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EMPIRICAL ANAYLYSIS OVER TRADE ADVANTAGE OF TURKEY IN THE LIGHT OF INTERNATIONAL COSTS

MASTER THESIS

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Department   **: International Trade**

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DECLARATION

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Halil ŞİMDİ
07.07.2014

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS

ADF   **:** Augmented Dickey Fuller

BDI   **:** Baltic Dry Index

CAN   **:** Competitive Advantage of Nations

CIF   **:** Cost, Insurance and Freight

CIS   **:** Commonwealth of Independent States

CMEA   **:** Council for Mutual Economic Assistance

DF   **:** Dickey Fuller

EEC   **:** European Economic Community

EFTA   **:** European Free Trade Association

EMEs   **:** Emerging Market Economies

ENP   **:** European Neighborhood Policy

ERP   **:** European Recovery Programme

EU   **:** European Union

FDI   **:** Foreign Direct Investment

FOB   **:** Free on Board

GATT   **:** General Agreement on Tariffs and Trade

GDP   **:** Gross Domestic Product

GTC   **:** Gross Trade Creation

H-O   **:** Heckscher-Ohlin

IBRD   **:** International Bank for Reconstruction and Development

IMF   **:** International Monetary Fund

ITO   **:** International Trade Organization

MFN   **:** Most-Favored-Nation

NTT   **:** New Trade Theory

OECD : Organization for Economic Cooperation and Development

OEEC : Organization for European Economic Cooperation

OPEC : Organization of Petroleum Exporting Countries

PTA : Preferential Trade Agreement

RTAA : Reciprocal Trade Agreements Act

SDR : Special Drawing Right

TY : Toda Yamamoto

UK : United Kingdom

UNCTAD : United Nations Conference on Trade and Development

US : United States of America

USSR : Union of Soviet Socialist Republics

VECM : Vector Error Correction Model

WTO : World Trade Organization

WWI : World War I

WWII : World War II

LIST OF TABLES

LIST OF FIGURES

Tezin Başlığı: Uluslararası Maliyetler Işığında Türkiye'nin Ticaret Avantajına Yönelik Ampirik Analiz	
Tezin Yazarı: Halil ŞİMDİ	**Danışman:** Doç. Dr. Hakan TUNAHAN
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Anabilimdalı: Uluslararası Ticaret	**Bilimdalı:** Uluslararası Ticaret

Ülkelerin iktisadi anlamda kendi kendilerine yetememesi ve uzmanlaşarak daha verimli üretime yönelmesi uluslararası ticaretin önemini giderek artırmaktadır. Son otuz yılda, uluslararası ticaret küresel hasıla düzeyinden daha hızlı büyümektedir. Dünya Ticaret Örgütü'nün (DTÖ) 2001 Dünya Ticaret Raporu'na göre 1980'den bu yana 21. yüzyılın başına kadar dünya ticareti, yaklaşık olarak dünya üretim büyümesinden iki kat daha hızlı büyümüştür. Ayrıca, yükselen piyasa ekonomileri dünya ticaretindeki paylarını gün geçtikçe artırmaktadır vetoplam küresel ihracattaki payları hemen hemen %50 düzeyine ulaşmıştır.

Gelişen ekonomiler arasında bulunan Türkiye, 2023 itibariyle, uluslararası ticaretteki payını %1.5'e çıkarmayı ve dünyada ilk 10 ekonomi içerisinde yer almayı hedeflemektedir. Ayrıca ihracatın ithalata oranının da 2023 yılında %80 olarak gerçekleşmesi planlanmaktadır. Türkiye'nin dış ticareti için gelecek planlanırken uluslararası maliyetlerin göz ardı edilmesi büyük sorunları da beraberinde getirebilir. Bu maliyetler içinde taşımacılık maliyetleri ve emtia fiyatları uluslararası ticaretin belirleyicilerindendir. Aynı zamanda döviz kurunun da bir ülkenin uluslararası ticaretteki performansı açısından önemli bir role sahip olduğu görülmektedir. Taşımacılık maliyetlerinin, uluslararası emtia fiyatlarının ve döviz kurunun ülkelerin uluslararası ticaretinin temsili değişkenleri arasında oldukları kabul edilmektedir.

Tez çalışmasının temel amacı, Türkiye'nin dış ticaretinin uluslararası maliyetler ile olan nedensellik ilişkisini ortaya çıkarmaktır. Uluslararası ticaretin başlıca maliyetlerinden olan emtia fiyatları ve taşıma maliyetlerinin yanında döviz kuru da buna ek olarak küresel anlamda dış ticaretin belirleyici etkenleri olarak ele alınmaktadır. Taşımacılık maliyetlerini ölçmek için Baltık Kuru Yük endeksi (BDI) referans olarak alınmıştır. Yapılan ekonometrik analizin sonuçlarına göre BDI verileri üzerinden belirlenen uluslararası taşımacılık maliyetlerinden ve nominal efektif döviz kurundan ithalata, ulusalararası emtia fiyatlarından ve nominal efektif döviz kurundan ihracata Granger nedensellik bulunmuştur.

Anahtar Kelimeler: Türkiye'nin Dış Ticareti, Reel Efektif Döviz Kuru, Nominal Efektif Döviz Kuru, Baltık Kuru Yük Endeksi, Uluslararası Emtia Fiyat Endeksi.

Sakarya University Institute of Social Sciences   Abstract of Master's Thesis

Title of the Thesis: Empirical Analysis Over Trade Advantage of Turkey in the Light of International Trade Costs	
Author: Halil ŞİMDİ	**Supervisor:** Assc. Prof. Hakan TUNAHAN
Date: 07 July 2014	**Nu. of pages:** viii (pre text) + 83 (main) + 2
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Declining the idea of self-sufficient countries in terms of economy and specialization of countries in order to produce more efficiently increase the importance of international trade. In the last thirty years, international trade has grown faster than global output level. According to 2001 World Trade Report of World Trade Organization (WTO) world trade has been approximately twice as fast as world production growth since 1980 until the start of 21th century.

Share of emerging economies have been raising in world trade. Export share of developing economies reached to nearly half of total export globally. Turkey, one of the developing countries, intends to increase the trade share in international trade to 1.5% and to be in the top 10 economies in the world by 2023. Additionally, export/import ratio is planned to reach 80 % in 2023.

It is possible to give problems when the international trade costs are ignored. Transport costs and commodity prices are two aspects to form international trade patterns. Also, exchange rate of a country has been seen as a significant factor for the international trade performance of country. Transport costs, international commodity prices and exchange rate have been accepted proxy variables of international trade of a country.

The main purpose of the thesis is to find out the relation of foreign trade of Turkey with international costs by finding causality relations. International commodity prices and freight rates are two principal costs for international trade. Baltic Dry Index (BDI) is accepted as the indicator of transportation cost in international trade for the study. Besides, exchange rate of the country is taken another determinant of foreign trade globally. According to results of econometric analyses, international transportation cost from BDI data and nominal effective exchange rate are the Granger causality of import of Turkey. Besides, international commodity prices and nominal exchange rate are the Granger causality of export of Turkey.

Keywords: Foreign Trade of Turkey, Real Effective Exchange Rate, Nominal Effective Exchange Rate, Baltic Dry Index, International Commodity Price Index.

INTRODUCTION

Free movements of factors of production link international trade and globalization process. Intensity of international trade among countries has been speeding up years by years. Additionally, countries want to decrease the physical trade barriers by signing free trade agreements or commercial partnership agreements.

International trade is one of the key element of the openness and economic growth of countries. After mercantilist approaches, the international trade structure of the world had shifted towards liberalism. Adam Smith and David Ricardo have been accepted as the father of international trade theories thanks to their studies in 18th and 19th centuries.

World wars and financial crises hampered the international trade flows among countries. However, countries have intended to increase global trade in favor of them. At this point new markets have been significant actors of international trade. For the next years, the importance of developing economies for international trade will increase in parallel with the volume of international trade.

Anderson and Wincoop (2004) define trade costs as economically sensible measures and patterns among countries and regions across goods. Generally, costs of international trade are not defined under a single model. Novy (2009) mentions different types of trade models instead of a particular model. Sourdin and Pomfret (2012) agree on the no perfect mechanisms to measure international trade cost. On the other hand, international trade costs can be classified under some groups such as tariffs, transportation cost, commodity cost or exchange rate cost.

Subject of Research

Turkey is one of the top 20 countries that is ranked 17 in terms of Gross Domestic Product (GDP) in the world. In addition to this, strategic vision for 2023 includes a prominent aspect for international trade of Turkey. Authorities state that Turkey aims to become one of the ten largest economies throughout the world by 2023, with 25.000 $ GDP per capita and 500 billion $ export.

International trade of the country has been analyzed by many scientists for years. While the related literature is generally composed with the relation between export or import with real exchange rate, economic growth or foreign direct investment (FDI). This study tries to find econometric relation of international trade of Turkey for both import and export with international trade costs. On the other hand, there is no such a study about foreign trade of Turkey. Therefore, the study contributes to literature a new perspective by taking international costs for foreign trade of Turkey.

There is no consensus over the international costs of trade however new elements of international costs – international commodity prices, transportation costs and exchange rates by excluding insurance due to low share over goods as a cost - have been examined within study.

The first part of the study covers the historical international trade developments in terms of transactions and theories until World War II (WWII). Second part is related with the expansion of international trade and globalization period. After that, study focuses on the international trade costs and share of developing economies in the global trade transactions. Last part of the study tries to discover the causality relation between international trade costs and export and import.

Importance of Research

This study reveals the relation of international trade of Turkey with international costs in order to see the global integration and estimate new expectations about global trade of Turkey.

Study contributes to international trade literature with a different perspective. It takes international costs and selects directly global trade related elements. Also, research provides opportunity to make estimation on monthly base for international trade with the help of international trade costs. There are a few studies about causality relations of international cost over international trade of Turkey.

Target of Research

The study tries to find the impact of international costs on foreign trade of Turkey with a different perspective. The literature on the foreign trade of Turkey particularly has been taken to measure influences of real exchange rate and export-led growth by doing causality tests. Tested hypotheses of the study are as follows:

- International transportation cost is Granger Causality for foreign trade of Turkey
- International commodity prices are Granger Causality for foreign trade of Turkey
- Real effective exchange rate is Granger Causality for foreign trade of Turkey
- Nominal effective exchange rate is Granger Causality for foreign trade of Turkey

All of above are investigated for both export and import in terms of amount that are seasonally adjusted.

Method of Research

The research takes monthly data from Turkish Statistical Institute for seasonally adjusted figures of export and import. Closing prices of indices BDI and international commodity prices are obtained from CNBC and United Nations Conference on Trade and Development (UNCTAD) Data Centers. Lastly, the exchange rate data is provided by central bank of Turkey. The study covers the period from January 2004 to December 2013 due to limitation of access to indices.

Study was carried out by Eviews 7 and study tests the causality relation of variables with export and import of Turkey.

Initially, natural logarithms of the data series are tested to find out stationary levels of data by unit root test. Next, relationships between export-import and other variables are going to be searched with the help of Toda – Yamamoto (TY) Granger causality test after calculation of suitable lag criterias. The stationary levels of the not only import but also export are possible after the second differences of the data set. Thus, cointegration test for the data sets become impossible.

PART 1: HISTORICAL BACKGROUND AND THEORIES OF INTERNATIONAL TRADE UNTIL WORLD WAR II

Industrial Revolution is accepted one of the milestone for development of international trade and globalization process all around the world. This part of the study examines the historical phases together with theories of international trade after British Industrial Revolution in order to see developments in the same period for both theoretical and practical perspectives.

Countries intend to intensify international trade flows for the benefit of themselves. Industrial Revolution in Europe altered global economy. Also, international trade experienced remarkable growth rates after revolution with decreasing the costs of goods by using new technology and cheap factors of production.

International trade theories have guided to states to obtain maximum gain from trade however in essence each trade theories contributes to the former one. Trade theories are classified into topics by following historical development of theories according to Hill (2011) who states international trade theories in his book "International Business" from Absolute Advantage of Adam Smith to National Competitive Advantage of Michael Porter. Besides, political and economic dynamics of the world changed the structure of international trade towards not only liberalization but also protectionism.

Industrial Revolution and World Wars forced countries to find out new trade strategies. Also, end of Cold War expanded the impact area of international trade. Initially, British Industrial Revolution accelerated the international trade among countries. Additionally, basic international trade theories coincide with Industrial Revolution in the same centuries.

1.1. Industrial Revolution and Fundamental International Trade Theories

Last parts of eighteenth century have been seen as a decisive moment for economy and international trade. Unlike mercantilist tradition of 16th and 17th centuries, international trade had shifted towards liberalism. However, Mokyr (1985) and Acemoglu et. al. (2002) consider that the origins of English Industrial Revolution are hinged on economic, political and social developments of previous periods. Many ideas regarding

Industrial Revolution concentrate on the internal factors of England or Western Europe (Ferreira et.al, 2010: 2). Capitalist structure of Europe was the driving force for international trade theories that were contributed greatly by Adam Smith and David Ricardo in the Industrial Revolution age.

1.1.1. Infrastructure of Industrial Revolution

Mokyr (2003) assesses the Industrial Revolution as a driving force for economic growth of the Western world. De Vries (1994) sees Industrial Revolution as the most important monument in economic history. Rise of Italian city states and technological expansion Dutch Golden Age such as improving navigation and shipbuilding, defense system against predators and streamlining communication had not been given sufficient momentum as much as Industrial Revolution (Mokyr, 2003: 28). British Industrial Revolution has been commonly accepted as Renaissance of economic history. Economic changes are not often sudden or heroic such as Bastille Days or Bolshevik Revolution (Mokyr, 1999: 2). Deregulation of market was preliminary for industrialization that is indispensable element for free minds and free market (Humphries, 2013: 982). England had private law to protect properties and developed market which had provided suitable conditions for Industrial Revolution. The capitalist structure of the economy in Europe was hardly feasible for widespread phenomenon at global scale without industrial revolution (Ateş, 2008: 46). Unique causes of economic and social transformation in Europe have been studied by social scientists. Key factors of rising capitalism in Europe are listed below (Stanford, 2008: 43-44):

- **New Technology**: Invention of steam power and developments at industrial technologies enhanced productivity level dramatically. New technology required new ways of organizing work and more complex equipments. An owner needed to finance not only investing larger-scale factories but also purchasing these complex and expensive equipments.

- **Empire**: British organizational and military capability contributed in many ways to improvement of capitalism. Empire provided raw materials, exotic goods and slave markets for output of new factories.

- **Government:** Centralized state structure in Britain, France and Holland attracted people towards capitalism thanks to reliable currency, standardization of commerce and private property rights. For example, other states such as US and Japan from different continents succeeded in development of capitalism with the help of powerful centralized state structure.

- **Resources**: Britain had abundant supplies for new industries such as coal and iron. Water power of rural areas was accepted as crucial for early times of Industrial Revolution.

Besides, Allen (2006) remarked that the high wage rate and cheap energy advantages of Britain were determinants for pace of technical changes.

Export to GNP ratio in Britain increased from 8.4% in 1700 to 14.6% in 1760 and to 15.7% in 1801 (O'Rourke and Williamson, 2001: 4). On the other hand, tariffs that are the obstacles for international trade were dramatically increased in England and process of protectionism continued until second half of 19th century that was controversial for expansion of free trade (Shafaeddin, 1998:3). Also, British attempts to prevent the export of industrial technology – emigration of artisans and machinery exports were prohibited until 1825 and 1842 - and machinery exports could not blocked the new machinery and methods expansion to North America and Europe continents (Clark, 1987:142).

1.1.2. Emergence of Classical International Trade Theories

International trade theories study of economic transactions among different countries with extension and application microeconomic theories of production and exchange (Bowen et. al. 2012: 2). Classical foreign trade theories had been shaped in the early parts of 18th century after the end of mercantilism. Absolute Advantage of Adam Smith and Comparative Advantage of David Ricardo are two crucial expressions for classical international trade theories. They argued the total benefits of international free trade by using systematic theories and scientific justification for global trade (Litonjua, 2010:48).

1.1.2.1. Perspective of Adam Smith for International Trade

Importance of international trade for national economic welfare and development has been stated in the book of Adam Smith "*An Inquiry into the Nature and Causes of The Wealth of Nations*". Adam Smith who was the founder of modern economics has been seen as the father of free market economics and supported expansion of trade (Stanford, 2008: 53 and Schumacher, 2012: 54). Adam Smith expressed how markets coordinate efficiently production process and distribution of goods among people in his book (Prechel and Harms 2007: 3). According to him, there were two control mechanisms that maintain social and economic order: control over market and control over people. In addition to this, control of market was minimal compared to control of people (Perelman, 2010: 490). Adam Smith rejected the international trade limitation of mercantilists by showing benefits of free trade and stated that the total wealth of world was not constant. Smith accepted that economic growth had been settled during Industrial Revolution but opposed restriction of trade and supported free trade in foodstuffs such as corn (Wrigley, 1972: 238-240).

Beside, foreign trade analysis of Adam Smith based on the absolute differences in terms of costs. International differences in production costs of different countries were described as "Absolute Advantage" by Adam Smith (Smith, 2005: 481-482). Absolute Advantage focuses on the production efficiency comparison of goods and invisible hand orders the market. Therefore, large scale industries in England provided low labor costs and brought effective competition to country for trade (Sen, 2005: 1012). Increasing of the quantity is due to improvement of the ability, saving of time and application of machinery, invented by workmen (Cannan, 1961: 8).

Two countries (X - Y) and two goods (shirt - automobile) with only one factor (labor) of production are taken to explain Absolute Advantage. Another assumption is that the unit cost of production of each goods is constant. Unit costs of production -shirt and automobile- in X are 3 and 15 in terms of labor. Conversely, in Y unit costs are 5 and 10. According to labor theory of value, 1 unit of automobile is exchanged for 5 units of shirt in X without trade. Besides, in Y 1 unit of automobile is exchanged for 2 units of shirt under same conditions. That is, X has Absolute Advantage in the production of shirt and Y has Absolute Advantage in the production of automobile because production

of one unit (shirt for X and automobile for Y) requires less labor than other country. Smith considered that mutual gains can be possible under these conditions thanks to a range of barter prices (Zhang, 2008: 24-25).

Theory of Adam Smith which triggers the neoclassical trade models has been recognized as the starting point of theoretical background of trade theories (Schumacher, 2012: 64-65). Basic concern of Adam Smith was long-run economic development rather than allocated efficiency of resources. Hereby, David Ricardo formalized comparative costs theory that was crucial handicap for Adam Smith (Myint, 1977: 234).

In addition to this, next centuries have witnessed different international trade patterns and theories by considering the conditions of countries. That is, international trade among countries has been designed according to new trade theories. David Ricardo is one of the significant international trade theorists to change the absolute advantage theory.

1.1.2.2. Comparative Advantage Theory of David Ricardo

Comparative Advantage theory of David Ricardo emerged in the first quarter of 19th century and contributed to modern thinking on international trade theories. *"Principles of Political Economy and Taxation"* (1817), is the most famous work, suggested trade possibility of nations that have no Absolute Advantage over others (Bouare, 2009: 100). This principle has changed not only the absolute efficiency principle of Adam Smith but also revealed that trade can be beneficial for nations thanks to specialization even if one country has absolute productive advantage in all goods (Bowen et. al., 2012:72).

Cukrowski and Fischer (2000) stated that there are two vital contributions of the Ricardian model. Initially, the model makes the trade possible through the differences in technology. Trade between two countries is determined by relative labor productivity advantage for export of each country. Secondly, Ricardian model justifies that voluntary trade cannot be welfare-decreasing for any parties of trade (Cukrowski and Fischer, 2000: 311).

Comparative Advantage Theory example of David Ricardo is the production wine and cloth in England and Portugal (Ricardo, 1817:90). Portugal has Absolute Advantage

over England with low labor requirements for both products. 60 labor hours per unit of wine and 80 labor hours per unit of cloth are required in Portugal. Labor hours are respectively 120 and 100 in England per unit of wine and cloth. Specialization of countries provides gain from trade for both parties. If England reduces its production of wine by 5 units and 600 labor hours can be used for production 6 additional units of cloth. If Portugal imports these additional 6 units of cloth, she can release 540 labor hours that rearrange the world production by producing 6,75 units of wine. Eventually, total output in world trade can be profitable until whole labor force of England specializes in cloth production or Portugal specializes in wine production or both.

The Ricardian Model bases on the international differences in the productivity of labor. After the comparison of unit labor requirement for goods, both countries trade each other if each country exports the goods that it has comparative advantage (Krugman and Obstfeld, 2003: 12).

Countries are better off with specialization and trade that expand consumption opportunity sets. That is, Comparative Advantage provides a new country consumption opportunity set beyond its production opportunity set. Thus, citizens have access to consume goods that would be domestically impossible to produce (Yarbrough, B.V. and Yarbrough, R.M., 2000: 39).

David Ricardo agreed with Adam Smith regarding tariffs that were usually harmful for trade. On the other hand, the hegemon state of that age, Britain, imposed tariffs on imported agricultural commodities by confirming "Corn Laws" contrary to free trade principles. Landowners dominated parliament and implemented "Corn Laws" in 1815 to protect themselves from shocks of agricultural commodities after the end of Napoleonic Wars (Love and Lattimore, 2009: 26).

1.2. Integration Period of International Trade to World Economy

World trade had experienced vital periods after Industrial Revolution. The period of 1800-1913 was characterized by high rates of foreign trade and world trade growth rates were higher than world output during these years (Kenwood and Lougheed, 2002: 78). Estevadeordal and et. al. (2003) divided world trade story into 3 phases by considering literature and trends of international trade from end of Napoleonic Wars to start of

WWII. The the historical chapters of the first part of the study are designed according to these phases. Table 1 provides the typical phases of world economy from the start of 19th century till WWII:

Table 1. Integration Phases of International Trade to World Economy

Phases	Years	Characteristics of Period
1	1820-1870	European Settlement after Napoleon
2	1870-1913	Completion of Suez Canal and Union Pacific Railroad
3	1918-1939	Interwar Period and Great Depression

Source: Estevadeordal et. al., 2003: 432.

First phase is started from European settlement after Napoleon circa 1820 to 1870 that years were spread of free trade ideology with decreasing in transport costs. Second phase is the period between 1870 and 1913 –beginning of First World War- and last part covers the interwar stage.

1.2.1. Efforts of Building Free Trade in Europe: 1820 - 1870

Territorial settlement of Europe and perpetuate the idea of a *"Concert of Europe"* after Napoleonic Wars is interpreted to obstruct a major European war and destruction of social order (Halperin, 2004: 5-6). Meanwhile, economic progress between 1815 and 1830 was limited at international level. Internal customs barriers were lowering instead of declaring freer trade among countries. Merchants and manufacturers whose political and social powers were growing over the state and forced British state for repealing of "Corn Laws". In 1820 London Merchants considered that freedom was the best way to extent foreign trade and also for capital and industry of country (Thomson, 1990: 160-162).

Adoption of capitalist structure in Europe allowed to acceleration of international trade volume. Industrialization in several countries had increased intensified search for foreign markets and raw materials of supply (Stern, 2007: 1). Growth of international trade was almost same in 19th and 20th centuries although world GDP growth doubled from 1.5% to 3%. Figures indicated that trade shares increased faster in 19th compared to 20th century (O'Rourke and Williamson, 2001: 3). Between 1820 and 1870 the volume of world trade increased to nine fold and European trade to GDP ratio reached to more than doubled (O'Rourke et. al., 2008: 7). According to Bairoch's (1976) study,

the growth of European international trade was 16.1% between 1830 - 1870, conversely 4.1% between 1870 - 1913 in current values (as cited in Daudin et.al., 2008: 2).

Britain that was world largest trading economy of those years wanted to protect landowners from foreign competition with the help of "Corn Laws" while looking for trade agreements to open foreign markets in favor of its manufacturing sector (Irvin and O'Rourke, 2011: 8). Unilateral free trade did not satisfy industrialists and in 1846 Britain adopted free trade principles by abolishing tariff protection (Schonhardt, 1996: 87). British economy was converted from protection to free trade under the impact of political economy (Irvin, 1989:41). In 1846, Britain experienced harvest failure that triggered financial panic in 1847. Rise in the price of wheat with other price indexes and deterioration in the balance of trade were the characterization of 1847 (Dornbusch and Frenkel, 1984: 234-235).

Political aspects of the age caused to a certain level of discrimination in trade and sea transportation policies between colonial powers. In the first half of the 19th century, closed economies China and Japan had been pressured in order to open their markets to international trade between 1840 and 1860 (WTO, 2007: 35). Furthermore, foreigners obtained low tariffs and special rights that were in favor of British exports, from other countries such as Persia, Thailand and Ottoman Empire (Love and Lattimore, 2009: 29).

In the period of 1840-1850, Britain put out of action all tariff preferences for colonial supplies such as timber, sugar and other raw materials. Additionally, Britain was willing to give tariff autonomy that protected the interest of British producers to its self-governing colonies (Irwin, 1993: 98).

Britain's abolishment of protection and adoption more liberal trade policies contributed to free trade flows in Europe. 1860 Anglo-French (Cobden-Chevalier) Treaty had been seen as decision to move unilaterally freer trade (Nye, 1991: 25). Also, there were various customs unions and bilateral trade agreements such as German Zollverein, customs union was established by Austrian states in 1850, Denmark in 1853, Switzerland in 1848 and Italy in 1860s. Anglo-French trade treaty was linked by unconditional Most-Favored-Nation (MFN) and it constructed the basic principles of the international economic system until First World War (Mansfield and Milner, 1999:

596). Figure.1 shows the lines of unconditional MFN and Preferential Trade Agreements (PTAs) signed the years between 1857 - 1875:
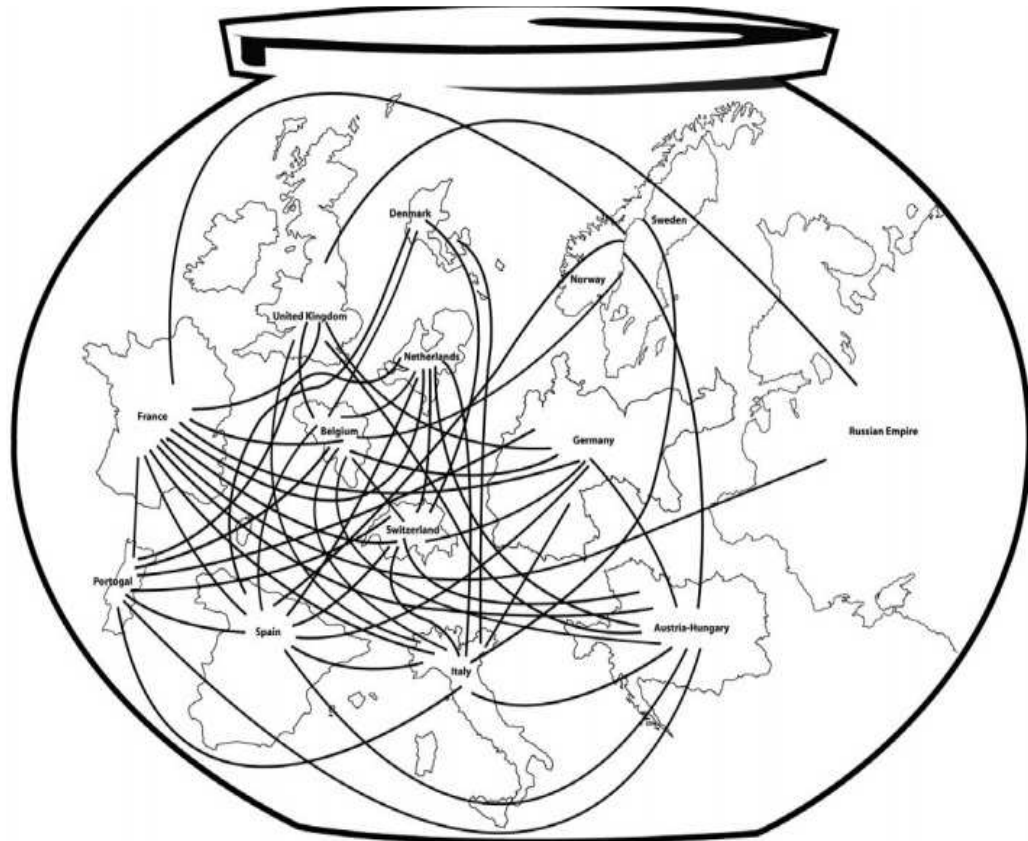
Figure 1. The 'Mother of All Spaghetti Bowls': The Cobden-Chevalier network in 1875
Source: Lampe, 2011:645.

Afterwards 1860 treaty that was the driving force behind the extension of networks, European countries bilaterally accepted tariff reduction mutually and applied unconditional MFN clause in treaties with low tariff levels especially for agricultural products (WTO, 2007: 35; Lampe, 2011: 664).

1.2.2. Developments of World Trade Until World War I

Integration of world markets process accelerated during the second half of 19th century. Krugman (1995) states that beginning of the global economy 1869 might be chosen the year in that Suez Canal and Union Pacific railroad were completed. The new transport technologies of 19th century made it possible to be shipped commodities across the oceans and European prices of agricultural commodities represented not only Western Europe but also American, Australian and Russian factor endowments (O'Rourke et. al.,

2008: 9). Steamships and railroads provided standardized commodities market that could be reached globally. Also, major economic regions –North America and Europe- could effectively communicate thanks to electronic infrastructure of first submarine telegraph cable under Atlantic in 1858 (Krugman, 1995: 330). Therefore, distance between continents became closer in terms of price gaps. To illustrate, wheat price gap between Liverpool and Chicago decreased from 57.6% to 15.6% as well as other products during 1870-1913 (Daudin et. al., 2008: 3).

Technological changes in Britain increased productivity and provided self-sustaining economic growth. British inventors and the European continent was under the impact of new British technology (Aldcroft and Ville, 1994: 180). Western Europe and US were main industrial powers by 1870s. In 1872, US economy overtook economy of Britain in size but yet US exports did not surpassed British exports until 1915 (Chinn and Frankel, 2008: 1). Meanwhile, unification of Germany and Italy, rapid industrialization of Russia and adoption of capitalist institutions and free trade principles to Japan economy demonstrated the global industrialization process. In Africa, imperial competition among Western European power had reached highest between 1880 and 1910 (Sachs and Warner, 1995: 6).

Gold standard was another significant feature of that period for economy and trade. The national monetary unit was defined by a given quantity of gold. Until the end of 19th century most countries preferred bimetallic standard (Cooper et. al., 1982: 3-4). At 1879, gold standard had been become international by all major industrial economies. Western Europe countries and US continued official gold parities without significant intervention until 1914 (McKinnon, 1993:3). According to estimation of Chernyshoff et. al. (2009), by 1913, 48% of countries, 67% of world GDP and 70 of world trade were accounted by gold standard countries.

The GDP growth rate per capita for entire world between 1870-1913 was the third highest. Table 2 demonstrates the GDP growth rates for the period between the yaers 1000 and 2001.

Table 2. Levels of GDP per Capita for World and Main Regions, 1000-2001.

Annual Average Compound Growth Rate	1000-1500	1500-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-2001
Western Europe	0.13	0.14	0.98	1.33	0.76	4.05	1.88
Western Offshoots*	0.00	0.34	1.41	1.81	1.56	2.45	1.84
Japan	0.03	0.09	0.19	1.48	0.88	8.06	2.14
Asia (excluding Japan)	0.05	0.00	-0.10	0.42	-0.10	2.91	3.55
Latin America	0.01	0.16	-0.03	1.82	1.43	2.58	0.91
East Europe&USSR	0.04	0.10	0.63	1.18	1.40	3.49	-0.05
Africa	-0.01	0.00	0.35	0.57	0.92	2.00	0.19
World	**0.05**	**0.05**	**0.54**	**1.30**	**0.88**	**2.92**	**1.41**

Source: as cited in Maddison, 2005: 7.
Note: * US, Canada, Australia and New Zealand.

Sachs and Warner (1995) explained developments of railways in India, Russia, US and Latin America, military innovations, medical fields for the welfare of global system. On the other hand, Bismark adopted a protectionist tariff policy in 1877 that stimulated France in 1881 and 1892. The level of protectionism was pretty high in Latin American countries, Russia and US. Russia increased tariffs in 1877, 1885 and 1891. In Sweden agricultural protection was imposed again in 1888, Italy as well in 1878 and 1887 (Maddison, 1995: 62; Daudin et. al., 2008: 16).

In early 1870s, Bismark declared free trade principles and low tariff levels. However, this era was ended in 1879 with the wave of protectionism, starting with Germany and was followed by other European countries. Nonetheless, average tariff rates remained low until the World War I -WWI- (Sachs and Warner, 1995: 6). This global age of integration was hampered by political and military shocks at the start of the 20th century. WWI changed the structure of whole international economy.

1.2.3. International Trade at Interwar Period

During WWI international trade was suspended and the supplier continent of the world -Europe- could not maintain export flow. Therefore, parties of the war controlled their internal capital markets and exchange rates to finance war and keep under the control of terms of trade with neutral states (Esteves, 2011: 22). Despite coming of the peace, certain countries had difficult problems about economic adjustment, including Britain and most countries went off gold standard (Kenwood and Lougheed, 202: 165).

Remaining on gold became more costly after Great Depression and wherefore more than 20 countries renounced and less than ten countries used gold standard by 1931.

Britain gradually lost its economic dominance at interwar period. Role of Britain before WWI had been replaced by US after WWI. Furthermore, free trade regimes of late 19th century turned into revolutionary regimes that were affected by state planning and fascist principles in Soviet Union (USSR) and European countries (Sachs and Warner, 1995: 10). However, world trade increased rapidly in the period of 1924-1929. Figure 2 shows that the value index of world export between 1910-1930.
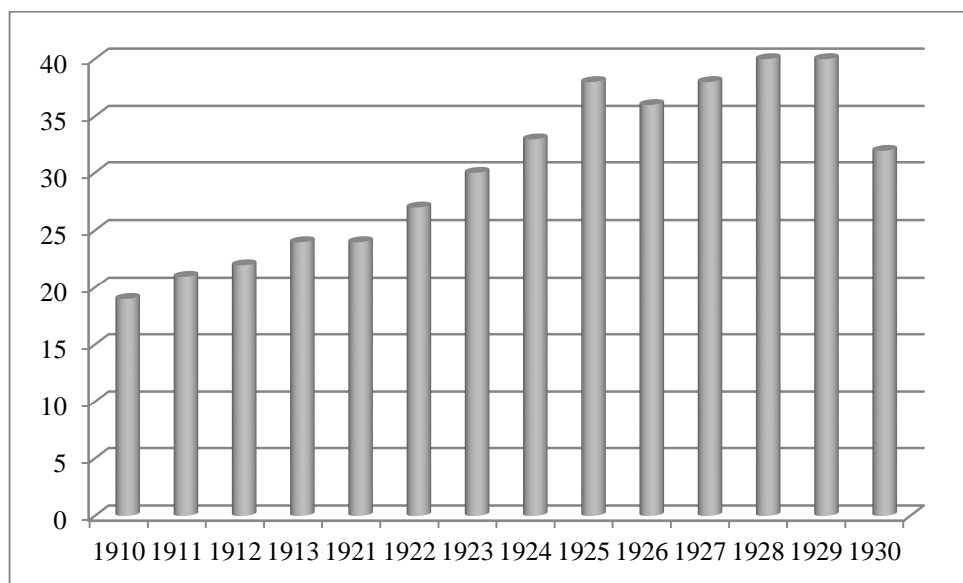
Figure 2. World Export Value Index between 1910-1930 (1953=100).
Source: United Nations Statistical Commision, 2009.

Value index of world export at 1921 nearly reached to the level at 1913. On the other hand, world economy growth between 1913- 1950 was less than in period 1870 - 1913. Also, world income grew more than world trade and inequality among regions increased (Love and Lattimore, 2009: 31).

When WWI ended, US remained the only major power with a currency tied to gold. Taylor and Wilson (2011) accept that after WWI, US took the bankers role from Britain which was lender to the world until WWI. Pegging of key currencies ended in 1919 and floating exchange rate regimes experienced huge problems. High amount of fiat money and hyperinflation led to disaster for the economies of former Russian and Austrian Empires. Besides, Germany avoided the payments of WWI reparations with the depreciation in 1921-1923. Thus, US intended to protect its producers via emergency

tariff and permanent legislation in 1921 and 1922 (Schuker, 2003: 83). 40% of US exports were divided among four European powers in 1925: UK (21%), Germany (9.6%), France (5.7%) and Italy (4.2) (Crucini and Kahn, 1996: 431).

Despite the struggles -League of Nations World Economic Conference- in 1920s to build advance international economic cooperation, international trade and payment systems had not reached to desired level (WTO, 2011: 50). Sachs and Warner (1995) evaluated that 1929 Great Depression caused to the collapse of terms of trade, bankruptcies, end of capital inflows and high protectionism in Europe and US. Trade between countries rapidly and continuously declined from 1929 to 1934. Economic and financial developments in US could affect abroad because international creditor status of US authorized for control over many countries. Besides, US stopped money lending to abroad and withdrew short term loans. In three years 5 thousand American banks closed down (Thomson, 1990: 683).

Great Depression triggered taking measures for trade policies such as tariffs, import quotas and exchange controls on foreign goods. US imposed the Smoot-Hawley tariff which increased average tariff level by approximately 20% in 1930. Average ad valorem equivalent rate of duty soared from 34.6% to 42.5%. This escalation was lower than Fordney-McCumber tariff which rose up average tariff rate 64% in 1922. American foreign trade volume fell sharply after Great Depression in 1930s. Reasons were classified for foreign demand declining into some groups such as negative effect of Great Depression over foreign incomes, foreign countries were unable to earn dollars from export to US and high trade restriction barriers. Thus, Smoot-Hawley tariff was seen as a factor for higher foreign trade barriers. Smoot-Hawley had been evaluated to emergence of new measures against US, tariff increases at other countries and no impact on foreign countries' tariffs that rose up due to same domestic political reasons of US (Irwin, 1998: 334-337). However, US needed for trade liberalization and produced Reciprocal Trade Agreements Act (RTAA) in 1934. RTAA set up liberalization stage for next half of the century (Yarbrough, B.V. and Yarbrough, R.M., 2000: 319).

In the middle of 1931, protectionist measures had been intensified all around the world and world trading system collapsed after banking crisis in Germany and Central Europe. Temin (2008) considers that 1931 crisis was a key aspect for deepening of depression

but the structural problem was gold standard. The German government believed that there was no alternative except temporary close down and partial freeze of deposits (Kopper, 2011: 221). Financial pressures expanded to Britain due to extension of trade credits to Germany. Credit payments of Germany were frozen by British banks and later Britain –subsequently other countries with close trade ties- abolished the gold standard in spite of depreciation (Eichengreen and Irwin, 2010: 876).

Financial flow problems in 1931 caused to cut of industrial production and international trade that experienced the lack of credit. Therefore, global economic depression spread most regions in Europe and the world (Germain, 2009: 670). Table 3 summarizes international tariff levels between 1920-1940 by dividing into two groups:

Table 3. International Tariff Levels between 1920 and 1940.

	Average Percent Ad Valorem Tariffs	
Countries	**1920-1929**	**1930-1940**
US	13.7	16.6
Canada	13.4	15.2
France	7.1	21.0
Germany	7.2	26.1
Italy	4.5	16.8
United Kingdom (UK)	9.8	23.2
Trade-Weighted Average	9.9	19.9

Source: Crucini and Kahn, 1996: 432.

Period 1930–1940 indicated the effects of the Great Depression over the tariff levels all around the world. Also, all countries above increased their tariff levels after financial crisis. Particularly, global crisis had hampered international trade among countries. World trade by countries dramatically decreased after 1929. According to League of Nations total trade volume declined from 67,684 in 1929 to 31,609 in 1937 and 27,555 in 1938 (million in old USA Gold Dollar). Table 4 shows that the trade distribution among continents.

Table 4. World Trade Comparison by Continents between 1928 and 1938

(in old U.S.A. gold dollars 000,000)	Import		Export		Total Trade	
	1929	**1938**	**1929**	**1938**	**1929**	**1938**
Africa	1,699	891	1,483	860	3,182	1,751
North America	5,676	1,567	6,428	2,389	12,104	3,956
Central America	816	376	910	403	1,726	779
South America	1,891	717	2,257	860	4,148	1,577
Asia	4,679	2,120	4,938	2,093	9,617	4,213
U.S.S.R.	453	158	475	148	1,028	306
Europe*	18,882	7,960	15,242	6,100	34,124	14,060
Oceania	971	448	884	465	1,855	913
Total World	35,067	14,237	32,617	13,318	67,684	27,555

Source: League of Nations, 1940:188-189.
Note:*Excluding Spain due to civil war in July 1936.

All continents of the world could not increase their trade volumes between 1928 and 1938 for the decade. Moreover, total world trade dropped by nearly 60%. Monetary collapse generated trade protectionism and economic crisis in Europe led to rise of Nazi Party in Germany. German aggression and collapse of Prime Minister of UK Chamberlain's Appeasement Policy sparked WWII.

On the other hand, interwar period brought out significant contributions to international trade theories. Especially, Heckscher and Ohlin tried to explain impacts of countries' resources in international economics.

1.2.3.1. Factor Endowment Theory of Heckscher - Ohlin

Comparative Advantage of a country in production depends on the lower relative prices than in other country. Differences in prices may originate from differences in other factor of production except labor (Yarbrough, B.V. and Yarbrough, R.M., 2000: 79). Factor endowment theory based on the article of Eli Heckscher in 1919. Bertil Ohlin – he was Sweden Minister of Trade during WWII- (1933) with his book "Interregional and International Trade" supported to his former teacher's theory. Then, Paul Samuelson (1950s) contributed to this theory and it changed to factor price equalization which states that international trade brings about equalization in relative and absolute

returns to homogeneous factors of countries (Salvatore, 1998: 124). Article of Eli Heckscher "The Effect of Foreign Trade on the Distribution of Income" has been seen as the outline of modern theory of international trade. They presented a linkage between export and import patterns with the help of factor endowments.

Heckscher-Ohlin (H-O) model contributes to Ricardian model and implies exchange of commodities from abundant locations to locations where production factors are scarce. It is assumed that both economies are able to produce two goods and each goods needs the use of two factors of production that are used in both sectors.

The H-O theory clearly defines who should benefit and who should lose from free trade. To illustrate, two countries are distinguished by their relative endowments of skilled and unskilled labor. In rich country, relative wages of skilled labor is lower than in unskilled labor abundant country -poor country- . Therefore, rich countries export skilled labor intensive commodities while poor countries export unskilled labor intensive commodities (O'Rourke, 2003: 3-4). Yarbrough B. and Yarbrough R. (2000) states that under unrestricted trade, each country specializes in resource endowment due to low autarky price of goods by giving USA and China example. China started to integration process to international trade after the death of Mao. She concentrated on export of labor intensive products and import land intensive products from USA. Additionally, the trade could be fall due to incentive of the owners of scarce resources (Esteves, 2011: 24). In the period of interwar the instability of the financial and political conditions all around the world obstructed the spread of internatonal trade. Thus, the measurement of the efficiency of H-O theorem was not possible for those years.

Trade and financial flow were lower in the interwar period and Leontief's input-output studies over US economy were controversial issue for H-O theorem. According to Leontief, US was not rich in terms of capital compared with rest of the world. His data revealed that US exports need a higher proportion of labor to capital than US imports by using data of 1947 in 1951 (Jones, 1956-1957: 1). Leontief observed 1.30 to identify as an index of comparative capital-labor intensity in production of competitive import and export commodities for US (Leontief, 1956: 392). There are some criticisms regarding on Leontief Paradox. The first one was the time that close to WWII but he answered this criticism by changing data to 1951. Two factors model was another handicap with the

exclusion of other factors such as natural resources and completely ignored human capital (Salvatore, 1998: 133). Baldwin found out same results with Leontief by using US trade patterns for 1962. Capital-Labor intensity was found 1.27 with 1958 input requirements by Baldwin. However, excluding natural resources and including human capital decreased the proportion to 0.88 while it was 1.04 just excluding natural resources (Baldwin, 1971: 134). Bowen et. al. (1987) believe that H-O model is poorly but they did not have anything better and examined 27 countries and 12 factors to test H-O theorem.

1.2.3.2. Stolper - Samuelson Theorem

Trade requires at least a second industry to produce goods for exchange. In Ricardian trade theory, labors at home gain more income than labors abroad. With the mobility of factors, wages are determined in a country wide labor market. H-O theorem focused on the abundant factor in the country for trade. Wolfgang F. Stolper and Paul Samuelson (S-S) formulated a two-sector general equilibrium model mathematically (Deardorff, 1994: 9-10). S-S estimated the movement of real incomes of factors in open economy. According to S-S theorem, there are only two goods and two non-specific factors –labor and capital- that are owned by separate groups of households (Lloyd, 2000: 598). S-S (1941) analyzed the impacts of H-O theorem over the distribution. Their theorem can be explained that real gain of the intensive factor used goods increases when the relative price of the goods rises.

Atik and Türker (2011) explain S-S theorem by analyzing Portugal and UK. It is assumed that Portugal has comparative advantage for producing cloth thanks to abundant labor factor. On the other hand, UK has comparative advantage for producing steel that is capital-intensive. Naturally, each country will specialize in its goods of comparative advantage. The costs of goods depend on the prices of factors. Therefore, in Portugal demand for labor increases the labor wages. Additionally, UK high demand will raise the price of cloth, as well. Vice – versa is valid for UK steel production. While labor income increases, the income of capital factor decreases in Portugal under the free trade conditions.

Contrary to Ricardian model, S-S theorem believes that free market reduces the real income of scarce factor unlike abundant factor. However, in Ricardian model free trade

escalates the social welfare by providing high real wages. S-S model provides to focus on abundant factor of countries in order to increase real income. On the other hand, imperfect mobility of capital and labor and for interwar period there was a shift away from skill-intensive manufacturing to less skilled labor for mass production in advanced economies whereas the basic assumption of S-S theorem is the mobility of capital and labor (Garst, 1999: 791-792).

PART 2: EXPANSION OF GLOBAL TRADE AND GLOBALIZATION

International trade had opportunity for resurgence with international and preferential economic arrangements for post-WWII years (Mansfield and Milner, 1999: 598). Another milestone for rebuilding international trade after WWII was the end of Cold War. Post-WWII years revealed two settlements. One of them was the deterioriation of relations due to ideological competition between West and USSR and other one was liberal democratic order as a reaction to economic rivalry and political crisis during 1930s (Ikenberry, 1996: 81). Cuaresma and Roser (2012) considered that disintegration of USSR provided the highest contribution to international trade since 1945. Birth of new national states obtained 0.79 % out of 1% change of international trade change from redrawing borders since WWII. Spero and Hart (2010) classified international economic system into three groups since the end of WWII: Bretton Woods system that covered until 1971; second one is interdependence system which prevailed from 1971 to 1989 and lastly from 1989 to present is the period of contemporary system of globalization.

Growth rates of trade that were averagely 2-3% for years after 1950s till start of 2000s has been used for the evidence of globalized world economy (Yi, 2003: 90). Jacks et. al. (2011) evaluate the period of 1950-2000 as resurgence of world trade. Increased economic integration and interactions indicated declining tariff levels. Bowen et. al. (2012) state that spread of globalization depends on the stable reduction in tariff levels after 1950s. Restoration of world trade system was the one main target of Bretton Woods institutions and US was aware of the global trade system as a necessary public goods (Baldwin and Martin, 1999: 28). Bretton Woods system of 1950s tried to maintain single dynamic structure for global system due to uncontrolled capital and destruction of war in Europe and Japan (Dooley et. al., 2004: 307). Terborgh (2003) assessed Bretton Woods system as contribution to international trade system during 1950s and 1960s. He found out that Bretton Woods participation accelerated trade between countries. Additionally, Mansfield and Milner (1999) evaluated the period after WWII as the growth of regionalism that opened to questions for promoting protectionism within multilateral trade system.

The world witnessed an influential oil shock in 1970s. OPEC (Organization of Petroleum Exporting Countries) crisis rapidly increased the transport costs which have been seen as one of the significant aspects for global trade by Hummels (2007) and Jacks et. al. (2011). US and UK had followed loose monetary policy through the period 1969-1973. Decision of OPEC to raise oil prices and Arab decision for oil embargo to West changed the cost of inputs. The 1970s and 1980s had problems about the economic restructuring and social rearrangement (Harvey, 1995: 145). However, Rasmussen and Roitman (2011) indicate that oil prices have close relation with welfare times for the global economy. According to them 25% increases in oil prices led to a loss over real Gross Domestic Product (GDP) spread over 2-3 years with less than 0,5% in oil importing countries.

After WWII, structural and military changes had produced new trade policies. US acted as a part of forming anti-Soviet alliance to soar up economic and political stability of allies (Horowitz, 2004: 138). Nonetheless, efforts of China for adopting global market after 1978 and collapse of Soviets prepared suitable conditions for embracing Adam Smith as never before by whole world (Sachs, 1999: 90). Trade policies became vital for global domination and trade has critical means rather than conquest in the post-Cold War era for international control (Koshy, 1999: 16).

Bretton Woods system considered that having a stable world economy as a management problem for dominant powers especially for US. Interdependence era shifted the responsibility of the world from US to wealthier nations, such as Western Europe and Japan. Contemporary globalization period generally has been related political issues and transition period after Cold War (Spero and Hart, 2010: 10).

2.1. Developments at International Trade after WWII Until The End of Cold-War

Based on historical data of trade and tariff levels for main trading countries, the period 1871-2000 proves that the existence of a long-run inverse relationship between tariffs barriers and trade (Nenci, 2011: 1828). However, countries considered move to openness rather than isolated and situation turned to prisoners' dilemma that the possible strategy never leads to best choice without mutual cooperation. Defections over the cooperative equilibrium about the tariff rates by influential leader countries may affect tariff rates in the followers (Clemens, 2004: 30-31).

United Nations wanted to keep peace and improve world economic development in less advanced areas of the world. Therefore, new global financial institutions have been designed after the middle 1940s under the effect of United States and United Kingdom. Representatives of countries were symbolized by Harry Dexter White and John Maynard Keynes (Solimano and Watts, 2005: 25). US and UK discussions over trade policy began at the start of 1940 and continued. Both countries reached a short-lived agreement "Washington Principles" in 1943. However, US pursued trade liberalization and UK reluctantly supported US for an international conference post-WWII (Dominguez, 1993: 357). Reductions of tariffs and restrictions for international trade were not as vital as restoring monetary stability and full employment. Therefore, International Monetary Fund (IMF) and International Bank for Reconstruction and Development (IBRD) that is the original institution of World Bank, were formalized after Bretton Woods Conference. As a result, international trade was stayed in the second place however after the draft charter of International Trade Organization (ITO) US opened negotiations for reaching a multilateral agreement (Irwin, 1993: 4-5).

UN agency ITO Charter agreed in 1948 but certain countries refused to ratify. Meanwhile, countries intended to reduce and bind customs tariffs and 45.000 tariff concessions went into effect by 1948 via "Protocol of Provisional Application". 23 countries (Appendix 1) were founders of General Agreement on Tariffs and Trade (GATT) that became sole multilateral instrument to govern international trade until the World Trade Organization establishment (Love and Lattimore, 2009: 79; Hasgüler and Uludağ, 2010: 143). Mission of GATT is to regulate a code of conduct for global trade. Nondiscrimination among trading partners as MFN clause, no export subsidies or quantitative restriction and reductions in old tariffs to compensate for introduction of new tariffs were three pillar of GATT (Dominguez, 1993: 369). These governments (GATT, 1986: 1):

"Recognizing that their relations in the field of trade and economic endeavor should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods,

Being desirous of contributing to these objectives by entering into reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce"

The GATT plan in 1953 called 30% weighted average reduction over three years in tariffs that were divided into groups such as raw materials, food, semi-processed goods and industrial goods. GATT lost its momentum after the difficulties Torquay round – next round was hold after 5 years- in 1950-1951. As of January 1952, 32 contracting parties of GATT dominated over 80% of world trade (Irwin, 1993: 10-11).

At the end of WWII, industrial dominant power was US that produced nearly 60% of global output of manufactures in 1950. During the 1950s and 1960s European and Japan economies were rebuilt and several countries became crucial for aggregate world output and trade in manufacturing (Branson et. al., 1980: 183-185). Pace of globalization for post-WWII period was accelerated by multilateral agreements and GATT was the one of them. Nevertheless, regionalism trend in Western Europe by European Economic Community (EEC) has been accepted as a remarkable development for Europe with the Rome treaty in 1957 to achieve European integration (Urata, 2002: 21 and Dinan, 2005: 3).

By 1950, economic cooperation in Europe rapidly increased as widely as from Iceland to Turkey with various organizations and institutions. European Recovery Programme (ERP) was the main task of Organization for European Economic Cooperation (OEEC) by distributing US aid. After the end of ERP, OEEC helped to facilitate trade, payments, mutual confidence and common interest among members. Some members - Great Britain, Sweden, Norway, Switzerland, Austria, Denmark and Portugal were called outer seven - except EEC countries - France, West Germany, Italy, Belgium, Netherland, Luxemburg were called inner six - of OEEC formed a European Free Trade Association (EFTA) in 1960 (Thomson, 1990: 891-892).

Aitken (1973) assessed the Gross Trade Creation (GTC) effect of EEC and EFTA for their integration periods. GTC refers to increases in trade among members of a community, irrespective of whether substitution for domestic production or non-member exports (Balassa, 1967: 5). For 1967, GTC effect was nearly 9.2 billion $ and

1.3 billion $ for EEC and EFTA. That is, both communities had cumulative growth in GTC that provided greater for EEC than EFTA (Aitken, 1973: 891). GATT has played vital role to limit discriminatory blocs and manage interaction among PTAs which would have been more discussable issue under the absence of GATT (Mansfield and Milner, 1999: 620). Irwin (1993) considered Kennedy round negotiations of 1964-1967 was major advance against tariffs and GATT fulfilled its obligations for architecting post-WWII economic order.

Actually, during the thirty five years after WWII, US had grown slower than Europe, Japan and less developed countries in terms of both per capita and aggregate for real GDP and industrial output. Therefore, the capacity growth of competitors of US required real depreciation of dollar in order to keep trade and current account balances. On the other hand, instead of gradual real depreciation in the late of 1960s there was small real appreciation for contributing to growing trade imbalance. When Bretton Woods system broke down, a remarkable real depreciation of the dollar was realized during 1970s to restore trade balance among industrial states (Branson, et. al., 1980: 185-186).

Rapid increases in oil prices of the early 1970s and 1980s that collapsed next years – crude oil price averages of 1982 was 31.55$ and 1986 was 14.64$ (IOGA, 2014). Nevertheless, the nominal price of a barrel crude oil increased dramatically by 300 % from 2.7$ in 1973 to 11.2$ in 1974 (Backus and Crucini, 2000: 190). Baldwin (2009) mentions that 1974-1975 oil shock recession dropped global trade and growth rate decreased to – 11%. Although there was negative impact of trade shock, growth continued to be robust after OPEC oil crisis (Easterly, 2001: 145). Grimwade (2000) believes that development of market economies and global expansion after WWII provided faster and more stable economic growth than any other period with the exceptions of oil crises in 1973-1974 and 1979-1980.

In November 1975, heads of major monetary powers met to decide new monetary system. Instead of gold, Special Drawing Rights (SDRs) were established as the principal reserve asset of international monetary system. Also, despite the problems about the credibility of dollar, it maintained to dominant currency role (Spero and Hart,

2010: 26-29). Dominance of US was felt not only at world trade but also international political system due to bipolar structure of the world.

Parties of Cold-War were rapidly expanded negotiations in the early parts of 1970s for some reasons. Seyom Brown (1977) arrays key issues that were constructive developments for détente years. Stabilization of European status quo, expansion of East-West trade relations and limitation of China had been admitted for in favor of Soviets (Gasiorowski and Polachek, 1982: 710).

The crucial year for détente was 1979 that changed the dynamics of the world with global developments such as Camp David Peace Treaty, Islamic Revolution in Iran and the invasion of Afghanistan by Soviets. Aggressive attitudes of Soviets forced US to end the economic relations and détente with Soviets (Spero and Hart, 2010: 383).

2.2. End of Cold War and Hegemony of Liberal World Trade

Barbieri (1996) discourses four statements regarding on trade – conflict relationship that have been identified by many theorists. The first one is the liberal argument that trade promotes peace, second one is neo Marxists view that symmetrical ties may promote peace, third statement that trade increases conflict and last one is that trade is irrelevant to conflict. Barbieri found that economic ties have an important impact on conflicts. Positive trade expectations by 1972-73, had substantial impact on ability of two super powers from the rivalry and conflict toward a peace (Copeland, 2007: 25).

The end of Cold War signified the collapse of the communist system into expanding Western order. Intensification of interdependence all around the world especially for Soviets, unchained the communist system. That is, post-Cold War contributed positively to continuation economic globalization in the liberal world (Ikenberry, 1996: 90-91). Meanwhile, area of Council for Mutual Economic Assistance (CMEA) was planned to be self-sufficient by Soviet planners, thus states had high trade levels among the republics instead of outside world and these countries began to sign new agreements when they gained more and more power as an unique state (Williamson, 1992: 7-10).

By the 1990s, almost whole world settled down fundamental elements of the market economy. Successor states of Soviets maintained market reforms including private ownership, such as convertible currencies for international trade, shared standards for

trade transactions –there were more than 120 members of World Trade Organization (WTO)- and market based transactions (Sachs, 1999: 98). Border delays for trade liberalization were crucial trade of Russia and other ex-Soviet Union countries. Jensen et. al. (2007) estimate that Russia will gain up to 24% of the value of Russian consumption in the long run after WTO accession -22 August 2012- of Russia.

Imbalances between price of goods in post-Soviet states and other countries boosted external trade that became the only source of foreign currency inflow at the first years of new states. Also, import met the domestic demand on consumer goods due to internal industrial decline (Idrisov and Taganov, 2013). In the first half of the 1990s, Commonwealth of Independent States (CIS) have reached to sign bilateral and regional trade agreements (Appendix 2) with each other. However Tumbarello (2005) states that many CIS PTAs remained just on paper because of several reasons. Coverage of the agreements was limited and excluded sensitive goods. Also, lack of regional institutions caused to confliction of interests and trade disputes between countries sometimes and delayed or blocked the implementation of some agreements. Costs of rules were usually higher than benefits of preferential tariff regime and absence of harmonization suspended trade agreements.

Aftermath of political disintegration countries had intended to make systematic economic reforms. However, larger countries such as Russia and Ukraine did not easily achieve economic integration wholly due to distance from one point to another (Linn, 2004: 8). Free market system would introduce new supplies for export to western markets. Hamilton and Winters (1992) considers that liberalization of Eastern Europe and Soviets could rise up the exports and imports of USA by 20% and 11%, UK by 13% and 14% and West Germany by 24%.

Essen hosted 1994 December Summit of European Union (EU) to expand borders of union to eastwards by cooperating six former communist countries: Bulgaria, Czech Republic, Slovakia, Hungary, Poland and Romania. Additionally, Europe Agreements was signed these six countries between 1991 and 1993 in order to gradual liberalization of mutual trade of goods (Martin, 1995). Countries became a member of EU one by one at 2004 and 2007. Additionally, remaining Balkan states of Albania, Bosnia-Herzegovina and Kosovo are recognized by EU as potential members and European

Neighborhood Policy (ENP) wants to attain the developing deeper political and economic relations with 10 southern Mediterranean and 6 eastern periphery countries that are Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine (Archick and Morelli, 2014: 13).

On the other hand, Russia struggled with significant fiscal problems in the post-Soviet era at 1990s. Chinese 1978 reforms expanded trade volume of China in ten years. Market reform decomposed China from Soviet Union and East Europe countries that waited to collapse of Soviets. Therefore, beginning of 1990s China recorded positive growth rate contrary to Russia and other former Soviet countries thanks to market reforms. Table 5 demonstrates the annual growth of countries in relevant years.

Table 5. Annual Growth of China, Russia and East European Countries between 1986-1992.

(%)	Average 1986-89	1990	1991	1992
China	8,7	4,1	7,7	12,8
Russia	2,4	-2,0	-9,0	-19,0
Bulgaria	5,2	-11,6	-22,7	-7,9
Czechoslovakia	1,6	-3,0	-15,5	-5,0
Hungary	1,4	-4,0	-10,5	-4,6
Poland	2,7	-11,4	-7,7	1,5
Romania	-0,9	-7,1	-13,4	-10,2

Source: Cited in Sachs et. al., 1994: 103.

Rules of integration process worked for former Soviet Union countries. Annual growth rates in the early 1990s were negative. Aslund (1999) believes that Russia would not benefit from slower price and foreign trade liberalization and monetary expansion. Initial period of broad integration for Russia was in 1995. Later, Russia fragmented in 1996 and 1997 but became re-integrated by 1998. Openness to international trade undermined internal economic stability (Bekowitz and DeJong, 2003: 557).

Ex-Soviets had experienced a new period after 1990s. Therefore, integration of these economies took some years such as China after 1978 reforms. Meanwhile, Western countries increased relations with former Soviets not only in political but also trade relations.

2.3. International Trade Theories after WWII

International trade theories after WWII has become more product oriented contrary to other theories that focus on countries. Therefore, international trade theories of that period analyze the foreign trade of countries instead of former general principles of international trade theories.

Although there are some other theories that contribute to international trade Product Life Cycle Theory of Vernon, New Trade Theory of Krugman and Competitive Advantage of Nations Theory of Porter are three vital international trade theories of the period.

2.3.1. International Trade and Product Life Cycle

The paper of Product Life Cycle theory of Vernon in 1966 deals with neglected issues by main stream of trade theory after the failure of Heckscher-Ohlin theory. Trade theory of Vernon puts emphasis on the timing of innovation, the effects of scale economies and the roles on ignorance and ambiguity in terms of impacts of trade patterns (Vernon, 1966: 190). The model presents that many products follow a trade cycle. Initially exporter country loses its markets and finally become an importer of the product.

Vernon (1966) takes non-communist countries after the WWII for explaining patterns of international trade and foreign direct investment (FDI) in manufactured goods. According to product cycle process technology and production are transferred to developing countries thanks to FDI (Yamazawa, 1990: 236).

Grosse and Behrman (1992) criticize theory regarding on failing to focus on distinguishing features of business operations among different nations. Nevertheless, they are aware that international product cycle theory is probably first for movement of production overseas.

US market was studied by Vernon because of offering certain unique opportunities. Many products pursue four phases that give certain clues for businessmen (Wells, 1968: 2):
-   Phase 1: US export power
-   Phase 2: Foreign production start
-   Phase 3: Competition of foreign production in export markets

- Phase 4: Starts import competition

Predicting the product trade performance and profit from the stages are in favor of managers for next steps in future. Consumers of US market have higher average income than in any national market except a few such as Kuwait and US market is characterized by high unit labor cost and high capital. So, entrepreneurs in US recognize the opportunities with high income levels or high unit labor costs. For example, high labor costs provide the early development of fork-lift truck and automatic control system (Vernon, 1966: 192-193).

Product Life Cycle Theory helps to international companies in designing adaptable and global production for strategies of export and direct investment. Beside, local firm can decide priorities on product for import substitution and potential export (Ayal, 1981: 92).

Vernon separates countries and stages of product into three groups. Countries are US, other advanced countries and less developed countries. Stages of product are new product, maturing product and standardized product. For US, production is higher than consumption until the early stages of standardized product. The largest export is occurred in maturing stage. The export is possible for other advanced countries merely early stages of standardized product level. US and other advanced countries have ability for production but less developed countries have opportunity for production in maturing and export the product just the end of standardized product stage. Capital costs are high in less developed countries which require basic qualifications (Vernon, 1966: 199-206).

The theory of Vernon ignored some important details such as not including of Weak demanded products in US to the model. Also, tariff barriers impact the competition of foreign production. Therefore, no simple model can explain the behavior of all products in global trade ideally (Wells, 1968: 5).

2.3.2. New Trade Theory

2008 Nobel Memorial Prize Award in Economics has been decided to award Paul Krugman for his analysis of trade patterns and location of economic activity (Nobel Prize, 2008). The traditional trade theories explain that international trade occurs due to comparative advantages of countries. In 1970s economies of scale concept decreased

the average cost of goods and all features of international trade could not be explained by factor endowment or other comparative advantage based theories (Neary, 2009: 219).

New Trade Theory (NTT) was developed by Helpman, Krugman and Lancaster in the late of 1970s and early of 1980s. The NTT starts with the studies of Krugman and Lancaster which shows the impacts of product differentiation, monopolistic competition and economies of scale on troubles of international trade (Helpman, 1981: 305-306). The theory has been designed on three major facts; the ratio of trade to GDP has increased, trade has become the activity among industrialized countries and generally intra-industry trade has been concentrated among industrialized countries (Bergoeing and Kehoe, 2001: 1).

Krugman (1979) mentions that consumers are able to prefer many brands and spread of products all around the world is not logical due to economies of scale. That is, NTT takes increasing returns and imperfect competition markets unlike traditional international trade theories in terms of constant returns to scale and perfect competition market. In addition to this, the basic feature of the NTT, that is why it is called new, is the possibility for formulation of international trade theory (Akkoyunlu, 1996: 71). Helpman and Krugman (1985) identify four basic ways to show inability of conventional trade theories. According to them, traditional trade policies experienced apparent failure to define the volume of trade, the composition of trade, the volume and role of intrafirm trade and foreign direct investment and the welfare impacts of trade liberalization.

The rise of NTT was motivated by rising the relative significance of similar trade among advanced countries. Similar countries have little comparative advantage over each other and thus their trade is dominated by intra-industry trade due to economies of scale (Krugman, 2008: 338). In real world similar countries trade similar goods instead of different countries specialization in different goods. Increasing returns to scale increase the possibility of exchange goods with similar factor content and give advantage to large-scale production (Donaldson, 2011: 4).

The comparative advantage based models presented the assumption of constant returns to scale. That is, change in output level of an industry directly relates with the inputs.

On the other hand, in practice many industries are characterized by scale economies that is also called increasing returns and thus production becomes more efficient. Doubling the inputs of an industry will be more than double increasing in production under the economies of scale (Krugman and Obstfeld, 2003: 120).

New trade models cooperate with neoclassical economics in terms of market imperfection, strategic behavior and new industrial economics, new growth theory and political economy arguments (Deraniyagala and Fine, 2001: 812). There is a natural alliance between NTT and the view of technological change which is a key driving force for international specialization. Additionally, product cycle model examines the impacts of continuous product innovation (Krugman, 1996: 7).

Traditionally, trade models have given a certain description of trade in goods. Nevertheless, NTT reveals the existence of multiple equilibriums by focusing specialization and trade and concentrating on resource allocation rather than goods production (Krugman, 1985: 43).

Trade can result from increasing returns or economies of scale with lower unit cost and larger output. Economies of scale provide incentive to countries for specializing and trading among similar countries (Krugman and Obstfeld, 2003: 155). The another important international trade theory is the Competitive Advantage of Nations of Porter.

2.3.3. Porter's Competitive Advantage of Nations

The book Competitive Advantage of Nations (CAN) draws the line of international economics and gives new, constructive and actionable roles to government and companies in order to follow competitiveness and prosperity. Porter (1990a) considers that there is an inevitable bilateral dependence between state and business in national productivity.

Porter investigated why nations gain competitive advantage in certain industries and implications for strategy of companies and national economies that were ten trading nations - Denmark, Germany, Italy, Japan, Korea, Singapore, Sweden, Switzerland, UK and US - including world industrial powers. Porter defined the industry as successful if it has competitive advantage relative to the best global competitors. He studied the most famous and important sectors such as autos and chemical of Germany, semi-conductors

and VCRs of Japan, Swiss banking, Italian footwear and textile and so on. Additionally, Porter added relatively obscure but competitive and few paradoxes industries by excluding highly dependent industries on natural resources (Porter, 1990b: 74).

According to Porter, competitiveness depends on productivity which sets the sustainable standard of living with the combination of domestic and foreign companies in national economy. Therefore, nations compete with each other to form most productive conditions for firms by performing interrelated roles of public and private sectors. Macroeconomic competitiveness is not enough for high productivity. Microeconomic capability of the economy and sophistication of local competition improvement are other factors of productivity (Porter, 2009: 5-7).

Porter used concepts of strategic management in order to reformulate theories of international trade, direct investment and economic development. Success of industries, in the analysis of Porter, depends on firms rather than nations. Sustainable competitive advantage was closely related with upgrading of business with the help of innovation and investment in advanced factors of production (Grant, 1991: 536-539).

Smit (2010) emphasizes that Porter's analysis explain country oriented advantages to determine the international competitiveness of firms contrary to sectoral composition explanation of traditional and new trade theories. CAN theory is criticized due to failure to recognize the significance of price competition and the exchange rate in determining international trade (Davies and Ellis, 2000: 1193).

2.3.4. Other New International Trade Theories

International trade theories are not limited just explained ones above. There are some other trade theories that explain the international trade among countries after WWII. The study of Brunstam Linder (1961) focuses on the similarities in preferences for countries and thus intra-industry trade becomes possible among countries. The other theory about the international trade belongs to Posner (1967) who examines the technological gap between countries and its impacts to world trade. Another one is the study of the Keesing and Kenen (1967) about the skilled labor. In essence, the theory of Kessing and Kenen has guided to skilled labor theories that affect the specialization of countries.

Linder (1961) considers that more similar demands of two countries reveal the potential to make trade between countries. Linder tries to explain the intra-industry trade with representative demand (Bayraktutan, 2003: 181). Income per capita level is the proxy for similar preferences of consumers in different countries. Besides, Francois and Kaplan (1996) find out that income distribution is an important element in order to determine aggregate expenditure pattern according to their results. In addition to this, Helpman (1981) emphasizes that in early 1970s there was a negative correlation between difference in income per capita and intra-industry trade in mutual volume of trade for OECD countries.

Posner (1961) studies international trade and the technological gaps of the countries. Technical changes and comparative advantage of the country lead to export of innovative goods initially to world market. On the other hand, imitation of the products by other countries after a learning period causes to import of innovative country from imitated countries (Posner, 1961: 331). Therefore, the advantages of the innovator become meaningless when the product is imitated.

The studies of Keesing and Kenen have been accepted as the precursor for skilled labor theory (Bayraktutan, 2003: 180). Keesing (1967) studies on correlation between the intensity of Research & Development and export performance of advanced countries like US. That is, prosperous countries in terms of skilled labors, produce the capital intensive products with specialization.

PART 3: DEVELOPING ECONOMIES AND COSTS OF INTERNATIONAL TRADE

Openness to trade has been a crucial element for sustainable growth of countries. Trade reforms in 1980s and 1990s across developing countries were driving force to integration in world economies (Harrison and Tang, 2005: 133).

Last decades of 20th century intensified tendencies about market friendly economic policies of developing countries. This situation led to conversion of formerly planned socialist and communist economies towards capitalism that helped to participation of these countries in international trade (Jensen, 1993: 835). According to World Development Reports the most pessimistic scenario for annual per capita growth rate in the developing countries for the period 1982-1995 was 2.7% (Easterly, 2001: 136).

Cost of goods is the basic determination to make choice. Thus, international trade costs are crucial for the volume of the international trade of countries. Anderson and Wincoop (2004) emphasize that trade costs are inclusion of all costs incurred to obtain goods such as transportation costs, information costs, currency cost, distribution cost and so on. On the other hand, international trade costs do not depend on a particular model and therefore there are different types of trade models (Novy, 2009: 4). Also, Sourdin and Pomfret (2012) mention that there are no perfect mechanisms to measure trade costs due to no agreed definition over trade costs.

3.1. Participation of Developing Economies to International Trade

Between 1980 and 2011 share of developing countries in world trade continuously rose. Their share in export increased from 34 % to 47 % and in import increased from 29 % to 42 %. Particularly Asia has been leader in world trade for other developing countries (WTO, 2013: 45).

In addition to this, developing countries improve their trade facilities. Although US and EU account over 60 % of world service exports, some developing countries –India, China and Brazil- have grown well over 15 % every year for decade (Borchert et. al., 2013: 163).

Also, more interdependence and advances in technology become closer buyers and sellers all around the world. Therefore, developing countries in merchandise trade for both export and import growths generally are positively. Table 6 demonstrates the list of merchandise traders list as of 2012:

Table 6. Leading Exporters and Importers of Merchandise Trade in 2012.

Rank	Exporter	Share	Annual Change (%)	Rank	Importer	Share	Annual Change (%)
1	China	11.2	8	1	US	12.6	3
2	US	8.4	5	2	China	9.8	4
3	Germany	7.7	-5	3	Germany	6.3	-7
4	Japan	4.4	-3	4	Japan	4.8	4
5	Netherlands	3.6	-2	5	UK	3.7	1
6	France	3.1	-5	6	France	3.6	-6
7	South Korea	3.0	-1	7	Netherlands	3.2	-1
8	Russia	2.9	1	8	Hong Kong, China	3.0	8
9	Italy	2.7	-4	9	South Korea	2.8	-1
10	Hong Kong, China	2.7	8	10	India	2.6	5
11	UK	2.6	-7	11	Italy	2.6	-13
12	Canada	2.5	1	12	Canada	2.6	2
13	Belgium	2.4	-6	13	Belgium	2.3	-7
14	Singapore	2.2	0	14	Mexico	2.0	5
15	Saudi Arabia	2.1	6	15	Singapore	2.0	4
16	Mexico	2.0	6	16	Russia	1.8	4
17	Chinese Taipei	1.6	-2	17	Spain	1.8	-12
18	United Arab Emirates	1.6	5	18	Chinese Taipei	1.5	-4
19	India	1.6	-3	19	Australia	1.4	7
20	Spain	1.6	-5	20	Thailand	1.3	8

Source: WTO, 2013: 33.

China has been seen as the biggest beneficiary of globalization by adding 3.9 trillion $ to world GDP, giving new jobs to 180 million people and saving around 375 million people out of poverty. The contributions of China equal to adding a country more than twice size of Scotland to world economy every year, creating new jobs more than total labor force of Australia or completely melting away poverty from combination of Ethiopia, Tanzania, Somalia and Zambia (Kunnanatt, 2013: 51).

Global trade had suffered from economic downturn at 2007-2009 financial crisis that was the most severe one since the Great Depression (Claessens et. al., 2010: 269). On

the other hand, trade flows among countries particularly for developing Asia seem linearly increasing trend in the long run. To illustrate, according to PwC (2011), top air and sea freight bilateral trade pairs in 2009 and future expectations in 2030 have some differences in terms of global trade volumes and flows. In last decades, China became a global actor and main customer of US. Table 7 refers to the top bilateral trade pairs in terms of air and sea freight in 2009 and expectations of PwC in 2030:

Table 7. Top 10 Countries for Air and Sea Freight Bilateral Trade Comparison 2009-2030 ($ mil)

Bilateral Trade Pairs in 2009			Bilateral Trade Pairs in 2030		
Rank	**Countries**	**Trade Value**	**Rank**	**Countries**	**Trade Value**
1	China	US	290.960	1	China	US	594.741
2	China	Japan	207.677	2	China	Japan	336.183
3	Japan	US	146.523	3	China	Korea	281.140
4	China	Korea	140.342	4	China	India	263.063
5	Germany	US	118.773	5	China	Germany	201.382
6	Germany	UK	113.209	6	Japan	US	189.785
7	China	Germany	102.171	7	China	Singapore	178.291
8	UK	US	97.624	8	China	Indonesia	169.356
9	Japan	Korea	69.008	9	Germany	US	167.467
10	UK	Netherlands	68.062	10	China	Malaysia	162.376

Source: PwC, 2011: 4-5.

Developing countries are expected to increase their shares visibly in 2030 for air and freight bilateral trade pairs. Hegemony of China at international trade is an undeniable fact. In 2009, China was the side of 4 out of top 10 bilateral trade pairs for air and sea freights. However, it will rise up in 2030 – based on estimations - from 4 to 8 out of top 10 pairs.

On the other hand, Turkey that is frequently described as a crucial country whereby geopolitical and geostrategic position does not taken into account for the future plans of air and sea freight analysis. In the last decades, Turkey has experienced major changes in many fields. The current target is being one of the ten largest economies of the world by 2023. Therefore, trade and industrial structure of Turkey should outperform Netherlands, South Korea, Russia, Indonesia and Canada (Gros and Selçuki, 2013: 2).

Turkish growth experience since 2002 depends on consumption and investment driven with the help of the capital inflows. Also, rising trend of price of oil and raw materials deteriorated current account balance due to high import share of raw materials and intermediate goods. Meanwhile, Chinese accession to WTO in December 2001 gave opportunity to Turkey for importing cheaper products (Izmen and Yilmaz, 2009: 2-3).

Since 1970s, approximately two-thirds of the world population have become a part of world economy by increasing integration into the world trade system (Milner and Kubota, 2005: 107-108). Declining of trade barriers and inclusion of developing economies to the world trade market led to shifting from severe protection to free trade. Argentina, Brazil, Chile, Korea and Turkey are some of the successful liberalization cases (Dornbursch, 1992: 69).

3.2. International Costs of International Trade

Initially, international trade costs have close relationship with transaction and transportation costs. Different economical phenomenas after Industrial Revolution has changed the perception towards trade costs.

The period between 1800s and WWI had a unique role for developments in transportation and communication. The extension of railways and telegraph network promoted economic integration and movement of goods (Jacks et. al., 2010: 128). Jacks et. al. (2011) find out the average level of trade cost measure fell by 33% from 1870s to WWI and it decreased by 16% in the years from 1950 contrary to the interwar period increase by 13%.

Sourdin and Pomfret (2012) believe that the reduction in trade costs provides trade facilitation which is an increasingly important for bilateral and regional trade agreements. Components of trade costs cover a wide range from transportation to language barriers of countries. That is, measurement of international trade costs varies among countries (Novy, 2009: 19). However, there are some commonly accepted concepts for measuring of international trade costs like transportation. Empirical studies over the transport costs across countries reveal that 10% reduction in transport costs increases the volume of trade by more than 20% (Martinez and Nowak, 2007: 412).

Intensification of global trade networks leads to emergence of new actors that is called emerging economies. Free movements of production functions make meaningless the borders of countries. Therefore, international companies take into account the efficiency and effectiveness of production to gain more money. Population of the world is expected to reach 9.2 billion and number of megacities is also increase from 22 to between 60 and 100 until 2050 that is the world becomes more international day by day in terms of global trade. (World Energy Council, 2011: 7). Increasing trend of world population and development of countries require more intensified international trade ties. Transportation is crucial for movement of goods from a country to another. Transport costs directly relate with models in freight systems and Jong et. al. (2013) imply that full freight models cover from economic activities to assignment of vehicles in all supply chain structure. Study of Berthelon and Freund (2008) show that distance related trade costs have remained same for many sectors and high initial trade costs of goods, such as tariff and transportation, give more importance to distance sensibility. However, insurance can be an aspect under the subject of international costs of trade but the share of insurance for the price of goods is low and it is not calculated by monthly.

A change in costs of inputs also can shift the supply curve. Higher input prices will attract to produce less and lead to shift supply curve to the left (Begg et. al., 1994: 38-39). Therefore, global commodity prices affect the international trade volume throughout the world. Sugden (2009) considers that international commodity prices volatility challenges economic management in Asia and Pacific and causes to high inflation and prices that threat growth. Low growth rate is able to decrease the international trade volume of the country. In addition to this, the relation of exchange rate and international trade has been accepted as a significant issue by scientists for many years. Hooper and Kohlhagen (1978), Cushman (1983), Grauwe (1988), Viaene and Vries (1992), Tenreyro (2007) are some of them who study regarding the impact of exchange rate volatility and risks over international trade. Moreover, Anderson and Wincoop (2004) define the exchange rate as one aspect of international trade costs. Meanwhile, the costs of international trade have many dimensions along with transportation, international commodity prices and exchange rates.

3.2.1. Transportation of International Trade

The age of Industrial Revolution had triggered the building of new road networks by considering primarily administrative and military concerns (Thomson, 1990:160-161). However, concerns of states shifted to economic interests with the development of global trade. For the models of Adam Smith and David Ricardo assumed that transportation costs between and within countries are zero. This situation reveals the requirement of transportation costs to international trade models.

Improvements in infrastructure of transportation systems provide the facilitation of movements and high living standards for people with the help of new and cheaper technologies. Roads, railways, ports and airports provide economic and social benefits by linking producers to international markets. Therefore, reliable and competitive priced freight transport deliver trading goods on advantageous terms (Carruthers, 2013: 2). Investments of infrastructure contribute to work international and domestic markets of countries and also for decreasing costs and increasing productivity for economic growth (Kuştepeli et. al. 2008: 2-3). According to Behar and Venables (2010) and WTO (2013), transportation costs are one of the many factors which draw trade directions, patterns and volume of trade. Rodrigue et. al. (2013) mnetions that share of transport cost accounts 10% of the total cost of a product.

Empirical studies of Baier and Bergstrand (2001) and Hummels (2007) accept that the one possible explanation for the rise of international trade is the decreasing of transportation costs at international level such as development of jet aircraft engines and use of containerization since WWII. Declining the costs of transportation does not spread equally for different types of goods. Fixed freight rate per shipment will constitute bigger share of the low-quality goods price. An increase in transportation costs will increase the transportation price share of total cost for low quality goods rather than high quality one. This situation shifts quantity of the high quality products export. On the contrary, reduction in transportation cost will be likely increase the share of low quality goods in international trade (WTO, 2013: 180). Therefore, decreasing of transportation cost is for the benefit of low quality goods producers such as China.

Declining of uncertainty regarding arrival time of traded goods thanks to improvements in transportation contributed positively over the world trade for last years (Liu and Xin,

2011: 161). High transportation costs have been seen as obstacles to the movement of goods and services. Economic importance of transportation costs are classified into three groups (Hummels, 2007: 135):

- it is responsive to the value of the transported goods,
- it is responsive to other barriers of trade such as tariffs,
- the extent to that transportation costs change relative prices

Also, WTO (2013) trade report implies that tariff cuts all around the world with the help of the negotiations of GATT and WTO, cause to lower average tariff barriers than transportation costs, today. Thus, the transportation costs gain more importance than tariff rates for global trade calculations.

Naturally, countries take notice of the transportation costs according to the features of country. Moreover, the possible determinants of transportation costs include product characteristics, geography, infrastructure, market competition, technological change, trade facilitation and fuel costs (WTO, 2013: 183).

If the cost of air freight declines relative to sea transportation costs, it may facilitate more trade in time for sensitive goods. On the other hand, sea transportation is necessarily required for majority of international trade transactions (Hummels, 1999: 2-3). Arpita Mukherjee believes that transport is the heart of economic growth and trade especially in developing countries which depend on international trade (OECD/ITP, 2009: 60).

Transportation is not only a means of overcoming geographical distances to international trade but also a service which is traded by sea transportation companies, airlines and varieties of surface based modes (Button, 2010: 106). In the first half of the 19th century, using steam power to railways has been called transport revolution that was able to solve transport problems of heavy industries (Klemann and Schenk, 2013: 826-827). Hummels (1999) mentions that the ratio of CIF/FOB is in tendency to decreasing linearly by using IMF trade statistics from 1.10 in end of 1940s to 1.01 in 1990s. In the another study of Hummels (2007) worldwide index of air revenue per ton-kilometer decreased from 1250 in 1955 to 100 in 2000.

Different freight transportations - truck, rail, water, pipeline and air - reveal competitive and cooperative freight transportation services with each mode that provides advantages and disadvantages in terms of price, speed, reliability, accessibility, security and safety. Also, shippers make efforts to use each mode for their interests by choosing freight transportation services to support their supply chains and distribution networks (Brogan et. al., 2013: 7).

Importance of maritime in transportation modes of international trade is vital for movement of goods and spread of globalization. Global seaborne trade has expanded averagely by 3.1% per annum since 1970 and approximately 80 per cent by volume and 70 per cent by value of global trade are carried through sea in 2011 (UNCTAD, 2012: 44). To illustrate, sea transportation was 75% of world biggest economy, US, in terms of international merchandise trade volume (EPA, 2014).

In spite of development of other transportation modes, the proportion of sea transportation is very high. As a result of this situation, Hummels (2006) mentions that it is possible to write the value of imports valued including sea transportation costs at the point of delivery as $p*q = (p+f)q$, where q is the quantity shipped, p is the price, f is the sea transportation cost per quantity and p is the delivery price that covers sea transportation costs. Therefore, the cost of sea transportation generally is used for transportation calculations at international trade. As well, North (1968) attributes the growth of maritime transportation efficiency to decline of piracy and development of markets and international trade between 1600-1850. In essence, sea transportation and international trade has mutual linear relation in the light of the studies.

3.2.2. Sea Transportation on the International Trade

The volume of international trade at any given time depends on movement costs of goods among markets due to international costs such as transport and trade barriers. Massive trade growth for years has not been indifferent to technological, organizational and institutional transformation of transportation systems. The first important change is the invention of sea transportation container in 1956. Containerization has saved transportation costs, reduced in cargo handling, increased cargo transshipment and increases the carrying capacity of ships (Hummels, 1999: 6; Clark et. al., 2004: 423). In addition to this, emergence of larger and deeper ports year by year, development of

loading and unloading facilities, construction of onshore storage installations, efficient transport solutions and completely new types of ships cut transportation costs (Ekberg and Lange, 2014: 105).

As of 18th century, ships of Europe were mostly from Northwestern Europe and France. Table 8 shows the descriptions of the ships at that century.

Table 8. Descriptive Statistics of the Ship Sizes in Period I (1702-1717) and Period II (1777-1801).

Ship size in Tons	Period I			Period II		
	N	**Mean**	**Median**	**N**	**Mean**	**Median**
Northern Europe*	275	108	80	1779	138	124
Southern Europe**	184	93	70	339	110	90
All	459	102	80	2118	133	120

Source: Lottum and Zanden, 2014: 4.
*: Refers to all countries north of Southern Netherlands.
**: Refers to France, Italy, Spain and Portugal.

Northern Europe forced the sea transportation hegemony around the world thanks to Industrial Revolution. Europeans organized efficiently the international networks of sea transportation and global trade with economic growth. Lottum and Zanden (2014) discover that the human capital is an influential factor for productivity and performance in the sea transportation industry. Hence, skilled labor force provided productive sea transportation sector to Netherland and later Great Britain in order to dominate international markets. In addition to this, in European market, road (door to door) and maritime (bimodal transport) transport compete each other for short distances at some destinations (Martinez and Nowak, 2007: 412).

Promotions of EU for implementation of short sea transportation aim to reduce the share of road goods transport and positive environmental effect as well as first transport alternative. Also, maritime transportation should take into account the economies of scale in ships and port productivity (Sauri, 2006: 63). Clark et. al. (2004) find that the

improvement of port efficiency from 25th to 75th percentiles decreases the sea transportation costs more than 12% which is changeable for different years.

The cost of exporting goods depends on selected port of origin country. If the cargo is not loaded at the efficient one, the transport cost will be increase (Wilmsmeier and Zarzoso, 2010: 106). In 2012, approximately 9.2 billion tons of goods were loaded throughout the world ports. Dry-cargo shipment obtained the lion share that was nearly 70%. Growing Asian demand for two major bulks -iron and coal- out of five -other three are grain, bauxite/alumina and phosphate rock- led to expansion of dry-bulk shipment. Even if Europe provide skilled labor force to sea transportation sector, Asia still dominated as the basic loading and unloading region. However, Africa is becoming more attractive with high potential for maritime transport and seaborne trade. Although, Europe remains the biggest trade partner of Africa, China has overtaken US as called largest single trade partner (UNCTAD, 2013: 7-9). World seaborne trade by regions as of 2012 is indicated Figure 3:
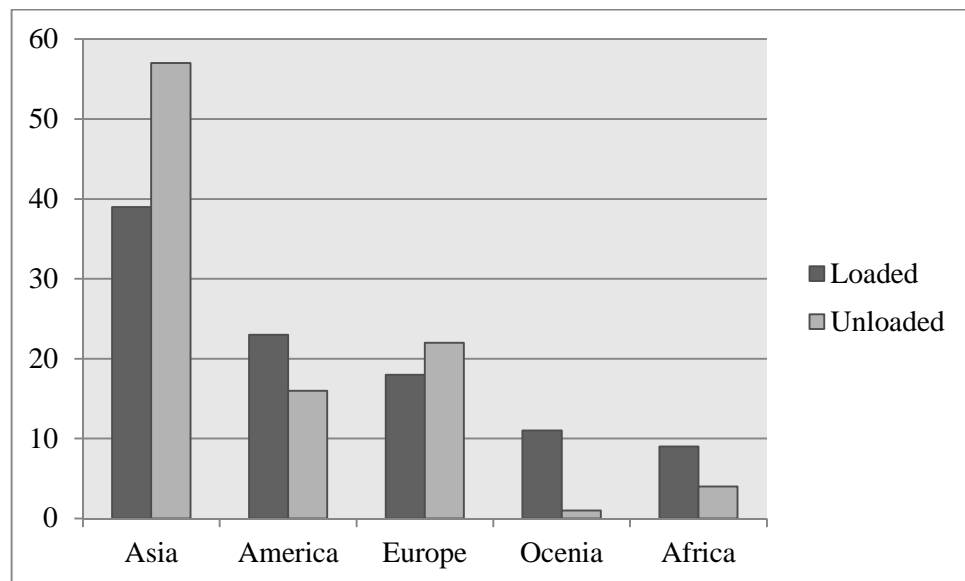
Figure 3. World Seaborne Trade by Geographical Regions by 2012 (% share in world tonnage)
Source: UNCTAD, 2013: 9.

First four places of air and sea freight bilateral trade pair have at least one Asian country. Initially, first rank belongs to China and US with 291 billion $. Others are respectively China and Japan, Japan and US, China and Korea (PwC, 2011: 4). Port efficiency varies from country to country due to legal restrictions. However, some Asian

countries such as Shanghai, Singapore and Hong Kong have the most efficient ports for international trade. Conversely, some of the most inefficient ports those are located in Africa such as Ethiopia, Nigeria and Malawi or South America Colombia, Venezuela and Ecuador (Clark, 2004: 424). Nevertheless, the most efficient grain and iron-ore terminals are located in Latin America and the most efficient crude-oil terminals are in the Gulf area as well as Southeast Asian ports efficiencies in terms of handling coal bulk and containers (Merk and Dark, 2012: 28). Korinek and Sourdin (2009) find out that ten percent increase in the sea transport cost leads to decline of six to eight percent of trade under the condition of other things are equal. Generally, commodities which are the fundamental sources for traded products are carried by maritime transport which is the best way for efficiency and low transportation cost.

3.2.3. Global Commodity Prices and International Trade

The world witnessed to collapse of financial markets and high international commodity prices in the year 2008. After the global financial crisis more people have been added to the hungry list all around the earth due to commodity price boom that ended when collapse in demand occurred. To illustrate, international metal prices and energy prices surged successively from 2004 to 2008. As a result of this, inflation in many countries rapidly increased with the combination of strong domestic demand and higher commodity prices (Sugden, 2009: 79). Besides, in five years from 2003 to 2008, real prices of energy and metals more than doubled and real price of food commodities increased 75% (Erten and Ocampo, 2012: 1). Between 1995 – 2011 world commodity export increased fivefold. The years 1995 – 2002 had 3% growth rate by year in terms of world commodity export value. Growth rate reached to 19% by year from 2003 to 2011. Additionally, share of world commodity trade in total world merchandise increased form 24% in 1995 to 33% in 2011 (UNCTAD, 2013a).

Study of Iregui and Otero (2013) supports that commodity prices are not convenient for assuming as independence of each other because of the market linkages. The commodity prices are not indifferent to macroeconomic developments such as the transition period of Eastern Europe and Soviet Union that have had remarkable impact over the international commodity markets (Borensztein and Reinhart, 1994: 238).

International commodity prices also are used for financial futures positions such as crude oil prices. Therefore, volatility of prices can be affected by speculations. On the other hand, De Meo (2013) mentions that empirical tests on future positions are unable to identify any significant causal relationship from financial futures positions to commodity price movements, while contrary causality direction is more supported by studies.

The rising price of crude oil forms inevitable pressure over the supply of commodities. Costs that have directly impact over petroleum products used to production facilities and transport products increase the prices of coal, natural gas and energy intensive products (Sugden, 2009: 82-83). Therefore, the volatilities of commodity prices are vital for commodity traded countries for the macroeconomic indicators. Although, there has been a downward trend in commodity prices, historically growing volatility of exchange rate regimes after dissolution of Bretton Woods system real commodity prices and instability in the Persian Gulf have demonstrated increasing volatility of commodity prices (Cashin and McDermott, 2002: 195; Frankel and Andrew, 2010: 9).

In 2013 almost all key commodity prices declined with the exception of energy as decreasing of fertilizer (-17,4%), agriculture (-7,2%) and metals (-5,5%) from 2012. Meanwhile, under the assumption of no macroeconomic shocks or supply deductions, oil prices are expected to 1% lower than 2013 average, 103 $ per barrel in 2014. Also, in the event of supply disruption in the Gulf region could increase as much as 50 $ to the price of oil (Baffes and Cosic, 2014: 5). The future commodity prices indicate the price fluctuations. Table 9 demonstrates price indices of commodities while year 2010 is the base year.

Table 9. Nominal Price Indices, Actuals and Forecasts between 2009-2015 (2010=100).

	ACTUAL					FORECAST	
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Energy	80	100	129	128	127	127	124
Non-Energy	83	100	120	110	102	99	99
Metals	68	100	113	96	91	89	90
Agriculture	89	100	122	114	106	104	103
Food	93	100	123	124	116	111	110
Grains	99	100	138	141	128	116	117
Fats and oils	90	100	121	126	116	116	113
Other Food	90	100	111	107	104	101	100
Beverages	86	100	116	93	83	82	82
Raw Materials	83	100	122	101	95	96	97
Fertilizers	105	100	143	138	114	100	99
Precious Metals	78	100	136	138	115	100	98
Crude Oil ($ per barrel)	62	79	104	105	104	103	100
Gold ($/troy ounce)	973	1225	1569	1670	1412	1220	1200

Source: Baffes and Cosic, 2014:6.

Price indices vary by commodity groups but the energy that is required by nearly all process of production, demonstrates increase trend.

The commodity prices impact on international trade for both export and import. Chen and Hsu (2012) examined a panel data from 84 countries throughout the world from 1984 to 2008, for measurement of oil price volatility effect. They find out that the increase in oil prices due to supply quantity has substantial negative effect on international trade. A shock in the price of raw materials reveals negative and positive effects for countries. Negative supply shock hampered the growth of raw materials imported countries and low growth rate decreases to lower import demand that cut the export quantity of raw material producers (Korhonen and Ledyaeva, 2010: 854).

Frankel (2006) stated that despite the discussion over the new alternative monetary regimes without gold standard and other commodity based in the early 1980s, the low commodity prices caused to victims in developing countries in the 1990s such as Mexico, Indonesia, Russia, Brazil and Argentina. Newly industrializing economies as South Korea, Taiwan, Hong Kong and Singapore have been successful in exporting to Western markets thanks to sustainable global commodity chain framework (Gereffi, 1999: 38).

Basci (2012), who is the president of the Turkish Central Bank, explains the importance of the commodity prices:

"Why are commodity prices so important? Usually, the term "commodity prices" represent energy prices (mainly the crude oil), food prices and the prices of some main industrial inputs. Energy prices are very closely monitored by economic units and policy makers, for it denotes the cost of one of the most significant inputs for the entire economy. Energy is one of the primary cost factors for firms. It is also a considerable item for households' heating and transportation expenditures. On the other hand, due to its high share in the expenditures of especially low-income households and corresponding purchasing power effects, food prices are given a great importance by policy makers. Meanwhile, the metals, such as iron ore, copper and aluminum, are among the most important raw materials for the industry and construction sector."

Basci (2012) explains the importance of the commodity prices for entire economy of the country and this situation directly links with international trade costs especially for energy-dependent countries such as Turkey.

International commodity price indices are taken into account due to calculations of international trade that cover the raw materials, energy and agricultural related sectors. Amano and Norden (1998) implies that another difficult variable to model empirically is the exchange rates and they studied over the relation of oil prices and exchange rates over the post Bretton-Woods period.

3.2.4. Importance of Exchange Rate for Global Trade

Price in the currencies is the one vital aspect for exporting firms that have low share of global export and international competition is though for them. Bacchetta and Wincoop (2005) find that the basic factors in order to determine invoicing choice are market share and differentiation of goods. Higher share and differentiation of goods in the market provide pricing in exporter currency.

In the late 19th century different monetary regimes and national currencies were barriers to international trade. Coordination on a similar commodity money regime is resulted with higher trade (Lopez-Cordova and Meissner, 2003: 344). Exchange rate is one of the most significant price competitiveness elements in an open economy whereby

impacts on the current account and certain macroeconomic variables. Besides, exchange rate enables for comparison the prices of goods and services produced in different countries (Algieri, 2013: 1013).

Exchange rate system variability discourages international trade across borders like high regulation barriers. Therefore, forward contracts, currency options and other alternatives for risk diversifications to reduce possible disadvantages of exchange rate variability on trade (Tenreyro, 2007: 488). Exchange rate volatility has been added to empirical estimations for export and import volumes to determine the risk that reduces economic activity among countries (Oskooee et. al., 2013: 2629).

As of collapse of fixed exchange rate system, theoretical and empirical literature has studied on the link between exchange rate uncertainty and international trade flow. The general view is that increasing in exchange rate uncertainty causes to adverse impact on international trade flow. However, neither theoretical models nor empirical studies have revealed a definitive answer about the linkage for last two decades (Baum and Caglayan, 2010: 79-80). Nicita (2013) find out that exchange rate volatility does not affect international trade excluding occurrence of currency union and fixed exchange rate regime. In addition to this, exchange rate misalignments can affect international trade flows according to valuation deviations.

Real exchange rate has strong influence on the allocation of resources such as capital and labor between sectors producing tradable and non-tradable goods by showing relative prices of tradable and non-tradable products (Auboin and Ruta, 2012: 3). Zhang and MacDonald (2013) observe a significant negative relationship between real exchange rates and trade balance in the most of estimations.

Emerging market economies (EMEs) are important drivers for global economic growth by increasing their share successively last four decades. For that countries choice of exchange rate regime has been crucial to resist external shocks as well as macroeconomic indicators. The exchange rate preferences of EMEs - flexible or fixed - are directly related with growth of country (Tsangarides, 2012: 470-471). Households and firms calculate foreign prices into their own currencies with the exchange rate that also determines the cost of international trade cheaper or more expensive (Krugman and Obstfeld, 2003: 325-327).

Auboin and Ruta (2012) explain that the shifts of exchange rate affect international trade volume of the country directly or indirectly. Besides, real effective exchange rate measures real competitiveness, costs and productivity of the country. Saatçioğlu and Karaca (2010) accept that the exchange rate is an influential factor for international trade costs and they consider that it is expected to affect international trade of country directly.

PART 4: RELATION OF TURKEY's FOREIGN TRADE WITH INTERNATIONAL TRADE COSTS: AN ECONOMETRIC ANALYSIS

2023 vision of Turkey aims to reach 500 billion $ export volume and become one of the ten largest economy in the world. In addition to this, 2023 export strategy of Turkey has been based on advanced technology and Research & Development (Akman, 2013: 140). After the liberalization process as of 1980s, Turkey followed export-led growth. Thus, integration of Turkey to the international trade system is crucial.

Main transportation modes of Turkey for import is sea transportation with the share of 60,7% for export, the share of sea transportation is 51,6%. Figure 4 shows the details of the transportation modes for Turkey:
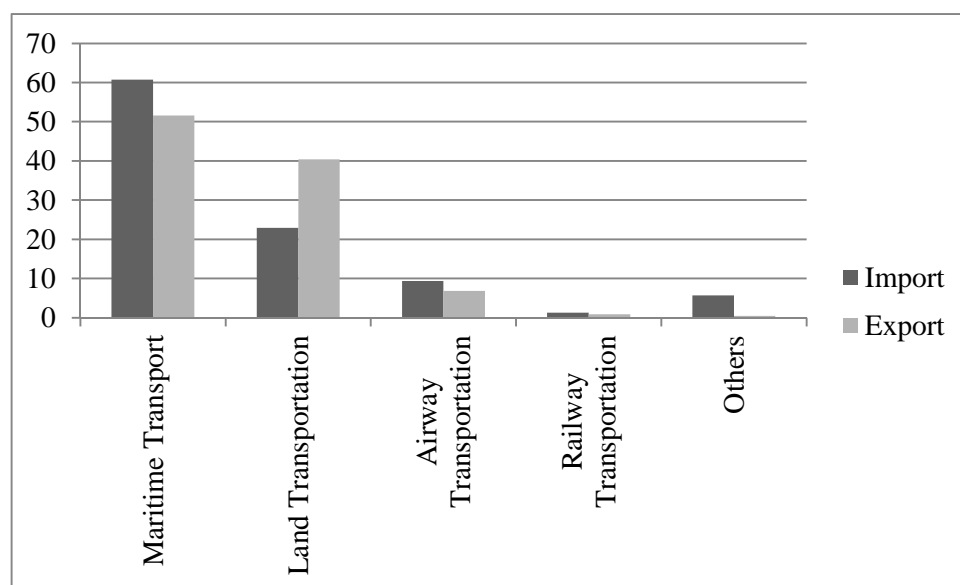
Figure 4. International Trade Shares of Transportation Modes in Turkey as of 2012 (%).
Source: Cited in Öztürk, 2013.

The first five products of import of Turkey are mineral fuels and oils, machineries and mechanical appliances, electrical machinery and equipment, iron and steel, lastly parts of vehicles other than railway. The products of first five place for export are parts of vehicles other than railway, machineries and mechanical appliances, electrical machinery and equipment, textile and iron and steel (TUIK, 2014). In this part, the literature about the effect of international costs on the foreign trade of Turkey has been

reviewed. Additionally, new elements of international costs - commodity prices and transportation costs - have been examined within international trade of Turkey.

4.1. Literature Review on Relations between Turkish Foreign Trade and Trade Costs

Foreign trade policy of Turkey has been analyzed by many scientists. Generally, the relation between export or import with real exchange rate, economic growth or foreign direct investment (FDI) are studied. Besides, determinants and function of Turkish foreign trade are other studies regarding on the estimation of international trade structure of Turkey.

Study of Vergil (2002) takes real exchange rate volatility and export in order to analysis the relation of both. Results indicate that the real exchange rate volatility has an important impact on the real export negatively for the period 1990: 1 - 2000: 12.

Doğanlar et. al. (2003) form an export function of Turkey with export price indexes and real income of foreign countries between 1981: Q1 – 1999: Q4. Also, the study focuses on the importance of transportation costs especially sea freight rates for foreign trade. On the other hand, paper does not include sea freight rates in the export model.

Şimşek and Kadılar (2005) contribute to literature by analyzing export demand function with Bound test which is the method of Pesaran et. al. (2001). Empirical results indicate that export volume, income and relative prices were cointegrated for the period from 1970 to 2002. In addition to this, the sum of export and import elasticity is higher than 1 (1.01) that means validity of Marshall-Lerner condition and providing opportunity to decrease trade balance by using exchange rate policies. Meanwhile, for the next years studies generally show that the inefficiency of exchange rate policies over trade balance of Turkey.

Aktaş (2010) analyzes the relation of export and import with real exchange rate whereby VAR technique. He investigates the relations basis over the quarterly periods between 1989:1 and 2008: 4. The study shows that there is no statistically significant impact of real exchange rate on not only export but also import.

Öz (2011) implies that 2004-2010 period experienced the positive relationship between real exchange rate and export on the contrary to general opinion. That is, the revaluation

of Turkish Lira can lead to increase in export of country. In addition to this, foreign trade deficit is determined by economic growth instead of real exchange rate. Besides, the cost of decreasing foreign trade balance by using devaluation of Turkish Lira (TL) is higher than other tools.

Yıldırım and Kesikoğlu (2012) investigate causality relationships of import, export and real exchange rate for Turkey in the period of 2003:1 – 2011:9 by applying bootstrap-corrected causality test. Results indicate that the dependence between export and import leads to neutrality of exchange rate policy to promote export. Other factors such as foreign capital movements or monetary policy are effective on exchange rate rather than import and export.

Özcan and Özçelebi (2013) test the relationships between industrial production index, export, import and real exchange rate using Johansen co-integration method for Turkey that cover 2005:01 – 2011:11 period. According to findings, export-led growth hypothesis is supported. However, the coefficient of the real exchange rate is not statistically significant in the model.

Study of Tapşın and Karabulut (2013) focuses on the causality relation between real exchange rate and international trade of Turkey. Results of the TY test demonstrate that there is a unidirectional causality from real exchange rate to import. However, the data set of the study covers the years between 1980-2011.

The literature about the foreign trade of Turkey particularly has been taken as relation with real exchange rate and export-led growth by doing causality tests. Meanwhile, studies do not search the effect of international costs over the Turkish foreign trade. Therefore, contrary to the literature, the study tries to measure the impact of international costs for foreign trade of Turkey. The causality tests focus on the relation of real effective exchange rate, BDI and commodity price index with export and import of Turkey.

4.2. Data and Methodology

The data covers the ten years period that starts from January 2004 to December 2013, monthly. Total observations of the database are 120 for each variable and all tests of the study were carried out by using the natural logarithm values of seasonally adjusted

series of export and import, international commodity price index, BDI, real effective exchange rate and nominal US Dollar - Turkish Lira effective exchange rate.

Seasonal adjusted series of export and import has been collected from Turkish Statistical Institute. BDI data series that are closing price of end of month are obtained from Data CNBC. Monthly international commodity price indices are provided by UNCTAD Data Center. Finally, the exchange rate data for real and nominal (selling price) are obtained from Central Bank of Turkey Data Base (EVDS).

Firstly, natural logarithms of the series are tested to detect stationary levels of data. After that relationships between export-import and other variables will be searched with the help of TY Granger causality test.

4.2.1. Definitions of Data Sets

Data series of the study - transportation costs, international commodity price index and exchange rate- relate with international costs and are able to affect the international trade of countries. International trade requires the transportation from a country to another and pricing of the goods depend on the exchange rate if countries use different currencies. Besides, the raw materials are the one of the most important part of production process.

The data sets of international commodity price index are provided by UNCTAD. The commodity price index has been calculated as of January 1960 by monthly. The data set covers all food (food and tropical beverages, vegetable oilseeds and oils), agricultural raw materials (cotton, linseed oil, tobacco, wool, woods and rubber) and minerals, ores and metals (phosphate, manganese, iron ore, aluminium, copper, zinc, gold, silver, crude petroleum and nickel).

Effective exchange rates in terms of real and nominal (US Dollar - Turkish Lira) are obtained from Central Bank Data of Turkey. The calculation of real effective exchange rate differs from nominal effective exchange rate that shows weighted average value of Turkish Lira relative to currencies of major trade partners. Real effective exchange rate is computed prices in Turkey relative to prices of basic trade partners as geometric average including 36 countries (Central Bank of Turkey, 2014).

In the literature, studies generally take real effective exchange rate and there is no relation with international trade of Turkey after the flexible exchange rate regime. In addition to this, adjusted data of import and export of Turkey remove the periodical risks such as total holidays in a month or sharp fluctuation in a month. Seasonally adjusted data is used for comparison of the month with previous one (TUIK, 2013).

On the other hand, measurement of transportation cost does not depend on a single index. Golub and Tomasik (2008) estimate a new method for country specific transport costs which is based on direct measures of air, maritime and road transport costs by calculating as costs of goods per kilogram. Besides, Gaulier et. al. (2008) provide a new method for transportation cost to calculate CIF/FOB ratio with varied equations. Nevertheless, the calculations of transport cost are not suitable for the study due to requirement of monthly data. Additionally, sea transportation cost is logical when the global trade transportation has been realized via seas. Therefore, BDI is included to causality test for international trade of Turkey.

BDI was created by Baltic Exchange which was established in 1744 at negotiations between merchants and ships' captains for price of Cargo sea transportation services. The Baltic Exchange is designed by expectations of sea transportation brokers to detect price levels for a given route and goods to transport and time to delivery. BDI index is seen a reliable and independent source for cost of maritime transportation and volume of international trade operations (Oomen, 2012: 3-4).

BDI is calculated as a weighted average of the Baltic Exchange's indexes for the sea transportation costs of the four largest dry-vessel classes – Capesize, Panamax, Supramax and Handysize- (Bakshi et. al., 2011: 4). Bulk sea transportation is associated with the business intensity and quotation of raw materials. Oil is not single input for production of the world (iron, ore, wood, coal, phospate rock, bauxite, alumina, copper and so on). Thus, international trade of these materials can be seen an indicator of world international trade activity because raw materials have close relationship with intermediate and final goods. Economic expansion or downturn in the global business environment instantly affects freight rates (Alizadeh and Muradoglu, 2011: 6). Sea transportation is crucial for final prices of energy, agriculturals and metals (Geman and Smith, 2012: 99).

The studies about the BDI and other variables become more popular day by day. Generally, BDI working papers published especially in last years. The paper of Lin and Sim (2012) shows the relation of BDI and income level of Least Developed Countries. Study of Erdoğan et. al. (2013) is important for BDI as an indicator. The monthly closing prices of BDI and Dow Jones Industrial Average have mutual relationship. Baumaster et. al. (2013) investigate the forecasting of oil prices with the help of BDI. They accept that BDI is an indicator for future industrial production. Lastly, Papailias and Thomakos (2013) analyze the possible synchronization of annual change of BDI and commodities such as copper, cotton and tin.

Apergis and Payne (2013) mention that BDI is a significant component for the cost of trade and it is sensitive to demand changes for raw materials and global trade. That is, BDI has been one of the most popular indicators on the sea transportation freight rates and a tool for predicting the volume of worldwide trade.

4.2.2. Results of Granger Causality Test on International Costs

Data series are subjected to some tests to find suitable test for causality. Therefore, the unit root tests of series are required. Stationary levels of the data sets provide to investigate the directions of the causality that are detected by TY causality model with the suitable lag lengths of variables. Results of the causality tests show that the relation of international costs and international trade of Turkey.

4.2.2.1. Unit Root Test

Stationary is important to estimate accurate forecasting. Application of least squares regressions on non-stationary variables is able to clear away spurious regression misleading estimation of relationship between variables (Mahadeva and Robinson, 2004: 3). Absence of the unit root means stationary of data and fluctuations around a constant long-run mean and finite variance. Meanwhile, non-stationary series do not reject the random-walk hypothesis and shocks of past that have impact on current values (Granger and Swanson, 1997: 39).

If the data is non-stationary at level, the data will include a unit root at its differences. Generally, macroeconomic series are not stationary at their levels. Augmented Dickey Fuller (ADF) generally is accepted a valid test to detect the stationary of the series

(Glynn et. al. 2007: 66). ADF test eliminates the autocorrelation at error term by using lagged values of time series and it differs from Dickey-Fuller (DF) unit root test (Yılmaz, 2005: 69). The formula of constant and intercept of DF is:

$$\Delta Y_{t=} \beta_0 + \beta_1 t + \alpha Y_{t-i} + \varepsilon_t$$

If error term ε_t contains autocorrelation the formula changes into:

$$\Delta Y_{t=} \beta_0 + \beta_1 t + \alpha Y_{t-i} + \delta_i \sum_{i=1}^{k} \Delta Y_{t-i} + \varepsilon_t$$

The equation is willing to show the whether $\alpha = 0$. If Ho: $\alpha = 0$ is rejected, alternative hypothesis will be accepted H_1: $\alpha < 0$ that means time series of Y is accepted stationary at level (Dickey and Fuller, 1981). Lag criteria is based on t-statistics that allows maximum 12 lag length.

Test results of the related variables of study are below:

Table 10. ADF Unit Root Test Results

Intercept Critical Values			Intercept and Trend Critical Values	
1%*	**5%***		**1%***	**5%***
-3,49	-2,88		-4,04	-3,45
Variables	**Intercept**	**Probability**	**Intercept and Trend**	**Probability**
LNIMP	-1,24	0,65	-2,76	0,21
LNEXP	-1,02	0,74	-2,14	0,51
LNBDI	-2,49	0,12	-3,23	-0,08
LNCOM	-2,21	0,20	-1,31	0,88
LNNOM	-0,62	0,86	-2,02	0,58
LNREXC	**-3,76**	**0,00**	-3,60	0,03
ΔIMP	-3,16	0,02	-3,14	0,10
ΔLNEXP	-3,23	0.02	-3,23	0,08
ΔLNBDI	**-5,02**	**0,00**	-4,99	0,00
ΔLNCOM	**-3,498**	**0,00**	-3,93	0,01
ΔLNNOM	**-3,565**	**0,0081**	-3,71	0,025
ΔΔIMP	**-5,93**	**0,00**	-5,91	0,00
ΔΔEXP	**-7,11**	**0,00**	-7,07	0,00

*MacKinnon (1996) one-sided p-values.

ADF test results bring out that data series are stationary at their levels, first and second differences. Also, all probabilities of the stationary data are less than 1% according to MacKinnon one-sided p-values for intercept. Real effective exchange rate (LNREXC) is stationary at level I(0), Baltic Dry Index (LNBDI), international commodity price index (LNCOM) and nominal effective exchange rate (LNNOM) are stationary at their first differences I(1) and lastly seasonally adjusted import (LNIMP) and export (LNEXP) are stationary at their second differences I(2).

4.2.2.2. Causality Analysis of Varibles

Causality can be explained by various tests such as Granger, Engle-Granger and Johansen & Jesulious. These tests need to test unit root and co-integration for applicable (Afzal et. al. 2012: 32).

Toda and Yamamoto (1995) prepared a new model to estimate Granger causality test with augmented Vector Autoregressive (VAR). TY model contains the prediction of augmented VAR. model by adding maximal order of integration (dmax) to optimal lag length (k) in the VAR system (Ghazali et. al., 2008: 84). Asymptotic distribution of Wald-statistic is guaranteed by augmented VAR (Zapata and Rambaldi, 1997: 285). Therefore, TY is used in this paper to test for causality between BDI and other indexes.

TY ignores possible non-stationary and co-integration between series for causality. Adding one extra lag to each equation and Wald test results to find whether jointly zero of coefficients of the lagged other variables (Mavrotas and Kelly, 2001: 102). According to Akaike Criteria the suitable lags of variables are listed below:

Table 11. Suitable Lag Lengths of Variables

Variables	Lag	AIC
Import - Commodity	2	-7.638
Import - BDI	4	-3.53
Import - Real Effective Exchange	2	-8.369
Import - Nominal Exchange Rate	4	-7.493
Export - Commodity	3	-7.314
Export - Baltic	3	-3.339
Export - Real Effective Exchange	3	-7.939
Export - Nominal Exchange Rate	3	-7.103

Wald test estimates a VAR (k+dmax) for linear restrictions on the parameters of VAR (k) model and this test has an asymptotic χ^2 distribution which has k degrees of freedom (Sinha and Sinha, 2007: 5, Ghazali et. al., 2008: 84).

The causal relationship between foreign trade of Turkey and other variables according to TY causality test are at Table 12.

Table 12. Toda-Yamamoto Granger Causality Test Results

Null Hypothesis	Chi-Sqr	Prob.	Causality
COM does not Granger cause IMP	8.07	0.089	No Causality
IMP does not Granger cause COM	4.8	0.308	
BDI does not Granger cause IMP	**24.61**	**0.0004**	BDI ➡ IMP
IMP does not Granger cause BDI	8.58	0.198	
REXC does not Granger cause IMP	7.85	0.0972	No Causality
IMP does not Granger cause REXC	2.04	0.727	
NOM does not Granger cause IMP	**26.82**	**0.0002**	NOM ➡ IMP
IMP does not Granger cause NOM	12.65	0.0488	
COM does not Granger cause EXP	**13.2**	**0.0216**	COM ➡ EXP
EXP does not Granger cause COM	4.86	0.4325	
BDI does not Granger cause EXP	10.82	0.0549	EXP ➡ BDI
EXP does not Granger cause BDI	**16.26**	**0.0061**	
REXC does not Granger cause EXP	3.91	0.5614	No Causality
EXP does not Granger cause REXC	1.26	0.939	
NOM does not Granger cause EXP	**15.94**	**0.007**	NOM ➡ EXP
EXP does not Granger cause NOM	8.66	0.123	

TY Granger causality tests show that certain Granger causality between variables. BDI and nominal effective exchange rate are the Granger Causality of import. The sea transportation cost can be seen as the causality for changes in import of Turkey. In addition to this, nominal effective exchange rate can be taken into account for the changes of import. In addition to this, international commodity prices and nominal effective exchange rate are the Granger Causality for export of Turkey. That is, commodity price levels of the world have impact over the export of Turkey. As for import, nominal effective exchange rate has other international cost causality for export.

However, the unidirectional causality from export of Turkey to BDI is interesting result of the test due to low share of Turkey's export all around the world.

On the other hand, there is no Granger causality both between commodity price index and import. The import of Turkey has no causal relation with international commodity prices. For Turkey that is energy dependent country, it is expected to find a causal relation between commodity prices and import but there is no such a relation according to TY test results. Besides, according to test results for both export and import, it cannot be possible to say Granger causality relation with real effective exchange rate. It means that weighted average value of Turkish Lira relative to major trade partners'currencies has relation with neither export nor import. Additionally, there is no unidirectional relation from export and import of Turkey to international costs of trade except export and BDI.

CONCLUSION

Accelerated international relations and interactions among countries have increased the global trade capacity of the world. Currently, almost every country is a part of international trade by trading goods and services with other countries.

Basically, international trade gained importance after the Industrial Revolution. Additionally, studies of Adam Smith and David Ricardo have been admitted as fundamental books of international trade and economics. On the other hand, global trade theories are updating to follow current trends.

Though cyclical declining periods due to economic crisis, wars and so on, volume of international trade among countries has been speeding up years by years. Also, countries were willing to decrease the international trade barriers and followed liberal policies in order to reduce physical obstacles for international trade.

Developing countries, especially after last quarter of 20th century, have taken crucial roles for designing international trade structure. Global trade interactions have started to shift to developing countries. Turkey is one of the developing countries and aims to be one of the top ten world economy as of 2023.

In the literature the relation of international trade volume and real exchange rate is common study field. On the other hand, the other costs of international trade should be considered to affect directly the volume of international trade. Tariff rates, price of commodities and transportation are accepted as international costs of global trade as well as real exchange rate.

International costs affect the foreign trade structure of Turkey not only imports but also exports. Therefore, this study contributes to literature to measure international costs of global trade by taking into account Baltic Dry Index for transportation cost and commodity price index for raw material cost of international industry. These variables have not used as the international trade costs before. Thus, the study contributes a new perspective to the literature. In addition to this, data of this study are monthly unlike yearly data series of other studies. The international trade trends and costs can be

followed by updating monthly data of these indices and more consistent targets can be estimated thanks to these variables for international trade of Turkey.

Econometric analysis of the study focuses on the real effective exchange rate, commodity prices and transportation costs. Tariff rates can be added to the analysis but free trade agreements and economic co-operation in the globalized world led to decrease the share of tariff rates on the trade costs. Besides, tariff rates are calculated yearly however study covers monthly data of these series.

Commodity prices and real effective exchange rate index were obtained from the database of UNCTAD and Central Bank of Turkey. For transportation cost, the monthly data were provided by closing prices of BDI (last day of the month) that has been accepted as a significant indicator for global trade.

Econometric model used in this study is TY Granger causality. The data of export and import has been provided by Turkish Statistical Institute. Firstly, unit root of series were tested and stationary levels of these series were detected. After that, TY Granger causality between variables was analyzed.

Results of the test revealed unilateral causality relations of series. According to results, BDI is Granger causality of import of Turkey. That is, it can be possible to state that transportation cost and import of Turkey has a causality relation due to share of sea transportation at the import of Turkey. The export of Turkey is Granger Causality of sea transportation index that can be seen as interesting result due to contradiction with expectations. Meanwhile, commodity prices are Granger causality of Turkey export. International commodity prices have capacity to affect the export of Turkey. The export share of raw materials -iron, steel, chemcical products- of Turkey can be seen the reason of this causality relation. For next years, Turkey should shift the structure of export from commodities to more value added and technological goods. According to World Bank Turkey country economic memorandum report (2014), high-tech export capacity is low and this causes to lack of comparative advantage among other peers.

Also, nominal effective exchange rate is the Granger Causality for both export and import. The nominal level of US Dollar - Turkish Lira exchange rate is influential over export and import. The literature about the relation of real exchange rate and

international trade of Turkey has two parts: before 2001 and after 2001. The studies such as Vergil (2002) find causality relation with the data of 1990 - 2000. On the other hand, studies of Öz (2011), Yıldırım and Keskinoğlu (2012), Özcan and Özçelebi (2013) and Tapşın and Karabulut (2013) examines the causality between exchange rate and import and export of Turkey. However, there is no causality from exchange rate to import and export. The data sets of the studies cover the period after 2001 and the results of these studies show parallelism with this study.

On the other hand, commodity prices have no Granger causality relation with import unlike expectations. However, if just oil prices are taken for analysis, there might be causality relation eith import due to high dependency of Turkey.

The relation of sea transportation freight rates and import show that import of Turkey is sensitive and high share of sea transportation mode in the international trade of Turkey as the world reveals the causality between maritime transportation and import of Turkey.

According to studies especially after 2001 that year was the transition of exchange rate regime of Turkey, there was no relation with real effective exchange rate with foreign trade of Turkey. The same situation is valid for export and real effective exchange rate causality relation. Central Bank of Turkey accepts real effective exchange rate as the indicator of reference point to intervention for keeping monetary stability and inflation. Real effective exchange rate for the last decade has no effect on the international trade of Turkey. However, the nominal effective exchange rate is the Granger causality for export and import. It is possible to say that high import proportion in export products - the parts of vehicles other than railway, machineries and mechanical appliances, electrical machinery and equipment are common for the top five place of export and import- lead to get rid of causality effect of real effective exchange rate. For 100 $ export, Turkey uses 58,5 $ import that shows the dependency of Turkey to external markets (Uras, 2013). Also, communiqué in official gazette about the inward process regime states that Turkey allow to import for export of automotive sector and textile up to 65%, for leather , cement and ceramic products up to 60%, for forestry products up to 70% (TİM, 2011). The high share of import for export of Turkey cause to neutrality of real effective exchange rate because Turkey export goods that has imported

components. According to the result, the level of real effective exchange rate has no relation with the international trade of Turkey. The study also gives vital results to 2023 strategic vision of Turkey. The volume of international trade of Turkey has ties with the nominal exchange rate contrary to real effective exchange rate for the period of 2004:1 – 2013:12. Thus, nominal exchange rate should be regarded as an instrument instead of real effective exchange rate for evaluation the impact of the exchange rate over international trade in Turkey.

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APPENDICES

Appendix. 1

23 Founding Contracting Parties of GATT

Burma
Canada
Ceylon, the Republic of Chile
Governments of Commonwealth of Australia
India
Lebanon
New Zealand
Pakistan
Southern Rhodesia
Syria
The Czechoslovakia Republic
The French Republic
The Grand-Duchy of Luxemburg
The Kingdom of Belgium
The Kingdom of Norway
The Kingdom of the Netherlands
The Republic of China
The Republic of Cuba
The Union of South Africa
The United Kingdom of Great Britain and Northern Ireland
The United States
The United States of Brazil

Appendix. 2

Bilateral and Regional Trade Agreements among CIS

	Armenia	Azerb.	Belarus	Georgia	Kazakh.	Kyrgyz.	Moldova	Russia	Tajiks.	Turkmens.	Ukraine	Uzbeks.
Armenia	=			1998	2001	1994	1993	1993		1996		
Azerbaijan		=		1996	1997		1995	1992		1996	1995	1996
Belarus			=				1993	1996	1998		1996	1993
Georgia	1995	1998		=	1999		1998	1994		1996	1996	1995
Kazakhstan		1997	2001	1999	=	1995	1995	1992				1997
Kyrgyz Rep	1994				1995	=	1995	1993			1998	1998
Moldova	1993	1995	1993	1998	1995	1995	=	1993		1993	1995	1995
Russia	1993	1992	1996	1994	1992	1993	1993	=			1993	1992
Tajikistan			1998						=			1996
Turkmenistan	1996	1996		1996			1993			=		1996
Ukraine		1995	1996	1996		1998	1995	1993			=	1994
Uzbekistan		1996	1993	1995	1997	1998	1995	1992	1996	1996	1994	=

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