin. In practice, the level of welfare does not decline. Of course, this does not mean that the whole North-South trade will decline. The substitution of South-South trade with North-South trade happens for those industrial goods for which there is a capacity for their production in developing (South) countries. In addition, new trade transactions will be established between the north and south. As a matter of fact, in the past three years, the growth of South-South trade has been associated with an increase (and not decrease) of North-South trade.

When the industrial capacities of the South increase, the imported goods previously imported from the North, will give its place to South-South trade. In addition, if the protectionism continues in the North countries, the South countries will take measures to look for other markets.

After the expansion of exports, this logic matches with what has been argued recently by Fukase and Martin (2001). In this model, which was developed for the ASEAN states, emphasis has been put on the benefit of the development of exports in one free trade region, following trade liberalization and elimination of trade barriers. The liberalization of imports, with the change in the real foreign currency rate will

increase exports. The reduction of domestic prices of the importing competitor's goods will make the consumers replace them with non-tradable goods. The reduction of the need for non-tradable goods will reduce their prices compared to tradable goods (often called real foreign exchange rate). Hence, the profit from production of non-tradable goods will decline and the production of exportable goods is encouraged; in other words, the exported goods supply curve will move towards the right. Along with liberalization, this transfer will imply welfare benefits and allocation of resources for ASEAN countries.

This was a review of the most important models related to the economic integration of developing countries, based on economies of scale (Robson, 1998), the difference between private and social expenses of production (Corden, 1974;Hunt, 1989), the distribution of industries in the South and North based on the optimal tariffs of semi-Pareto and the export subsidy (Cooper and Massel), increased the role of the south countries in trading industrial products (Ahmad, 1991) and a change in the real foreign exchange rate (Fukase and Martin, 2001).

In the next chapter, based on export performance, which is close to Jalal Ahmad's, and Fukase and Martin's model, a mathematical model for generalized economic integration and a theory for explanation of the mathematical model behavior are presented within a geometric model. In order to keep the consistency of the discussion and show the role this dissertation plays in the advancement of the notion of customs unions, we will present the theory in the next chapter.

However, to summarize, the conclusion of the literature review is that we cannot offer a definite opinion regarding the welfare effects and the allocation of customs

union resources among each group of countries, and, what we can say about the developing countries, is accompanied by some level of ambiguity.

Therefore, it is natural if we try to place the theory of the present dissertation on a more general basis.

3.5 Empirical Findings on Regional Economic Integration

The previous sections presented a comprehensive overview of the theory on regional economic integration, which illustrated how regional trading agreements work and showed the way they are beneficial to member states. The following part is dedicated to a review of the empirical evidence that deals with the influences of regional economic integration.

Accordingly, based on the methodology employed by researchers to analyze the effects of the formation of regional economic integration on trade flows, the classification of the following approaches is formed as: descriptive approach, simulation approach (Computable General Equilibrium), and econometric approach (gravity model and others). Moreover, the data collected for analysis are classified as cross section, time series, and panel based on aggregate or sectoral level.

According to the above classifications, the subsequent section provides a review of the introduced topics.

3.5.1 Computable General Equilibrium (CGE) Model

A static Computable General Equilibrium (CGE) model or a dynamic inter-temporal general equilibrium model forms the basis of the simulation approach. The model provides an in-depth illustration of the economic structures and behavior of

agents; and, through the framework, presents a simulation of the economic impact of the current or proposed regional blocs. Usually, substantial and potential benefits resulting from trade liberalization between members of a RTA are provided by simulation based on the general equilibrium models.

Plenty of ex ante CGE studies of trade agreements have investigated the impacts of preferential trading arrangements (e.g., Haaland and Norman, 1992; Brown and Stern, 1989a; Brown et al., 1992). In order to analyze the possible consequences of a Free Trade Area of the Americas (FTAA), Hertel et al. (2007) applied CGE analysis. The researchers report that one of the results of the FTAA is the increase of imports worldwide, and that this result does not experience any variation in the trade elasticities. In addition, better results can be obtained by combining econometric work with CGE-based policy analysis; the results most probably appeal to up-to-date policy makers, as reported by Hertel et al. (2007).

The results obtained from CGE studies are not easily generalizable because the results in these models are dependent on assumptions, parameters, and data, which call for careful interpretation (Negasi, 2009).

Moreover, investigation of the questions for this study is not possible through CGE studies. Another characteristic of CGE studies is their prospective nature instead of retrospective nature, as stated by Krueger (1999).Furthermore, the analysis of any particular market is not possible in the CGE model, because of the sectoral aggregation. According to Mckitrick (1998), policy information is usually outdated, and base line scenarios are far from being factual and are based on the older data. According to Milner and Sledziewska (2008), CGE studies depend extensively on data and are not applicable with high levels of data disaggregation. Accordingly, in some cases, the

results obtained through CGE studies lack the required validity, and, while the CGE models are useful for speculating on the effects of a particular agreement, they do not provide firm evidence.

3.5.2 Gravity Model

It is essential to know the sort of Gravity model before reviewing the existing gravity literature on the effects of trade agreements. A preferential trade agreement is set up among members to enable them to trade at reduced tariff rates; accordingly, it is possible to categorize them as partial or total with regard to the extent of duty reduction or commodity coverage. Furthermore, the total agreements can be classified according to their level of integration.[1]Therefore, the gravity literature includes a variety of policy issues by analyzing different types of trade agreements. For instance, Baier and Bergstrand (2007, 2009a) explored free trade agreements, and the impacts of RTAs are studied by Ghosh and Yamarik (2004a), and Magee (2003). From a different point of view, the partial impacts of seven particular RTAs are estimated by Carrère (2006) from a single gravity equation. Whether the depth or form of agreements matter with regard to their impact on members' bilateral trade by including separate controls for RTA types was investigated by Vicard (2009) and Roy (2010a). Accordingly, with regard to the conducting of various and adequate studies on the topic, the comparison of different point estimates is not helpful. Therefore, according to Cipollina and Salvatici (2010), RTAs can be best categorized as reciprocal and nonreciprocal agreements to circumvent this issue of conducting a meta-analysis.

[1]In this context, it should be noted that Frankel (1997) also categorizes partial agreements as reciprocal and nonreciprocal. Frankel (1997, p. 13) considers one-way concessions to have been "widely tolerated" by the General Agreement on Tariffs and Trade (GATT).

Developing an accurate counterfactual of ex-post studies of how much trade would have increased in the absence of a given free trade agreement or customs union has proved difficult (Roy, 2010b). For instance, Balassa (1967, 1975) constructed a counterfactual of how trade would have changed in the absence of European integration by calculating pre-integration income elasticities that were assumed to continue post-integration. However, later, it was shown that before and after integration, the elasticity of income changes considerably, and this variation makes the results subject to the sample period. The gravity model has been applied to examine the effect of preferential arrangements on the flows of trade by a few researchers (e.g., Aitkin, 1973; Willmore, 1976; Frankel and Kahler, 1994; Frankel, 1997; Aitkin and Obutelewicz, 1976; Frankel and Wei, 1995; Krueger, 1999). Analyzing the impact of CUSFTA as well as NAFTA from 1989 to 1995, Schwanen (2009) conducted a full-fledged research to explore changes in the Canadian trade patterns. In his study, a comparison is made between the sectors liberalized because of these arrangements with trade in other sectors; his comparison reveals that trade development with the US is faster in liberalized sectors.

In order to examine the effect of the FTA on inter-province trade, Helliwell et al. (1998) employed two sorts of evidence. To provide an explanation for both inter-province and province-state trade flows, the authors first put forth a gravity model. Later, they examined new data relevant to industry to determine the degree to which tariff changes in the US and Canada provide an explanation for inter-industry differences, which lead to the growth of inter-province trade.

At the aggregate level, Helliwell et al.'s (1998) findings indicate that in proportion to east-west trade, north-south trade was increased by the FTA. When the adjustment for suitable factors was done, the gravity model put forth that, if there had

been no change in the1988 trade structure, the inter-province trade would have been 13%more than it actually was in 1996. However, it is difficult to estimate the net impact of the FTA on the total 15% increase in inter-province trade from 1988 to 1996, because the general economic growth of the provinces was also affected by the FTA.

At the disaggregated level, Helliwell et al.'s (1998) findings indicate that the increases in imports from the US and the decreases of inter-province trade were because of the FTA-related reduction in Canadian tariffs. Moreover, both exports to the US and the inter-province trade increased because the US tariffs decreased. All together, the researchers estimated that FTA-induced tariff cuts caused a 7% decrease in inter-province trade, which was around half of the total reduction previously calculated with aggregate data.

In order to obtain the effects of separate trade creation and diversion, regional dummy variables (inter and extra) have been used in gravity models (using ex-post approaches). The estimated coefficients on the dummy variables may capture a range of policy and other (including misspecification) effects rather than the regional trade policy effect under investigation. It is also the case that gravity modeling is invariably used to model total trade flows or at least broad aggregates of trade. The available empirical research on the topic, however, indicates that most of the results provided by researchers are obtained through aggregated data. Nevertheless, the calculations obtained based on aggregated data are questioned, because the data may blur changes happening at the level of disaggregated data. Moreover, the application of disaggregated increases provides the opportunity to use the variation in the extent of tariff liberalization under the agreement without utilizing such a variable. The identification

of the impacts of tariff liberalization on different sectors is complicated. Therefore, the variation of sector can lead to a difference in the welfare consequences.

Because of the lack of research conducted on the topic, Clausing (2001) through a supply and demand framework specification analysis, used the commodity level data. His findings show that "CUSFTA had substantial trade creation effects, with little evidence of trade diversion". Moreover, the author argued that contrary to the approaches of a lot of past research on preferential trading agreements, which have been based on aggregate data, it is possible to examine how trade flows are influenced because of actual tariff changes by using disaggregate data. It is much more complicated to differentiate between the impacts of an agreement and those of other impacts influencing trade flows, without using the variation in the extent of liberalization across goods. In this regard, this thesis is in agreement with the notions explained above.

In a similar study, the effects of the trade creation and trade diversion of the North America Free Trade Agreement (NAFTA) were analyzed by Jayasinghe and Sarker (2008) on the trade of six particular agri-food products between 1985 to 2000. Applying the generalized least squares methods and pooled cross-sectional time-series regression, the authors calculate an extended gravity model. Their results indicate that there was a growth in intra-regional trade because of NAFTA, and that NAFTA displaced trade with other countries worldwide.

At the level of disaggregated trade data, Milner and Sledziewska (2008) applied panel data economic model analysis and revealed that although it was temporary, the European Agreement significantly influenced the trade diversion of imports in Poland; they showed that trade creation was considerably dominated by trade diversion.

The impact of previous trade and income on the flows of present trade has often been ignored in the estimation of the trade panel gravity models. However, because of a number of economic reasons, trade has been proven to be dynamic. Through the extension of the static model with lagged regressors and the incorporation of trade and income lags, Bun and Klassen (2002) compensated for the shortcomings of the static panel gravity mode. Bun and Klassen (2002) employed a panel of 221 annual bilateral OECD trade flows over 48 years to show the significance of the dynamics and the misspecification of static models.

The studies of the effects of regional integration have also been conducted in the African context. As indicated by the findings of the conventional gravity model, Alemayehu and Haile (2008), in a study on COMESA, indicated that it is possible by standard variables to provide an explanation for bilateral trade flows among the regional groupings, even when the impact of regional groupings is not significant on bilateral trade flows. Moreover, the authors propose that weak cooperation of the private sector, compensation issues, overlapping membership, harmonization of policy, political commitment, and changes in primary conditions limit the efficiency of regional blocs.

The implications of the temporary actions for goods sensitive from the Ugandan viewpoint were evaluated through a partial equilibrium model by Khorana et al. (2007). The rationale behind these arrangements is questioned by the findings obtained through simulation. The authors provided a discussion concerning whether the regional trading arrangements had been really advantageous to the stakeholders; they further proposed approaches for Uganda to take more benefit within the customs union through liberalization of trade. Under these critical circumstances, since the current empirical studies on the regional integration impacts on the trade flows of partner countries is

probably different regionally, even in Africa, it is worth investigating particular regional blocs.

A number of countries have been estimated through this sort of model. For instance, the trade flows between Bangladesh and its main trading partners have been studied by Rahman (2003), who employed import export and total trade. The researcher found that, in general, Bangladesh's trade is determined by the size of the economy, GNP per capita, distance and openness. Moreover, through a gravity model, Blomqvist, (2004) provided an explanation for the trade flow of Singapore, and a very high degree of explanation is achieved, especially for the GDP and distance variable. In another study, Anaman and Al-Kharusi (2003), through a gravity model framework, showed that the determinant of Brunei's trade with EU is mainly from the population of Brunei and EU countries.

The relationship of trade blocs and intra-trade of economic blocs have also been explained through the Gravity model. For instance, as reported by Tang (2003), EU integration significantly reduced the trade with ASEAN and NAFTA (North American Free Trade Agreement) from 1981 to 2000. In another study, the significance of geographic distance, economic size, and common language in intra-regional bilateral trade was highlighted for ASEAN by Thornton and Goglio (2002). Martinez-Zarzoso et al. (2004) stated that geographic sensitivity and economic distance can be used as criteria to categorize the export sectors; the authors further showed which goods enjoy export strength through the gravity model framework. Martinez-Zarzoso et al.'s (2004) findings indicate that countries in the Southern Common Market (comprising Argentina,

Paraguay, Uruguay and Brazil) and European Union would enjoy a significant geographical effect from bilateral trading in the footwear and furniture sectors.

However, irrespective of the differences in defining the RTA variable(s), choosing the variables in the trade agreement and the likely resulting bias from this selection is the main concern in the literature. With regard to the inadequate consensus about the bias direction, the concern receives more relevance. Although variables omission may cause the trade agreement coefficient estimates to go up and down, there is the probability of positive selection by referring to the "natural trading partner hypothesis", as stated by Magee (2003). Although there is considerable literature, which dates back to Tinbergen (1962) about RTA, the issue has experienced recent investigation. For instance, in an attempt to study endogeneity, "one of the first estimates" of the influence of preferential trade agreements was provided by Magee (2003) through a simultaneous equations model. Based on IV, Magee (2003) showed that the states' volume of bilateral trade for intensify the potentiality of the states to participate in a trade agreement; however, he does not provide evidence of sufficient clarity regarding the effect of such agreements on trade.

In addition, the instruments employed, e.g. two states' GDP similarities or two states' factor capacities, is under question. Surprisingly, in spite of the fact that the instruments employed by Magee (2003) are under question, they have the credibility to indicate that most political and economic variables do not fulfill the exclusion limitation, and, consequently, cannot be employed as instruments.

Although various forms of gravity equation are available because of the extensive use of the gravity model in empirical studies, this model, possesses a few common characteristics across the literature.

Firstly, the use of the gravity model clarifies bilateral trade, and the trade variable has set up the dependent variable in the gravity equation.

Secondly, as in Radman (2003), and Montanari (2005), GDP or GDP per capita and GNP or GNP per capita are used to measure the economic mass of the exporting and importing countries. The fact underlying this is that states possessing more income capacity are more inclined to trade, and states possessing less income are less inclined to trade.

Thirdly, distance, which is defined as the geographical distance between states, is usually used as one of the main variables in the gravity model. Distance also acts as a proxy for the expenses of transport; it is normally considered as the straight-line distance between economic centers of states. However, distance cannot always be considered an accurate variable. For example, China possesses many economic centers, which are many thousands of kilometers from one another.

Finally, to seek such qualitative variables as colonial history, border, trade agreement, and languages in bilateral trade, gravity equations often involve dummy variables.

Numerous studies have been conducted to examine the impact of regional integration on the trade patterns of D-8. Kabir Hassan et al. (2010), for example, addressed the economic performance of the OIC member countries through the analysis

of trade data within a gravity model framework. The authors studied the future of an Islamic Common Market. Analyzing a variety of sub-regional groupings, their results indicate the trade creation of D-8, comprising eight bigger OIC member countries. For example, two countries in the D-8 bloc would trade 4.28 times more among themselves rather than two otherwise-similar countries outside the bloc would.

Othman et al. (2010) applied a multi-country computable general equilibrium model, i.e., GTAP. The results indicate that while D-8 intra-trade is expected to increase very substantially, not all countries will experience a welfare gain under a free trade arrangement. Likewise, the impact on economic sectors differs substantially across countries. The simulation results show that the D-8 free trade would increase intra-trade very pronouncedly by 87 percent. This clearly indicates that if increasing intra-trade is an important objective of the D-8 preferential trade arrangement, it would very likely succeed.

However, the proposed intra D-8 free trade is likely to have a small effect on member countries' GDP due to the particularly minute intra-trade base between them. It is expected that Malaysia's GDP and its overall national welfare would show the highest gain relative to other D-8 member nations. Besides Malaysia, Turkey, Indonesia and Pakistan are also expected to benefit from freer trade in D-8 in terms of welfare increase, and, hence, poverty alleviation.

A study conducted by the D-8 secretariat (2008a) explains the main commodities of foreign trade of D-8 countries for export and import, which indicate the member countries comparative advantage in producing these goods. In another study, theD-8 secretariat (2008b) looks at the current account balance among D-8

countries over the last decade; the results show that the current account balance was only negative for Turkey and Bangladesh and that all D-8 members were improving their current account balance except Iran and Turkey.

Acar et al. (2009), by using a multi-sector, multi-country computable general equilibrium framework, for three D-8 member countries, investigated the impact of full trade liberalization among Malaysia, Indonesia and Bangladesh. The simulation results indicated that free trade among these three countries likely benefit Indonesia and Malaysia while leading to some welfare loss for Bangladesh. Based on the results, it can be suggested that mechanisms be developed in order to strengthen the adjustment capacity of the less developed trade partners.

Nikbakhtet al.(2011) studied the bilateral trade in D-8. Similar to previous papers in this area of research, they applied a generalized version of the gravity model to analyze the bilateral trade in D-8. In this model, they entered the similarity in economic structure, the economic openness degree of importer countries and the trade policy into the basic model and used it to survey the bilateral trade in D-8.

The results indicate that all variables (except for the policy trade) in the used model have the expected sign and are significant. In summary, the results indicate that the GDP of the home and host countries have a positive sign; the population of the home (host) country has a negative (positive) sign; similarity in economic structure has a negative sign and the economic openness degree of importer countries has a positive effect on bilateral trade. In addition, the results indicate that the geographical distances among the capitals of the D-8 members has a negative relationship with bilateral trade.

3.6 Summary

Generally, three groups of studies emerge from a review of the current studies of the methodology of evaluating the impact of regional economic integration on flows of trade among countries. A number of methods have been used in empirical research to explore the impact of RTAs. The number of empirical studies that use economy wide, multi-sectoral computable general equilibrium models for examining the welfare effects of RTAs is considerable. Although computable general equilibrium models are effective for the investigation of welfare effects, some empirical weaknesses undermine them. The first limitation is their prospective nature, as reported by Krueger (1999). The second limitation is that the investigation of particular markets is not possible through sectoral aggregation. McKitrick (1998) reported the policy information of them and pointed out that their baseline scenarios lack reality and relied on older data. Third, they rely on fundamental assumptions of perfect competition and constant elasticity of substitution (CES) technology, and a system of demand and supply ensuring market clearing mechanisms, which are not realistic. Furthermore, information for sectors is not provided, especially for the poorest nations. Therefore, the findings of CGE analyses are not always reliable, as stated by Jayasinghe and Sarker (2008).

The study of the effects of RTAs has also been conducted through descriptive approaches. To figure out the regional concentration of trade, a variety of indicators are used in descriptive studies. A descriptive approach is based on the assumption that when there is no agreement, there would be no change in the amount of trade happening with partner nations. Descriptive approaches are based on a static framework and its findings rely on the aggregation level. Accordingly, changes in the terms of trade due to changes

in the relative trade importance of members and outsiders, as well as a decline in the volume of trade for a single commodity included in the broader class, cannot be detected. Moreover, analysis of the effects of trade creation and diversion is not possible through the descriptive approach, and, consequently, it fails to study welfare implications of RTAs (Negasi, 2009).

Using pre-RTA and post-RTA data, the impact of RTAs was entered into the model specification and estimate models. By employing regional dummy variables, the effect of RTAs on flows of trade is obtained. This is called the gravity model approach, and it provides an explanation for bilateral trade flows between trading partners overtime. This approach is a useful method for evaluation of the impact of RTAs.

On the other hand, the basis of the current economic integration arrangements is on regional priorities and there are no traces of ideological priorities in this regard. Therefore, the aim of this thesis is to study the significance of economic integration or cooperation with regard to priorities of ideology and religion. The thesis is going to investigate the opportunities for such an arrangement, highlight how such an arrangement may be challenged, and provide prospective policy recommendations (Raimi and Mobolaji, 2008). Most of the studies (e.g., Hassan, 2001) conducted on the capacity for trade among OIC countries are based on regional considerations, and have ignored the ideological considerations. This study can therefore fill the gap and pioneer investigation of religious priorities for economic integration.

Despite the important role of D-8 countries, the empirical literature analyzing D-8 members' trade with each other is still rather limited. There is no similar study in the case of D-8 in the literature; therefore, the present practical study could be valuable for

all individual D-8 members. The study contributes significantly to the field of Islamic economics and applied economics. Unlike conventional economics, the thesis proposes a bloc whose basis is on faith.

Through the econometric point of view, the issue of non-random selection and the paucity of reliable instruments, Baier and Bergstrand (2007) recommended the use of panel data in order to at least control for selection on the basis of time-invariant unobservables. Hence, the application of panel fixed effects was used by Kandogan (2008) and Magee (2008).

Regarding the tension between the data time dimension and the time-invariant unobservables, the findings of such studies need cautious interpretation. Furthermore, the application of panel data cannot end the obscurity about the bias direction. While Baier and Bergstrand (2007) proposed the possibility of negative selection on the basis of time-invariant unobservables, according to Magee (2008), "the bilateral fixed effects solve the problem of positive selection".

More recently, although Henderson and Millimet (2008) found that the concern over the gravity model's parametric form was unwarranted, Egger et al. (2008), and Baier and Bergstrand (2009a) employed matching techniques. While Egger et al. (2008) continued to avoid potential selection due to time-invariant unobservables by using difference-in-differences matching; Baier and Bergstrand (2009b) "revert to the world of selection on observables by alluding to many who have argued that the selection bias on observables may well dominate that on unobservable". However, it is a popular fact that the gravity model cannot determine which observables are involved in the trade cost function. In this context, the thesis enriches the field through the control of a

number of representative observables, and, through the assessment of the robustness of RTA coefficient estimates, to the selection of unobservables. In summary, this thesis is contributive in three ways: it attempts to investigate a faith-based integration possibility; the thesis further provides the causes of low achievements of the attempts made for integration among D-8 Muslim countries; and, finally, it proposes an econometric model modified by dummy variables in respect of the geographical barrier and uses the trade indices as complementary to determine theD-8 member states trade situation.

CHAPTER 4

METHODOLOGY OF RESEARCH

4.1 Introduction

This sector is made up of the model specification, which covers the theoretical background for the gravity model and its application in determination of the flow of trade in D-8, as well as describing the nature of the data and variables employed in specific model estimation.

In this chapter we will first present a generalization for the gravity model that studies the counter exports (or imports) of different countries, usually economic integration member states, and then we will extract a new expanded gravity model that is different from previous models in several aspects. After that, its infrastructural theory will be discussed. This is a theory for the formation of a customs union among developing countries, which confirms the new gravity model, albeit against which the generality of the gravity model is still protected.

4.2 Gravity Models of International Trade

In its simplest form, the gravity model was first presented in economics in the following way by Tinbergen (1962) and Linneman (1966), which has been directly derived from Newton's theory of gravitation:

$$T_{ij}= C_{1+}C_2Y_i+C_3Y_j+C_4P_OP_i+ C_5P_OP_j+ C_6D_{cu}+ C_7D_{lan}+ C_8D_dC_9D_{rel}P+U_{ij} \qquad (4.1)$$

Where i and j denote particular countries, T_{ij} is the exports (imports) of country i to (from) j, Yi is the income of the country i,Y_j is the income of the country j, P_OP_i is the population of country i and P_oP_j is the population of country j, that appear on the right side as explanatory variables. Y_i and Y_j are the mass variables in Newton's equation and the variable of population is two other scale variables. Following these variables, a series of Dummy variables are added to explain other effects on the mutual trade in the country. D_{cu} is a Dummy variable that is equal to one in the case where the two countries are members of a customs union, and otherwise it is equal to zero. It is expected that the coefficient of this variable, (C_6), is positive, which shows that the customs union has a positive effect on two countries' trade. D_{lan} is a Dummy variable for the common language of the two countries, and if they are common, it is equal to one, otherwise it is equal to zero. It is expected that the common language will have a positive effect on the two countries' trade. D_d is a Dummy variable showing the distance, or adjacency of the two countries. In the case where the two countries are adjacent, it is equal to one; otherwise it is equal to zero. The adjacency of the two countries will have a positive effect on the two countries' trade. The more two countries are close to each other, the more they will have trade with each other, because the transportation costs affect the trade. Therefore, distance will have a negative impact on the trade; like the Newton model that has a negative impact on gravitation. Since the adjacent countries trade more, they are considered as natural partners (Frankel, etal.,1995). D_{rel} is a Dummy variable standing for common religion, or any common cultural factor, that can have a positive impact on the trade between two countries.

It is expected that the coefficients of C_2 and C3will be positive and that the coefficients C_4 and C_5will be negative. The more the revenue of the two countries increases, the mutual trade will become more. On the other hand, population growth has a negative influence because, on one side, the population growth will increase the size of the local market, so the country will be more introverted and will have more imported rival industries, and, on the other side, it reduces the exports of this country because the same industries have to meet the needs of the increasing population. Finally U_{ij} is a log normally distributed error term with *E (Uij) = 0.*

After the introduction of this model to the experimental analysis of international trade, in order to study the mutual or counter trade processes, or capital flows, the evaluation of the effects of economic integration plans, especially EEC and EFTA;;the evaluation of the potential power of trading between various countries, especially the measurement of exports and imports revenue elasticity; and the effect of trade barriers like tariffs and non-tariff barriers, like distance, hostility or cultural differences on trade have been repeatedly applied. An initial classic study in this regard was carried out by Aitken (1973) who used it to calculate the effects of trade creation and diversion.

Usually the application of this model, in practice, has witnessed a remarkable experimental success. However, no substantiation of the gravity model has been presented so far and there are still ongoing conflicts in this regard. The most important of which is the experimental application of the gravity model by Frankel (1995), which considers the Dummy variable of distance to test the theory whether or not the countries of the American continent could be regarded as normal trade partners, and, following that, it also tests two important advancements of Krugman (1991b, 1991a).This article

faced strong criticism by Polak (1996). He rejected the perception of the trade effects of geographical distance in the gravity model and argued that the results of Frankel's article are not correct. Particularly, once again it is claimed that the gravity model does not have theoretical substantiation or a theoretical basis.

Since 1970, many efforts were made to theoretically prove the gravity model by Anderson (1979) and Bergstrand (1985, 1989 and 1990). Deardrof (1995 and 1997) also tried to prove the gravity model. He relied on the works of Helpman and Krugman (1987) to extract the simple forms of gravity models out of their work. Evenet and Keller (1998), and Feenstra, Arkusen and Rose (1998) also extracted the gravity model from the Heckscher-Ohlin theoretical model or new theories of international trade based on Helpman-Krugman and referring to Deardorf. Referring to the basic work carried out by Helpman, Krugman and Deardorf, and Bergstrand, Sologa and Winters (2001) recognized their efforts as partial substantiation of the gravity model, albeit not complete substantiation. Anderson (2001) is another effort to study the theoretical foundation of the gravity model. The major expansion of his work in 1979 was to study the trade puzzle in Canada after the country's free trade with US: the trade within Canada's provinces had increased more than the trade of the border provinces of Canada with the provinces of the US states. Hence, a general basis has not yet been provided for the gravity model.

On the other hand, it has been specified that the gravity model complies with the new theories of international trade that consider the different goods and monopoly competition or oligopoly, and efficiency on an increasing scale and the inter-industry trade; therefore, its application in testing of the competition theory of international trade

against each other is not considered to be convincing (Deardorf, 1997) and it is often claimed that the basis of the gravity model is more generalized than the two trade rival theories (Feenstra, Markusen & Rose 1998). Humnels and Levinston (1995) also believe that it is something besides the increasing efficiency on the scale of main factor for success of the gravity model. Evenet and Keller (1998), similar to Feenstra, Markusen and Rose (1998), with distinction between the data samples, in terms of different goods, intra-industry trade, inter-industry trade and factor proportions, explained the success of the gravity model in forecasting the trade processes between the countries with very different factor proportions and the low share of intra-industry trade in the whole trade, or, as expressed by them, "North-South" trade (based on full specialization in Heckscher-Ohlin model) on one side, and the success of the model based on the theory of increasing efficiency on the scale in trade among those countries in which product distinction and intra-industry trade prevail, or, as termed by them, "North-North" trade, on the other side. Hence, their work is based on model identification, which identifies the gravity model in each homogeneous or non-homogeneous good, the fundamental theory.

The gravity model has been extremely successful empirically. Models of this type have now been estimated for a wide range of countries. Rahman (2004) uses import export and total trade, and three equations to investigate the trade flow between Bangladesh and its major trading partners. He finds that, in general, Bangladesh's trade is determined by the size of the economy, GNP per capita, distance and openness. Blomqvist (2004) applies the gravity model to explain the trade flow of Singapore, and, as usual with the gravity model, a very high degree of explanation is achieved,

especially for the GDP and distance variable. Anaman and Al-Kharusa (2003) on the other hand show that in a gravity model framework, the determinant of Brunei's trade with the EU is mainly from the population of Brunei and EU countries.

The gravity model is also applied to explain the trade relationship between trade blocs and the intra trade of economic blocs. Using the gravity model, Tang (2003) found that EU integration resulted in a significant trade decrease with ASEAN and NAFTA (North American Free Trade Agreement) during the period 1981- 2000. Thornton and Goglio (2002) proved the importance of economic size, geography distance and common language in intra-regional bilateral trade for ASEAN

Martinez-Zarzoso et al (2004) classified the export sectors according to their sensitivity to geographical and economic distance, and, under the gravity model framework, they identified which commodities enjoyed export strength. Their results showed that sectors, such as footwear and furniture, enjoy a high and significant geographical effect in bilateral trading between the EU and countries in the Southern Common Market (comprising Argentina, Paraguay, Uruguay and Brazil).

There are a large number of empirical applications of the gravity model; it is not strange to have many variations of the gravity equation. However, within the intensive literature the gravity model shares some common features.

First, the gravity model is applied to explain bilateral trade, the dependent variable of the gravity equation is always the trade variable.

Second, the economic mass of the exporting and importing country is measured by GDP, GNP or GNP per capita, with the GDP per capita in some augmenting the

gravity model, such as Rahman (2009), Montanari (2005). The idea behind this is that countries with higher income tend to trade more and those with lower income trade less.

Third, distance is another commonly used variable in the gravity model. Distance is the geographical distance between countries; it is also a proxy for transport cost, which is usually measured as the straight-line distance between the countries' economic centers (usually capitals). However it is not a very accurate measure in some cases, such as using Beijing, the capital of China, in that it under or over estimates the distance between China and other trading partners because China has many economic centers that are thousands of kilometers apart. Finally, dummy variables are always included in the gravity equation in order to investigate the qualitative variables, such as border, language, colonial history, and trade agreement in bilateral trade.

Moreover, it seems that there has not been any study of bilateral trade flows amongst the D-8 countries in a gravity model framework. This thesis tries to fill the gaps in the literature concerning D-8 countries by utilizing the gravity model to explore the relationship among the D-8 countries for two stages – from 1983 to1997 and 1997 to 2008. The gravity model estimated in this thesis is based on panel data with fixed effect estimation.

In this chapter, we will show that the gravity model can have a general foundation and considering how it is extracted here, without sticking to any hypothesis regarding preferences, the type of goods, technology, specialization or the type of market; it is able to use different fundamental models or various data to produce good experimental forecasts from trade processes. In this research, the gravity model is actually derived from the principal unification framework of national accounting and

presents a better understanding of the time route of trade elasticities compared to GDP, the interrelation of exports and imports, trade liberalization, the effect of geographical distance and tariffs, and how they are interpreted in the gravity model, the relation between exports and economic growth and the consequences of trade liberalization and economic integration as well as globalization. Also, short-term and long-term elasticities are separated and the logic beyond why long-term elasticities are smaller than short-term elasticities (Bayoumi, 1998) and the difference of elasticities of imports and exports from each other in short-term and long-term periods are put into discussion.

4.3 First Extraction

Helpman and Krugman, in one two-country and two-factor Heckscher-Ohlin model of the world economy, showed that the following relation is established between the volume of trade and GDP:

$$VT/\overline{GDP} = \left[1 - \sum(S_j)^2\right] \quad (4.2)$$

In which VT is the volume of trade, S_j is the share of the jth country from the world's $\overline{GDP}$. This relation has been derived based on a full specialization hypothesis in production of distinctive products. Here $\left[1 - \sum(S_j)^2\right]$ is the measure of dispersion of relative country size. Since $\Sigma S_j = 1$, the more the size of the two countries are close to

each other the proportion of VT/$\overline{GDP}$ is higher and when the countries are all one size, it is at its maximum level . The said ratio is actually the ratio of trade to GDP and when the per capital income of countries get closer to each other, the trade-production ratio will also increase. This means that in the dynamic route of growth, the economies become more open and free, and the trade will expand.

In the whole period after World War II, the volume of trade has grown faster than GDP because the measure of dispersion of the relative size of global economies for advanced countries that dominate the global economy and trade has increased (Helpman and Krugman, 1985). On the other hand, the share of developing countries has also increased in the whole World's GDP and a higher share of production has been allocated to trade. For the same reason, we expect that in the short term and in a dynamic growth route, the growth of trade or growth of exports of every country will be higher than the GDP growth.

In this way, assuming a full specialization (intra-industry, or inter-industry specialization in production), same preferences, and establishment of a unified price policy, the country j consumes the quantity of S_j of each good produced in the world's economy or produced by itself and exports (1-S_j), part of which, S_k is exported to k^{th} country. So EX_{jk} or export of j to k is as follows:

$$EX_{jk}=S_k GDP_j=S_k S_j \overline{GDP} \quad (4.3)$$

This is a form of gravity model.

Based on the same relation, Evenet and Keller (1998), like Deardrof (1995, 1997), extracted the gravity relation as follows:

$$M_{ij} = S_j Y_j = \frac{Y_i Y_j}{Y_w} = S_i Y_i = M_{ji} \quad (4.4)$$

In which M is the counter imports of the two countries I and J and Y_w is the world's total production. Y_i and Y_j are the productions of the two countries i and j. These equations have been extracted based on the assumption that there is no trade barrier and transportation costs. We can expect that if each country produces any type of good, and in the case where the production costs of each country are similar, we can hardly find motivation for trade, because there is no reason for trade since the consumers are indifferent among the sellers (Deardrof-1995).

Obviously, this type of reasoning requires restricting assumptions, in which sometimes the trade model is not defined (the first case in Deardrof's article), the share of consumption is considered fixed and we have to stick on the differentiation or homogeneity of the goods or full specialization in production. The trend of research is then extended to whether the Heckscher-Ohlin theory or the new international trade theory is able to explain the gravity model and its success. In addition, the existence of

the Y_w scale factor, which covers all its previous substantiations, is limited to some extent, because they are not considered in the estimations.

In order to show in detail and in a newer and more useful way how this gravity equation is derived without the said faults, we consider two countries that manufacture differentiated goods, which consume a fixed share of their own products and the products of the other country, and export the rest of their production:

$C_i = S_i \overline{GDP}$; i=j,k (4.5)

In which C_i is the consumption by ith country, GDP is the sum of National Gross Product of the two countries and S_i is the share of consumption of the two countries j and k (i=j,k). So, the export of country j to k is as follows:

$$EX_{jk} = (1 - S_i)GDP_j = S_k GDP_j \quad (4.6)$$

And the export of country k to j is:

$$EX_{kj} = (1 - S_k)GDP_k = S_j GDP_k \quad (4.7)$$

$$EX_{jk} EX_{kj} = S_k S_j GDP_j GDP_k \quad (4.8)$$

This is obviously the gravity equation. We can show that:

$$\frac{S_k}{S_j} = \frac{GDP_k}{GDP_j} = \frac{C_k}{C_j} \quad (4.9)$$

Because

$$C_j = S_j\overline{GDP}, \qquad C_k = S_k\overline{GDP} \quad (4.10)$$

So

$$\frac{C_j}{C_k} = \frac{S_j}{S_k} \quad (4.11)$$

Since in an equilibrium state, the exports of the two countries to each other are equal, we have:

$$S_k GDP_j = S_j GDP_k \quad (4.12)$$

Therefore:

$$\frac{S_j}{S_k} = \frac{GDP_j}{GDP_k} = \frac{C_j}{C_k} \quad (4.13)$$

Based on equation (4.9), and assuming that the existence of tariffs and transportation cost $(1+t_k)$ and $(1+d_{jk})$, and considering the constraints of the state budget k, this is in the following form:

$$S_j GDP_j + S_k GDP_k = GDP_k \quad (4.14)$$

(Because the total consumption of country k is equal to the GDP of the same country) and especially considering that:

$$S_k + S_j = 1 \quad (4.15)$$

So, if we put quantities instead of S_k we can show that:

$$EX_{jk} EX_{kj} = (S_j)^2 \left[\frac{Y_k}{Y_j}\right]\left[\frac{N_k}{N_j}\right]\frac{GDP_j GDP_k}{(1+t_k)(1+d_{jk})} \quad (4.16)$$

y_k and y_j are per capita GDP of the two countries and N_j and N_k are the population of the two countries. t_k is the tariff of country k, which has a negative impact on the exports of country j, and d_{jk} is the cost of transportation of each unit of goods, which still has a negative impact on the counter exports.

The constraint of the budget, taking tariff and transportation costs into consideration, will be as follows:

$$(1 + t_k)(1 + d_{jk}) S_k GDP_j + S_k GDP_k = GDP_k \quad (4.17)$$

In which:

$$S_k = \frac{S_j GDP_k}{(1+t_k)(1+d_{jk})GDP_j} \quad (4.18)$$

Therefore, the more the per capita production of the two countries is close to each other, the more counter exports they will have, although it will also be influenced by the ratio of population of the two countries. The ratio of y_k/y_j actually shows the Linder effect in the gravity model, and some of the authors in their estimated models have inserted the logarithm of the square root of the difference of the per capita production of the two countries in order to measure this effect in the gravity models. The bigger the per capita of country k compared to country j, the more exports j will have to k. If we consider that j is the US and k is China, the per capita production of the US is almost 40 times more than China's, although China's population is 5 times that of the US. Population, N_k, introvertly affects the counter exports of the two countries and the high difference of per capita production will reduce it. This extraction justifies the insertion of the variable of the population of the two countries into the gravity model.

A more considerable point is the effect of the growth of Sj on the exports of j to k. The more the share of consumption in country j increases, the more exports j will have to k. According to relation (4.16) in the case where the US GDP is 10 times more than that of China's GDP, (the share) the US consumption will be 10 times more than (the share) that of China's consumption. Now, if this time we consider j as China and K as the US, upon the increase of China's share of consumption (Sj) the exports of China to the US will increase. In the extraction of the next part, we will see that upon the increase of consumption in the globalization theory, counter exports will also increase.

In the last relation we can normalize EX_{kj}, and in that case the gravity equation will be fully obtained. This normalization is carried out based on Krugman (1980). In another way we can assume that $EX_{kj}$is the imports of country j from k, and in this case we can reach findings similar to the next extraction. This extraction has been carried out based on such assumptions as the fixed ratio of consumption, differentiated goods and specialization, as well as the homogenous preferences that are, to some extent, considered as restricting assumptions.

4.4More General Extraction of Gravity Model

In this section, without considering these constraining assumptions, a more general extraction of the gravity model, with more important characteristics, is presented. Here we start from the principal unification of the national income accounting and we only apply one globalization theory for extracting the final form of the gravity model. In addition, no specific behavioral theory is used for extraction of the model, which could be related to the theories of the international trade competitor. Let us assume there are two countries of j and k:

$$Y_i = C_i + X_i - M_i \; ; \quad \text{i=j,k} \tag{4.19}$$

And the globalization:

$$C_i = \alpha_i M_i^{\gamma_i}; \quad \text{i=j,k} \tag{4.20}$$

This assumption says that the consumption of each country is a function of the total imports of that country and the more globalization is expanded, the more correlation the consumption of each country will have with imports. This assumption models the trend of economic integration of the world's countries, or global integration (and is different from the functional form of the relation of imports in the following equations system).

Now we consider the following system for the economy of the two countries:

$$C = \propto_1 Y^{\beta_1}$$

$$X = \propto_2 Y^{\beta_2}$$

$$Y = \propto_3 Y^{\beta_3}$$

$$Y = C + X - M \tag{4.21}$$

We take the total differential from the first three equations and we then show them as follows:

$$\frac{dC}{dY} = \beta_1 \frac{C}{Y} = \beta_1 c; c = C/Y \tag{4.22}$$

$$\frac{dX}{dY} = \beta_2 \frac{X}{Y} = \beta_2 x; x = X/Y \quad (4.23)$$

$$\frac{dM}{dY} = \beta_3 \frac{M}{Y} = \beta_3 m; m = M/Y \quad (4.24)$$

We then put the first three equations of the system (4.21) in the fourth relation and we take the total differential. After simplification, the final equation as follows is resulted:

$$dY = \beta_1 c dY + \beta_2 x dY - \beta_3 m dY,$$

$$\beta_1 c + \beta_2 x - \beta_3 m = 1$$

$$\beta_1 C + \beta_2 X - \beta_3 M = Y \quad (4.25)$$

We then take the total differential of the said relation as follows:

$$\beta_1 \frac{dC}{C} \cdot \frac{C}{Y} + \beta_2 \frac{dX}{X} \cdot \frac{X}{Y} - \beta_3 \frac{dM}{M} \cdot \frac{M}{Y} = \frac{dY}{Y} \quad (4.26)$$

We can assume that in the static state equilibrium, the ratios of $\frac{C}{Y}$, $\frac{X}{Y}$ and $\frac{M}{Y}$ as inclination to consumption, exports and imports, respectively, are fixed and tends towards a specified quantity (this point validates the extraction for stationary state equilibrium). Under the said assumption, relation (4.26) could be rewritten as follows:

$$\beta_1 c\frac{dC}{C} + \beta_2 x\frac{dX}{X} - \beta_3 m\frac{dM}{M} - \frac{dY}{Y} = 0 \quad (4.27)$$

Which is a partial differential equation and its general form is as follows:

$$Y = AC^{\beta_1 c} X^{\beta_2 x} M^{-\beta_3 m} \quad (4.28)$$

A is the fixed quantity of integration and it plays an important role in establishing balance between the two sides of the equation. Equation (4.28) has been extracted, based on the assumption that x,c and m are fixed. Now we can obtain equation (4.19) with mathematical operations as follows (for convenience the fixed quantity of A is eliminated):

$$Y_j = C_j^{\beta_{1j} c_j} X_j^{\beta_{2j} x_j} M_j^{-\beta_{3j} m_j} \quad (4.29)$$

$$Y_k = C_k^{\beta_{1k} c_k} X_k^{\beta_{2k} x_k} M_k^{-\beta_{3k} m_k} \quad (4.30)$$

Through multiplying the two equations of (4.29) and (4.30), we can have:

$$Y_j Y_k = C_j^{\beta_{1j} c_j} C_k^{\beta_{1k} c_k} X_j^{\beta_{2j} x_j} X_k^{\beta_{2k} x_k} M_j^{-\beta_{3j} m_j} M_k^{-\beta_{3k} m_k} \quad (4.31)$$

And by putting the above equation to order, assuming the counter exports of the two countries k and j:

$$X_{jk}^{\beta_{2j}x_j} X_{kj}^{\beta_{2k}x_k} = \frac{1}{C_j^{\beta_{1j}c_j} C_k^{\beta_{1k}c_k}} Y_j Y_k \, M_j^{-\beta_{3j}m_j} M_k^{-\beta_{3k}m_k} \quad (4.32)$$

The above equation is an important equation that states that the increase of counter imports of the two countries will lead to counter exports among them; in any case, trade liberalization will have a positive effect on the exports of the two countries and on the volume of trade between them. Now we can insert the effect of protectionism (tariff) and the transportation costs into equation (4.29):

$$M_j = X_k/(1+t_j)(1+d_{jk}) \quad (4.33)$$

$$M_k = \frac{X_j}{(1+t_k)(1+d_{jk})} \quad (4.34)$$

t_j and t_k are the tariffs of the two countries j and k, d_{jk} is the cost of transportation of each unit of goods between the two countries. If under an equilibrium state, we assume $X_{jk}=X_{kj}$ and we substitute M_j and M_k and we put the equation to order, we will have:

$$X_{jk}^{\sigma_1} = \frac{Y_j Y_k}{C_j^{\beta_{1j}c_j} C_k^{\beta_{1k}c_k}} \cdot \frac{X_j^{-\beta_{3j}m_j} X_k^{\beta_{3k}m_k}}{(1+t_j)^{\sigma_2}(1+t_k)^{\sigma_3}(1+d_{jk})^{\sigma_4}} \quad (4.35)$$

$$\sigma_1 = (\beta_{2j}x_j + \beta_{2k}x_k)$$

$$\sigma_2 = \beta_{3j} m_j$$

$$\sigma_3 = \beta_{3k} m_k$$

$$\sigma_4 = \beta_{3j} m_j + \beta_{3k} m_k$$

In equation (4.35), the statement related to distance ($I=d_{jk}$) appears in the denominator with the square 2 (multiplied by itself two times), which is similar to the Newton gravitation equation. We can extract several important results from equation (4.35):

First, if country j eliminates its tariffs or trade barriers for imports from country k, its exports to country k will increase. The same rule applies for country k. Trade liberalization, either unilateral or mutual, will increase the exports of the country.

Second, the exports of j to k have a reverse relation with the consumption coefficients of the two countries (α_j, α_k), which indicates the introversion of the two countries.

Third, in long-term equilibrium, in which the coefficients m_j and m_k and other coefficients tend to a specified limit, the effect of distance on trade, which is shown by the power ($1=d_{jk}$), tends towards stability. This point can justify the "missing globalization", which was mentioned by Coe et al. (2002) and associated with the coefficients relating to the variable of distance in the gravity models, which have stayed fixed upon the passing of time. As stated by them, the coefficients relating to the

variable of distance must be reduced over time and with estimation of the gravity model for different time intervals, which is a symbol of globalization and reduction of the importance of distance for trade. In fact, globalization is related to the behavior of c_i, x_i and m_i (average tendency towards consumption, exports and imports in two countries of j and k) in the two countries; this formulated theory seems more logical. In fact, the reduction of the coefficient of the variable of distance depends on ys.

Now, based on equation (4.36), we can obtain an equation for the elasticity of exports of j to k based on y_i and y_k, and compare the result with the elasticity of β_{2j} and β_{2k}:

$$\lambda X_{jk} = \frac{1}{\sigma_1} = \frac{1}{(\beta_{1j} x_j + \beta_{1k} x_k) + \beta_{1j} c_j + \beta_{1k} c_k} \qquad (4.36)$$

Based on equation (4.21), the long-term elasticity of stationary state is equal to β_{2j}, which is different from the elasticity in equation (4.36). As stated by Helpman and Krugman (1985), upon the passing of time the difference criterion of $1-(Sj)^2$ will increase and the ratio of trade to production will also increase. When a country starts the economic growth from the low limit of trade-production ratio, it is expected that in the first phase the βs are small.

Therefore, we expect that in the initial stages of economic growth and tariff reduction, the trade-production ratio to increase and the globalization, with higher elasticity of consumption over imports (y_j), to develop, and, consequently ,λx_{jk} to decrease. In a limit state, we can imagine that the ratio of export or import to production will move towards 1.

Therefore, in the short term we can expect high elasticity of exports (or imports) to production against the long-term period (Bayoumi, 1998). In long-term equilibrium, the long term elasticity of the income stationary state of exports (or imports) moves towards 1 and the growth of exports or imports will be equal to the growth of production and with each other. Hence, we expect a balanced growth will occur without deficit or surplus of payment balances. In this way, the issue set forth is the theory of the globalization process, which is more logical than the distance coefficient.

The statement means that in relation (4.36) we expect $X_j=m_j$ and $X_k=m_k$ in the long term and the elasticity of imports and exports to be equal. So we have:

$$X_{jk} = \frac{[Y_j Y_k]^{\frac{1}{\beta_{1j}c_j+\beta_{1k}c_k}}}{{c_j}^{\beta_{1j}c_j}{C_k}^{\beta_{1k}c_k}} \frac{{X_j}^{\beta_{sj}m_j}{X_k}^{\beta_{sk}m_k}}{(1+t_j)^{\beta_{sj}m_j/\sigma_1}(1+t_k)^{\beta_{sk}m_k/\sigma_1}} \frac{1}{(1+d_{jk})^{[\beta_{sj}m_j+\beta_{sk}m_k]/\sigma_1}} \qquad (4.37)$$

Because, in any country, in equilibrium state: $\sigma_1 = (\beta_{1j}x_j + \beta_{1k}x_k)$ and $M_j = X_j$

So, any effort for trade liberalization, unilateral or bilateral and or multilateral, will lead to increased exports of the country that embarks on trade liberalization. More importantly, liberalization in any country will increase both the trade and welfare in other countries, in addition to trade and welfare of the same country. Tariff reduction in country j will increase the exports of j to k. Clearly, in this gravity model, exports of any country will have a reverse relation with the tariff of the same country. This feature does not exist in other forms of gravity relation.

Please note that in regionalism, or regional economic integration, the increase or decrease of level of trading of partner countries in integration plan, like a customs union, or common market, and their economic welfare, will all depend on the elasticity of substitution between the imports from the member states and non-member states. In addition, it will also depend on the same method on which the production of any imports of technology, capital goods or other traded materials depends.

We expect that in the estimation in relation (4.37), the power of the statement (Y_jY_k) is close to one, in which case it indicates the high level of globalization or the speed of globalization (or bigger Y_is). Taking into account the ultimate limit of m_j and m_k, we expect the distance to still show itself as a trade barrier with stable effect. Of course, as was discussed in the previous chapter, perhaps due to numerous problems it is not correct to place in the gravity model common variables for distance between countries.

It is noteworthy that based on equation (4.5) and (4.9) and in direct similarity with relation (4.16), the statement ${C_j}^{\beta_{1j}c_j}{C_k}^{\beta_{1k}c_k}$ in relation (4.36) can be shown in the following form, implementing the assumption of globalization:

$$ {C_j}^{\beta_{1j}c_j}{C_k}^{\beta_{1k}c_k} = {X_j}^{\beta_{1j}c_j}{X_k}^{\beta_{1k}c_k}\,{M_j}^{\beta_{1j}c_j}{M_k}^{\beta_{1k}c_k} \qquad (4.38) $$

Now knowing that:

$$C_j = \frac{S_j}{S_k} C_k$$

We place the above value instead of C_j and show the multiplication of the left side of relation (4.38) in the following way:

$$\left(\frac{S_j}{S_k}\right)^{\beta_{1j}c_j} = \left(\frac{\alpha_j}{\alpha_k}\right)^{\beta_{1j}c_j} \frac{{M_j}^{\gamma_j\beta_{1j}c_j}}{{M_k}^{\gamma_k\beta_{1j}c_j}} \tag{4.39}$$

Or

$${C_j}^{\beta_{1j}c_j} {C_k}^{\beta_{1k}c_k} = \left(\frac{S_j}{S_k}\right)^{\beta_{1j}c_j} \left(\frac{\alpha_k}{\alpha_j}\right)^{\beta_{1j}c_j} \left(\frac{{M_k}^{\gamma_j\beta_{1j}c_j}}{{M_j}^{\gamma_k\beta_{1j}c_j}}\right) \tag{4.40}$$

Based on the relation of S_k andS_j:

$$S_j = \frac{Y_k}{Y_j}\frac{N_j}{N_k} S_k \tag{4.41}$$

We can show equation (4.37) as follows:

(4.42)

$$X_{jk} = \alpha x \left[\frac{Y_j}{Y_k}\right]^{-\beta_{1j}c_j} \left[\frac{N_j}{N_k}\right]^{-\beta_{1j}c_j} \left[\frac{M_k^{\gamma_k}}{M_j^{\gamma_j}}\right]^{-\beta_{1j}c_j} \left[Y_j Y_k\right]^{\frac{1}{\beta_{1j}c_j\gamma_j+\beta_{1k}c_k\gamma_k}} \frac{1}{(1+t_j)^{(\beta_{3j}m_j)/\beta_{1j}c_j\gamma_j+\beta_{1k}c_k\gamma_k}} \cdot \frac{1}{(1+t_k)^{\beta_{3k}m_k/\beta_{1j}c_j\gamma_j+\beta_{1k}c_k\gamma_k}} \cdot \frac{1}{\left[(1+d_{jk})\right]^{[\beta_{3j}m_j+\beta_{3k}m_k]/\beta_{1j}c_j\gamma_j+\beta_{1k}c_k\gamma_k}}$$

In which$\alpha = \left(\frac{\alpha_k}{\alpha_j}\right)^{-\beta_{1j}c_j}$, and directly the Linder theory and variable of population (which is a criterion of introversion of the two countries) are also observed. Please note that in a state where the model is considered for several countries, in the relation $C_i=\alpha_i M_i^{\ yi}$, M_i is the total imports and so in relation (4.42), M_k/M_j is the ratio of the total imports of the two countries. This is another desirable characteristic of the present extraction and it states that the closer the total imports of the two countries j and k, the more counter exports of the two countries to each other. In addition, the more the consumption coefficient of country k (α_k), the less exports j will have to k.

4.5 Regionalism, Multilateralism and Globalization

In relations (4.33),(4.34), since a customs union is established between countries j and k, we can divide X_i and M_i (i=j,k) into two parts of X_{uj} and X_{Nj} and M_{uj} and M_{Nj}. U and N stand for membership or non-membership in the customs union, respectively. In this case, we can show relation (4.35) in the following way:

$$X_{jk}^{\pi\beta_{2j}x_j} X_{kj}^{\pi\beta_{2k}x_k} = \frac{1}{{C_j}^{\beta_{1j}c_j}{C_k}^{\beta_{1k}c_k}} \cdot \frac{Y_j Y_k \left(M_{Uj}^{\pi} M_{Nj}^{(1-\pi)}\right)^{\beta_{3j}m_j} \left(M_{Uk}^{\rho} M_{Nk}^{(1-\rho)}\right)^{\beta_{3k}m_k}}{X_{Nj}^{(1-\pi)\beta_{2j}x_j} X_{Nk}^{(1-\pi)\beta_{2k}x_k}} \qquad (4.43)$$

In which U is either j or k and (1-π)π and (1-ρ)ρare geometric mean multipliers of the two sources of imports and exports, so that:

$$\mathrm{Xj} = \left(X_{Uj}^{\pi} X_{Nj}^{(1-\pi)}\right),$$

$$Mj = \left(M_{Uj}^{\rho} M_{Nj}^{(1-\rho)}\right), Ci = \left(M_{Ui}^{\delta} M_{Ni}^{(1-\delta)}\right), i = j, k \qquad (4.44)$$

$0<\pi<1$

In addition, in the same way, for M_k[1] and X_k we can assume that, in the equilibrium state, $M_{jk}=M_{kj}$ and relation (4.43) are changed into a gravity model. With some similar changes once again $(1+t_j)$, $(1+t_k)$ and $(1+d_{jk})$ will appear in relation (4.43). For simplification purposes, we restrict our discussion to relation (4.43).

Having assumed a customs union is established between countries j and k, how would the exports of country j to k and k to j (i.e. X_{jk} and X_{kj}) and the exports of these two countries to non-member countries (X_{NK} and X_{Nj}). It is clear that the reduction of imports from nonmember states, i.e. the reduction of M_{Nj} and M_{NK} will directly reduce the exports of j to k and k to j as well as the exports of these two countries to nonmember states (X_{NK} and X_{Nj});of course with the assumption that other conditions are fixed. However, if M_{uj} and M_{uk} also increase simultaneously and compensate the reduction of imports from non-member states, the exports of the two countries will not decrease. We can think of relation (4.43) based on Viner's (1950) theory of customs unions, in which the goods of the importing country from a partner country in the customs union and nonmember states will be complete substitutes for each other; however, such a hypothesis is not explicitly specified in this relation and the imported (and exported) goods are incomplete substitutes for each other.

Hence, everything will depend on the elasticity of goods substitution in the markets of the customs union. Instead of the Cob Douglas forms, we can substitute with

[1]- In other words, in a customs union, we have defined a behavioral relation for the exports and imports of each country, and not the product of a simple add-up.

the CES forms, in which different hypotheses will create different substitution elasticities instead of the substitution elasticity being equal to one of the Cob Douglas forms. In addition, the tariffs pre and after customs union formation, play an important role in the volume of change of the trade model, and, consequently, in the volume of the effect of trade creation and trade diversion. However, if after formation of the customs union, the common external tariffs are equal to the tariff of the country with the lowest volume of tariffs, the imports from union member states and from non-member states will both increase. For example $(1+t_j)^2 < (1+t_j)(1+t_k)$, if and only if $t_j=t_k$;in this case the exports will also increase.

With this reminder, we come back to the principal relation of Helpman and Krugman (1985). The principal reminder of these two scientists is that the more specialization, relation (4.2), which is the basis of the gravity model, presents a better approximation of the volume of bilateral trade in which the bigger the size of industries producing the differentiated products, the said approximation will be better. So, in the world of intra-industry trade, in which economies of scale and economies of scope exist, any customs union member state, through implementing a tariff for the industries that manufacture differentiated goods, in the country or countries in which there are these types of economy, will allow the other country to increase both its counter exports and imports simultaneously, and, also its own exports and imports to other member countries. Upon the increase of the market size following the formation of a customs union, the industries are able to move towards the lowest level of cost on the efficiency curve on their own scale. In this case their exports, either counter or total, will increase more; in other words, as Johnson (1965) said; “any country in the customs union,

without losing its industrial production, will allow other country to become industrialized." This is the state of a customs union that does not diverse trade. Along with a reduction of tariff of other countries, the volume of trade will totally increase.

According to relation (4.43), the customs union with trade diversion will reduce the volume of exports depending on the elasticity of the substation of goods in consumption and production in terms of geographical origin. The most important message of equation (4.43) is that when any country joins a customs union that does not deviate trade, it is able to increase its exports because the exports (whether counter or total exports) always have a positive correlation. At the same time, it was shown that any effort for trade liberalization will lead to more exports. Therefore, the conclusion will be clear: in general, the efforts for unilateral liberalization by one country, within a customs union with trade diversion, or multilaterally, will lead to more trade, counter exports of the countries and accelerated industrialization, and the globalization forces, through regulating the relation of economic growth rate and exports-imports growth rate in long term equilibrium, will guarantee the increase in the volume of trade.

4.6 Consequences of the above Extraction and Discussion about the Linder Effect

In the previous section, a noticeable relation was obtained between imports and exports. We also came to know that the counter exports depend on the per capita income of the two countries and also the total imports of the two countries. More important, it was also shown how protectionism against imports in one country would reduce the

exports of the said country. In this part, we will discuss the Linder's theory or the Linder effect (Gandolfo, 1998).

Linder (1961) proposed that trade in manufactured goods was primarily determined by domestic demand conditions. This demand-oriented explanation was in sharp contrast to the supply-oriented factor-endowment theory which focuses on factor endowments and intensities as sources of comparative advantage and international trade patterns. Linder proposed that a country will export products for which there is a large and active domestic market. The simple reason is that the production for the domestic market must be large enough for firms to realize scale economies (Bukhari et al, 2005). Thus, an important implication of the Linder hypothesis is that international trade in manufactured goods will take place largely between countries with similar income levels and demand patterns. That is, trade will be stronger between countries with similar per capita income.

Linder also noted the role of quality as a determinant of the direction of trade. He argued that richer countries spend a larger proportion of their income on high quality goods. He also argued that closeness of demand is a source of comparative advantage giving richer countries comparative advantage in the production of high quality goods, the goods that they demand. He then argued that similarity of production and consumption patterns lead countries with similar per capita income to trade more with each other. Linder hypothesis is the first theory explaining the effects of differences in quality on the direction of trade (Hallak, 2010).

For two developed countries, the closer their per capita incomes, the more increase in demand for intra-industry trade, and the less scope of the effect of trade

diversion because of a customs union, and the share of intra-industry trade will become more in the whole trade. This is called demand complementariness.

For two developing countries, the more their per capita incomes are closer to each other, the more their inter-industry trade will be, because the two countries are specialized in the production of the goods that complement their demands, and not in the production of similar but differentiated products.

This type of regulating trade policy is similar to reliance on inter-industry trade. In this way, when the customs union or common market is formed between these countries or with the participation of these countries, the effect of trade diversion is likely to be more, or the potential interest from formation will be limited.

When the developing country enters into the stage of construction of industries for the production of imported inputs and capital goods, the issue of an increase of market size will be of high importance for these industries. The market size is the determinant of the optimal scale of these industries. The formation of a customs union among those countries that are in this stage, provides the industries producing imported inputs and capital goods with benefits from a larger market. This issue will lead to a reduction of the production cost of these industries, and a reduction of the price of their final products, which, finally, will lead to an increase of market size and an expansion of final product exports, and will reduce the value of the effect of trade diversion. The industries that produce capital inputs and goods conform to more series of final products and will develop more quickly.

Therefore, the final products tariff reduction, which leads to a reduction of tariff dispersion, and the formation of bigger markets with the economic integration of developing countries, will influence the increase of exports of these countries. According to relation (4.43), the tariff of M_{Ni} goods is reduced and the tariff of M_{ui} will be eliminated. This is a better alternative from the continuity of upward tariff and regional isolation.

The combination of these two propositions means that the regional economic integration, along with the trade liberalization of partner countries in the economic integration plan, is both beneficial for each individual country, and all partner countries in the integration plan. It will also contribute to multilateral tariff reduction. In addition, the formation of a discriminative customs union that places a common external tariff higher than the tariffs before formation, will lead to both a reduction of exports of the member states to each other, and their total exports. It is obvious that, in this analysis, Bhagwati's discussion, which stated that the effect of trade diversion can increase welfare (Bhagwati and Serinivassan, 1983), or the discussion of a change of exchange relation, is not incorporated. Bhagwati's discussion does not always vote in favor of a customs union that deviates trade and exploitation from the effect of exchange relation is not always possible. The final judgment is that with economic integration along with tariff reduction, the exports of developing countries will increase.

4.7 Gravity Model for the Present Study

As mentioned earlier, Newton’s Physics of motion first justified the gravity model. As a result of the partial equilibrium model for export supply, import demanded the analysis of the gravity equation (Lineman, 1996). Based on simpler assumptions, the

gravity equation was demonstrated to be a reduced form of the model. However, Bergstrand et al. (1985) showed that the partial equilibrium model did not define the form complexities of the equations, which also allowed some of its parameters to be undefined, mainly due to price variability exclusion. As a result of the simplicity of form of the equation, Linneman's exclusion of price justifies its consistency. The first theory explaining the gravity equation based on the expenditure properties system was stated by Anderson (1979). In support of Anderson's synthesis, Helpman and Krugman (1985); Bergstrand (1985, 1989); and Deardroff (1998); also added to the implementation of the theoretical foundation for the gravity model.

In these studies, the gravity equation is theoretically derived as a reduced form of the general equilibrium model of international trade for final goods, and, therefore, recently, the theoretical basis of the gravity model has become apparent, well understood and generally accepted. Anderson and Wincoop (2003) and Feenstra (2002) have resolved these shortcomings through their studies. The approach on micro foundation, however, claims that the crucial assumption of perfect product suitability to the conventional gravity model was unrealistic as it has been recently proven that the flow of trade can be differentiated by place of origin, and that variable price exclusion resulted in misspecification of the gravity model (Bergstrand (1985, 1989); Anderson (1979) and Helpman and Krugman (1987)).

However, supported the ideas which showed that price variables, apart from the usual variables for gravity equation are statistically significant, which explains the flow of trade amongst participating countries. The above analysis, therefore, shows that the theoretical foundation was used for the application of the gravity model on the flow of

international trade. Moreover, this new right for international flow trade assessment motivates the reliance of our extension of the gravity model for the study of the economic integration impact analysis for D-8.

4.7.1 Model Specification

Of the theories of trade mentioned, the gravity model was chosen to quantify trading for D-8 countries. The hypothesis on the gravity model bilateral trade showed that the flow of trade between two countries is proportional to their gross domestic product (GDP) and negatively related to trade barriers between them. A number of specific alterations for the gravity model were provided by empirical works. The model applied in this research varies from the gravity model, as stated by Frankel et al. (1995); Pollak (1996); Krugman (1991); Yavari and Ashrafzade (2005); Matyas (1997); Jalali (2008). The model was enhanced by adding the original population and target countries as bilateral trade support mass. The gravity model estimation has the following form:

$$X_{ijt} = \alpha_0 A_{ij}^{\alpha_1} (GDP_{it})^{\alpha_2} (GDP_{jt})^{\alpha_3} \left(\frac{pop_{it}}{pop_{jt}}\right)^{\alpha_4} (D_{ij})^{\alpha_5} e^{z_{ijt}+\psi_{ijt}+u_{it}} \qquad (4.44)$$

$$linder = A_{ij} = \left(GDP_{it} - GDP_{jt}\right)^2 \qquad (4.45)$$

For estimation purposes, the basic gravity model is most often used in its log form. Hence, this is equivalently written using logarithms as:

$$log(X_{ijt}) = \alpha_0 + \alpha_1 logA_{ij} + \alpha_2 log(GDP_{it}) + \alpha_3 log(GDP_{jt}) + \alpha_4 log\left(\frac{pop_{it}}{pop_{jt}}\right)$$

$$+ \alpha_5 log(D_{ij}) + Z_{ijt} + \psi_{ijt} + u_i \qquad (4.46)$$

Where:

t=1983… 2008.

X_{ijt}: Country i trade with country j in year t.

GDP $_{it}$: Country i GDP in year t.

GDP $_{jt}$: Country j GDP in year t.

Popit: Population of Country i in year t.

Pop_{jt}: Population of country j in year t.

tm_{ijt} : Import country i and j

A: *linder*

ψ: Language and common border

Z_{ijt}

$= [Dum\ Ban, Dum\ Egy, Dum\ Indo, Dum\ Ir, Dum\ Mal, Dum\ Pak, Dum\ Tur]$

u_{ijt}: Is the error term

A good number of researchers incorporate more variables as control for geographic factor differences, historical ties and general policy trade, due to the trade flows between nations, which can be affected by other factors other than the core variables (Population GDP, distance). Therefore, it is common to expand the major gravity model by adding other variables, which were believed to define various policy impacts on the flow of trade. For the estimation of the impact on regional trade arrangement using gravity equations, dummy variables are added to each member state by thorough examination, and, therefore, the augmented gravity model incorporated other variables.

4.7.2 Variables and Data Description

The yearly flow of trade of a country's data set, population, GDP and distances for D-8 countries from 1983 to 2008,GDP period in time t, was used to determine the economic size. The variables were assumed to be significantly and positively related to trade. World Development Indicated (WDI) was used to draft the gross domestic product (GDP) for D-8 in US dollars. A set of population variables was used to determine the product of population, the intention of which was to estimate the market size. The bigger the market the higher the trade, therefore, a positive turnout was expected for the market size. The D-8 data population is derived from the World Bank.

The distance taken for the proxy analysis for transport among D-8 was calculated as distance in kilometers for D-8 country's capital cities. The distance data was obtained from the great circle distance between the capital cities, while distance was measured as

the minimum distance along the earth's surface, as stated by Byers (1997). This variable was assumed to have a negative impact on trade because of the high cost of transport and the distance between countries.

The Linder effect is captured through a variable which measures the degree of similarity between the per capita income levels of the given D-8 countries and each trading partner. This variable, which we denote as "LINDER", is the absolute value of the difference in the levels of real per capita GDP in the D-8 countries and potential trading partner. Support for the Linder hypothesis would follow from the finding of a negative and statistically significant coefficient on this variable. A definition difference between a pair of country's GDP per capita is stated as follows:

$$Linder = A = \left(GDP_{it} - GDP_{jt}\right)^2$$

The Linder term is larger the more dissimilar are the two countries' incomes. Therefore, the prediction of the Linder hypothesis is that $\alpha_1$is negative. α_2 and α_3 show the export elasticity for country I and import elasticity for country j, respectively, when compared to GDP. It is expected that $\alpha_{2;}$ α_3 should be positive. If $\alpha_2 > \alpha_3$ it then means that the country's exports are expected to grow faster than its imports. However, other coefficients may be negative or positive due to the countries distinctive economic and geographic structure. For the avoidance of multi-correlation, 7 dummy variables are defined as a representative of D-8 numbers. A value of one shows that Xij > 0 and Zero if Xij = 0.

The last variable is common language or common border (ψ). The information ψ was carried out at the Iranian Institute for Trade Assessment and Research. Common languages or common borders are expected to exhibit a positive sign.

4.7.3 Econometric Method

The panel framework is defined to cover variations in trade for D-8 trading partners for two periods, from 1984 to 1997 and from 1997 to 2008. Several advantages were shown for panel estimation over cross section data and time series data, as it controls for individual heterogeneity. Studies on cross section and time series that are not controlled by the heterogeneity are biased results. However, panel data show more variability, more degree of freedom and less multicollinearity between the explanatory variables, thereby enhancing the econometric efficiency estimate. Moreover, the panel data also measures the effect, which is undetectable in data cross section and time series (Battagi, 2005).

The assessment of the gravity model was earlier carried out using single year cross-sectional data or data time series. These methods may be affected by misspecification, which result in the biased assumption of bilateral volume trade due to the lack of control for heterogeneity (Chan and Wall, 2005). In applying the gravity model panel data are used, because panel data are usually the case for data cross section and time data series (Matyas et al., 1977; Egger (2002). In line with Matyas et al. (1997), the natural representation of two sided trade flows with the gravity equation having a three-way specification is expressed as follows:

$$y= D_N\alpha+D_J\gamma+D_T\lambda+Z\beta+\varepsilon \quad (4.47)$$

Where

y is vector of dependent variable

Z is the matrix of explanatory variables

$D_{N,}$ $D_{J,}$ D_T are dummy variable matrices

α is local country effect

γ: target country effect

λ is time effect

β is parameter vector of explanatory variables.

ε is error term

When the data for cross section is used for one year, no time effects were observed $\lambda = 0$

When time series is used, it covers the effects for specific pair of countries, an implication that $\alpha = \gamma = 0$.

Using panel data there is no restriction required, which can take into account both country and time effect.

Panel estimation can be assessed using pool estimation, fixed effect and random effect (Gujarati, 2003); the following estimates pool function:

$$Y_{it} = \beta_1+\beta_2X_{2it}+\beta_3X_{3it} +\varepsilon_{it} \quad (4.48)$$

Where, I = cross sectional unit, t = time period and error term in normally distributed with a mean of zero and constant variance. Pooled was assumed to have one single set slope coefficient with one overall concept. In pooled estimate, error term captures the difference over time for individuals.

Fixed effects account for the individual and time effect by allowing the intercept to vary for each individual and time period, while the slope coefficient is constant with the model:

$$Y_{it} = \beta_{1i}+\beta_2X_{2it}+\beta_3X_{3it} +\varepsilon_{it} \quad (4.49)$$

It is normally assumed that ε is independent and identically distributed over individuals and time mean zero and variance σ^2, and all X_{it} are independent of all error terms. Introducing the variable dummy concept allows for intercept variability according to individual and time.

One of the problems of the fixed model is that it may not identify the time invariant effect, for example, distance. However, this variable is excluded from estimation. The fixed estimation, however, may provide inefficient and biased estimated results.

Random effect estimation was used to estimate the panel data. The intercept was treated by random effects as a random effect as a random variable, while the individuals included in the sample are drawn from the larger population. The model is stated as follows:

$$Y_{it} = \beta_1+\beta_2X_{2it}+\beta_3X_{3it} +w_{it} \quad (4.50)$$

Where:

$w_{it}=\varepsilon_i + u_{it}$

It is assumed that the individual error components are not correlated with each other and are not auto correlated across both cross section and time series units.

$\varepsilon_i \sim N(0, \sigma^2_\varepsilon) u_{it} \sim N(0, \sigma^2_u)$

$E(\varepsilon_i, u_{it}) = 0, E(\varepsilon_i, \varepsilon_j) = 0 \ (i \neq j)$

$E(u_{it}, u_{is}) = E(u_{it}, u_{jt}) = E(u_{it}, u_{js}) = 0 \ (i \neq j, t \neq s)$

4.8 Trade Intensity Index

4.8.1 Decomposition

Many researchers have demonstrated the measurement and bilateral trade analysis. Drysdale and Garnaut (1982), in a survey, identified two systematic study approaches for bilateral trade: the intensity approach developed by Kojima (1964) and Brown (1949), and the bilateral trade gravity model presented by Linneman (1996); Linder (1961); and Tinbergen (1962).

The approach of the gravity model independently defines each flow of bilateral trade, which lays claim to trade between two economies to be proportional to their economic sizes (measured by per capita GDP, population area, GDP) and inversely proportional to the distance (both cultural and geographical distance) between them. However, comparison of the bilateral trade across pair of countries is not provided for by gravity model. Moreover, assumptions for the independent flow of bilateral trade

gravity model were too extreme (Anderson and Wincoop 2003). Understandably, the more the trade resistance with other economies, the more it pushes trade with a given bilateral partner. This, however, is known as 'multilateral resistance". In other words, as shown by Kazutaka (1977), international trade is divided into two categories by the intensity approach determinants, which include those that influence their geographical distribution and those that impact on the total export and import levels of the world countries. It then suggests a hypothetical world made up of countries without geographical specialization in international trade.

The totality of a country's trade is spread amongst countries in line with the world trading partners of that country. The bilateral trade level is evaluated by the trade intensity index based only on the size of a country's economy. All things being equal, neighboring countries sharing a common border or having a close cultural relationship are assumed to have closer trade relation than those that are culturally or geographically apart. The gravity model estimated values of trade reflect the impact of each country's specific characteristics with market distribution, cultural relationship, geographical factors, etc. However, the approach of the gravity model cannot perform trade comparison across countries. The trade intensity approach is briefly summarized in this section. The trade intensity index is an alternative method for bilateral trade resistance and flow, which measures the method of analysis. The intensity approach is preferred to the gravity model in this section as presented by Tinbergen (1962) et al. due to the fact that it is better suited to some objectives of this study. Unlike the gravity model, the abstract index from the effects of import and export sizes of countries focuses on the differences in bilateral trade level resulting from differential resistance.

A countries share of trade is measured by its intensity trade index with other countries in proportion to its world trade share. For country I's exports to country j, the index Iij is defined as the share of I's export to j in its total exports (X_{ij}/X_i) compared to the share of j's import in world imports, net of I's imports (Mw – Mi)[1]. The index is thus stated:

$$I_{ij} = \left(\frac{X_{ij}}{X_i}\right) / \left(\frac{M_j}{M_w - M_i}\right) \quad (4.51)$$

An index exceeding unity shows the presence of a relatively strong trade relationship due to the relative need of country I's trade being higher than j's share of world trade.

The intensity index is still in its original state and aggregated measure, which needs to be fractionated before it can be useful as an analytical tool. The major problem being that it fails to make provision for commodity composition variation for the complementarities of a country's exports and another's import. A possibility exists for the composition of oneness of imports and imports of two countries albeit there may be high intensities in the commodities they trade.

The modification of the index was broken down into an index that encompasses the commodity composition of a country's trade, and that which deals with the commodity trade intensity that was traded, as stated by Drysdale (1967). The intensities are stated as follows:

Complementarity index (C_{ij}), for i's exports to j, is the sum of the products weight for each commodity's share in country i's exports $\left(\frac{x_i^k}{X_i}\right)$ and in country j's imports $\left(\frac{M_j^k}{M_j}\right)$ with the weight of commodities by the inverse of the shares in world trade.

$$\frac{M_w - M_i}{M_w^k - M_i^k} \tag{4.52}$$

$$C_{ij} = \frac{x_i^k}{X_i} \cdot \frac{M_w - M_i}{M_w^k - M_i^k} \cdot \frac{M_j^k}{M_j} \tag{4.53}$$

For this formula, the high trade intensity may be the result of strong concentration in one country's exports of commodities in which the other country has a high import share.

The index of country's bias (B_{ij}), defined analogously the intensity index for each commodity k, as

$$B_{ij}^k = \frac{x_{ij}^k}{x_i^k} \Big/ \frac{M_j^k}{M_w^k - M_i^k} \tag{4.54}$$

That is, a country bias index of 1 for country i's exports to country j of commodity k shows that the share of country j in country i's exports of k is equal to the former's share of world imports of k.

Average weight of indexes of a country bias for all commodities yields an index of a country bias (B_{ij}) in country i's total trade with j. Thus:

$$B_{ij} = B_{ij}^{k}.\frac{X_{ij}^{k}}{X_{ij}} \qquad (4.55)$$

The indexes are so defined that:

$$I_{ij} = C_{ij} \,.\, B_{ij} \qquad (4.56)$$

The intensity approach enables major factors that contribute to the trade between countries and regions to be identified. It does not, however, "explain" trade patterns. This requires examination of the trading partners' composition of trade, and the factors that determine the country's bias indexes for specific commodities.

The resistance concept is used for a countries bias for trade analysis. This conceptisde fined as any factor that inhibits/lowers immediate commodity movement internationally, caused by price differential (Drysdale and Gaenaut, 1982). Furthermore, they are classified as resistance objectives when a firm can only overcome at some cost, for example, transport cost, and the subjective resistance is obtained from factors, for example, imperfect information. The resistance strength, such as the presence of taking blocs and relative distance, political alliance, and aid and investment flows, are determined by many factors. Attempts to model the benefits of these many resistances econometrically, however, proved disappointing (Yamazawa 1971).

4.8.2 Trade Intensity Index Background

Several researchers used these indexes to assess bilateral trade flows. In a study conducted by Yamazawa (1970, 1971) on the international trade pattern between pairs of countries using countries bias index and complementarities distance and other dummy variables have major impact on trade intensity index. The study utilizes the data levels of a few countries and lots of geographical clusters. Drysdale and Garnaut (1982) use the index to assess bilateral trade patterns. Subsequently, there was limited use of the index for bilateral trade relationships in the following papers. The three indexes were used to analyze and define the pattern, trend and composition in Australia-Philippines trade over two decades, 1962-81 (Hill, 1985). Three indexes were used to measure the transformation of trade relationships between Japan and China for the period 1965-1993 (Zhang, 1997). In a similar manner, the examination of the relationship of trade strength between New Zealand and its major partners in trade – Asia Pacific nations and Australia – using the trade intensity index was reported (Bano, 2002) for the period 1981-1999. In addition to other methods, Creamer (2003) assessed the impact of open regionalism in the Andean community on inter and intra-regional trade from 1990-2000, using the trade intensity index. Ng and Yeates (2003) determined East Asian intra-regional trade using the trade intensity index as well as the likely distance adjusted trade intensity index. Application of the trade intensity index was used to determine the trade strength between India and China (Bhattacharya and Bhattacharyay, 2007). These studies aside, the bilateral trade between trade partners was not reasonably applied using this index.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Introduction

The gravity model has been highly empirically successful, and is currently, being assessed in different countries. Rahman (2003) used total export and import trade and three equations to evaluate the flow of trade between Bangladesh and its major trading partners. According to his report, Bangladesh's trade was determined by economic size, distance and openness, as well as GNP per capita. The explanation on the flow of trade using the gravity model was applied by Blomqvist in Singapore. A high degree of explanation was achieved, mainly for the GDP and variable distance. In another development using the gravity model framework, Anaman and Al-Kharusa (2003) demonstrated the trade determination for the European Union (EU) and Brunei from either country's population (Brunei and EU).

Tan (2003) demonstrated that the EU integration resulted in a significant decrease in trade with the North American Free Trade Agency (NAFTA) and ASEAN, from 1981 to 2000. Thornton and Goglio (2002) showed the benefits of economic size, common language and geographic distance in Intra regional bilateral trade for ASEAN. Sector classification of exports according to their geographical and economic distance sensitivity, as well as under the gravity model framework have been stated by Martinez-Zarzoso et al. (2004), which identifies the commodities that benefit from export strength. However, the results suggest that footwear and furniture enjoy a high and

significant geographical impact on bilateral trade between South American countries, such as Paraguay, Brazil, Argentina, and Uruguay, and the EU. The gravity model has been empirically applied, which is not new, with many variations of gravity equations. However, in the literature, the gravity model shares some common features; firstly, it was applied to define bilateral trade dependent variables for the gravity equation, which is the trade variable. Economic mass for importing and exporting countries were measured using GNP, GDP, or GNP per capita.

The GDP per capita for augmenting the gravity model has been reported (Montanari, 2005; Rahman, 2003). The idea behind this is that countries with a high trend in their income improve trade, while those with a lower income trade are less likely to improve trade. In the gravity model, distance is another commonly used variable. Distance can be said to mean the geographical distance between countries, which is also the authority for the cost of transport measured as the linear distance between the countries' economic centers (mainly capitals).

However, it is not an accurate measurement for some cases including the use of Beijing, capital center for China, and other partners in trade, due to the fact that China possesses a good number of economic centers that are thousands of kilometers apart. Finally, the dummy variable is included in the gravity equation to assess the quantitative variables including border, colonial history and languages in bilateral trade agreements. In addition, there has not been any study on bilateral trade flows amongst D-8 countries for the gravity model framework; however, this study fills the gap using literature that concerns D-8 countries using the gravity model to explore the relationship between two

stages of D-8 from 1983 to 1997 and from 1997 to 2008. The estimation of the gravity model in this study is based on panel data with an impact on fixed estimation.

5.2 Panel Unit Root Tests

To analyze data and test the regression model, the research variables were assessed to determine whether or not they are stationary. For a better understanding of the characteristics of the variables, five parallel tests were used:

1) Test Levin, Lin and Chu (LLC)
2) Im, Pesaranand Shin (IPS)
3) Fisher-ADF test
4) Fisher-PP[1]
5) Breitung t-stat

Table 5-1 Stationary or Non-Stationary of Variables

variables	Method	Statistic	Prob.**	Cross-sections	Obs	Result (95%)
GDPI	Levin, Lin & Chu t*	12.3348	1.0000	56	1344	Non-Stationary
	Breitung t-stat	19.4260	1.0000	56	1288	Non-Stationary
	Im, Pesaran and Shin W-stat	12.5629	1.0000	56	1344	Non-Stationary
	ADF - Fisher Chi-square	58.4351	1.0000	56	1344	Non-Stationary
	PP - Fisher Chi-square	19.2189	1.0000	56	1400	Non-Stationary
GDPJ	Levin, Lin & Chu t*	14.6702	1.0000	56	1379	Non-Stationary
	Breitung t-stat	19.9898	1.0000	56	1323	Non-Stationary
	Im, Pesaran and Shin W-stat	17.1549	1.0000	56	1379	Non-Stationary
	ADF - Fisher Chi-square	36.8462	1.0000	56	1379	Non-Stationary
	PP - Fisher Chi-square	9.81650	1.0000	56	1400	Non-Stationary
LINDER= $(GDP_{it} - GDP_{jt})^2$	Levin, Lin & Chu t*	0.98707	0.8382	56	1390	Non-Stationary
	Breitung t-stat	1.85780	0.9684	56	1334	Non-Stationary
	Im, Pesaran and Shin W-stat	1.01743	0.8455	56	1390	Non-Stationary
	ADF - Fisher Chi-square	111.458	0.4967	56	1390	Non-Stationary
	PP - Fisher Chi-square	89.7450	0.9398	56	1400	Non-Stationary
POPIJ	Levin, Lin & Chu t*	1.93157	0.9733	56	1311	Non-Stationary
	Breitung t-stat	6.26152	1.0000	56	1255	Non-Stationary
	Im, Pesaran and Shin W-stat	-2.06401	0.0195	56	1311	Stationary
	ADF - Fisher Chi-square	347.945	0.0000	56	1311	Stationary
	PP - Fisher Chi-square	239.108	0.0000	56	1400	Stationary
Xij	Levin, Lin & Chu t*	-10.4272	0.0000	52	1158	Stationary
	Breitung t-stat	-2.77251	0.0028	52	1106	Stationary
	Im, Pesaran and Shin W-stat	-7.19446	0.0000	52	1158	Stationary
	ADF - Fisher Chi-square	276.711	0.0000	52	1158	Stationary
	PP - Fisher Chi-square	269.506	0.0000	52	1195	Stationary

Fisher tests probabilities are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

As shown in Table 5-1, most of the regression model variables are non-stationary at the initial level based on five different tests, as shown above. These

variables are stationary at first differentiation and the cointegration test was carried out to find appropriate methods to test the research model.

5.3 Cointegration Test

In this study, the Pedroni, Kao and Johansen method was used to check the cointegration. Based on the results presented in the table below, the cointegration or long-term equilibrium relationship between models variables are accepted in all cases

Table 5-2 Pedroni , Kao and Johansen Fisher Panel Cointegration Test

Pedroni Residual Cointegration Test					
	Statistic	Prob.	Weighted Statistic	Prob.	Result
Panel PP-Statistic	-12.95300	0.0000	-14.93041	0.0000	Have Co integrated vector
Panel ADF-Statistic	-13.13704	0.0000	-15.30784	0.0000	Have Co integrated vector
Kao Residual Cointegration Test					
	Rho	Prob.	t-Statistic	Prob.	Result
DF	3.584534	0.0002	-9.103521	0.0000	Have Co integrated vector
DF*	5.438922	0.0000	-6.287611	0.0000	Have Co integrated vector
Johansen Fisher Panel Cointegration Test					
Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.	Result
None	1211.	0.0000	842.1	0.0000	Have Co integrated vector
At most 1	605.8	0.0000	403.5	0.0000	Have Co integrated vector
At most 2	288.3	0.0000	193.9	0.0000	Have Co integrated vector
At most 3	173.1	0.0000	151.4	0.0001	Have Co integrated vector
At most 4	137.4	0.0015	137.4	0.0015	Have Co integrated vector

* Probabilities are computed using asymptotic Chi-square distribution.

5.4 Model Estimation

The trade equation runs through the pooled estimation method, and the results showed that the estimated coefficients have nearly all the expected signs, except market size.

Table 5-3 Gravity model among D-8 member countries

Variable	Coefficient Definition	1983-1997 (Prob)	1997-2008 (Prob)	1983-2008 (Prob)
C	Intercept	-19.06 (0.0004)	-16.03 (0.03)	-17.38 (0.002)
$log(GDP_{jt})$	Import elasticity for country j	0.57 (0.003)	0.50 (0.005)	0.34 (0.0003)
$log(GDP_{it})$	Export elasticity for country i	1.21 (0.0000)	1.06 (0.006)	1.27 (0.0000)
$log\left(\frac{pop_{it}}{pop_{jt}}\right)$	Market size effect	-0.24 (0.0024)	-0.19 (0.070)	-0.29 (0.18)
$log(D_{ij})$	Distention	-0.97 (0.0000)	-0.70 (0.0002)	-0.62 (0.058)
Com border	Common border	1.57 (0.093)	1.09 (0.072)	1.06 (0.04)
Linder	Linder elasticity	-0.0009 (0.96)	-0.0171 (0.49)	-0.019 (0.12)
Lang	Common language	-2.009 (0.1513)	-0.29 (0.803)	-1.005 (0.17)
R-Squared		0.885	0.865	0.916
Adjusted R-Squared		0.883	0.864	0.915
F-Statistic		606.14 (0.0000)	507.7 (0.0000)	1628.12 (0.0000)
Durbin-Watson		2.44	2.44	2.35
S.E of Regression		0.828	0.7135	0.708

Bilateral trade estimation results for D-8 members using equation (3) are stated in Table 5-3.

1. A

s observed in the regressed model from 1983 to 1997, the D-8 members' import elasticity was 0.57, while export elasticity was 1.21. This implies that when D-8

countries GDP increases by 1%, on average, imports increase by 57%; it is expected that exports will increase by 1.21%. The results show that from 1997 to 2008, the import elasticity decreased to 0.50 and export elasticity declined to 1.06. This means that for a1% increase in GDP, imports increase by 50% while exports rise by 1.06% on average.

Moreover, the major point of D-8 countries were that the export elasticity to GDP was about one while the imports have no elasticity. $\alpha_2 > \alpha_3$, is an indication that D-8 countries export grows faster than import.

2.

The market size coefficient for both 1983 to 1997 and 1997 to 2008 was negative. This implies that if the population of country I compared to country j increases, it will reduce the exports of country I. The reason being that the population growth increases the size of the local market, so the country becomes more introverted and will have more imported rival industries; alternatively, it reduces the exports of the country due to the fact that the same industries have to meet the needs of the population increase.

3. D

istance elasticity, which is the proxy for transportation costs from 1983 to 1997, shows that if the distance increases by 1%, on average, exports reduce by 97%. However, after 1997, transit performance was improved with advanced transportation system technologies, which declined to 70%.

4. Common borders have no meaningful effects on exports on D-8. The reason being that D-8 member countries are diversified.

5. Linder, as expected from the theory, was negative, which implies that that international trade in manufactured goods will take place largely between countries with similar income levels and demand patterns. That is, trade will be stronger between countries with similar per capita income

6. Language has no meaningful effect on the export for the whole period under consideration, because of the heterogeneous nature of most D-8 countries.

5.5 Dummy Variables Results

Another aspect of this model is the dummy variables; when two countries, I and j, are under consideration, if $X_{ij} > 0$, dummy variable=1 and if $X_{ij} = 0$ dummy variable=0.

Table 5-4 shows the results.

Table 5-4 Bilateral trade effects among D-8 members since 1997

Country	Coefficient	Std.Error	Prob	Membership in D-8 impact on bilateral trade
Bangladesh	-0.53	0.061	0.0000	Detrimental
Egypt	-0.18	0.23	0.4404	Effect less
Indonesia	0.39	0.161	0.0149	Beneficial
Iran	-0.21	0.13	0.1105	Effect less
Malaysia	0.43	0.089	0.000	Beneficial
Nigeria	-0.16	0.07	0.03	Detrimental
Pakistan	0.10	0.061	0.0822	Beneficial
Turkey	0.04	0.086	0.5958	Effect less

The econometric model results show that D-8 could not enhance the bilateral trade among its members. The results show that Malaysia, Indonesia and Pakistan have a reasonable joint bilateral trade and derive benefits from the integration plan. However, the D-8 PTA had a negative effect on the trade of Bangladesh and Nigeria. The export and import trend since 1997 shows a significant decline between the two countries' trade compared to other D-8 members. Other members, such as Egypt, Turkey and Iran, do not have a reasonable joint bilateral trade. However, it is obvious that D-8 did not influence these countries bilateral trade since its inception. A summary of the results indicate that not all countries will experience a welfare gain under a free trade arrangement. Likewise, the impact on the economic sectors differs substantially across countries.

5.6 Export Intensity Index

The trade intensity index (TII) was thought to be a uniform export share. However, the statistic explains whether or not a given area exports more (as a percentage) to a known destination than the world does on average. This can be

symbolized in much the same way as an export share that does not show distress from any 'size' bias; therefore, the statistics can be compared across regions over time, during the rapid growth of exports.

Attempts were made to survey the export intensity of trade relations among D-8 countries using standard TII. The statistic for trade intensity is the ratio of two export shares. The numerator is the share of interest destination of a region's exports under study. The denominator is the share of the world's exports interest destination as a whole, which takes a value between 0 and $+\infty$. Values greater than 1 indicate an 'intense' trade relationship. The bilateral trade data, to calculate the TII was obtained from the IMF Directory of Trade Statistics, 2010, while the trade intensity indices were calculated for the period 1990 to 2008.

$$XI_{ij} = \left(\frac{X_{ij}}{X_i}\right) / \left(\frac{M_j}{M_w - M_i}\right) \quad (5.1)$$

Where

X_{ij}: country i's export to country j

X_i: country i's total export

M_j: country j's total import

M_w: world's import

M_i: country i's import

Using the equation above assesses the intensity of export among the economies of D-8. The results are shown in the Table 5-5 to Table 5-12.

Table 5-5 Export Intensity Index for Iran and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Malaysia	Nigeria	Pakistan	Turkey
1990	0	0	0.32	0.33	0	4.58	3.23
1995	0.34	0.04	0.05	0.27	0	3.83	6.05
1996	0.19	0.01	0.08	0.03	0	0.66	3.93
1997	0.3	0.03	0.05	0.12	0	4.41	3.42
1998	0	0	0	0.65	0	2.99	4.58
1999	0	0	0	0.18	0	3.04	4.93
2000	0.48	0	0.49	0.27	0.01	6.38	3.19
2001	0.3	0.2	1.03	0.49	0.02	5.18	4.91
2002	0.27	0.19	0.46	0.35	0.05	3.88	3.96
2003	0.4	0.25	0.51	0.25	0.01	4.79	5.87
2004	0.27	0.27	0.27	0.47	0.01	2.93	3.93
2005	0.27	0.2	0.19	0.49	0.01	2.33	5.7
2006	0.47	0.27	0.21	0.78	0.01	2.7	7.44
2007	0.33	0.23	0.14	0.47	0.01	2.86	6.38
2008	0.36	0.23	0.18	0.58	0.01	2.63	6.51

Table 5-6 Export Intensity Index for Turkey and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan
1990	0.25	2.63	0.19	7.44	0.11	0.37	1.78
1995	0.19	5.02	0.19	5.04	0.31	0.39	1.9
1996	0.45	5.63	0.31	4.25	0.4	0.37	1.49
1997	0.21	4.87	0.24	4.58	0.36	0.35	1.06
1998	0.53	6.01	0.22	2.78	0.15	0.52	1.4
1999	0.75	6.36	0.26	2.56	0.12	0.95	2.75
2000	0.7	6.37	0.18	3.68	0.11	1.24	1.16
2001	0.37	6.68	0.21	4.01	0.1	1.21	0.62
2002	0.37	4.96	0.17	2.68	0.36	0.96	0.98
2003	0.64	5.14	0.2	3.03	0.46	0.64	0.89
2004	0.42	5.58	0.16	3.49	0.08	0.63	0.73
2005	0.97	5.14	0.17	3.31	0.07	0.58	1.1
2006	0.85	5.13	0.17	3.41	0.07	0.45	0.65
2007	0.44	4.36	0.24	4.17	0.07	0.62	0.65
2008	0.75	4.87	0.19	4.13	0.09	0.55	0.82

Table 5-7 Export Intensity Index for Pakistan and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Turkey
1990	18.21	0.07	1.48	1.08	0.64	0.26	2.48
1995	15.39	2.51	1.69	6.26	0.39	0.88	2.46
1996	9.53	2.26	1.92	2.48	0.28	1.06	1.01
1997	8.49	1.97	1.38	0.85	0.27	1.4	0.77
1998	10	1.75	2.84	0.92	0.3	1.44	0.84
1999	9.57	1.48	3.47	0.55	0.45	2.63	0.61
2000	11.54	2.37	1.99	0.79	0.47	3.67	1.32
2001	9.87	2.41	2.11	1.1	0.5	2.4	1.45
2002	8.77	2.84	1.74	1.18	0.54	2.25	1.48
2003	10.37	2.4	0.78	1.83	0.75	3.36	1.99
2004	11.58	2.65	0.8	2.06	0.43	11.13	1.61
2005	11.32	1.76	0.66	2.92	0.39	1.36	2.03
2006	6.96	2.27	0.31	2.23	0.3	1.68	1.87
2007	7.79	2.39	0.37	2.57	0.42	2.36	2.31
2008	8.69	2.14	0.45	2.59	0.37	2.14	2.07

Table 5-8 Export Intensity Index for Indonesia and D-8 (1990-2008)

year	Bangladesh	Egypt	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	2.28	0.56	0.39	1.15	0.39	0.83	0.06
1995	1.59	1.89	1.18	1.45	0.7	1.19	0.4
1996	1.92	1.51	0.66	1.54	0.93	1.11	0.28
1997	2.18	1.66	0.67	1.79	0.75	1.5	0.27
1998	3	1.75	0.37	2.65	1.52	2.03	0.36
1999	2.83	1.66	0.89	2.44	2.86	1.92	0.35
2000	2.75	1.44	0.98	2.43	2.74	1.39	0.37
2001	2.9	1.74	0.75	2.71	2.75	1.97	0.48
2002	3.53	1.63	0.61	2.89	2.69	2.68	0.54
2003	3.07	1.84	0.77	3.48	1.73	2.45	0.48
2004	3.07	2.01	0.7	3.76	1.2	3.04	0.48
2005	3.16	1.82	0.88	3.73	0.83	3.11	0.71
2006	3.3	2.8	0.83	3.9	0.72	3.06	0.67
2007	4.02	2.57	1.29	4.08	0.82	3.52	0.73
2008	4.06	2.39	1.13	4.16	0.79	3.23	0.70

Table 5-9 Export Intensity Index for Malaysia and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Nigeria	Pakistan	Turkey
1990	1.58	0.94	1.89	0.37	0.19	3.82	0.5
1995	0.59	1.56	1.66	0.61	0.2	4.35	0.44
1996	1.31	1.27	1.95	0.39	0.2	3.63	0.34
1997	1.9	1.17	2.07	0.53	0.11	3.77	0.41
1998	1.94	1.4	2.78	0.43	0.2	6.07	0.49
1999	1.18	1.32	3.5	0.45	0.42	3.49	0.48
2000	1.16	1.07	2.83	0.57	0.38	2.42	0.25
2001	1.47	1.18	3.61	0.7	0.3	2.81	0.64
2002	2.01	1.66	4.05	0.68	0.45	3.28	0.3
2003	2.38	3.16	4.17	0.87	0.41	3.98	0.38
2004	2.25	2.11	4.52	0.73	0.21	2.91	0.31
2005	2.23	1.74	3.62	0.66	0.55	2.21	0.41
2006	1.98	1.26	4.09	0.72	0.17	2.15	0.36
2007	1.73	1.4	4.39	1.13	0.28	3.18	0.43
2008	1.84	1.47	4.03	1.06	0.33	2.51	0.41

Table 5-10Export Intensity Index for Egypt and D-8 (1990-2008)

Year	Bangladesh	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	0.11	0.07	0.16	0.01	0.09	0.78	0.52
1995	2.86	0.16	0.02	0.25	0.29	0.6	3.5
1996	0.1	0.04	0	0.17	0.32	1.04	4.06
1997	0.39	0.13	0.5	0.31	0.31	0.55	2.84
1998	0.98	0.19	0.02	0.09	0.86	0.91	4.54
1999	0.28	0.35	0.04	0.32	0.61	1.15	3.88
2000	1.03	0.39	1.16	0.24	0.96	3.54	3.32
2001	0.04	0.46	0.36	0.2	0.92	3.16	2.85
2002	1.17	0.87	0.67	0.26	1.4	4.51	3.05
2003	1.1	0.87	0.19	0.32	0.46	3.05	3.23
2004	0.64	0.41	0.21	0.33	0.54	3.47	3.02
2005	1.39	0.53	0.24	0.3	0.42	4.51	2.47
2006	1.26	0.54	0.18	0.3	0.43	4.21	2.4
2007	0.78	0.42	0.5	0.46	0.53	4.85	3.19
2008	1.14	0.49	0.38	0.43	0.46	4.52	3.08

Table 5-11 Export Intensity Index for Bangladesh and D-8 (1990-2008)

Year	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	1.75	0.29	3.6	0.18	0.31	6.76	1.39
1995	1.74	0.19	3.68	0.12	0.24	3.23	0.8
1996	1.55	0.21	2.62	0.21	0.17	5.05	0.73
1997	0.36	0.34	5.13	0.17	0.28	3.96	0.5
1998	0.39	0.16	3.26	0.16	0.1	3.34	0.54
1999	0.33	0.28	2.62	0.09	0.07	2.6	0.55
2000	0.55	0.15	2.48	0.1	0.25	3.3	0.45
2001	0.58	0.16	2.12	0.07	0.08	2.63	0.55
2002	1.02	0.25	1.75	0.08	0.08	2.63	0.64
2003	0.59	0.23	1.38	0.05	0.08	3.6	0.56
2004	0.78	0.21	1.15	0.09	0.13	2.61	0.72
2005	0.68	0.39	1.3	0.1	0.22	2.37	0.88
2006	0.62	0.22	0.92	0.13	0.14	2	1.25
2007	0.56	0.24	1.27	0.17	0.13	2.67	1.21
2008	0.62	0.28	1.16	0.15	0.16	2.35	1.13

Table 5-12 Export Intensity Index for Nigeria and D-8 (1990-2008)

	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Pakistan	Turkey
1990	0	0	0	0	0	0.05	0
1995	0	0.01	1.65	0	0.02	0.03	0.08
1996	0	0.05	1.07	0	0.02	0	0.12
1997	0.01	0.04	1.14	0	0.01	0.08	0.12
1998	0.11	0.05	1.02	0	0.02	0	0.03
1999	0.18	0.04	3.14	0	0.04	0.03	0.04
2000	0	0	3.77	0	0	0	0
2001	0	0	6.24	0	0	0	0
2002	0	0	10.97	0	0	0	0
2003	0	0	6.28	0	0	0.01	0
2004	0.12	0	5.22	0	0.01	0.2	0.45
2005	0.18	0	2.77	0	0.02	0.09	0.48
2006	0.1	0	0.01	0	0.03	0.1	0.6
2007	0.17	0	1.81	0	0.05	0.15	0.81
2008	0.15	0	2.45	0	0.08	0.11	0.63

5.6.1 Import Intensity Index

In a similar manner to the export intensity index, the trade intensity index (TII) may be used as a common import share. However, the statistic shows whether or not a given area imports more (as percentage) from a county (or region) than the world does

on average. This is similarly interpreted as an import share. It does not become distressed by 'size' bias; therefore, there is a need for cross regional comparison of statistics over time when there is a rapid growth of imports. This section investigates D-8 countries trade relation's import intensity of trade using the import intensity index. Data on the calculation of bilateral trade for TII were obtained from the IMF Directory of Trade Statistics, 2010, and trade intensity indices were calculated from 1990 to 2008.

$$MI_{ij} = \left(\frac{M_{ij}}{M_i}\right) / \left(\frac{X_j}{X_w - X_i}\right) \quad (5.2)$$

Where

M_{ij}: country i's import from country j

M_i: country i's total import

M_i: country i's total import

X_j: country j's total export

M_i: world's import

X_w: world export

X_i: country i's total export

The results are shown in Table 5-13 to 5-20 for each D-8 members within 1990 to 2008.

Table 5-13 Import Intensity Index for Iran and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Malaysia	Nigeria	Pakistan	Turkey
1990	0	0	0.45	0.32	0	1.65	10.58
1995	2.4	0.05	1.82	0.56	0	8.33	4.47
1996	6.57	0	0.68	0.41	0	1.88	4
1997	3.87	0.15	0.66	0.48	0	1.01	4.31
1998	0	0	0	0.5	0	0	3.83
1999	0	0	0	0.5	0	0	3.63
2000	2.2	1.24	1.01	0.53	0	1.91	3.55
2001	2.35	0.52	0.49	0.63	0	2.15	2.88
2002	1.95	0.71	0.49	0.55	0	1.92	2.64
2003	1.35	0.2	0.49	0.65	0	2.07	2.58
2004	1.18	0.22	0.5	0.62	0	1.71	2.92
2005	1.35	0.26	0.58	0.58	0	2.04	3.03
2006	0.87	0.19	0.44	0.55	0	2.4	2.53
2007	1.29	0.54	0.57	0.73	0	2.77	3.42
2008	1.19	0.33	0.53	0.62	0	2.52	3.16

Table 5-14 Import Intensity Index for Turkey and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan
1990	1.8	1.15	0.1	3.96	0.59	0.02	2.33
1995	0.86	8.8	0.42	5.41	0.53	0.09	2.77
1996	0.94	9.36	0.28	4.42	0.36	0.13	1.04
1997	0.4	11.61	0.31	4.01	0.41	0.13	0.74
1998	0.55	14.85	0.43	3.9	0.46	0.03	0.8
1999	0.63	4.28	0.47	4.22	0.36	0.05	0.42
2000	0.48	3.54	0.42	3.39	0.32	0.59	1.07
2001	0.54	3.3	0.53	5.22	0.4	0.92	1.63
2002	0.68	3.25	0.73	4.24	0.34	1.27	1.54
2003	0.68	3.43	0.8	6.26	0.45	1.06	1.84
2004	0.97	3.21	0.82	4.18	0.49	0.48	1.7
2005	1.13	2.63	0.91	6.08	0.59	0.51	2.06
2006	1.28	2.57	0.94	8	0.52	0.65	2.01
2007	1.62	3.44	0.93	6.87	0.58	0.88	2.49
2008	1.83	3.18	0.97	7.03	0.56	0.68	2.19

Table 5-15 Import Intensity Index for Pakistan and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Turkey
1990	10.76	0.79	0.83	4.19	3.92	0.01	1.55
1995	4.22	4.8	1.16	4.61	5.9	0.03	1.79
1996	4.8	3.85	1	5.23	3.65	0	1.43
1997	4.31	1.22	1.75	5.4	3.88	0.09	1.18
1998	4.14	6.26	2.78	4.12	5.82	0	1.4
1999	2.88	5.84	2.01	2.16	3.69	0.03	3.1
2000	3.37	3.78	1.53	6.82	2.65	0	1.75
2001	2.54	4.52	2.01	5.52	2.99	0	0.74
2002	2.94	4.84	2.85	4.17	3.14	0.03	1.78
2003	3.52	3.25	2.4	5.12	3.5	0.1	0.81
2004	2.83	3.7	3.35	3.13	2.58	0.21	0.74
2005	3.02	4.82	3.28	2.49	2.14	0.1	1.07
2006	2.34	4.54	3.32	2.92	2.34	0.11	0.7
2007	3.14	5.26	3.83	3.1	3.47	0.17	0.71
2008	2.83	4.87	3.67	3.38	3.16	0.13	0.82

Table 5-16 Import Intensity Index for Indonesia and D-8 (1990-2008)

Year	Bangladesh	Egypt	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	0.1	0.09	4.13	1.56	0	1.8	0.2
1995	0.31	0.18	1.77	4.43	1.78	1.62	0.27
1996	0.37	0.34	2.5	1.3	1.14	2.49	0.38
1997	0.18	0.19	3.2	1.45	1.23	1.95	0.23
1998	0.14	0.39	2.64	1.69	1.1	3.66	0.25
1999	0.28	1.06	0.42	1.69	3.36	3.42	0.32
2000	0.21	0.41	0.52	1.82	2.64	2.3	0.21
2001	0.16	0.76	1.09	2.26	4.97	4.12	0.18
2002	0.17	0.92	0.49	2.28	12.49	1.75	0.13
2003	0.12	0.92	0.54	2.17	6.78	0.75	0.2
2004	0.15	0.44	0.29	2.41	5.54	0.68	0.16
2005	0.3	0.56	0.2	2.28	2.94	0.43	0.14
2006	0.25	0.58	0.23	3.15	0.01	0.33	0.15
2007	0.24	0.45	0.15	5.37	1.95	0.4	1.01
2008	0.27	0.53	0.19	4.63	2.23	0.38	0.43

Table 5-17 Import Intensity Index for Malaysia and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Nigeria	Pakistan	Turkey
1990	0.15	0.02	1.39	0.22	0.16	0.87	0.08
1995	0.16	0.21	1.75	0.17	0.03	0.55	0.37
1996	0.22	0.14	1.92	0.15	0.02	0.35	0.37
1997	0.15	0.17	1.9	0.12	0.02	0.32	0.47
1998	0.11	0.21	2.79	0.39	0.02	0.32	0.16
1999	0.11	0.31	3.1	0.2	0.04	0.48	0.16
2000	0.18	0.26	2.69	0.29	0.02	0.46	0.12
2001	0.21	0.2	3.27	0.51	0.02	0.39	0.11
2002	0.27	0.27	3.51	0.37	0.01	0.44	0.14
2003	0.19	0.34	4.17	0.27	0.01	0.34	0.08
2004	0.18	0.35	5.03	0.5	0.01	0.35	0.08
2005	0.21	0.31	4.59	0.52	0.03	0.32	0.09
2006	0.18	0.32	4.57	0.84	0.04	0.32	0.07
2007	0.24	0.49	4.89	0.51	0.05	0.45	0.08
2008	0.21	0.37	4.96	0.62	0.04	0.36	0.08

Table 5-18 Import Intensity Index for Egypt and D-8 (1990-2008)

Year	Bangladesh	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	2.29	0.53	0	0.57	0	0.06	2.29
1995	1.17	0.76	0.17	1.31	0.01	1.37	3.67
1996	1.33	0.83	0.16	1.26	0.06	1	4.46
1997	0.5	0	0.12	1.25	0.05	0.96	2.79
1998	0.29	1.33	0.12	1.14	0.06	1	6.09
1999	0.25	1.44	0.22	0.83	0.04	0.46	4.77
2000	0.59	1.55	0.26	1.16	0	2.53	6.85
2001	0.33	1.36	0.21	0.61	0.01	0.54	3.76
2002	1.09	1.75	0.21	1.8	0	3.05	5.35
2003	0.63	1.98	0.27	3.41	0	2.56	5.53
2004	0.84	2.16	0.29	2.28	0	2.83	6.02
2005	0.73	1.95	0.22	1.88	0	1.88	5.54
2006	0.67	3.04	0.29	1.37	0	2.45	5.58
2007	0.6	2.8	0.24	1.53	0	2.59	4.77
2008	0.71	2.63	0.25	1.59	0	2.71	5.29

Table 5-19 Import Intensity Index for Bangladesh and D-8 (1990-2008)

Year	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
1990	0.26	1.94	0.24	1.25	0	12.05	0.25
1995	2.64	1.24	0.32	0.54	0	13.69	0.11
1996	3.18	1.36	0.31	1.09	0	7.77	0.39
1997	1.61	2.32	0.25	2.33	0.01	6.32	0.15
1998	1.27	2.96	0.45	1.22	0.11	6.75	0.31
1999	0.89	2.42	1	0.78	0.19	7.51	0.62
2000	1.1	2.14	0.51	0.95	0.04	7.49	0.64
2001	0.4	2.35	0.32	1.23	0.23	6.85	0.29
2002	1.25	2.41	0.29	1.3	0.09	4.93	0.25
2003	1.18	2.36	0.42	1.57	0.19	5.78	0.49
2004	0.69	2.77	0.29	1.67	0.13	6.9	0.27
2005	1.49	2.36	0.29	1.6	0.19	6.76	0.66
2006	1.36	2.37	0.51	1.62	0.11	7.51	0.81
2007	0.84	2.38	0.36	1.39	0.18	8.44	0.46
2008	1.23	2.32	0.39	1.5	0.16	7.87	0.64

Table 5-20 Import Intensity Index for Nigeria and D-8 (1990-2008)

Year	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Pakistan	Turkey
1990	0	0.15	0.24	0	0.19	0.06	0.1
1995	0.26	0.31	0.77	0	0.22	0.96	0.42
1996	0.18	0.34	1.01	0	0.22	1.14	0.4
1997	0.3	0.34	0.82	0	0.12	1.53	0.39
1998	0.11	0.93	1.64	0	0.22	1.55	0.56
1999	0.08	0.66	3.08	0	0.45	2.83	1.02
2000	0.03	1.02	0.51	0.01	0.11	0.4	0.51
2001	0.05	0.92	1.02	0.02	0.06	0.1	0.36
2002	0.02	1.5	0.96	0.05	0.08	0.06	0.43
2003	0.03	0.49	0.83	0.01	0.05	0.09	0.23
2004	0.14	0.58	1.28	0.01	0.23	11.86	0.67
2005	0.24	0.45	0.89	0.01	0.59	1.45	0.62
2006	0.15	0.46	0.78	0.01	0.19	1.81	0.49
2007	0.14	0.57	0.89	0.01	0.3	2.55	0.67
2008	0.18	0.49	0.85	0.01	0.36	2.33	0.61

5.6.2 Trade Complementarity Index

The trade complementarity index is an index that is cross-linked and measures a country's export rate pattern that matches with that of other countries. A high rate of complementarity is assumed to show more successful prospects for trade arrangement. Whether the trade profiles are becoming more or less compatible depends on changes with time. The complementarity index measures the degree of interference between the source export profile and the destination import profile. The index lies within the range 0 to100, with 100 showing a perfect overlap; it is the sum of the absolute value of the difference between the import category and the export shares of the countries under study, divided by two. The index is converted into percentage form, which takes a value between 0 and 100; zero is an indication of no overlap, and 100 a perfect match in the import/export pattern.

Observations were conducted on the Import and Export complementarity index data from yearly bilateral exports from the United Nations. Eight developing countries Commodity Trade Statistics Database (COMTRADE) for four data points, i.e., 1995, 2000, 2006 and 2008, were determined. The estimated results for each D-8 country are shown in Table 5-21 and Table 5-22.

It is worthy of note that the results are obtained using Intra-D-8 countries' trade rating and its trade with the rest of the world (ROW) were drafted from the UNCOMTRADE data source provided by the World Integrated Trade Solutions (WITS) database.

5.6.3 Export Complementarity Index

This measures the degree to which the export pattern of one country matches the import pattern of another.

$$XC_{ij} = \sum_k \left[\frac{X_i^k}{X_i} \cdot \frac{M_W - M_i}{M_W^k - M_i^k} \cdot \frac{M_j^k}{M_j} \right] \quad (5.3)$$

XC_{ij}: Export complementarity index country i to j

X_i^k:Exports of commodity k by i country

X_i: Total export of country i

M_w:The total world's import flow

M_i: Country i's total import

M_w^k: Imports of commodity k by world

M_j^k:Imports of commodity k by j country

M_i^k:Imports of commodity k by i country

M_j:Country i's total import

Table 5-21 Export complementarity index for D-8 countries (1995-2008)

Country	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh								
1995		1.03	0.951	1.099	0.969	0.676	0.884	0.882
2000		0.898	0.688	0.919	0.975	0.692	0.687	0.846
2006		0.803	0.687	0.218	1.137	0.799	0.905	0.625
2008		0.910	0.735	0.426	1.124	0.722	0.825	0.784
Egypt								
1995	0.906		1.083	0.914	0.741	0.581	1.542	1.323
2000	0.927		1.23	0.747	0.795	0.52	2.022	1.18
2006	0.868		1.238	0.205	0.7	0.643	1.352	0.428
2008	0.903		1.186	0.422	0.745	0.581	1.638	0.977
Indonesia								
1995	0.914	1.041		1.033	0.831	0.617	1.399	1.234
2000	0.907	1.06		0.85	0.89	0.615	1.49	1.056
2006	1.128	1.22		0.225	0.964	0.741	1.323	0.667
2008	1.213	1.207		0.702	0.895	0.657	1.404	0.985
Iran								
1995	0.903	0.363	1.027		0.405	0.495	2.105	1.66
2000	0.719	0.891	1.507		0.558	0.219	3.212	1.391
2006	0.916	1.169	1.594		0.698	0.708	1.674	0.407
2008	0.846	1.207	1.576		0.653	0.474	2.330	1.152
Malaysia								
1995	0.891	1.11	1.078	1.131		0.691	1.089	1.057
2000	0.926	0.996	0.894	0.961		0.711	1.045	1.042
2006	1.007	0.923	0.846	0.218		0.765	1.049	0.592
2008	1.096	0.986	0.939	0.479		0.722	1.061	0.897
Nigeria								
1995	0.875	0.308	1.01	0.353	0.331		2.14	1.676
2000	0.673	0.819	1.611	0.225	0.512		3.547	1.48
2006	0.804	1.054	1.538	0.217	0.568		1.587	0.336
2008	0.784	1.127	1.386	0.265	0.470		2.124	0.974
Pakistan								
1995	0.937	1.21	1.087	1.257	1.074	0.756		1.012
2000	1.039	1.182	0.879	1.134	1.126	0.847		1.012
2006	1.067	0.978	0.765	0.221	1.08	0.826		0.586
2008	1.014	1.123	0.910	0.672	1.034	0.802		0.853
Turkey								
1995	0.965	1.318	1.034	1.35	1.02	0.74	1.088	
2000	0.988	1.171	0.813	1.115	1.076	0.844	0.892	
2006	0.559	0.514	0.373	0.113	0.577	0.433	0.5	
2008	0.837	0.928	0.642	0.469	0.901	0.641	0.784	

5.6.4 Import Complementarity Index

This measures the degree to which the import pattern of one country matches the export pattern of another.

$$MC_{ij} = \sum_k \left[\frac{M_i^k}{M_i} \cdot \frac{X_w - X_i}{X_w^k - X_i^k} \cdot \frac{X_j^k}{X_j} \right] \quad (5.4)$$

MC_{ij}: Import complementarity index country i from j

X_i^k:Exports of commodity k by j country

X_i: Total export of country i

X_w:Total world's export flow

M_i: Country i's total import

X_w^k: Exports of commodity k by world

M_i^k:Imports of commodity k by i country

X_j^k:Total exports of commodity k by j country

X_j:Country i's total export

Table 5-22 Import complementarity index for D-8countries (1995-2008)

Country	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh								
1995		1.183	0.984	1.179	0.893	0.661	1.091	0.961
2000		1.155	0.86	0.966	0.843	0.703	0.993	0.86
2006		1.066	0.839	0.207	0.931	0.743	1.058	0.548
2008		1.121	0.879	0.687	0.928	0.723	1.042	0.764
Egypt								
1995	1.183		1.242	1.661	1.028	0.803	1.427	1.136
2000	1.155		0.984	1.211	0.889	0.896	1.243	0.911
2006	1.067		0.876	0.197	0.823	0.719	1.094	0.492
2008	1.104		0.934	0.523	0.951	0.813	1.158	0.746
Indonesia								
1995	0.987	1.246		1.27	1.11	0.75	1.235	1.215
2000	0.862	0.986		0.792	0.784	0.559	1.165	0.911
2006	0.844	0.881		0.182	0.759	0.609	1.024	0.461
2008	0.879	0.913		0.358	0.842	0.627	1.136	0.639
Iran								
1995	1.177	1.657	1.266		1.207	0.871	1.367	1.19
2000	0.964	1.208	0.79		0.91	0.797	0.908	0.834
2006	0.207	0.198	0.183		0.204	0.156	0.224	0.117
2008	0.462	0.521	0.165		0.621	0.403	0.573	0.472
Malaysia								
1995	0.895	1.031	1.113	1.213		0.759	0.995	1.08
2000	0.844	0.889	0.784	0.914		0.683	0.858	0.969
2006	0.932	0.824	0.758	0.205		0.731	0.958	0.621
2008	0.891	0.904	0.824	0.374		0.712	0.941	0.748
Nigeria								
1995	0.66	0.802	0.749	0.872	0.756		0.753	0.723
2000	0.7	0.893	0.557	0.796	0.68		0.658	0.603
2006	0.742	0.719	0.61	0.156	0.729		0.761	0.398
2008	0.753	0.793	0.641	0.378	0.726		0.731	0.546
Pakistan								
1995	1.092	1.427	1.229	1.369	0.993	0.752		1.275
2000	0.994	1.243	1.156	0.908	0.858	0.659		1.122
2006	1.058	1.093	1.018	0.223	0.958	0.759		0.584
2008	1.031	1.168	1.124	0.641	0.927	0.741		0.893
Turkey								
1995	0.961	1.137	1.21	1.193	1.078	0.724	1.275	
2000	0.86	0.911	0.907	0.837	0.968	0.605	1.121	
2006	0.547	0.491	0.458	0.117	0.619	0.397	0.582	
2008	0.672	0.634	0.684	0.438	0727	0.428	0.736	

5.6.5 **Trade Bias Index**

The bias index indicates the degree of resistance to i's trade with j relative to the average degree of resistance in i's other bilateral trading relationship.

$$B_{ij} = \frac{X_{ij}}{\sum X_i^k \left(\frac{M_j^k}{M_w^k - M_i^k} \right)} \quad (5.5)$$

Where

X_{ij}: Country i's export to j

X_i^k: Exports of commodity k by i country

M_j^k: Imports of commodity k by j country

M_w^k: Imports of commodity k by world

M_i^k: Imports of commodity k by i country

When the trade bias index is less than one, the trade policy provides incentives for import substitution. On the other hand, if B is greater than one, then the policy is said to promote exports. For special cases, where the index is equal to one, the trade policy is said to be neutral and the economy operates at close to free trade. Jagdish Bhagwati (1988) called these cases, import substitution, ultra export promotion, and export promotion.

Based on the Standard International Trade Classification (SITC), using annual bilateral manufacturers' export data from the U.N. Commodity Trade Statistics Database (COMTRADE), the results were calculated for each D-8 member (Table 5-23).

Table 5-23 Trade Bias Index for D-8 countries (1995-2008)

Country	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh								
1995		1.69	0.2	3.35	0.12	0.35	3.66	0.9
2000		0.61	0.22	2.7	0.1	0.36	4.8	0.53
2006		0.77	0.33	4.23	0.11	0.18	2.2	1.99
2008		0.92	0.28	3.82	0.12	0.25	3.25	1.81
Egypt								
1995	3.16		0.15	0.02	0.33	0.49	0.39	2.64
2000	1.11		0.32	1.56	0.31	1.84	1.75	2.82
2006	1.46		0.44	0.88	0.43	0.67	3.12	5.6
2008	1.83		0.35	0.92	0.35	0.83	2.35	3.98
Indonesia								
1995	1.73	1.82		1.14	1.74	1.13	0.85	0.33
2000	3.04	1.36		1.15	2.73	4.45	0.93	0.35
2006	2.92	2.3		3.7	4.05	0.97	2.32	1.01
2008	2.73	1.95		2.79	3.64	1.28	1.76	0.96
Iran								
1995	0.38	0.1	0.05		0.66	0	1.82	3.64
2000	0.66	0	0.33		0.49	0.03	1.99	2.29
2006	0.52	0.23	0.13		1.12	0.1	1.61	18.28
2008	0.58	0.16	0.14		0.87	0.04	1.78	12.63
Malaysia								
1995	0.66	1.41	1.54	0.54		0.3	4	0.41
2000	1.25	1.08	3.17	0.59		0.53	2.32	0.24
2006	1.97	1.37	4.83	3.3		0.23	2.05	0.61
2008	1.75	1.28	4.18	2.43		0.31	2.64	0.52
Nigeria								
1995	0	0.03	1.63	0	0.07		0.01	0.05
2000	0	0	2.34	0	0		0	0
2006	0.13	0	0.01	0	0.06		0.06	1.79
2008	0.18	0.01	0.84	0	0.13		0.12	0.93
Pakistan								
1995	16.42	2.07	1.55	4.98	0.36	1.16		2.43
2000	11.11	2	2.26	0.7	0.42	4.34		1.31
2006	6.53	2.32	0.41	10.12	0.28	2.04		3.2
2008	10.38	2.24	0.96	7.65	0.32	2.13		2.48
Turkey								
1995	0.2	3.81	0.19	3.73	0.3	0.52	1.75	
2000	0.71	5.44	0.22	3.3	0.11	1.47	1.3	
2006	1.52	9.98	0.45	30.24	0.12	1.04	1.3	
2008	1.71	8.56	0.78	19.63	0.19	1.12	1.23	

5.6.6 Trade Creation Index

As stated in the literature, and in line with Jacob Viner's (1950) classic analysis, policy-makers and economists have discussed exhaustively, the dynamic and static distortions created by preferential trade liberalization. It is disputable that PTAs may result in trade creation if member countries switch from local producers ineffectiveness and import more efficient produce from other member countries of the PTA. Using equation (5.6) the Iranian trade creation for the period 1993 to 2007 was calculated. The data were obtained from the Institute for Trade Studies and Research Iran.

$$TC_{IR} = ME_{IR}.EM_{IR}.\frac{dT_A}{1+T_A} \qquad (5.6)$$

TC_{IR}: Trade creation of Iran

ME_{IR}: Iran's import from D-8

EM_{IR}: Price elasticity of import demand

T_A: Import tariff in Iran

$\frac{dT_A}{1+T_A}$: Change of import's tariff rates

dT_A : After setting union tariff – before setting union tariff

The following equations were used for the estimation of DT using four different conditions –10% reduction, 20% reduction, 30% reduction and 40% reduction:

$$TD_1 = \frac{dT_A}{1+T_A} = \frac{(T_A - 0.1T_A) - T_A}{1+T_A} = \frac{-0.1T_A}{1+T_A} \quad (4.13)$$

$$TD_2 = \frac{dT_A}{1+T_A} = \frac{(T_A - 0.2T_A) - T_A}{1+T_A} = \frac{-0.2T_A}{1+T_A} \quad (4.14)$$

$$TD_3 = \frac{dT_A}{1+T_A} = \frac{(T_A - 0.3T_A) - T_A}{1+T_A} = \frac{-0.3T_A}{1+T_A} \quad (4.15)$$

$$TD_4 = \frac{dT_A}{1+T_A} = \frac{(T_A - 0.4T_A) - T_A}{1+T_A} = \frac{-0.4T_A}{1+T_A} \quad (4.16)$$

The Iranian trade creation index for the period 1993 to 2007 considering four possibilities was calculated and the results are shown in Table 5-24.

Table 5-24 Trade creation index for Iran 1993-2007

Year	10%	20%	30%	40%
1993	1.61	3.22	4.83	6.44
1994	4.17	8.34	12.51	16.68
1995	5.93	11.86	17.79	23.72
1996	10.23	20.45	30.68	40.91
1997	12.16	24.33	36.49	48.65
1998	11.3	22.6	33.9	45.2
1999	19.87	39.73	59.6	79.46
2000	22.53	45.06	67.6	90.13
2001	26.21	52.43	78.64	104.85
2002	37.35	74.7	112.05	149.4
2003	65.63	131.26	196.89	262.53
2004	89.14	178.29	267.43	356.58
2005	108.79	217.58	326.36	435.15
2006	148.47	296.65	445.15	593.51
2007	192.71	384.05	577.09	769.43

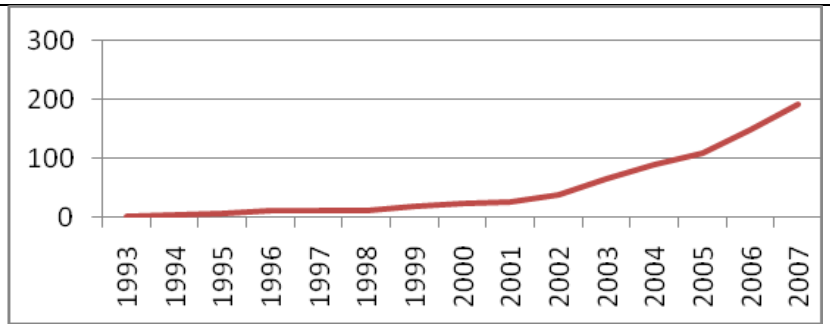


Figure 5-1 Trade creation index for Iran 1993-2007 (10%)

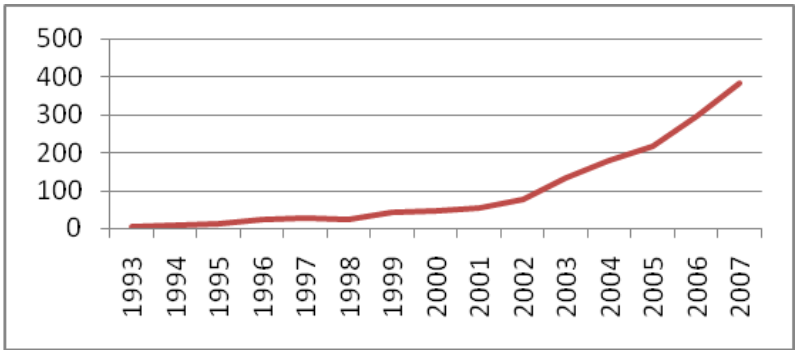


Figure 5-2 Trade creation index for Iran 1993-2007 (20%)

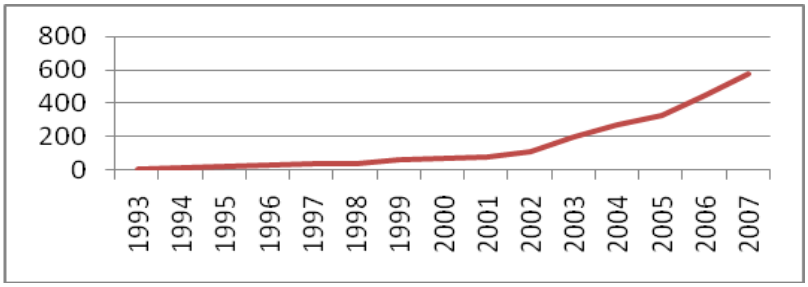


Figure 5-3 Trade creation index for Iran 1993-2007 (30%)

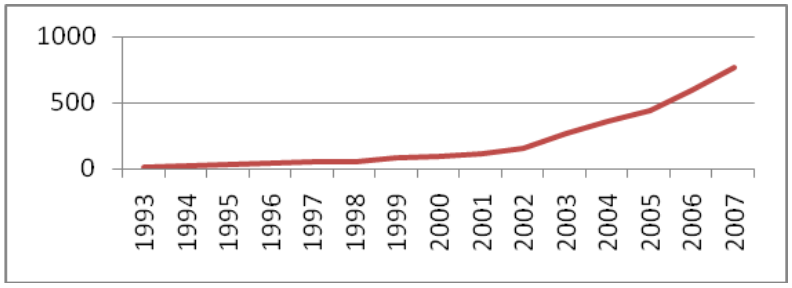


Figure 5-4 Trade creation index for Iran 1993-2007(40%)

The results indicate the reductions in tariff rate, and trade creation increases. However, for D-8, preferential trade agreements lead to a reduction in tariff rate; trade and competitive growth was high between Iran and D-8 members.

The trend of the trade creation index pattern for the period 1993 to 2007 explains the increases in the index. Only in 1998 did the index decrease; however, it subsequently surged.

5.6.7 Trade Diversion Index

Trade diversion occurs when member countries substitute efficiently, low-cost imports from non-member countries with less efficient imports from member countries. The net welfare effect of PTA depends on which of the two effects dominate.

$$TD_{IR} = MR_{IR}.EM_{IR}.\frac{(t_{IR}-c_{IR})}{1+t_{IR}} \quad (5.7)$$

TD_{IR}: Trade diversion of Iran

MR_{IR}: Iran's import from the word (except D-8)

EM_{IR}: Price elasticity of import demand

t_{IR}: Import tariff for Iran

c_{IR} : Common external tariff among members

If $C_{IR}>t_{IR}$:Trade diversion will be positive (TD>0). In such a situation trade creation and intra-regional trade will increase.

However, if $C_{IR}<t_{IR}$: Trade diversion will be negative (TD<0). Therefore, intra-regional trade declines, and, in this situation, trade diversion is manifested.

The trade diversion index was estimated for four conditions: C_{IR} = 10, 20, 30 and 40%, from 1993 to 2007. The results are shown in Table 5-25. The data were obtained from the Institute for Trade Studies and Research Iran.

Table 5-25 Trade diversion index for Iran 1993-2007

Year	10%	20%	30%	40%
1993	-49.27	748.59	1546.45	2344.31
1994	386.67	1750.23	3113.79	4477.34
1995	536.11	2011.73	3487.35	4962.97
1996	-390.46	1338.68	3067.83	4796.98
1997	-1287.21	403.8	2094.82	3785.84
1998	-1352.14	380.5	2113.14	3845.79
1999	-4318.46	-3054.41	-1790.35	-526.3
2000	-3445.28	-1896.85	-348.43	1200
2001	-5206.05	-3374.74	-1543.43	287.88
2002	242.43	13244.49	26246.55	39248.61
2003	-986.93	14580.42	30147.77	45715.12
2004	-2221.67	20002.41	42226.48	64450.56
2005	-441.66	25769.02	51979.7	78190.38
2006	2164.11	32815.37	51460.45	69007.93
2007	21443.75	40792.38	42619.13	42758.38

The results show that increasing the common external tariff from 10% to 40% from 1993 to 2007 leads to positive trade diversion (TD > 0); therefore, trade creation occurred. Moreover, the reduction of common external tariff trade diversion became negative with intra-regional trade declining while external regional trade increased.

The main point is that with a 10% common external tariff, almost during the research period, trade diversion was negative while intra-regional trade declined. However, for the other three conditions 20, 30 and 40%, a common external tariff trade creation occurred while intra-regional trade increased.

5.7 Results

5.7.1 State of Bangladesh's trade with other D-8 member countries

The index is greater than one for Bangladesh's export to Pakistan and Iran and is regarded as highly intense. The trend of the export intensity index for these countries declined since 1997 with the index for Pakistan being higher compared to Iran. This implies that the tendency for Bangladesh to export to Pakistan and Iran would decrease. Moreover in 2006, the intensity index for Bangladesh and Turkey increased dramatically, which explains that the share of trade between Bangladesh and Turkey was more than their share in the world trade in recent years. The index was lower than one for Bangladesh exporting to other D-8 member countries (Indonesia, Malaysia, Egypt and Nigeria), an indication that the share of Bangladesh's trade with these countries is less than a proportion of its share of world trade. This implies that Bangladesh's exports to other D-8 members are low.

The import intensity index shows that the share of Bangladesh's imports from Indonesia, Malaysia and Pakistan is more than a percentage of its share of world trade. The index trend shows that, in 1997, the share of Bangladesh's imports from Pakistan became higher. This shows that the tendency of bilateral trade increased. On the other hand, Bangladesh's imports from Indonesia and Malaysia remained steady. In the case of Egypt, there was no harmonic trend; the results show that only in some years did the intensity index become significant.

Table 5-11 shows that the import intensity index for Bangladesh and other D-8 member countries (Iran, Turkey and Nigeria) is less than one, this emphasizes that the share of Iran's imports from these countries is less than a proportion of its share of world trade.

Comparing the indices for export intensity and export complementarity between Bangladesh and Iran shows that they differ considerably; the export complementarity index is quite lower compared to the export intensity index. This however, means that despite the fact that Bangladesh and Iran's share of exports is more than a proportion of their share of world trade, the small amount of trade complementarity index explains that the export pattern degree for Bangladesh does not match the import pattern of Iran.

Moreover, an investigation into the export intensity and export complementarity trend indices for the period 1995 to 2008 shows that the export intensity and export complementarity index trend decreased. However, in explanation of the reasons for the decline in trade tendency between Bangladesh and Iran, the export degree pattern of Bangladesh does not match the Iranian import pattern.

Observation of the indices for the export intensity and export complementarity between Bangladesh to Pakistan shows that they differ; however, the difference between them was smaller than between Bangladesh and Iran. Therefore, the trade complementarity index for Bangladesh to Pakistan is higher than Bangladesh to Iran. This indicates that the export degree pattern of Bangladesh matches the import pattern of Pakistan compared to Iran. The export complementarity index of Bangladesh to Malaysia is higher than the export intensity for the years 1995, 2000, 2006 and 2008. This indicates that the imports match the pattern of Malaysia, although the share of exports of Bangladesh and Malaysia is less than a proportion of their share of world trade.

The results show that the trade bias index for Bangladesh to Egypt, Bangladesh to Indonesia, Bangladesh to Malaysia, Bangladesh to Pakistan and Bangladesh to Turkey for the 3 point data is lower than the trade index for Egypt to Bangladesh, Indonesia to Bangladesh, Malaysia to Bangladesh, Pakistan to Bangladesh and Turkey to Bangladesh. This therefore means that Bangladesh's access to these markets is limited and also the advantage of a bilateral trade partnership and preferential facilities for Bangladesh are restricted. Although the results show that these countries have more liberty to approach Bangladesh's market, on the other hand, the results show that the trade bias index for Bangladesh to Iran and Bangladesh to Nigeria for the 3 point data is more than the trade index from Iran to Bangladesh and Nigeria to Bangladesh. This means that Bangladesh's access to these markets is not limited, and, also, that the advantage of bilateral trade partnership and preferential facilities for Bangladesh is not restricted. The results show that these countries have more restriction to approach Bangladesh's market.

5.7.2 State of Egypt's trade with other D-8 member countries

The index is greater than one, for Egypt's exports to Pakistan and Turkey, and would be regarded as highly intense. The trend of the export intensity index for Pakistan improved in 1997, and Pakistan's index is higher compared to Turkey, which endures stability of trend. This means that the tendency of Egypt to export to Pakistan and Turkey decreased. Moreover, the intensity index for Egypt and Bangladesh for some years was more than one.

The index is lower than one, for Egypt's exports to other D-8 members (Indonesia, Malaysia, Iran and Nigeria), an indication that the share of Egypt's trade with these

countries is less than a proportion of its share of world trade. This implies that Egypt's exports to other D-8 members are low.

The import intensity index shows that the share of Egypt's imports from Indonesia, Malaysia, Turkey and Pakistan is more than the percentage of its share of world trade. The index trend shows that, in 1997, the share of Egypt's imports from Turkey and Indonesia increased. This implies that the bilateral trade tendency also increased. On the other hand, Egypt's imports from Indonesia and Malaysia remained stable.

According to Table 5-18, Egypt's import intensity index to other D-8 members (Iran, Bangladesh and Nigeria) is less than one, which emphasizes that Egypt's import share from these countries is less than a proportion of its share of world trade.

Comparing the indices for export intensity and export complementarity between Egypt to Indonesia shows that they have a considerable difference; the export intensity index is less than the export complementarity index. This means that despite the fact that the share of Egypt and Indonesia's export is less than the proportion of their share of world trade; the high level of trade complementarity index explains that the export degree pattern of Egypt matches the import pattern of Indonesia. Therefore, this explains that this pair of countries had a match in trade pattern, however, there is limitation for Egypt to access Indonesia's market. Obviously from this result it can be said that if Indonesia terminates its trade barriers and restrictions toward Egypt and improves trade facilities, the trade volume is expected to surge significantly.

Comparing the index of the export intensity and export complementarity between Egypt and Pakistan is significant. The share of Egypt and Pakistan's export is more than the

proportion of their share of world trade. The higher amount of trade complementarity index shows that the export degree pattern of Egypt matches Indonesia's import pattern. Therefore, it can be concluded that the high intensity between the two countries is due to Egypt's export degree pattern matching Pakistan's import pattern.

Moreover, investigation of the export intensity and export complementarity trend index from 1995 to 2008 shows that while the export intensity between Egypt and Turkey remained stable, the export complementarity trend index decreased from 1995 to 2006 and that there was a remarkable improvement from 2006 to 2009. In other words, for an explanation of the reasons for the decline in the export complementarity index while the trade tendency between Egypt and Turkey was firm, the bias index is considered. As shown in Table 5.23, the bias index for the four was above one, which implies that Egypt has the facility to access Turkey's market, although Turkey has lower restrictions to access Egypt's market.

Observation of the index export intensity and export complementarity between Egypt and Bangladesh, Egypt and Iran, Egypt and Malaysia, and Egypt and Nigeria shows that they differ, this, however, implies that the low value of intensity index is due to the low amount of complementarity index for the countries. However, the lack of trade tendency between the mentioned countries is because Egypt's export degree pattern does not match the import pattern of Bangladesh, Iran, Malaysia and Nigeria.

The results show that the trade bias index for Egypt and Indonesia, Egypt and Malaysia, and Egypt and Turkey for the 4 points data is lower than the trade index for Indonesia and Egypt, Malaysia and Egypt, and Turkey and Egypt. This indicates that Egypt's access to these markets is limited and the advantage of bilateral trade partnership and

preferential facilities for Egypt are restricted. However, the results show that these countries have more liberty to approach Egypt's market.

The trade bias for Egypt and Pakistan from 1995 to 2000 is lower than the trade index for Pakistan and Egypt. However, the index changed in 2000 while the trade bias for Egypt and Pakistan became more than the trade index for Pakistan and Egypt. This implies that Egypt's access to these markets was limited until 2000. Although the results show that Egypt has more liberty to approach Pakistan's market.

On the other hand, the results indicate that the trade bias index for Egypt and Bangladesh, Egypt and Nigeria, and Egypt and Iran for the 4 point data is more than the trade index for Iran to Egypt, and Nigeria to Egypt. This indicates that Egypt's access to these markets is not limited; the advantage of bilateral trade partnership and preferential facilities for Egypt is not restricted. The results show that these countries have more restriction in approaching Egypt's market.

5.7.3 State of Indonesia's trade with other D-8 member countries

The index is greater than one, for Indonesia's export to Bangladesh, Egypt, Malaysia and Pakistan, and is regarded as highly intense. The export intensity index trend for these countries was augmented in 1997, whereas the Bangladesh and Malaysia index was higher compared to Egypt and Pakistan. This, however, implies that Indonesia's tendency to export to Bangladesh, Egypt, Malaysia and Pakistan increased. The intensity index for Indonesia and Iran in 2007 was more than one. This indicates that Indonesia's tendency to export to Iran increased. In 1997, the export intensity index increased for Indonesia to Nigeria, but, in 2005, the result changed and was not

significantly different. The index was lower than one for Indonesia's export to other D-8 member countries (Turkey and Nigeria), which shows that the share of Indonesia's trade with these countries is less than a proportion of its share of world trade, an indication that Indonesia's export to other D-8 members is low.

The import intensity index shows that the share of Indonesia's imports from Malaysia and Nigeria is more than a percentage of their share of world trade. The index trend in 1997 for Indonesia's import share from Malaysia increased. This therefore shows that the trade bilateral tendency increased. On the other hand, Indonesia's imports from Nigeria increased from 1997 to 2002, however, the trend changed thereafter, while the import intensity index decreased. Table 5-15 shows that the import intensity index for Indonesia and other D-8 members (Iran, Bangladesh, Turkey, Pakistan and Egypt) is less than one, thus emphasizing that Indonesia's import share from these countries is less than a proportion of its share of world trade.

Comparing the export intensity index and export complementarity between Indonesia and Egypt, and Indonesia and Pakistan, showed that the trade between the two countries differs significantly. This implies that the share of exports of Indonesia to Egypt, and Indonesia to Pakistanis more than a proportion of their share of world trade. The high amount of trade complementarity index explains that Indonesia's export degree pattern matches the import pattern of Egypt and Pakistan. It may be suggested that the high intensity between the two countries is because the degree of export pattern of Indonesia matches the import pattern of Egypt and Pakistan. On the other hand, the results from bias index also show that Indonesia's index is higher than that of Egypt for the entire four points. This is explained in that there is no restriction for Indonesia to access

Egypt's market. The high intensity between the two countries is because of the match of trade pattern and liberty of Indonesia to export to Egypt.

However, the result of the bias index shows that Indonesia was lower than the index for Pakistan from 1995 to 2000. This implies that during this period, Indonesia had limitations in accessing Pakistan's market but the pattern changed in 2000.The bias index for Indonesia became higher than the index for Pakistan; an indication that Indonesia's access to Pakistan's market developed faster.

Comparing the indices of the export intensity and export complementarity between Indonesia and Malaysia, and Indonesia and Bangladesh shows that they differ significantly; the export complementarity index is lower than the export intensity index. Despite the fact that export share of Indonesia and Malaysia, and Indonesia and Bangladeshis more than a proportion of their share of world trade, the low amount of trade complementarity index explains that the degree of the export pattern of Indonesia does not match the import pattern of Malaysia and Bangladesh. However, the complementarity index of Indonesia and Bangladesh surged in 2006, which shows that both countries matched at that time. The bias index is more than one for both countries, which indicates that Indonesia has the liberty to access the markets of Malaysia and Bangladesh, which is the reason for the tendency between the countries.

A look at the indices export intensity and export complementarity between Indonesia and Iran, Indonesia and Turkey, and Indonesia and Nigeria shows that there is a significant difference between them. The low value of intensity index is due to the lower level of complementarity index among the countries. Therefore, the lack of trade tendency between the countries in question is because Indonesia's export degree pattern

does not match the import pattern of Bangladesh, Iran, Turkey and Nigeria. However, the bias index shows that Indonesia has the liberty to access the markets of these countries.

The results indicate that the trade bias index for Indonesia to Bangladesh, Indonesia to Egypt, Indonesia to Nigeria, Indonesia to Turkey, and Indonesia to Iran for the 4 point data is more than the trade index for Bangladesh to Indonesia, Egypt to Indonesia, Nigeria to Indonesia, and Turkey to Indonesia. Indonesia's access to these markets is not limited and Indonesia could gain advantage of bilateral trade partnership and preferential facilities. Although the results show that these countries have less liberty to approach Indonesia's market, the bias of trade for Indonesia to Pakistan from 1995 to 2000 was lower than the trade index for Pakistan to Indonesia. Moreover, the index changed in 2000 and the bias of trade for Indonesia to Pakistan became more than the trade index for Pakistan to Indonesia. Indonesia's access to these markets was limited until 2000. However, the results show that Indonesia has more liberty to approach Pakistan's market. The results indicate that the trade bias index from Indonesia to Malaysia for the 4 point data is lower than the trade index for Malaysia to Indonesia. This implies that Indonesia's access to these markets is limited, and, therefore, it gains an advantage from the bilateral trade partnership and preferential facilities; whereas Malaysia has more liberty to approach Indonesia's market.

5.7.4 State of Iran's trade with other D-8 member countries

The index is higher than one, for Iran's export to Turkey, while Pakistan is regarded as highly intense. The intensity increased since the agreement was signed in 1997. Iran and Turkey's bilateral trade surged since 2003, but the export intensity index

for Iran and Pakistan declined since 2000, while the index increased for Pakistan's exports to Iran. This indicates that Iran's tendency to import from Pakistan improved.

The results show that Iran's export share to Turkey and Pakistan is more than its imports from the rest of the world. In other words, the trade share between Iran and Turkey and between Iran and Pakistan is more than its shares of world trade. Additionally, the index was even high before then. This probably reflects the geographic proximity and relative isolation from other markets.

The index is lower than one, for Iran's export to other D-8 member countries (Indonesia, Malaysia, Egypt, Nigeria and Bangladesh), which indicates that Iran's share of trade with these countries is less than the proportion of its share of world trade. This however, implies that Iran's exports to other D-8 member countries are low.

Iran's intensity index shows that its import share from Turkey, Pakistan and Bangladesh is more than a percentage of its share of world trade. The index trend shows the transport share in 2003, from Turkey, while Turkey's imports from Iran was higher, an indication of the increase in bilateral trade tendency.

Iran's import intensity index in 2000 from Pakistan improved, while a decrease is observed in Pakistan's imports from Iran. This shows that only Iran's tendency to import from Pakistan increased. Iran's import index from Bangladesh is greater than one and is regarded as highly intense. However, since 2000, there was a reduction in trend, an indication of the reduction in Bangladesh's imports. It should be noted that the export intensity index for Iran to Bangladesh is less than one, which indicates that Iran's exports to Bangladesh is not significantly different.

Table 5-13 shows that the import intensity index of Iran and other D-8 member countries (Egypt, Indonesia, Malaysia and Nigeria) is less than one, which indicates that Iran's share of imports from these countries is less than a proportion of its share of world trade.

Comparing the indices export intensity and export complementarity between Iran and Turkey shows that there is a significant difference; the export complementarity index is lower than the export intensity index. Despite the fact that the export share of Iran and Turkey is more than a proportion of its share of world trade, the low level of the trade complementarity index explains that the export degree pattern of Iran does not match Turkey's import pattern.

Moreover, the results for the investigation of the export intensity and export complementarity indices trend for the period 1995 to 2006show that although the export intensity index trend increased, the export complementarity index trend decreased. In other words, in spite of raising the trade tendency between Iran and Turkey, the degree of Iran's export pattern did not match Turkey's imports. Observation of the index export intensity and export complementarity between Iran and Pakistan shows a significant difference; however, the difference between them is lower than that of Iran to Turkey. Therefore, the trade complementarity index from Iran to Pakistan is higher than that of Iran and Turkey. This, however, means that the export degree pattern of Iran matches the import pattern of Pakistan compared to Turkey.

The export complementarity index from Iran to Indonesia is bigger than the export intensity in years 1995, 2000 and 2006; this shows that the share of exports of Iran and Indonesia is less than a proportion of their share of world trade; the export

degree pattern of Iran indicates a match with the import pattern of Indonesia. The import complementarity between these countries also supports this result.

The results indicate that the trade bias index from Iran to Turkey for the 3 point data is lower than the trade index from Turkey to Iran. Iran's access to Turkey's market is limited, and it gains advantage from a bilateral trade partnership. However, the results show that Turkey has more liberty to approach Iran's market.

The trend in the trade bias index decreased from 1995 to 2000, however, after this time period the trend pattern surged, during which Iran's access to Turkey's market became more difficult. From the results, a similarity exists between Iran and Pakistan; the trade bias index of Iran to Pakistan is less than the level of the index from Pakistan to Iran, despite the liberality of the access of Pakistan to Iran's market, Iran's access to Pakistan's market is limited.

5.7.5 State of Malaysia's trade with other D-8 member countries

Malaysia's exports to Bangladesh, Egypt, Indonesia and Pakistan are regarded as highly intense and the index is greater than one. However, the index for Indonesia and Pakistan is higher compared to Bangladesh and Egypt. The intensity index for Malaysia and Iran in 2007 is more than one. An indication that Malaysia's tendency to export to Iran increased. The index is lower than one, for Malaysia's export to other D-8 member countries (Turkey and Nigeria). The share of Malaysia's trade with these countries is less than a proportion of its share of world trade, which implies that Malaysia's exports to other D-8 member countries, is low.

The import intensity index shows that Malaysia's import share from Indonesia is more than a percentage of its share of world trade. The index trend shows that, in 1997, the share of Malaysia's imports from Indonesia increased. The bilateral trade tendency also increased. From Table5.17, the import intensity index of Malaysia and other member D-8 countries (Iran, Bangladesh, Turkey, Nigeria, Pakistan and Egypt) is less than one, which indicates that the share of Malaysia's imports from these countries is less than the proportion of its share of world trade.

Comparing the indices export intensity and export complementarity between Malaysia and Pakistan shows that the trade between the two differs significantly; meaning that the exports of Malaysia and Pakistanis more than a proportion of their share of world trade. The high level of trade complementarity index shows that the export degree pattern of Malaysia matches the import pattern of Pakistan. However, the increase in intensity between the two countries may be because the export degree pattern of Malaysia matches the import pattern of Pakistan. On the other hand, the results from bias index explain that the index for Malaysia is greater than the index for Pakistan for the four points, which is an indication that there is no restriction for Malaysia to access Pakistan's market. The high intensity between the two countries is because their trade pattern matches the liberty of Malaysia to export to Egypt.

Comparing the indices for the export intensity and export complementarity between Malaysia and Indonesia, Malaysia and Egypt, and Malaysia and Bangladesh shows that they are significantly different; the export complementarity index is lower than the export intensity index. Despite the fact that the export share of Malaysia to Indonesia, Malaysia to Egypt and Malaysia to Bangladeshis more than a proportion of

its share of world trade, the low level of trade complementarity index explains that the export degree pattern of Malaysia does not match the import pattern of Indonesia, Egypt and Bangladesh. Moreover, the complementarity index for Malaysia and Bangladesh surged in 2006, an indication that the two countries matched each other. The bias index is more than one for the two countries from 1995 to 2008, and in 2000 for Bangladesh. This indicates that Malaysia has the liberty to access the markets of Indonesia, Egypt and Bangladesh, which could be the reason for the tendency between the countries.

Observation of the index for the export intensity and export complementarity between Malaysia and Iran, Malaysia and Turkey, and Malaysia and Nigeria, shows that it differs significantly. The lower level of intensity index may be due to the low level of complementarity index for the two countries. Therefore, the lack of trade tendency between the countries in question may be because the export degree pattern of Malaysia does not match the import patterns of Iran, Turkey and Nigeria. However, the bias index shows that Malaysia has restrictions to access the markets of these countries. The bias index level was less than one, for Turkey and Nigeria from 1995 to 2008. However, the bias index increased in 2006 from Malaysia to Iran, which means that Malaysia gained more liberty to access Iran's market.

The results indicate that the trade bias index for Malaysia to Bangladesh, Malaysia to Egypt, Malaysia to Indonesia, Malaysia to Iran, and Malaysia to Pakistan for the 4 point data is more than the trade index for Bangladesh to Malaysia, Egypt to Malaysia, Iran to Malaysia, Pakistan to Malaysia and Indonesia to Malaysia. This means that Malaysia's access to these markets is not limited and Malaysia could gain advantage from a bilateral trade partnership and preferential facilities. However, the results show that the

countries have less liberty to approach Malaysia's market. The bias index from Malaysia to Nigeria and Malaysia to Turkey is less than one, which means that the export policies of these countries are not preferable.

5.7.6 State of Nigeria's trade with other D-8 member countries

The index is greater than one for Nigeria's exports to Indonesia and is regarded as highly intense. In 1997, the export intensity index increased between Nigeria and Indonesia but in 2002 the index levels decreased. The index is lower than one, for Nigeria's export to other D-8 member countries (Bangladesh, Egypt, Iran, Malaysia, Pakistan and Turkey), showing that the share of Nigeria's trade with these countries is less than a proportion of its share of world trade. This implies that Nigeria's exports to other D-8 countries are low.

The import intensity index is less than one for most of the D-8 countries, which shows that the share of Nigeria's import from these countries is less than a percentage of its share of world trade. The index trend showed in 1997, that the share of Nigeria's imports from D-8 was not significantly different, and that the bilateral trade tendency did not change after the preferential trade agreement. Moreover, Nigeria's imports from Pakistan increased in 2004. According to Table 5.20, the import intensity index for Nigeria and Pakistan in 2004 was more than one; this shows that the share of Nigeria's import from these countries is more than a proportion of its share of world trade.

Comparing the indices for export intensity and export complementarity between Nigeria and Indonesia shows that the trade between the two countries differs significantly. The share of exports of Nigeria to Indonesia is more than a proportion of

its share of world trade, the high level of trade complementarity index explains that the export degree pattern of Nigeria matches the import pattern of Indonesia. Therefore, it may be thought that the high intensity between these two countries is because the export degree pattern of Nigeria matches the import pattern of Indonesia. On the other hand, the results from the bias index explain that the index for Nigeria is lower than the index for Indonesia, for the four points, which explains the restriction for Nigeria to access Indonesia's market. The high intensity between the two countries is due to the match of trade pattern and not as a result of the liberty of Nigeria to export to Indonesia. However, the result from the bias index shows that the index for Nigeria is more than the index for Indonesia from 1995 to 2000. During this period, Nigeria had the liberty to access Indonesia's market, but the pattern changed in 2000. The bias index for Nigeria became less than the index for the access of Indonesia and Nigeria to Pakistan's market, which became more difficult.

Comparing the indices for export intensity and export complementarity between Nigeria and Bangladesh, Nigeria and Egypt, Nigeria and Iran, Nigeria and Malaysia, Nigeria and Pakistan, and Nigeria and Turkey shows that they differ significantly. The export complementarity index is lower than the export intensity index; an indication that not only is the share of the two countries exports lower than a proportion of their share of world trade, but, also, the lower level of trade complementarity index explains that the export degree pattern of Nigeria does not match its import pattern. This means that the low level of intensity index may be due to the low level of complementarity index between the two countries. The bias index is less than one for both countries, an indication that Nigeria has restrictions to access the markets of Bangladesh, Egypt, Iran,

Malaysia, Pakistan and Turkey, which is the reason for the disinclination between the countries.

From the results, the trade bias index for Nigeria and Bangladesh, Nigeria and Egypt, Nigeria and Iran, Nigeria and Malaysia, Nigeria and Pakistan, and Nigeria and Turkey, for the 4 point data is less than the trade index for Bangladesh to Nigeria, Egypt to Nigeria, Iran to Nigeria, Malaysia to Nigeria and Turkey to Nigeria. This, however, shows that Nigeria's access to these markets is limited and may gain advantage from a bilateral trade partnership and restriction of preferential facilities for Nigeria. However, the results show that the countries have more liberty to approach Nigeria's market.

5.7.7 State of Pakistan's trade with other D-8 member countries

The index is greater than one for Pakistan's exports to Bangladesh, Egypt, Iran, Nigeria and Turkey, and is regarded as highly intense. The export intensity index for Bangladesh is higher compared to Egypt, Iran, Nigeria and Turkey. Therefore, Pakistan's tendency to export to Bangladesh is more than the other countries. The index is lower than one, for Pakistan's exports to Malaysia and Indonesia, which indicates that the share of Pakistan's trade with these countries is less than a proportion of its share of world trade. This, however, implies that Pakistan's exports to Malaysia and Indonesia are low.

The import intensity index indicates that the share of Pakistan's imports from Bangladesh, Egypt, Iran Indonesia and Malaysia is more than a percentage of its share of world trade. According to Table 5.15, the import intensity index for Pakistan to Nigeria and Pakistan to Turkey is less than one, which emphasizes that the share of

Pakistan's imports from these countries is less than a proportion of its share of world trade.

Comparing the indices for the export intensity and export complementarity between Pakistan and Bangladesh, and Pakistan and Egypt shows that the trade between the two differ significantly; this means that the share of Pakistan and Bangladesh, and Pakistan and Egypt's exports is more than a proportion of its share of world trade, and the high level of trade complementarity index explains that the export degree pattern of Pakistan matches the import pattern of Egypt and Pakistan. Therefore, it may be said that the high intensity between the two countries is because the export degree pattern of Pakistan matches the import pattern of Egypt and Pakistan. On the other hand, the results from the bias index also show that the index for Pakistan to Bangladesh and Pakistan to Egypt is more than one. In this case, the policy is said to promote exports. However, the index for Pakistan is higher than the index for Bangladesh for the four points, which shows that there is more liberty for Pakistan to access Bangladesh's market compared to Bangladesh's liberty to gain advantage from Pakistan's market. However, the index for Pakistan is lower than the index for Egypt in 2006, which shows that there is more liberty for Egypt to access Pakistan's market compared to Pakistan's liberty to gain advantage from Egypt's market. Nevertheless, the high intensity between the two countries may be due to the matching of trade pattern as well as the liberty of Pakistan to export to Egypt. Moreover, the bias index is more than one, which encourages exports.

Comparing the indices for the intensity and export complementarity between Pakistan and Iran, Pakistan and Nigeria, and Pakistan and Turkey shows that they differ

significantly while the export complementarity index is lower than the export intensity index. Despite the fact that the share of exports of Pakistan to Iran, Pakistan to Nigeria, and Pakistan to Turkey is more than a proportion of their share of world trade, the low level of trade complementarity index explains that the degree of export pattern of Pakistan does not match the import pattern of Iran, Nigeria and Turkey. However, the complementarity index for Pakistan to Iran and Pakistan to Turkey decreased in 2006, which shows that the two countries became more varied thereafter. The bias index, which is more than one for the two countries, explains that Pakistan has the liberty to gain more advantage from the markets of Iran, Nigeria and Turkey, which could be the reason for the tendency between the countries.

The observation of the indices for export intensity and export complementarity between Pakistan and Indonesia shows that they differ significantly; the low level of intensity index is due to the low level of complementarity index between the two countries. Therefore, the lack of tendency to trade between the mentioned countries is because the degree of export pattern of Pakistan does not match the import pattern of Indonesia. On the other hand, the bias index shows that Pakistan had restrictions to access Indonesia's market in 2000, which could also be another reason for the disinclination between the countries.

A comparison of the indices for export intensity and export complementarity between Pakistan and Malaysia shows that they differ considerably; the export complementarity index is higher than the export intensity index. Although the share of exports of the two countries are less than a proportion of their share of world trade. However, the trade complementarity index explains the export pattern degree of Pakistan matches the

import pattern of Malaysia. It can be said that the low level of intensity index is not due to the complementarity level of the two countries. The bias index is less than one for the two countries, which shows that Pakistan has restrictions to access Malaysia's market, and, thus, maybe the reason for the disinclination between the countries.

The results indicate that the trade bias index for Pakistan to Bangladesh, Pakistan to Egypt, Pakistan to Nigeria, Pakistan to Turkey, and Pakistan to Iran from 1995 to 2008 is more than one, which promotes the export policy. The trade index for Pakistan to Bangladesh, Pakistan to Nigeria, Pakistan to Turkey, and Pakistan to Iran is higher than Bangladesh to Pakistan, Nigeria to Pakistan, Iran to Pakistan and Turkey to Pakistan. Pakistan's access to these markets is not limited; an indication that Pakistan could gain advantage from a bilateral trade partnership and preferential facilities. However, the results show that these countries have less liberty to approach Pakistan's market.

The trade bias for Pakistan to Egypt from 1995 to 2000 is higher than the trade index for Egypt to Pakistan. However, the index changed in 2000, and the trade bias from Pakistan to Egypt became more than the trade index from Egypt to Pakistan. This means that Pakistan's access to these markets became more limited after 2000. However, the results show that Pakistan has less liberty to approach Egypt's market. The results indicate that the trade bias index for Pakistan to Malaysia for the 4 point data is less than one; the index for Pakistan to Malaysia is lower than the trade index from Malaysia to Pakistan. This means that Pakistan's access to these markets is limited and gaining advantage from a bilateral trade partnership and preferential facilities for Pakistan is restricted; whereas Malaysia has more liberty to approach Pakistan's market.

5.7.8 State of Turkey's trade with other D-8 member countries

The index is greater than one, for Turkey's exports to Egypt and Iran, and is regarded as highly intense. The export intensity index for Egypt is higher compared to Iran. However, Turkey's tendency to export to Egypt is more than to other D-8 member countries. The index is lower than one for Turkey's exports to Bangladesh, Nigeria, Pakistan, Malaysia and Indonesia, which indicates that Turkey's share of trade with these countries is less than a proportion of its share of world trade. This, however, implies that Turkey's exports to these countries do not differ significantly.

The import intensity index shows that the share of Turkey's imports from Egypt, Iran, and Pakistan is more than the percentage of its share of world trade. In the case of Bangladesh, the results show that, in 2005, the import intensity index increased and differed significantly. Turkey's tendency to import from Bangladesh improved. According to Table 5.14, the import intensity index for Turkey to Nigeria, Turkey to Indonesia and Turkey to Malaysia is less than one, which emphasizes that the share of Turkey's imports from these countries is less than a proportion of its share of world trade.

Comparing the indices for the export intensity and export complementarity between Turkey and Iran, and Turkey and Egypt, it shows that they differ significantly; the export complementarity index is lower than the export intensity index. Despite the fact that the share of exports of Turkey to Iran and Turkey to Egypt is more than a proportion of its share of world trade, the low level of trade complementarity index explains that the degree of the export pattern of Turkey does not match the import pattern of Iran and Egypt. However, the complementarity index for Turkey to Iran and

Turkey to Egypt decreased in 2006; this explains that the countries became more varied. The bias index is more than one for the two countries, which shows that Turkey has the liberty to gain advantage from Iran and Egypt's market, which could be the reason for the tendency between the two countries.

On the other hand, the results from the bias index also show that the index from Turkey to Iran and Turkey to Egypt is more than one. In such a case, the policy promotes exports. However, the index for Turkey is higher than the index for Iran and Egypt, for the four points. This shows that there is more liberty for Turkey to access Egypt and Iran's market compared to that of Iran and Egypt to gain advantage from Turkey's market. The high intensity between the two countries is due to the match of trade pattern and the liberty of Turkey to export to Egypt and Iran.

Observation of the indices export intensity and export complementarity between Turkey to Bangladesh, Turkey to Indonesia, Turkey to Malaysia, Turkey to Nigeria and Turkey to Pakistan shows that they differ significantly; this means that the low level of intensity index is due to the low level of complementarity index between the two countries. Therefore, the lack of trade tendency between the mentioned countries is because the degree of export pattern of Turkey does not match the import pattern of Indonesia. On the other hand, Turkey's bias index with other D-8 member countries shows that Turkey had more restrictions in accessing the markets of Malaysia and Indonesia from 1995 to 2008, which could be another reason for the disinclination between the countries. However, Turkey had more liberty and access to Pakistan during the period; whereas, Turkey gained more advantage from the markets of Bangladesh and Nigeria in 2000.

The results indicate that the trade bias index for Turkey and Egypt, Turkey and Iran, and Turkey and Pakistan, from 1995 to 2008; and Turkey to Nigeria in 2000; and Turkey to Bangladesh in 2006 is more than one, which promotes export policy. The trade index for Turkey to Egypt, Turkey to Nigeria and Turkey to Iran is higher than Egypt to Turkey, Nigeria to Turkey and Iran to Turkey. This shows that Turkey's access to these markets is not limited and Turkey could gain advantage from a bilateral trade partnership and preferential facilities. However, the results show that these countries have less liberty to approach Turkey's market.

The results indicate that the trade bias index for Turkey to Indonesia and Turkey to Malaysia for the 4 point data is less than one, while the index for Turkey to Indonesia and Turkey to Malaysia is lower than the trade bias index for Malaysia to Turkey and Indonesia to Turkey. The trade bias index from 1995 to 2008 for Turkey and Pakistan was more than one, but Turkey and Pakistan's level was lower than the trade bias index of Pakistan and Turkey. This means that Turkey's access to these markets is limited and that it gaining more advantage from a bilateral trade partnership and preferential facilities from Indonesia, Malaysia and Pakistan for Turkey is restricted; whereas Indonesia, Malaysia and Pakistan have more liberty to approach Turkey's market.

5.7.9 Summary

The results show that the trade intensity index for these pairs of countries – (Bangladesh and Pakistan), (Bangladesh and Iran), (Bangladesh and Indonesia), (Bangladesh and Malaysia), (Egypt and Pakistan), (Egypt and Turkey), (Egypt and Indonesia), (Egypt and Malaysia), (Indonesia and Malaysia), (Indonesia and Bangladesh), (Indonesia and Pakistan), (Indonesia and Egypt), (Indonesia and Nigeria),

(Iran and Turkey), (Iran and Pakistan), (Iran and Bangladesh), (Malaysia and Indonesia), (Malaysia and Pakistan), (Malaysia and Bangladesh), (Malaysia and Egypt), (Nigeria and Indonesia), (Pakistan and Bangladesh), (Pakistan and Egypt), (Pakistan and Iran), (Pakistan and Nigeria), (Pakistan and Turkey), (Pakistan and Indonesia), (Pakistan and Malaysia), (Turkey and Egypt), (Turkey and Iran), (Turkey and Pakistan) –is more than one (see Table 5-5 to Table 5-20), which suggests that the share of trade between the countries is more than a proportion of their share of the world trade. We can say that 31 pairs of countries out of 56 have a high tendency for bilateral trade.

On the other hand, according to the Complementarity Index, for these pairs of countries (Egypt and Pakistan), (Egypt and Indonesia), (Egypt and Bangladesh), (Indonesia and Egypt), (Indonesia and Bangladesh), (Iran and Pakistan), (Iran and Indonesia) (Iran and Egypt), (Malaysia and Pakistan), (Nigeria and Indonesia), (Nigeria and Pakistan), (Nigeria and Egypt), (Pakistan and Malaysia), (Pakistan and Bangladesh), (Pakistan and Egypt),(Pakistan and Indonesia), it can be said that the export degree pattern of a country matches the import pattern of the other.

In addition, for these pairs of countries (Bangladesh and Egypt), (Bangladesh and Malaysia), (Bangladesh and Pakistan), (Egypt and Malaysia), (Egypt and Indonesia), (Indonesia and Pakistan), (Malaysia and Bangladesh), (Malaysia and Egypt), (Pakistan and Bangladesh), (Pakistan and Egypt), (Pakistan and Indonesia), it can be said that the import degree pattern of a country matches the export pattern of the other.

The Trade Bias Index shows that for precisely 27 country pairs: (Bangladesh-Iran), (Bangladesh-Pakistan), (Egypt-Bangladesh), (Egypt-Pakistan), (Egypt-Turkey), (Indonesia-Bangladesh), (Indonesia-Egypt), (Indonesia-Iran), (Indonesia-Malaysia),

(Indonesia-Nigeria), (Indonesia-Pakistan), (Iran-Pakistan), (Iran-Turkey), (Malaysia-Bangladesh), (Malaysia-Egypt), (Malaysia-Indonesia), (Malaysia-Pakistan), (Pakistan-Bangladesh), (Pakistan-Egypt), (Pakistan-Iran), (Pakistan-Nigeria), (Pakistan-Turkey), (Turkey-Egypt), (Turkey-Egypt), (Turkey-Iran), (Turkey-Nigeria), (Turkey-Pakistan) access to the second countries' market is not restricted and they could gain advantage from a bilateral trade partnership.

Table 5-26 D-8 high bilateral trade tendency country pairs

	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh			✓	✓	✓		✓	
Egypt			✓		✓			✓
Indonesia	✓	✓			✓	✓	✓	
Iran	✓						✓	✓
Malaysia	✓	✓	✓				✓	
Nigeria			✓					
Pakistan	✓	✓	✓	✓	✓	✓		✓
Turkey		✓		✓	✓		✓	

Table 5-27 D-8 complementarity trade country pairs

	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh		✓			✓		✓	
Egypt	✓		✓		✓		✓	
Indonesia	✓	✓					✓	
Iran		✓	✓					
Malaysia	✓	✓					✓	
Nigeria		✓	✓				✓	
Pakistan	✓	✓	✓					
Turkey								

Table 5-28 D-8 country pair access to the members market is not restricted

	Bangladesh	Egypt	Indonesia	Iran	Malaysia	Nigeria	Pakistan	Turkey
Bangladesh				✓			✓	
Egypt	✓						✓	✓
Indonesia	✓	✓		✓	✓	✓	✓	
Iran							✓	✓
Malaysia	✓	✓	✓				✓	
Nigeria								
Pakistan	✓	✓		✓		✓		✓
Turkey		✓		✓		✓	✓	

Table 5-29 Results summary

Methodology		Result
• Descriptive Approach	Trade Intensity Index	31 pairs of countries out of 56 pairs have a high tendency for bilateral trade.
	Trade complementarity Index	For 25 pairs out of 56 pairs of countries, the export/import pattern degree of one country matches the import/export pattern of another
	Trade Bias Index	The access to the destination market of 27 pairs of countries is not restricted.
• Econometric Approach	Gravity Model	Malaysia, Indonesia and Pakistan have a meaningful bilateral trade with each other

5.8 Conclusion

The failure or success of any regional trade arrangement depends on the product ranges that member countries are capable of importing or exporting. Country members that export diversified products have the tendency to succeed in a regional trade arrangement. However, Pitigala, (2005) showed that the export concentration limits the increasing prospects of regional trade.

Moreover, for meaningful economic cooperation, it is necessary for the D-8 countries to solicit participation in the private sector. Participation in the private sector can only be meaningful if the business environment for member countries is conducive.

Intra D-8 trade can be created through intra D-8 private sector investment activities. Investors should open up new frontiers for a two-way trade, importation of raw materials and intermediate inputs and exportation of final products. The major trading partners should also be the main sources of foreign direct investment.

For the success and creation of a formidable D-8 economic bloc, the volume of intra-regional trade among D-8 members is fearfully low, while dependence on the industrialized countries is considerably high. The removal of tariffs and non-tariff barriers for D-8 bloc countries can open up some profitable intra-regional trade channels. In the long run, a regional planning structural change creates new horizontal and vertical linkages with integration benefits. Moreover, the WTO framework should be fully adopted by D-8 member countries to explore areas where greater export expansions are needed.

International cooperation, prudence and transparency at higher market levels could have put a stop to the escalation and outbreak of the recent financial crisis. Although the level of damage differs from country to country following the effect of the economic and global financial crisis, within D-8, consultation and cooperation will enhance individual contributions toward structuring institutional and financial reforms of the world economy.

For a more vibrant and effective organization for D-8 that is capable of changing its vision into reality, it is advised that both the public and private sectors of theD-8 countries come forward with innovative modern technology, business approaches and harmonized trade policies to boost the strength of intra-trade, which, in turn, will enhance the economic size of the D-8 member countries as well as alleviate poverty from the region. The high potential for joint-ventures and investment, especially, in areas such as Islamic-finance, halal industry, energy, housing and infrastructural development, telecommunications and media, education, health, agriculture and human resource development should be encouraged. As a result of Pakistan's land mass and

population density of animal stock, in conjunction with Malaysia's expertise in technology and marketing, both countries can capture major shares of the global halal food market that is worth billions of dollars. The success of the economic cooperation of the D-8 can be extended to all other OIC members. Trade agreement gives room for the elimination of non-tariff barriers (NTBs) if no new ones are introduced. However, in practice, it appears that non-tariff measures are widespread, and are a hindrance to the trade expansion of intra-regional trade for D-8 member states. However, development of the D-8 member states with a uniform Islamic culture, heritage and unity could promote economic empowerment of their people and enable them to face the emerging challenges of the next millennium.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Globalization and integration of the world economy is not only a national concern but also for its states. However, to achieve the desired national development, a country should avail itself of the existing regional and international resources and opportunities. The benefits derived from international and regional resources are one of the most significant questions facing the developing economies including Islamic countries. As a result of the great potential that Muslim countries possess, they have been pushing for regional trade agreements within groups, which include the Organization of Islamic Conference (OIC), the (Persian) Cooperation Council (PGCC), Economic Cooperation Organization (ECO) and the Group of Eight Islamic Developing Countries (D-8). In the two last decades of its establishment, no significant breakthrough has been made for an efficient economic and trade agreement that embraces all OIC members using a step-by-step or incremental approach. However, the most practicable approach to achieve the long term goal of sustainable regional growth would be to create a stronger force within Islamic countries with the ability and desire to coordinate economic cooperation that is acceptable to other Islamic countries (Bozorgi and Hosseini, 2006).

Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey are examples of D-8 members. The group officially initiated its activities in 1997, the aim

of which was to develop cooperation among the member countries. The objectives were for the promotion of member countries position in the world economy, provision of new opportunities in relation to commerce, participation of member countries in international decision making as well as improving the standard of living of its members. A focus on the aforementioned economic purposes as well as enhancement of the volume of trade among member countries is the basis for D-8 membership cooperation. In consideration of a population of the member countries of over 900 million, which constitutes 14% of the world's population, one can say that cooperation in trade may foster good trade relations, to create a big market for the products apart from industrially developed member countries. In the recent global economic crisis, the share of countries' exports has significantly reduced and has led to losses in the global market industrial decline, resulting in improved changes in other countries of the world. Extensive market access is usually for developing economies without close interaction among the countries. Research on the PTAs focused particularly on whether or not it has any significant influence on trade.

This research work centered on the impact of trade on the liberalization of D-8 trade using the gravity model. The aim of the research was to investigate and looking at the possibility of trade liberalization via coverage expansion of tariff reduction. The gravity model approach was applied using panel data and quantitative analysis of the economic effects of the free trade arrangement among the countries. The research also looked at the possibility of making significant gains for member countries via intra-trade when tariff barriers are completely removed. The level of exported bilateral commodity matching with that of import determines the trade composition. However,

although the gravity model does not account for the commodity composition, the trade intensity index was employed to illustrate the impact of commodity composition on bilateral trade. According to Drysdale (1967), the decomposition method can be used to show the amount of trade volume due to complementarity (compositional effect) and country bias (average resistance). An index that is made up of trade compositions could provide better knowledge of the impact of trade cost on the flow of bilateral trade.

The D-8 countries have thought of many projects that aimed at strengthening economic and commercial cooperation. Presently, these are at different stages of implementation, the aim of which is to enhance trade within member countries via inter alia, facilitation of trade and access to markets. Multilateral agreements based on economic and commercial cooperation at different stages are being ratified by the D-8, which are intended to provide the required legal framework of cooperation for member countries. This process, however, has been sluggish and needs to be looked into for more accelerated effects. Due to the heterogeneous nature of the economic and developmental efforts of D-8 members, progress in setting the goals for economic cooperation is far from being reached. Members of the D-8 are required to show collective strength towards the objective. Internal trade within D-8 is stagnant at 6% of the total trade of all the D-8 member countries, which was affected due to the dependence on a few commodities, limited number of trade partners and inadequate trade infrastructure.

Due to the urgency of setting up an Islamic Common Market, an alternative trend has become more imperative in globalization and regionalization, allowing competition those results in marginalization of the growing economy of OIC members.

In conjunction with this trend are different policies of protection approved by the major economic blocks of the developed economies, which approved the choice of alternatives by the developing economies. The establishment of an Islamic common market or any other economic form of integration is, however, imperative for the D-8 countries, as this will allow them to maintain a common level with the powerful economic blocks of the advanced economies and avoid further marginalization. In the15 years after the 1997 Istanbul summit, the D-8 member countries have made a significant contribution to developing the necessary multilateral and institutional legal framework for other D-8 members to cooperate on a large scale to develop, initiate and implement a joint economic approach. Despite the efforts aimed at integrating member countries over the years, little or no progress has been made economically, and cooperation is yet to produce the expected results in terms of trade among member countries. However, contrary to the basic intention of the established cohesion and community of D-8, intra trade within D-8 is still far from satisfactory, constituting about 6% of the total trade within member countries.

Generally, the member countries of D-8 are assumed to have been dragged to an impasse, adjudged by the continuous expansion yet unfulfilled needs compared to the existing but unutilized potential. The D-8 member countries are sure of the recommended and enhanced economic cooperation among themselves. However, members should aim at developing ideas, set goals for joint action and workout implementable modalities that will effectively become reality by setting up a formal economic integration scheme within a free trade distance, a custom union or common market. Although different reasons may explain the lag in the implementation of policy,

some of which comes from the high level of economic heterogeneity, which results in difficulties that relate to the follow up at the technical, financial and practical influences, while others are related to the character, decision-making and organizational structure and mechanism of D-8 countries. The gravity model application for applied research in bilateral trade is justified theoretically. A wide range of research is available in which gravity model was used to examine bilateral trade patterns and trade relationships. The generalized gravity model of trade was estimated in this report as well as for exports and imports, for which the results showed that the estimated coefficient had almost all the expected signs except market size. As shown, from 1983 to 1997 for D-8 member countries, the import elasticity and regressed model are 0.5 and 1.21, respectively. This, however, indicates that when the GDP of D-8 member countries increases by 1%, imports increase by 57%, and a 1.21% increase in exports is expected. The results for1997 to 2008 show that the import elasticity decreased to 0.50, while the export elasticity reduced to 1.06, which is explained by a percent increase in GDP; the average increases in export and import are 1.06 and 50, respectively. The main point of the D-8 countries is that the export elasticity to GDP is about one, while there was no import elasticity $\alpha 2 > \alpha 3$. This shows that D-8 member countries exports grew more rapidly than the imports. From 1983 to 1997, and 1997 to 2008, the market size coefficient was negative, an indication that the population of country I compared to increases in country j reduces the exports from country I. The reason being that the population growth increases the size of the local market; therefore, the country will become introverted resulting in more rival import industries. Alternatively, there will be a reduction in the exports of the country because the same industries are required to meet the needs of the population increase. The distance elasticity as a symbol of

authority for transportation costs shows that, on average, when the distance increases to 1%, exports reduce by 62%. D-8 member countries have common borders that show the positive export effects; a one kilometer increase at the border increases exports by 1.06%. Linder, as expected from the theory, was negative, an indication that the greater the difference in per capita incomes of countries, the less intensely the countries will trade with one another, supporting the Linder theory. There was no impact of language on export because of the heterogeneity of languages for D-8 member countries. The econometric results for the D-8 member countries did not improve for bilateral trade. The gravity model approach was billed to independently define the flow of bilateral trade. The trade between the two countries was acclaimed to be proportional to their economic size, measured by the GDP, area, per-capita GDP and population and inversely proportional to the distance, cultural and geographical distance between them. There is no way to compare the bilateral trade of two countries using the gravity model. Moreover, the gravity model's major assumption is that the flow of trade for independent bilateral trade is too extreme (James and Wincoop, 2003). The more resistant an economy is to other trading partners the more it is forced to trade with a given bilateral partner. This is known as "multilateral resistance". Alternatively, Kazutaka (1977) stated that the intensity approach separates the determinants of international trade into two categories: those that impact the geographical distribution and those that influence the total import and export levels of the world countries. Therefore, it uses the world hypothesis, which is made up of countries with no geographical specification in international trade. In line with a country's partner, world trade shows that the total trade of a country is distributed among countries. The trade

intensity index was used to explain the impact of commodity composition on D-8 bilateral trade.

The results show that Indonesia, Malaysia and Pakistan have an appreciable bilateral trade agreement with more benefits from the planned integration. However, Nigeria and Indonesia have a negative impact of trade on D-8. In 1997, the import and export trend showed a significant reduction between the two countries trade compared to other D-8 members. However, Egypt, Turkey and Iran do not have an appreciable bilateral trade; therefore, D-8 did not have any influence on the countries bilateral trade right from the start. According to the decomposition method of Drysdale (1967), the results show that the trade intensity index of 31 pairs of countries is more than 1;an indication that the share of trade between the countries is more than the proportion of their share of world trade. This shows that 31 out of 56 pairs of countries have a high bilateral trade tendency. According to the complementarity index for25 pairs of countries, it was thought that the export/import degree pattern of a country matches the import/export pattern of the other. The trade bias index for 27 pairs of countries shows that access to the markets of the countries was not restricted and that they could gain bilateral trade advantage and partnership facilities.

The estimated results show that, not all the countries experience welfare gain under the free trade agreement. In the same manner, the economic sectors imports differ substantially across countries.

The efficiency and competitiveness of industries in the region are increased by regional integration. Accordingly, it encourages and prepares these firms for harder competition at the international level. A critical look at this defines the efforts to

liberalize world trade for goods, investment and service within the context of the WTO through multilateral trade talks.

Although world trade liberalization within the context of WTO, and increases in the regionalization efforts among the advanced countries, suggest a conflicting development, both are effective in helping support industries in the developing countries by pressuring them to improve their rate of competition. The desire to enhance competition by looking for ways to lower the cost of the production of goods and services leads to increasing research and development activities as well as new advances in technology. In the case of division amongst major economic powers, for example, the US and Japan, the member countries of D-8 should similarly do the same whilst engaging in multilateral trade talks within the context of WTO. They should also intensify efforts to strengthen commercial economic cooperation among member countries for the realization and establishment of an Islamic common market.

6.2 Policy Options and Recommendations

One of the main targets of D-8 countries is to address the low intra-regional trade volume and over dependence on industrialized economies. The removal of tariffs and non-tariff barriers for D-8 countries can expose some of the gains of intra-regional trade channels. Based on this finding the following policy remarks and recommendations are suggested for stronger trade agreements for D-8 member countries.

Presently, due to interdependence and globalization, regional economic integration is one of the challenges Islamic countries face, especially D-8 members, to absorb

globalization pressure as well as prepare for gradual integration into the world economy.

Member countries of the D-8 should take a fully active part in world trade, which is made up of APEC, the EU, WTO, ASEAN, and NAFTA, maximizing their link in intra D-8, and allowing the free transfer of goods, labor, capital and technology. They should further strengthen both forward and backward links in investment and production and gain economies of trade, which assists in regional and domestic market improvements.

As a result of a country's concern for national autonomy, which may result in the failure of the quest of political schemes for political union, it is better for D-8 member countries to give special attention to economic and functional cooperation, and integrative efforts that keep political ambitions at a distance.

There is a need for regional economic integration initiation, which benefits from economies of scale, promotion of trade creation, and the extension of technical and scientific cooperation, export competitiveness and diversification, as well as enhanced bargaining power at the world level.

The member countries of D-8 should make urgent efforts to diversify their exports, enhance their strengths for trading and the manufacture of non-traditional goods, and take measures that are supportive of improving regional and sub-regional trade and expand complementarities.

Backward and forward linkages in investment and production should be strengthened to reap the economies of scale, regional markets, improve regional and domestic market and deal efficiently with ASEAN, the EU, APEC and NAFTA.

Improvement of financial cooperation for D-8 member countries through clearing union arrangements, payment union and export credit.

As a result of OIC integration, the failure caused by inter alia OIC members heterogeneity, due to developmental and key international macroeconomic changes, establishment of first integrative macroeconomic changes, establishment of first core integration made up of Islamic countries differences, seems to be the most suitable method to start regional economic integration and for incorporating other Islamic countries in the near future. Our findings show that the most eligible D-8 members constitute major initial integration, which includes Malaysia, Iran, Turkey, Indonesia and Egypt.

Follow up measures can be taken by these countries to achieve the benefits of regional economic integration. These include:

a). Encouragement of joint ventures, the gains of economies of scale can be used to create new competitive advantages, which, in turn, can fulfill domestic needs and extend intra-regional trade as well as improve competitiveness in the world market.

b). Trade structural reforms should be considered by the countries directing their investments to more diversification with special interest in value added products.

c). The countries should increase their intra-regional trade by affording preference to trade liberalization and trade facilitation including preferential tariffs.

d). Trade barriers removal via measures including trade law facilitation, supplementation and regulation is required to encourage regional trade within member countries.

e). Technical and scientific cooperation extension among the countries will be helpful to grow scientific and technical infrastructure which improves value added products.

f). Conducting of intra-regional trade research to identify the actual and potential needs, and capacities required.

g). Special attention should be given to the establishment of an integrated trade data base, thereby providing businesses with the necessary information for the countries including trade laws and regulation.

Due to the uniformity in religion, cultural cooperation is highly instrumental for solid intra-regional ties, which lead to facilitate and promote intra-regional trade. This policy implementation requires dynamic executives that are goal oriented, otherwise all these will result in failure.

Good integrated planning from member countries is needed in order to move forward.

The aim of setting up a common Islamic market or alternative regional economic integration group for OIC members may imply that OIC members either negotiate a treaty, which establishes the overall objectives of the economic institutions' mechanisms, as well as the strategies that include different stages and time limits to establish the market (according to global market), or join both global and sectoral approaches within the same process. Whichever approach is adopted, it should be able to account for the mechanisms and cooperation of the OIC, especially the integration of the groups already formed within the OIC, and sub-regional groups (AMU, D-8, GCC, and ECO). It is worthy of note that a preliminary effort for the necessary harmonization, rationalization and revitalization should be exerted to stop overlapping groups and to

harmonize and revitalize the economic integration mechanism with a view to achieve the highest common denominator.

In this context, a program of action may be drawn to:

1). Encourage the establishment of strong relations within the groups.

2). Broaden cooperation to avoid the tendencies confined within the groups and encourage their openness to gradually increase their complementarity and interdependence.

Whichever approach is chosen, some leading principles should be respected to avoid experiencing disappointment in sub-regional integration:

1). The Islamic common market should simultaneously try to achieve the objective of industrial and commercial integration; otherwise trade expansion will suffer in the near future.

2). The Islamic common market should support the integration of financial and monetary policies in order to overcome problems associated with financing trade and inconvertible currencies.

3). They should provide avenues for a mechanism to be set up that is capable of ensuring fair and equitable profit and loss. LDCs should be allowed special status.

4). Strategies for economic integration should be included in the strategies for development of the member countries

A good number of policies can be implemented to further the cause of D-8. It would be better for D-8 members to be based in regions that are geographically close to each

other for trade, for more effective practical cooperation, and for smaller groups made up of countries with the same cultural, historical and political commonness. There is a need to expand the scope of D-8 member's effectiveness by community participation via private business sector organizations and NGOs.

It is imperative to promote a number of ministerial level conferences to cover important areas of statecraft. The economic cooperation process and independence should be given attention to achieve better integration. The economic system should drive all issues and efforts should be made for growth, and general agreement for an Islamic economic system that is relevant to modern times. The establishment of a desirable multi-disciplinary research body within member countries secretariat to ensure deliberate planning and policy making. The establishment of a D-8 information broadcast should be immediately instituted to project the views of the D-8 on contemporary political, economic and ideological issues. A global program for the promotion of peace for Muslims and all humanity should be consolidated and projected via the electronic media. A common market for Islamic countries should be a long term ideology and should be approached in stages with care. Far reaching initiatives should be taken for trade preferences, joint venture coordination and the harmonization of different sets of economic policies for regional schemes of financial and monetary cooperation. Regional integration schemes should be established, for example, linking the Gulf Cooperation Council for Economic Cooperation Organization to the others should be considered. This may constitute a solid foundation for the overall Islamic common market framework that comprises regional components.

REFERENCES

Acar, M., Alpay, S., Bakimli, E., & Koc, Z. Z. (2009). South-East Asian Integration in the Context of OIC: Implications of Free Trade among Malaysia, Indonesia and Bangladesh. *Journal of Economic Integration, 24*(1), 1-18.

African Development Bank Group (2010).*Egypt Power Sector in Brief*.

Aggarwal, A. (2008). *Regional economic integration and FDI in South Asia: Prospects and problems*: Indian Council for Research on International Economic Relations.

Ahmad, J. (1991). Economic Integration in Developing Countries and South Trade. *Industry and Development, 30*.

Ahmad, N., & Ahmed, F. (2005). Does Government Size Matter? A Case Study of D-8 Member Countries. *Pakistan Economic and Social Review, 43*(2), 199-212.

Ahmadi, R., & Mohebbi, N. (2012). Trade Openness and Economic Growth in Iran. *Journal of Basic and Applied Scientific Research, 2*(1), 885-890.

Aitken, N. D. (1973). The effect of the EEC and EFTA on European trade: A temporal cross-section analysis. *The American Economic Review, 63*(5), 881-892.

Alpay, S., Atlamaz, M., & Bakimli, E. (2011). Trade among OIC countries: limits of Islamic solidarity. *Insight Turkey (Ankara), 13*(2).

Amsden, A. H. (1980). The Industry Characteristics of Intra. Third World Trade in Manufactures. *Economic Development and Cultural Change, 29*(1), 1-19.

Amsden, A. H. (1987). The directionality of trade: Historical perspective and overview historical perspective and overview. In O. Havrylyshyn (ed.), How Direction Affects Performance,. 123-138.

An, G., & Iyigun, M. F. (2004). The export skill content, learning by exporting and economic growth. *Economics letters, 84*(1), 29-34.

Anaman, K. A., & Al-Kharusi, L. H. S. (2003). An analysis of trade flows between Brunei Darussalam and the European Union. *ASEAN Economic Bulletin, 20*(1), 60-72.

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review, 69*(1), 106-116.

Anderson, J. E., & Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review, 93*(1).

Anderson, T. W., & Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of the American statistical Association*, 598-606.

Antweiler, W., & Trefler, D. (2002). *Increasing returns and all that: a view from trade*: National Bureau of Economic Research.

Aral, B. (2005). An Inquiry into the D-8 Experiment: An Incipient Model of an Islamic Common Market?. *Alternatives: Turkish Journal of International Relations, 4*(1&2).

Baier, S. L., & Bergstrand, J. H. (2004). Trade agreements and trade flows: Estimating the effect of free trade agreements on trade flows with an application to the European Union. *European Economy-Economic Papers*.

Baier, S. L., & Bergstrand, J. H. (2007). Do free trade agreements actually increase members' international trade? *Journal of International Economics, 71*(1), 72-95.

Baier, S. L., & Bergstrand, J. H. (2009a). Bonus vetus OLS: A simple method for approximating international trade-cost effects using the gravity equation. *Journal of International Economics, 77*(1), 77-85.

Baier, S. L., & Bergstrand, J. H. (2009b). Estimating the effects of free trade agreements on international trade flows using matching econometrics. *Journal of International Economics, 77*(1), 63-76.

Balassa, B. (1967). Trade creation and trade diversion in the European Common Market. *The Economic Journal, 77*(305), 1-21.

Balassa, B. (1989). *Comparative advantage, trade policy and economic development*: Harvester Wheatsheaf Hemel Hemstead.

Balassa, B., & Toutjesdijk, A. (1975). Economic Integration Among Developing Countries.*JCMS: Journal of Common Market Studies, 14*(1), 37-55.

Balasubramanyam, V., & Greenaway, D. (1993). Regional Integration Agreements and Foreign Direct Investment. *Anderson, Kym and Blackhurst, Richard, Regional Integration and the Global Trading System, Harvester Wheatsheaf, Hemel Hempstead*.

Baldwin, R. E., Venables, A. J., Gene, M. G., & Kenneth, R. (1995). Chapter 31 Regional economic integration *Handbook of International Economics* (Vol. Volume 3, pp. 1597-1644): Elsevier.

Baldwin, R., & Wyplosz, C. (2006). *Economics of European Integration* (2 ed.). UK: McGraw-Hill: Maidenhead.

Bano, S. (2002). Intra-industry trade and trade intensities: Evidence from New Zealand. from http://hdl.handle.net/10289/1654

Bauer, P. T., & Yamey, B. S. (1957). *The Economics of Under-developed Countries*. Chicago: University of Chicago Press.

Bayoumi, T. A. (1998). *Estimating trade equations from aggregate bilateral data*: International Monetary Fund.

Berglas, E. (1983). The Case for Unilateral Tariff Reductions, Foreign Tariffs Reconsidered. *American Economic Review, 73*.

Bergstrand, J. H. (1985). The gravity equation in international trade: some microeconomic foundations and empirical evidence. *The review of economics and statistics, 67*, 474-481.

Bergstrand, J. H. (1989). The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. *The review of economics and statistics, 71*(1), 143-153.

Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson model, the Linder hypothesis and the determinants of bilateral intra-industry trade. *The Economic Journal, 100*(403), 1216-1229.

Bhagwati, J. (1971). Trade-diverting customs unions and welfare-improvement: A clarification. *The Economic Journal, 81*(323), 580-587.

Bhagwati, J. (1993). *Regionalism and Multilateralism: An Overview. In De Melo, J and Panagariya, A. (eds). New Dimension in Regional Integration*: Cambridge University Press.

Bhagwati, J. (1999). Regionalism and multilateralism: an overview. *Trading Blocs. Alternative Approaches to Analyzing Preferential Trade Agreements*, 3-32.

Bhagwati, J. (2008). *Termites in the Trading System: How Preferential Agreements Undermine Free Trade*. Oxford and New York: Oxford University Press.

Bhagwati, J., Greenaway, D., & Panagariya, A. (1998). Trading preferentially: theory and policy. *The Economic Journal, 108*(449), 1128-1148.

Bhagwati, J., & Panagariya, A. (1996). The theory of preferential trade agreements: historical evolution and current trends. *The American Economic Review, 86*(2), 82-87.

Bhagwati, J. N., & Srinivasan, T. N. (1983). *Lectures on International Trade Cambridge*: the MIT Press.

Bhattacharya, S. K., & Bhattacharyay, B. N. (2007). Gains and Losses of India-China Trade Cooperation–a Gravity Model Impact Analysis: April.

Blomqvist, H. C. (2004). Explaining Trade Flows of Singapore. *Asian Economic Journal, 18*(1), 25-43.

Bozorgi, V., & HOSSEINI, M. (2006). The Establishment of an Efficient Regional Economic Integrative Core Forum among the OIC Members: A Feasibility Study. *The Economic Research, 6*(3), 107-130.

Brecher, R. A., & Bhagwati, J. N. (1981). Foreign ownership and the theory of trade and welfare. *The Journal of Political Economy*, 497-511.

Brown, A. J. (1949). *Applied economics: aspects of the world economy in war and peace* (Vol. 2). London: Rinehart.

Brown, A. J. (1961). Economic separatism versus a common market in developing countries. *Bulletin of Economic Research, 13*(1), 33-40.

Brown, D. K., Deardorff, A. V., & Stern, R. M. (1992). A North American free trade agreement: Analytical issues and a computational assessment. *The World Economy, 15*(1), 11-30.

Brown, D. K., & Stern, R. M. (1989). US-Canada bilateral tariff elimination: The role of product differentiation and market structure: University of Chicago Press.

Bukhari, S. A. H. A. S., Ahmad, M. H., Alam, S., Bukhari, S. S. H. A. S., & Butt, M. S. (2005). An Empirical Analysis of the Linder Theory of International Trade for South Asian Countries. *The Pakistan Development Review*, 307-320.

Bun, M., & Klaassen, F. (2002). The importance of dynamics in panel gravity models of trade. *UvA-Econometrics Discussion Paper, 18*.

Burfisher, M. E., Robinson, S., Thierfelder, K., International Food Policy Research Institute. Markets, T., & Division, I. (2004). *Regionalism: Old and new, theory and practice*: International Food Policy Research Institute.

Byers, J., A. (1997). Great circle distance between capital cities, . from Eden,L., Texas A&M University: http://www.wcrl.ars.usda.gov/cec/java/capitals.htm

Chacholiades, M. (1978). *International trade theory and policy*: raw-Hill Book Company.

Chan, I., & Wall, H. J. (2005). *Controlling for Heterogeneity in Gravity Models of Trade and Integration*: Federal Reserve Bank of St Louis Review.

Cipollina, M., & Salvatici, L. (2010). Reciprocal Trade Agreements in Gravity Models: A Meta-Analysis. *Review of International Economics, 18*(1), 63-80.

Clausing, K. A. (2001). Trade creation and trade diversion in the Canada–United States free trade agreement. *Canadian Journal of Economics/Revue canadienne d'économique, 34*(3), 677-696.

Coe, D. T., Bhavnani, R., Subramanian, A., & Tamirisa, N. T. (2002). *The missing globalization puzzle*: International Monetary Fund.

Cooper, C. A., & Massell, B. F. (1965a). A new look at customs union theory. *The Economic Journal, 75*(300), 742-747.

Cooper, C. A., & Massell, B. F. (1965b). Toward a general theory of customs unions for developing countries. *The Journal of Political Economy, 73*(5), 461-476.

Corden, W. (1974). Max, Trade Policy and Economic Welfare: Oxford: Clarendon Press.

Corden, W. M. (1997). Trade policy and economic welfare. *OUP Catalogue*.

Council, T. U. S. B. (2008). Turkey Brief: The US-Turkish Relations.

Creamer, G. (2003). Open regionalism in the Andean Community: a trade flow analysis. *World Trade Review, 2*(01), 101-118.

Dabour, N. M. (2004). Implications of Establishing an Islamic Common Market: GradualIntegration and Possible Consequences.*Journal of Economic Cooperation, 25*(1), 71-98.

Das, S., & Ghosh, S. (2006). Endogenous trading bloc formation in a north-south global economy. . *Canadian Journal of Economics, 39*(3), 809-830.

Davis, D. R. (1998). *The home market, trade, and industrial structure*: National Bureau of Economic Research.

De Lombaerde, P. (2006). *Assessment and measurement of regional integration* (Vol. 13): Psychology Press.

De Melo, J., & Panagariya, A. (1992). *The new regionalism in trade policy*: World Bank Publications.

Demir, F., & Dahi, O. S. (2011). Asymmetric effects of financial development on South–South and South–North trade: Panel data evidence from emerging markets. *Journal of Development Economics, 94*(1), 139-149.

Demir, F., & Dahi, O. S. (2012). Preferential Trading Agreements and Manufactured Goods Exports: Does It Matter Whom You PTA With? *Munich Personal RePEc Archive*, 48.

Developing 8 secretariat (1997).*Commission of the (Prospective) D-8*.

Developing 8 secretariat (2008): www.developing8.com

Do, T. T. (2006). A Gravity Model for Trade Between Vietnam and Twenty-Three European Countries.

Drysdale, P., & Garnaut, R. (1982). Trade Intensities and the Analysis of Bilateral Trade flows in a many-country world: A survey *Hitotsubash iJournal of Economics and Finance, 22*(2), 62-84.

Edmonds, C., & Li, Y. (2010). *A New Perspective On China Trade Growth: Application Of A New Index Of Bilateral Trade Intensity*: University of Hawaii at Manoa, Department of Economics.

Egger, H., Egger, P., & Greenaway, D. (2008). The trade structure effects of endogenous regional trade agreements. *Journal of International Economics, 74*(2), 278-298.

Egger, P. (2002). An econometric view on the estimation of gravity models and the calculation of trade potentials. *The World Economy, 25*(2), 297-312.

Ehteshami, A. (2002). The foreign policy of Iran.

El-Agraa, A. M. (1984). *Trade theory and policy: some topical issues*: Macmillan.

El-Agraa, A. M. (1989). *The theory and measurement of international economic integration*. London Macmillan.

El-Agraa, A. M. (1999). *Regional integration: Experience, theory and measurement*: Macmillan Basingstoke,, UK.

Estevadeordal, A., Freund, C., & Ornelas, E. (2008). Does Regionalism Affect Trade Liberalization towards Non-Members. *Quarterly Journal of Economics, forthcoming*.

Feenstra, R. C. (2002). Border effects and the gravity equation: consistent methods for estimation. *Scottish Journal of Political Economy, 49*(5), 491-506.

Feenstra, R. C., Markusen, J. A., & Rose, A. K. (1998). *Undertstanding the home market effect and the gravity equation: The role of differentiating goods*: National Bureau of Economic Research.

Findlay, R., & Lundahl, M. (1999). *Resource-led growth-a long-term perspective: the relevance of the 1870-1914 experience for today's developing economies* (Vol. 162): WIDER.

Fontaine, J. M. (1992). *Foreign trade reforms and development strategy*: Psychology Press.

Frankel, J. (1997). *Regional Trading Blocs in the World Economic System*. Washington, DC.: Institute for International Economics.

Frankel, J., Stein, E., & Wei, S. J. (1995). Trading blocs and the Americas: The natural, the unnatural, and the super-natural. *Journal of Development Economics, 47*(1), 61-95.

Frankel, J. A., & Kahler, M. (1994). *Regionalism and Rivalry: Japan and the United States in Pacific Asia*: University of Chicago press.

Frankel, J. A., Stein, E., & Wei, S. J. (1997). *Regional trading blocs in the world economic system*: Peterson Institute.

Freund, C., & Ornelas, E. (2010). *Regional trade agreements*(The World Bank, Policy Research Working Paper Series: 5314. 2010.): World Bank.

Fugazza, M., & Robert-Nicoud, F. (2006). Can South-South trade Liberalisation Stimulate North-South Trade? *Journal of Economic Integration, 21*(2), 234-253.

Fukase, E., & Martin, W. (2001). *Free trade area membership as a stepping stone to development: the case of ASEAN*: World Bank Publications.

Gandolfo, G. (1998). *International trade theory and policy*: Springer Verlag.

Ghosh, S., & Yamarik, S. (2004a). Are regional trading arrangements trade creating?: An application of extreme bounds analysis. *Journal of International Economics, 63*(2), 369-395.

Ghosh, S., & Yamarik, S. (2004b). Does trade creation measure up? A reexamination of the effects of regional trading arrangements. *Economics letters, 82*(2), 213-219.

Grossman, G. (1995). The politics of free trade agreements. *American Economic Review, 85*(4), 667-690.

Grossman, G. M., & Helpman, E. (1993). *The politics of free trade agreements*: National Bureau of Economic Research.

GTZ. (2008). *Supporting regional economic integration and cooperation*. Eschborn.

Gujarati, D. (2003). *Basic Econometrics.* (4th ed.). New York: McGraw Hill.

Haaland, J., & Norman, V. (1992). Global production effects of European integration. *Trade flows and trade policy after*, 67-88.

Hallak, J. C. (2010). A product-quality view of the Linder hypothesis. *The review of economics and statistics, 92*(3), 453-466.

Harun, M. b. (2010). *The establishment and formulation of the D-8 preferential trade agreement; the strategies by developing eight of economic co-operation organization (D-8) amongst Muslim countries towards successful trade policy formulation and implementation process*. Paper presented at the Economic Development and International Trade.

Hassan, M. K. (2000). Trade relations with SAARC countries and trade policies of Bangladesh. *Journal of Economic Cooperation, 21*(3), 99-151.

Hassan, M. K. (2001). Is SAARC a viable economic block? Evidence from gravity model. *Journal of Asian Economics, 12*(2), 263-290.

Hassan, M. K. (2002). An empirical investigation of economic cooperation among the OIC member countries. *Working Papers*.

Hassan, M. K. (2003). Portfolio investment of the OIC countries and their implications on trade. *Managerial Finance, 29*(2/3), 122-157.

Hassan, M. K., Mehanna, R. A., & Basher, S. A. (2003). Regional cooperation in trade, finance and investment among SAARC countries: The Bangladesh perspective. *Thoughts on Economics, 13*(1), 7-29.

Hassan, M. K., Sanchez, B. A., & Hussain, M. E. (2009). *Economic Performance of the OIC Countries and the prospect of an Islamic Common Market*.

Hassan, M. K., Sanchez, B. A., & Hussain, M. E. (2010). Economic Performance of the OIC Countries and the prospect of an Islamic Common Market. *Journal of Economic Cooperation and Development, 31*(2), 65-121.

Hausmann, R., Hwang, J., & Rodrik, D. (2007). What you export matters. *Journal of Economic Growth, 12*(1), 1-25.

Helliwell, J., Lee, E., & Messinger, H. (1998). Effects of the Canada-US FTA on interprovincial trade,'photocopy. *University of British Columbia*.

Helpman, E., & Krugman, P. R. (1987). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy*: The MIT press.

Henderson, D. J., & Millimet, D. L. (2008). Is gravity linear? *Journal of Applied Econometrics, 23*(2), 137-172.

Hertel, T., Hummels, D., Ivanic, M., & Keeney, R. (2007). How confident can we be of CGE-based assessments of Free Trade Agreements? *Economic Modelling, 24*(4), 611-635.

Hill, H. (1985). Australia-Philippine Trade Relationsî. *Journal of Philippine Development, 12(2)*, 20.

Hitiris, T. (1994). *European Community economics*: Harvester Wheatsheaf.

Holmes, P., Laconove, L., & Robinson, S. (2006). *Regional Integration, Economic Performance, and Trade Agreements*. Paper presented at the RTA conference.

Hunt, D. (1989). *Economic theories of development*: Harvester Wheatsheaf Hertfordshire.

Hur, J. (2001). *Effects of Regional Free Trade Agreement on Industrial Stnteture: An Extension of Krugman's Economic Geography Model (1991)*: National University of Singapore, Department of Economic, WP10113.

ICDT, (2008). Report on the Project of the Free Trade Area Among the OIC Members States. Istanbul – Republic of Turkey.

Jayasinghe, S., & Sarker, R. (2008). Effects of Regional Trade Agreements on Trade in Agrifood Products: Evidence from Gravity Modeling Using Disaggregated Data. *Applied Economic Perspectives and Policy, 30*(1), 61-81.

Johnson, H. G. (1965). An economic theory of protectionism, tariff bargaining, and the formation of customs unions. *The Journal of Political Economy, 73*(3), 256-283.

Kandogan, Y. (2008). Consistent estimates of regional blocs' trade effects. *Review of International Economics, 16*(2), 301-314.

Kazutaka, K. (1977). Typology of Trade Intensity Indices. *Hitotsubashi Journal of Economics, 17*(2), 15-32.

Kemp, M. C., & Wan, H. (1976). An elementary proposition concerning the formation of customs unions.

Khorana, S., Kimbugwe, K., & Perdikis, N. (2007). *The Impact of Tariff Reductions Under the East African Community Customs Union: Intra-trade Effects on Uganda*: Aberystwyth University.

Kojima, K. (1964). The pattern of international trade among advanced countries. *Hitotsubashi Journal of Economics, 5*, 16-36.

Kowalski, P., & Shepherd, B. (2006). South-South trade in goods (Vol. Working Paper No 40): OECD Trade Policy.

Krishna, P. (1993). *Regionalism vs Multilateralism*. Paper presented at the presented to the NBER Universities Research Conference on International Trade Rules and Institutions.

Krishna, P., & Bhagwati, J. (1997). Necessarily welfare-enhancing customs unions with industrialization constraints: The Cooper-Massell-Johnson-Bhagwati conjecture. *Japan and the World Economy, 9*(4), 441-446.

Krueger, A. O. (1995). *Free Trade Agreements versus Customs Unions* (National Bureau of Economic Research, Inc, NBER Working Papers: 5084. 1995.). Cambridge: National Bureau of Economic Research.

Krueger, A. O. (1997). Free trade agreements versus customs unions. *Journal of Development Economics, 54*(1), 169-187.

Krueger, A. O. (1999). *Trade creation and trade diversion under NAFTA*: National Bureau of Economic Research.

Krugman, P. (1980). Scale economies, product differentiation, and the pattern of trade. *The American Economic Review, 70*(5), 950-959.

Krugman, P. (1991a). *Is bilateralism bad? in: E. Helpman and A. Razin, (eds), International Trade and Trade Policy*. Cambridge, MIT press.: National Bureau of Economic Research.

Krugman, P. (1991b). *The move toward free trade zones, in : Policy Implications of Trade and Currency Zones*: A Symposium Sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole.

Krugman, P., & Venables, A. (1993). *Integration, Specialization, and the Adjustment*: National Bureau of Economic Research.

Krugman, P., & Venables, A. J. (1995). *Globalization and the Inequality of Nations*: National Bureau of Economic Research.

Krugman, P., & Maurice, O. (2005). *International economics: theory and policy* (7 ed.). Boston: Addison-Wesley.

Lall, S., Ray, A, & Ghosh, S. (1989). The Determinats and Promotion of South-South Trade in ManufacturedProducts. *South-South trade: trends, issues, and obstacles to its growth*, 131.

Lang, F., & Ohr, R. (1995). *International Economic Integration.*. Heidelberg: Physica.

Langhammer, R. J., & Hiemenz, U. (1998). The rationale of regional integration among developing countries. *International Economic Integration, Critical Perspectives on the World Economy, 1*.

Lee, J. W., Park, I., & Shin, K. (2008). Proliferating regional trade arrangements: Why and whither? *The World Economy, 31*(12), 1525-1557.

Lewis, W. A. (1980). The slowing down of the engine of growth. *The American Economic Review, 70*(4), 555-564.

Linder, S. B. (1961). An Essay on Trade and Transformation. from New York: John Wiley and Sons.:

Linder, S. B. (1967). *Trade and trade policy for development*: Praeger New York.

Linder, P. H. (1991). *International Economics* (ninth ed.). Homewood: Irwin.

Linneman, H. (1966). An Econometric Study of International Trade Flows. Retrieved 1

Lipsey, R. G. (1957). The theory of customs unions: trade diversion and welfare. *Economica, 24*(93), 40-46.

Lipsey, R. G. (1960). The theory of customs unions: a general survey. *The Economic Journal, 70*(279), 496-513.

Lipsey, R. G., & Lancaster, K. (1956). The general theory of second best. *The Review of Economic Studies, 24*(1), 11-32.

Lombaerde, P. D. (2006). *Assessment and Measurement of International Economic Integration*. New York:: Routledge.

Magee, C. S. (2003). Endogenous preferential trade agreements: An empirical analysis. *The BE Journal of Economic Analysis & Policy, 2*(1), 15.

Magee, C. S. P. (2008). New measures of trade creation and trade diversion. *Journal of International Economics, 75*(2), 349-362.

Markusen, J. A., & Feenstra, R. C. (1998). *Understanding the Home Market Effect and the Gravity Equation: The Role of Differentiating Goods*.

Markusen, J. R. (1981). Trade and the gains from trade with imperfect competition. *Journal of International Economics, 11*(4), 531-551.

Martinez-Zarzoso, I., & Nowak-Lehmann, F. (2003). AUGMENTED GRAVITY MODEL: AN EMPIRICAL APPLICATION TO MERCOSUR-EUROPEAN UNION TRADE FLOWS. *Journal of Applied Economics, 6*, 291-316.

Martínez-Zarzoso, I., & Nowak-Lehmann, F. D. (2004). Economic and Geographical Distance: Explaining Mercosur Sectoral Exports to the EU. *Open Economies Review, 15*(3), 291-314.

Matyas, L., Konya, L., & Harris, M. N. (1997). Modelling export activity in a multicountry economic area: The APEC case. *Monash Econometrics and Business Statistics Working Papers*.

McKitrick, R. R. (1998). The econometric critique of computable general equilibrium modeling: the role of functional forms. *Economic Modelling, 15*(4), 543-573.

Medvedev, D. (2010). Preferential trade agreements and their role in world trade. *Review of World Economics*, 1-24.

Melvin, J. R. (1969). Comments on the Theory of Customs Unions*. *The Manchester School, 37*(2), 161-168.

Miller, A. T., & Kim, A. B. (2011). Defining Economic Freedom. *Index of Economic*.

Milner, C., & Sledziewska, K. (2008). Capturing Regional Trade Effects in the Presence of Other Trade Effects: The Impact of the Europe Agreement on Poland's Imports. *Open Economies Review, 19*(1), 43-54.

Mirus, R., & Rylska, N. (2001). Economic Integration: Free Trade Areas vs Customs Unions. *Edmonton, Canada: Western Centre for Economic Research*.

Molle, W. (2006). *The economics of European integration: Theory, practice, policy*: Ashgate Publishing.

Montanari, M. (2005). EU Trade with the Balkans: Large Room for Growth? *Eastern European Economics, 43*(1), 59-81.

Myrdal, G. (1956). *An international economy: Problems and prospects* (Vol. 56): Harper.

Nath, H. K., & Yildiz, H. M. (2010). The Implications of a South-South Customs Union on Tariffs, Welfare, and the Prospect of Global Free Trade*. [Article]. *Journal of Business Strategies, 27*, 75-91.

Neary, J. P. (1998). Pitfalls in the Theory of International Trade Policy: Concertina Reforms of Tariffs, and Subsidies to High-Technology Industries. *The Scandinavian Journal of Economics, 100*(1), 187-206.

Negasi, M. Y. (2009). Trade Effects of Regional Economic Integration in Africa: The Case of SADC.

Nikbakht, Z., & Nikbakht, L. (2011). The analysis of bilateral trade: The case of D-8. *Volume 4-Number 1-January 2011-Semiannual Publication, 4*(1), 179.

Othman, J., Acar, M., & Jafari, Y. (2010). Towards OIC Economic Cooperation: Impacts of Developing 8 (D-8) Preferential Trade Agreement.

Panagariya, A. (2000). Preferential trade liberalization: the traditional theory and new developments. *Journal of Economic literature, 38*(2), 287-331.

Panagariya, A., & Findlay, R. (1996). A Political-Economy Analysis of Free-Trade Areas and Customs Unions The political economy of trade policy: Papers in honor of Jagdish Bhagwati. Feenstra, Robert C. Grossman, Gene M. Irwin, Douglas A., eds. 265-287.

Panagariya, A., & Krishna, P. (2002). On necessarily welfare-enhancing free trade areas. *Journal of International Economics, 57*(2), 353-367.

Park, D. (2006). Is the ASEAN-Korea Free Trade Area (AKFTA) an Optimal Free Trade Area?

Park, D. (2007). The Prospects of the ASEAN–China Free Trade Area (ACFTA): A Qualitative Overview. *Journal of the Asia Pacific Economy, 12*(4), 485-503.

Park, D., Park, I., & Estrada, G. E. B. (2008). *Is the ASEAN-Korea Free Trade Area (AKFTA) an Optimal Free Trade Area?* : Asian Development Bank.

Park, I., & Park, S. (2009). Free Trade Agreements versus Customs Unions: An Examination of East Asia*. *Asian Economic Papers, 8*(2), 119-139.

Pitigala, N. (2005). *What does regional trade in South Asia reveal about future trade integration? Some empirical evidence* (Vol. 3497): World Bank Publications.

Polak, J. J. (1996). Is APEC a natural regional trading bloc? A critique of the 'gravity model'of international trade. *The World Economy, 19*(5), 533-543.

Puga, D., & Venables, A. J. (1997). Preferential trading arrangements and industrial location. *Journal of International Economics, 43*(3-4), 347-368.

Rahman, M. (2009). The Determinants of Bangladesh's Imports: A Gravity Model Analysis under Panel Data.

Rahman, M. M. (2003). *A panel data analysis of Bangladesh's trade: the gravity model approach*.

Rahman, M. M. (2004). *The determinants of Bangladesh's trade: evidences from the generalized gravity model*.

Raimi, L., & Mobolaji, H. (2008). Imperative of economic integration among Muslim countries: Lessons from European globalisation. *Humanomics, 24*(2), 130-144.

Ray, D. (1998). *Development Economics*: Princeton University Press.

Richardson, M. (1994). Why a Free Trade Area? The Tariff Also Rises. *Economics & Politics, 6*(1), 79-96.

Robson, P. (1987). *The economics of international integration* (Third ed.). London: Allen and Unwin.

Robson, P. (1998). Theory of Integration in Developing Countries. *International Economic Integration, 1*.

Robson, P. (2006). *The economics of international integration* (Fifth ed.). New York: Routledge.

Roy, J. (2010a). *Empirical essays in international trade.* SOUTHERN METHODIST UNIVERSITY.

Roy, J. (2010b). On the Robustness of the Trade-Inducing Effects of Trade Agreements and Currency Unions. *Working Papers*.

Schiff, M. (2003). The Unilateral/Bilateral/Regional/Multilateral Approaches to Trade Liberalization. *Background paper for Trade for Development. UN Millennium Project, New York*.

Schiff, M., & Wang, Y. (2008). *Brain Drain and Productivity Growth: Are Small States Different?*

Schwanen, D. (2009). Trading up: the impact of increased continental integration on trade, investment, and jobs in Canada.

SESRTCIC (2003). Practical steps and possible consequences of establishing an Islamic common market. *Journal of Economic Cooperations, 24*(1), 41.

SESRIC (2010). *Annual Economic Report on the OIC Countries*.Ankara, TURKEY: Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC).

Soesastro, H., & Hew, D. (2011). Realizing the ASEAN economic community by 2020: ISEAS and ASEAN-ISIS approaches. *ASEAN Economic Bulletin, 20*(3), 292-296.

Soloaga, I., & Alan Winters, L. (2001). Regionalism in the nineties: What effect on trade? *The North American Journal of Economics and Finance, 12*(1), 1-29.

Stiglitz, J. (2003). Global Trade Agreements are at a Dead End. *New Perspectives Quarterly*.

Tang, D. (2003). The effect of European integration on trade with the APEC countries: 1981–2000. *Journal of Economics and Finance, 27*(2), 262-278.

Thornton, J., & Goglio, A. (2002). Regional bias and intra-regional trade in Southeast Asia. *Applied Economics Letters, 9*(4), 205-208.

Tinbergen, J. (1962). Shaping the World Economy : Suggestions for an International Economic Policy.New York: The Twentieth Century Fund.

UNIDO, (2005). Industrial Development, Trade and Poverty Alleviation through South-South Cooperation. from United Nations Industrial Development Organization (UNIDO): New York

UNCTAD (2005).*Trade and Development Report*. Paper presented at the United Nations Conference on Trade and Development (UNCTAD), Geneva.

UNCTAD. (2006). *Developments in international investment agreements in 2005 IIA*: United Nation.

Venables, A. J. (2003). Winners and losers from regional integration agreements*. *The Economic Journal, 113*(490), 747-761.

Vicard, V. (2008). Trade, conflict, and political integration: explaining the heterogeneity of regional trade agreements: CES Working Papers 2008.22.

Vicard, V. (2009). On trade creation and regional trade agreements: does depth matter? *Review of World Economics, 145*(2), 167-187.

Viner, J. (1950). *The customs union issue*: London: Stevens.

Viner, J. (1953). *International trade and economic development*. Oxford Clarendon Press.

Wie, T. K. (2006). Policies for private sector development in Indonesia. *Asian Development Bank Discussion Paper*(46).

Wignaraja, G., & Lazaro, D. (2010). North–South vs. South–South Asian FTAs: Trends, Compatabilities, and Ways Forward. *UNU-CRIS Working Papers W-2010, 3*.

Willmore, L. N. (1976). Trade creation, trade diversion and effective protection in the Central American Common Market. *The Journal of Development Studies, 12*(4), 396-414.

Wonnacott, P., & Wonnacott, R. (1981). Is unilateral tariff reduction preferable to a customs union? The curious case of the missing foreign tariffs. *The American Economic Review, 71*(4), 704-714.

Wormocot, G. P., & R.G, W. (1984). How General is the Case for Unilateral Tariff Reduction. *American Economic Review, 14*.

World Bank (2009). from www.WorldBank.org

World Bank (2006). Global Development Finance.

World Bank (2008). Global Development Finance.

World Bank(2005). *Global Economic Prospects: Trade, Regionalism and Development*. Washington, DC

World Bank(2009).*World Development Report "Reshaping Economic Geography"*.

World Economic Outlook (September 2011): Slowing Growth, Rising Risks (IMF, 2011).

WTO (2010). from World Trade Organisation: www.wto.com

Yamazawa, I. (1970). Intensity analysis of world trade flow.

Yamazawa, I. (1971). Structural Change in World Trade Flows. *Hitotsubashi Jounal of Economics* 11-21.

Yavari, K., & Ashrafzadeh, H. (2005). economic integration in developing countries. *journal of trade studies, 36*.

Yildiz, H., & Nath, H. (2010). The Implications of a South-South Customs Union on Tariffs, Welfare, and the Prospect of Global Free Trade.

Zeinelabdin, A., & Ugurel, I. (1998). The Islamic Common Market: is it economically and politically justifiable? *Humanomics, 14*(4), 79-117.

Zhang, J., & Kristensen, G. (1995). A gravity model with variable coefficients: The EEC trade with third countries. *Geographical Analysis, 27*(4), 307-320.

APPENDIX A

Dependent Variable: X
Method: Panel EGLS (Cross-section weights)
Date: 06/23/11 Time: 09:33
Sample (adjusted): 1983 1997
Periods included: 15
Cross-sections included: 50
Total panel (unbalanced) observations: 638
Iterate coefficients after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)
Convergence achieved after 9 total coef iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C	-19.06263	5.620345	-3.391719	0.0007
LOG(GDPJ)	0.570628	0.110588	5.159954	0.0000
LOG(GDPI)	1.215348	0.178594	6.805083	0.0000
LOG(POPI/POPJ)	-0.246617	0.126596	-1.948058	0.0519
LOG(DIJ)	-0.973151	0.189514	-5.134977	0.0000
COMBORDER	1.577207	0.510349	3.090446	0.0021
LINDER	-0.000939	0.020089	-0.046744	0.9627
LANG	-2.009441	0.863221	-2.327842	0.0202
AR(1)	0.848785	0.018994	44.68635	0.0000

Weighted Statistics

R-squared	0.885180	Mean dependent var	24.07165
Adjusted R-squared	0.883719	S.D. dependent var	12.57346
S.E. of regression	0.828377	Sum squared resid	431.6247
F-statistic	606.1414	Durbin-Watson stat	2.244811
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.804268	Mean dependent var	16.61341
Sum squared resid	451.7709	Durbin-Watson stat	2.457398

Inverted AR Roots	.85

Dependent Variable: X

Method: Panel EGLS (Cross-section weights)
Date: 06/23/11 Time: 09:34
Sample (adjusted): 1983 2008
Periods included: 26
Cross-sections included: 53
Total panel (unbalanced) observations: 1196
Iterate coefficients after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)
Convergence achieved after 13 total coef iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.38738	5.614563	-3.096835	0.0020
LOG(GDPJ)	0.349316	0.097322	3.589269	0.0003
LOG(GDPI)	1.273135	0.208222	6.114321	0.0000
LOG(POPI/POPJ)	-0.292999	0.220568	-1.328384	0.1843
LOG(DIJ)	-0.620765	0.327673	-1.894466	0.0584
COMBORDER	1.063151	0.526475	2.019375	0.0437
LINDER	-0.019134	0.012592	-1.519580	0.1289
LANG	-1.005077	0.737688	-1.362470	0.1733
AR(1)	0.907472	0.013993	64.85379	0.0000

Weighted Statistics

R-squared	0.916479	Mean dependent var	23.26825
Adjusted R-squared	0.915916	S.D. dependent var	11.26930
S.E. of regression	0.708203	Sum squared resid	595.3409
F-statistic	1628.129	Durbin-Watson stat	2.358163
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.862918	Mean dependent var	17.18698
Sum squared resid	614.0427	Durbin-Watson stat	2.527404

Inverted AR Roots	.91

Pedroni Residual Cointegration Test

Series: X LOG(GDPJ) LOG(GDPI) LOG(POPI/POPJ) LINDER

Date: 11/15/10 Time: 23:43

Sample: 1983 2008

Included observations: 1456

Cross-sections included: 50 (6 dropped)

Null Hypothesis: No cointegration

Trend assumption: Deterministic intercept and trend

Lag selection: Automatic SIC with max lag of 1 to 4

Newey-West bandwidth selection with Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel PP-Statistic	-12.95300	0.0000	-14.93041	0.0000
Panel ADF-Statistic	-13.13704	0.0000	-15.30784	0.0000

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	11.44938	1.0000
Group PP-Statistic	-17.68383	0.0000
Group ADF-Statistic	-14.71646	0.0000

Kao Residual Cointegration test

Series: X LOG(GDPJ) LOG(GDPI) LOG(POPI/POPJ) LINDER
Date: 11/15/10 Time: 23:46
Sample: 1983 2008
Included observations: 1456
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Lag selection: Automatic no lag by SIC with a max lag of 0
Newey-West bandwidth selection using Bartlett kernel

	rho	Prob.	t-Statistic	Prob.
DF	3.584534	0.0002	-9.103521	0.0000
DF*	5.438922	0.0000	-6.287611	0.0000

Residual variance	0.559192
HAC variance	0.343197

Dickey-Fuller Test Equation
Dependent Variable: D(RESID)
Method: Least Squares
Date: 11/15/10 Time: 23:46
Sample (adjusted): 1984 2008
Included observations: 1197 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.367546	0.021236	-17.30759	0.0000

R-squared	0.200048	Mean dependent var	0.013103
Adjusted R-squared	0.200048	S.D. dependent var	0.744793
S.E. of regression	0.666144	Akaike info criterion	2.026212
Sum squared resid	530.7216	Schwarz criterion	2.030462
Log likelihood	-1211.688	Hannan-Quinn criter.	2.027813
Durbin-Watson stat	2.176309		

Johansen Fisher Panel Cointegration

Series: X LOG(GDPJ) LOG(GDPI) LOG(POPI/POPJ) LINDER

Date: 11/15/10 Time: 23:46
Sample: 1983 2008
Included observations: 1456
Trend assumption: Linear deterministic trend
Lags interval (in first differences): 1 1

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.
None	1211.	0.0000	842.1	0.0000
At most 1	605.8	0.0000	403.5	0.0000
At most 2	288.3	0.0000	193.9	0.0000
At most 3	173.1	0.0000	151.4	0.0001
At most 4	137.4	0.0015	137.4	0.0015

* Probabilities are computed using asymptotic Chi-square distribution.

Panel unit root test
Series: GDPI

Date: 11/15/10 Time: 23:53
Sample: 1983 2008
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	12.3348	1.0000	56	1344
Breitung t-stat	19.4260	1.0000	56	1288
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	12.5629	1.0000	56	1344
ADF - Fisher Chi-square	58.4351	1.0000	56	1344
PP - Fisher Chi-square	19.2189	1.0000	56	1400

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Series: GDPJ

Date: 11/15/10 Time: 23:54
Sample: 1983 2008
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 3
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	14.6702	1.0000	56	1379
Breitung t-stat	19.9898	1.0000	56	1323
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	17.1549	1.0000	56	1379
ADF - Fisher Chi-square	36.8462	1.0000	56	1379
PP - Fisher Chi-square	9.81650	1.0000	56	1400

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Series: LINDER

Date: 11/15/10 Time: 23:54
Sample: 1983 2008
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 3
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.98707	0.8382	56	1390
Breitung t-stat	1.85780	0.9684	56	1334
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	1.01743	0.8455	56	1390
ADF - Fisher Chi-square	111.458	0.4967	56	1390
PP - Fisher Chi-square	89.7450	0.9398	56	1400

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Series: POPIJ

Date: 11/15/10 Time: 23:55
Sample: 1983 2008
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	1.93157	0.9733	56	1311
Breitung t-stat	6.26152	1.0000	56	1255
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.06401	0.0195	56	1311
ADF - Fisher Chi-square	347.945	0.0000	56	1311
PP - Fisher Chi-square	239.108	0.0000	56	1400

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Series: X

Date: 11/15/10 Time: 23:57
Sample: 1983 2008
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.4272	0.0000	52	1158
Breitung t-stat	-2.77251	0.0028	52	1106
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.19446	0.0000	52	1158
ADF - Fisher Chi-square	276.711	0.0000	52	1158
PP - Fisher Chi-square	269.506	0.0000	52	1195

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

APPENDIX B

Main commodities of foreign trade of D-8 countries D-8 secretariat 2008

Country	Main Export Items	Main Import Items
Bangladesh	Apparel, sea food	Petroleum, Palm oil, Rice, Cotton fabrics, Transmission apparatus for radiotelephone or television, Motor cars and vehicles
Egypt	Petroleum oils, Hot roll iron/steel, Cement clinkers, Portland cement, Cotton, Apparel, Urea	Butane, Aircraft and parts thereof, Food, Motor vehicles, Iron and steel, Machinery and mechanical appliances, Tobacco, Paper
Indonesia	Petroleum oils, Bituminous coal, Palm oil and its fractions, Technically specified natural rubber, Copper ores and concentrates, Natural gas, Plywood, Fuel oils, Parts & accessories of automatic data processing machines & units thereof	Petroleum, Wheat, Transmission apparatus for radio-broadcasting or television, Motor vehicles, Cotton, Soya bean and oil, Iron and steel, Ethylene
Iran	Petroleum oils, Pistachios, Carpets of wool or fine animal hair, Propane, Butanes, Aluminum, Petroleum bitumen, Grapes, Benzene	Motor vehicles, Machinery and mechanical appliances, Iron and Steel, Rice, Soya, Sugar, Transmission apparatus for radio-broadcasting or television
Malaysia	Metal oxide semiconductors, Parts &accessories of automatic data processing machines & units thereof, Petroleum oils, Portable digital computers, Natural gas, Monolithic integrated circuits, Hybrid integrated circuits, Transmission apparatus for radiotelephone incorporating reception apparatus, Computer input/outputs, with/without storage	Electrical machinery and equipment, Electronic circuits, Petroleum, Transport vehicles, Gold, Copper articles
Nigeria	Petroleum oils, Natural gas, Dredgers, Residues of petroleum oils, Floating docks and vessels, Textured yarn of polyester filaments, Electric lamps and lighting fittings, Sweet biscuits, waffles and wafers, Liquefied ethylene, propylene, butylenes and butadiene, Cargo vessels and other vessels for the transport of both persons &goods	Valves, Floating vessels and platforms, Petroleum oils &oils obtained from bituminous minerals, Wheat, Portland cement, Sugar, Motor vehicles, salt, milk powder, Rubber, Iron and steel, cargo vessels
Pakistan	Textile and apparel, Rice, Carpets of wool or fine animal hair	Transmission apparatus, Cotton, Tea, Rape and colza seeds, Motor vehicles, Transport equipments, Machines, Chemicals, Fabrics
Turkey	Apparel, Color television receivers, Diesel powered trucks Bars & rods of iron and non-alloy steel, Automobiles with reciprocating piston engine, Automobiles with diesel engine, Petroleum obtained from bituminous minerals, Articles of jewelry	Iron and steel, Petroleum, Gold, Automobiles, Transport equipment, Vehicles, Chemicals, Electronic equipment

Major World Trade Partners of Individual "D-8" Member, Countries Center of Advanced Research and Studies on Islamic Common Market (CARSICM) 2004

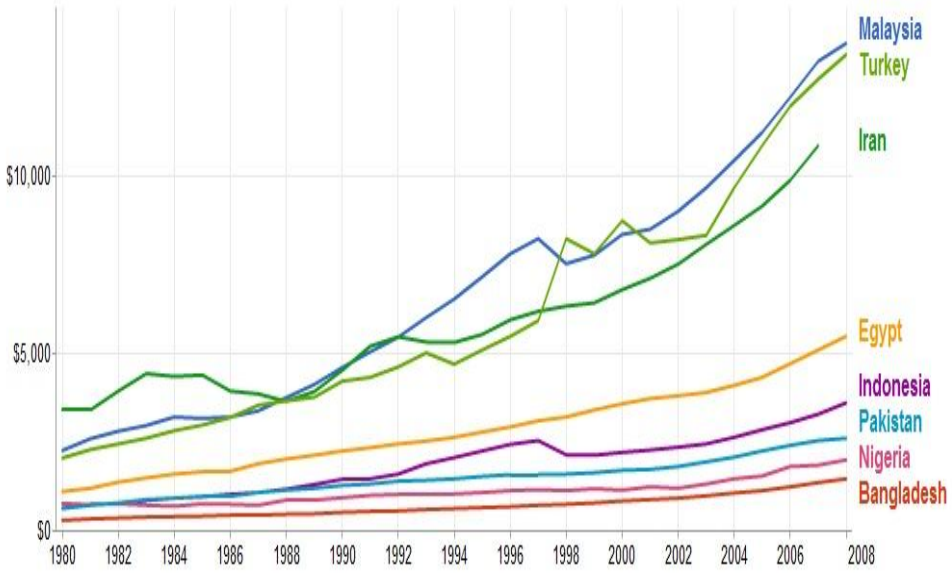
Country	Major export trading partners			Major import trading partners			Major industrial Products	Major agricultural products
	1	2	3	1	2	3		
Bangladesh	USA (38.6)	Germany (12.3)	UK (10.1)	China (18.0)	Singapore (16.0)	Korea Rp. (12.4)	Jute manufacturing, cotton textiles, food processing, steel, fertilizer	Rice, jute, tea, wheat, sugarcane, potatoes, beef, milk, poultry
Egypt	Italy (19.9)	USA (19.2)	UK (12.4)	USA (23.9)	Italy (8.4)	Germany (8.2)	Textiles, food processing, tourism, chemicals, petroleum, construction, cement, metals	Cotton, rice, corn, wheat, beans, fruits, vegetables, cattle, water buffalo, sheep, goats, annual fith catch about 140,000
Indonesia	Japan (26.1)	USA (19.2)	Korea Rp. (7.9)	Japan (25.4)	Korea Rp. (13.0)	China (11.2)	Petroleum & natural gas, textile, mining, cement, chemical fertilizers, plywood, food, rubber, tourism	Rice, cassava (tapioca), peanuts, rubber, cocoa, coffee, palm oil, copra, other tropical products, poultry, beef, pork, eggs
Iran	Japan (26.2)	China (12.6)	Italy (11.0)	Germany (12.6)	France (9.2)	Italy (7.8)	Petroleum, petrochemicals, textiles, cement and other construction materials, food processing (particularly sugar refining and vegetable oil production), metal	Wheat, rice, other grains, sugar beets, fruits, nuts, cotton, dairy products, wool, caviar
Malaysia	USA (23.0)	Singapore (20.0)	Japan (12.8)	Singapore (32.6)	Japan (17.0)	USA (13.2)	Rubber and oil palm, light manufacturing electronics, tin mining and smelting, timber processing, petroleum, agriculture processing	Natural rubber, palm oil, rice, timber, coconut, pepper
Nigeria	USA (48.8)	Spain (10.2)	Brazil (7.5)	USA (10.1)	China (9.7)	UK (9.5)	Crude oil, coal, tin, cotton, rubber, wood, hides and materials, footwear, chemicals, fertilizer, printing, ceramics, steel	Cocoa, peanuts, palm oil, corn, rice, sorghum, millet, cassava (tapioca), yarns, rubber, cattle, sheep, goats, pigs,
Pakistan	USA (28.5)	UK (7.4)	China (6.8)	China (13.1)	USA (8.6)	Japan (8.1)	Textiles, food processing, beverages, construction materials, clothing, paper products, shrimp	Cotton, wheat, rice, sugarcane, fruits, vegetables, milk, beef, mutton, eggs
Turkey	Germany (21.4)	USA (12.0)	Italy (10.0)	Germany (17.7)	Italy (11.6)	USA (10.4)	Textiles, food processing, mining (coal, chromites, copper, boron), steel, petroleum, construction, lumber, paper	Tobacco, cotton, grain, olives, sugar beets, pulses, citruses, livestock

Five major trade partners of each D-8 member countries Center of Advanced Research and Studies on Islamic Common Market (CARSICM) 2004

COUNTRY	Major Export Trading D-8 Countries					Major Import Trading D-8 Countries				
	1	2	3	4	5	1	2	3	4	5
Bangladesh	IRAN (ISLM.R)(0.70)	TURKEY(0.53)	PAKISTAN (0.50)	EGYPT(0.22)	INDONESIA(0.13)	INDONESIA(2.19)	MALAYSIA(1.89)	PAKISTAN(0.76)	IRAN (ISLM.R)(0.13)	TURKEY(0.13)
Egypt	TURKEY(1.19)	PAKISTAN(0.52)	INDONESIA(0.27)	MALAYSIA(0.19)	NIGERIA(0.10)	TURKEY(1.43)	MALAYSIA(1.23)	INDONESIA(1.07)	PAKISTAN(0.32)	BANGLADESH(0.07)
Indonesia	MALAYSIA(3.55)	NIGERIA(0.51)	PAKISTAN(0.46)	BANGLADESH(0.43)	TURKEY(0.42)	NIGERIA(3.69)	MALAYSIA(3.31)	PAKISTAN(0.25)	IRAN (ISLM.R)(0.21)	TURKEY(0.07)
Iran	TURKEY(3.28)	PAKISTAN(0.75)	MALAYSIA(0.47)	INDONESIA(0.25)	EGYPT(0.04)	TURKEY(1.96)	MALAYSIA(1.07)	INDONESIA(0.67)	PAKISTAN(0.22)	BANGLADESH(0.20)
Malaysia	INDONESIA (1.64)	PAKISTAN(0.50)	EGYPT(0.24)	TURKEY(0.23)	IRAN (ISLM.R)(0.21)	INDONESIA(3.00)	IRAN (ISLM.R)(0.16)	TURKEY(0.12)	PAKISTAN(0.08)	EGYPT(0.02)
Nigeria	INDONESIA(5.94)	TURKEY(0.95)	MALAYSIA(0.02)	PAKISTAN(0.01)	BANGLADESH(0.01)	INDONESIA(2.58)	MALAYSIA(0.61)	TURKEY(0.55)	PAKISTAN(0.37)	EGYPT(0.06)
Pakistan	TURKEY(1 .11)	BANGLADESH(1 .05)	INDONESIA(0.82)	MALAYSIA(0.65)	EGYPT(0.54)	MALAYSIA(4.53)	INDONESIA(2.56)	IRAN (ISLM.R)(1.82)	TURKEY(0.95)	EGYPT(0.36)
Turkey	EGYPT(0.92)	IRAN (ISLM.R) (0.86)	MALAYSIA(0.32)	NIGERIA(0.18)	PAKISTAN(0.15)	IRAN (ISLM.R)(1.81)	INDONESIA(0.64)	MALAYSIA(0.48)	NIGERIA(0.36)	EGYPT(0.23)

Macro Economic Data for D-8 Countries Heritage 2010

Country	Overall Score	Tariff Rate	Income Tax Rate	Corporate Tax Rate	Population (millions)	GDP (billions)	GDP Per Capita	Unemployment Rate	Inflation Rate	FDI Inflow (millions)	Tax Burden % GDP	Govt. Expenditure % GDP
Bangladesh	51.1	11	25	45	160	213.5	1334	4.2	8.4	1100	8.4	14.3
Egypt	59	8	20	20	81.5	441.6	5416	8.4	11.7	9500	15.3	29.8
Indonesia	55.5	3.6	30	28	228.2	907.3	3975	8.4	9.8	7900	11.3	19.1
Iran	43.4	17.4	35	25	72	839.4	11666	12.5	26	1.5	6.1	26.1
Malaysia	64.8	3.1	27	25	27	383.7	14215	3.3	5.4	8100	14.8	25
Nigeria	56.8	8.9	25	30	151.3	315	2082	4.9	11.2	20300	5.6	34.3
Pakistan	55.2	9	25	35	166	439	2644	7.4	12	5400	10.2	19.3
Turkey	63.8	1.8	35	20	73.9	1000	13920	9.4	10.4	18200	23.7	23.9



D-8 GNI per capita in PPP dollars World Bank 2010