

A PANEL DATA ANALYSIS ON THE RELATIONSHIP BETWEEN TRADE
FACILITATION AND MACROECONOMIC VARIABLES



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**A PANEL DATA ANALYSIS ON THE RELATIONSHIP BETWEEN TRADE
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PLAGIARISM

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.

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ABSTRACT

Efforts to reduce or remove tariff and non-tariff barriers, facilitating trade and reducing costs in foreign trade, gained momentum with the liberalization of trade in the world. Trade Facilitation is important agenda of the World Trade Organization. Trade facilitation aims to harmonize basic rules among countries to increase efficiency, transparency, and predictability. The studies conducted by the WTO (World Trade Organization) present results for the economic benefit. This study aims to analyze the relationship between trade facilitation and macroeconomic indicators for 63 countries in the period 2007 - 2019 with panel data analysis. Panel regression and panel causality test confirm the significant linkage between trade facilitation and macroeconomic variables.

Keywords: Trade Facilitation, Authorized Economic Operator, Macroeconomic Variables, Panel Data Analysis.

ÖZET

Dış ticarete tarife ve tarife dışı engellerin azaltılması veya kaldırılması, ticaretin kolaylaştırılması ve maliyetlerin düşürülmesi çabaları, dünyada ticaretin serbestleşmesiyle hız kazanmıştır. Ticaretin Kolaylaştırılması Dünya Ticaret Örgütü'nün ve Dünya Gümrük Örgütü'nün önemli gündem maddesidir. Ticaretin kolaylaştırılması, verimliliği, şeffaflığı ve öngörülebilirliği artırmak için ülkeler arasında temel kuralları uyumlu hale getirmeyi amaçlar. DTÖ (Dünya Ticaret Örgütü) tarafından yürütülen çalışmalar da ekonomik faydaya yönelik sonuçları ortaya koymaktadır. Bu çalışma, 2007 - 2019 yılları arasında 63 ülke için, ticaretin kolaylaştırılması ile makroekonomik göstergeler arasındaki ilişkiyi panel veri analizi ile analiz etmeyi amaçlamaktadır. Bu çalışma neticesinde Panel regresyon ve panel nedensellik testi, ticaretin kolaylaştırılması ile makroekonomik değişkenler arasındaki önemli bağlantıyı doğrulamaktadır.

Anahtar Kelimeler: Ticaretin Basitleştirilmesi, Yetkilendirilmiş Yükümlü Sertifikası, Makro Ekonomik Değişkenler, Panel Data Analizi.

To my beloved wife Gamze, my children Çınar and Doruk...



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1. INTRODUCTION

The decline in tariffs and non-tariff barriers in international trade due to long efforts recently directs the country's attention to other problem areas. Thus, trade costs are an important concept for countries after the 1980s. International Trade costs affect the competitiveness of supply chains, economies, and the direction of global trade. Especially In underdeveloped and developing economies, supply chains and international trade firms are waiting at customs borders to clearance their goods. Trade firms are exposed to delays for a long time and high transaction costs due to long and complex processes, and insufficient infrastructure. As a result of this process, firms lose their competitive power in global supply chain markets and international trade. Thus the facilitation of trade has come to the fore to get rid of these problems and to provide efficiency.

The concept of facilitating international trade emerges in almost all studies and at meetings where trade costs are discussed. Trade facilitation aims to simplify the transactions and reduce transactions cost required for international trade. Trade facilitation reduces the documents and costs of transactions. This concept accelerates the movement of commercial goods between exporters and importers and finally facilitates international trade. Studies and country experiences reveal that facilitation of trade contributes to foreign capital inflows, investments, production, and employment. Especially international trade, and increases the effectiveness of the controls of public institutions in the foreign trade process and the compliance of the private sector with regulations and public revenues. The trade facilitation aims to harmonize basic rules among countries for increasing efficiency, predictability, and transparency. Trade facilitation gets roots from rules, standards, and internationally accepted

practices. Thus, it can achieve increased competitiveness for a country and reduce trade barriers and costs (de Sá Porto et al., 2015)

The Trade Facilitation Agreement is a binding multilateral trade agreement and officially come into force in 2017 for the members of the World Trade Organization (WTO). The Trade Facilitation Agreement has crucial effects on the economies. Thus several trade facilitation measures may be in use as a proxy. *“One of them is the Authorized Economic Operator (AEO) program. AEO, defined as a party involved in the international movement of goods in whatever function that has been approved by or on behalf of a national customs administration as complying with World Customs Organization (WCO) or equivalent supply chain security standards”* (WCO, 2018b). AEO is a part of the trade facilitation business program which is setting up a link from the customs administrations to the private sector companies. It enables the WCO members to share their global chain security responsibilities with the trade officers while offering the opportunity to reward the private sector with additional facilitations. This program enables facilitated customs clearance for firms in the global supply chain engaged in customs-related activities; including manufacturers, importers, exporters, brokers, brokers port officers, warehouse operators, and distributors.

Another trade facilitation measure is the Single Window (SW) program. *“A single window program is defined as A facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements. If information is electronic then individual data elements should only be submitted once.”* (UN/CEFACT, 2005) Table 1 presents the international wide agreements and decisions.

Table 1

Tools for Facilitating

(WTO) Trade facilitation clauses: GATT article V (freedom to transit). GATT article VIII (costs and formalities). and GATT Article X (publication and enforcement of commercial legislation)
(WTO) The Trade Facilitation Agreement on 22 February 2017.
(WCO) Kyoto Convention on harmonization of customs clearance processes; WCO Harmonized System Rules; Standards Framework for Safe and Easy Trading (SAFE)

Source: World Trade Report, 2019

The SAFE Framework presents a unified platform. This platform will increase world trade and provide better global supply chain security against terrorism and international crime. SAFE Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework) would promote trade facilitation for all members and parties. The SAFE framework will increase the international additive of Customs and international trade partners to countries' economic and social welfare. SAFE framework standards will develop the Customs Administration's capability to detect shipments for high risk. SAFE increases the efficiency of supply chain flows, as a result of that accelerating the clearance and release of goods. (WCO, 2018a) The SAFE Framework is based on two principles, which are defined as establishing a link that will ensure continuous communication between customs administrations. The other principle is increasing cooperation among customs agencies and the private sector. The SAFE framework is one of the main drivers to set up and improve customs to customs network regulations to arrange the uninterrupted flow of materials through secure global supply chains. The SAFE Framework facilitates and encourages international trade and sets standards to secure international trade. These standards encourage importers and exporters to trade internationally and facilitate the transportation of goods. The criteria sought within the scope of the SAFE Framework determine the minimum standards for the customs administrations

regarding which criteria should be in the people who will apply for AEO. The WCO gives priority to the implementation of an AEO program that leads to a solid customs-business partnership and enhanced economic prosperity. AEO accreditation provides utility companies on many different levels. Also, it strengthens the market position of companies through risk management, harmonious global trade, and commitment to facilitated operations (Pannu, 2014). AEO certification is the most important step to simplify trade. Trade facilitation is one the main important role in the decision for international progress (Marti et al., 2014)

Some of the studies conducted by the World Trade Organization (WTO) present the following findings regarding the economic benefit that will arise from the wide implementation of the TFA.

Trade Facilitation Agreement:

- The TFA may reduce trade costs in global trade between 9.6% and 23.1% depending on the development levels of the countries. The highest rate will be seen in the least developed countries.
- The agreement is foreseen to reduce the average export time by approximately 2 days and the average import time by 1.5 days.
- The total exports of developing countries may increase annually between 170 and 730 Billion\$.
- Global exports may increase between \$ 750 Billion and \$ 1 Trillion.

Trade facilitation, if fully implemented, could generate an increase of US\$1 trillion in total goods exports - trade rising by US\$ 569 billion (9.9% increase) in developing countries and total exports rising by US\$ 475 billion (4.5% increase) per annum in developed countries (Hufbauer & Schott, 2013) The Trade facilitation may increase international trades by the between of 750 billion to 1 trillion US dollars per annum (if fully implemented and possibly

more under ideal circumstances). And it raises global gross domestic product growth by an estimated 0.5% per year (Nee & Teh, 2016). Both reforming countries and trade partners gain benefits from trade procedures and facilitation. Countries may realize opportunities for prospective mutual gains with a multilateral trade facilitation agreement. Thus, this agreement leads to efficiency in customs procedures. In short term, The TFA provides a much-needed boost to the global economy for the long term; it raises the world's growth trajectory. If, fully implemented, TFA could enable global world exports to increase by 2.7% and world GDP growth by 0.5% per year between 2015 and 2030 (World Trade Organization, 2015). In this study, the aim is to explore the effects of trade facilitation and trading across borders rankings on macroeconomic variables in 63 countries for the period 2007 - 2019 with a panel data method. The literature provides local and regional studies on this subject. However, the literature does not include a global one especially panel data analysis for many countries. The panel data method will also lead to a more comprehensive and descriptive common conclusion with short-term data. A dummy variable for AEO will be added to the model.

2. LITERATURE

International trade promotes economic development and growth as reflected in the GDP.

International trade is the total of export and import transactions and greatly affects the economic growth of a country. Some of the studies suggest that exports have positive influences on economic growth. Trade openness positively and significantly affects economic growth and also boosts economic growth (El Khoury & Savvides, 2006; Zahonogo, 2017)

Trade facilitation has importance as a crucial determinant of economic growth for 23 developing countries for the period 2007 – 2014 (Fauzel, 2017). The linkage between

improved trade-facilitation policy and global business sourcing through international trade transactions is positive (C. L. Mann, 2012).

An average decrease in trade costs based on facilitating trade among Asian members of the Asia-Pacific Economic Cooperation could yield significant gains (Brooks & Stone, 2010).

Boopen Seetanah & Fauzel (2016), study the effects of international trade facilitation on foreign trade flows for African countries. The study covers the period 2007 – 2014. Using a panel vector autoregressive method and Logistics Performance Indicator developed by the World Bank. Trade facilitation positively and significantly affects trade flows and a 1 % increase in trade facilitation contributes to a 0.77 % increase in trade flow. The model specifications for South-Eastern European countries show that only 5 indicators positively influence trade: the first one is information availability, sharing information always affects positively. The second indicator is the joined of the international trade community. Remain indicators customs agency cooperation, appeal procedures, and formalities – automation. Model results are statistically significant on a 10% level for export (Toševska-Trpčevska & Tevdovski, 2016).

A panel data study by Arevalo & Merlo (2020) estimates the relationship between the interoceanic highway construction and trade facilitation for Brazil and Peru and indicates highway construction positively influences trade facilitation for them.

Iwanow & Kirkpatrick. (2009) applies a panel dataset over the period 2003 – 2004 in Africa. The study investigates to effects of trade facilitation and other trade-related institutional factors on export performance in the manufacturing sector. Trade facilitation reforms may improve export performance. Trade facilitation effects mainly in South America; and Chile's export basket using static panel data on Chilean exports in 2006 – 2014 (Fuenzalida-O'Shee et al., 2018).

A panel data study measures the effects of reductions in time spent on border procedures by Oberhofer et al. (2018). Study based on international trade and welfare for high and middle/low-income countries throughout 2006 and 2012. (Oberhofer et al., 2018) Positive welfare influences middle and low-income countries on average. Factors are the quality of the welfare. Institutional quality and education system have crucial effects on them.

Königer et al. (2011) focus on the relationship between foreign aid spent on Aid for Trade. Also, Königer's study on Trade Facilitation on the costs of trading for 99 developing countries in 2004 – 2009 using panel data. Aid indicators affect negatively the costs of trading. (Königer, Jens; Busse, Matthias; Hoekstra, 2011)

The literature contains a few and limited studies focusing on the Authorized Economic Operator (AEO) programs analysis with panel data. Participating in a country's AEO program and implementing the Single Window System improves that country's trade performance. (de Sá Porto et al., 2015) The study examines the effects of trade facilitation indicators on international trade transactions using a panel data methodology between 2011 and 2012 for 72 countries. Al-Shbail (2020) study is a case of Jordan Customs with a panel data approach for the year 2019 study identifies the main and important risk profiles and indicators contributing to the protection of customs revenue. Observations are a total of 600 in this case. Customs officials have programs such as authorized economic operators and post-clearance audits as an effective means to measure and improve compliance (Al-Shbail, 2020).

In a study conducted by the OECD in 2003, it was stated that every savings made on trade provides great benefits worldwide. He calculated that each 1% savings yield a total of 43 billion USD in global trade benefits. Between 2002 and 2005 member states committed to donating a total of 21 billion USD. While the expenditures for trade facilitation were 101 million USD in 200 this figure increased to 391 million USD in 2006.

TFA will reduce global trade costs. Estimated that, global trade costs are reduced by 14.3% on average by TFA. TFA will reduce the significant reductions in trade costs, especially for least developed countries (LDCs) and African economies. Full implementation is expected to reduce the average time by 47% for imports and 91% for exports. In addition, “TFA is estimated to contribute 2.7% per year to world export growth and more than 0.5% per year to world GDP growth between 2015-30” (Hufbauer & Schott, 2013)

Developing countries of economies are expected to benefit more from this situation.

According to the research of the WTO, the case of the full implementation of TFA is expected to increase economic growth in developing countries. According to these estimations, it is estimated that “economic growth will increase by 0.9% each year and exports will increase by 3.5% annually”. (Hufbauer & Schott, 2013)

It is estimated that TFA could increase global trade by as much as \$1 trillion and reduce trade costs by an average of 14.3%. It should not be forgotten that the poorest countries can get the biggest share of this pie. Reducing trade transaction costs in the global supply chain will reduce the costs of SMEs in member countries to reach global markets. Thus, the export potential of SMEs will increase.

Since trade facilitation programs are reform programs their implementation and development require a cost. It demonstrates the many rich benefits of facilitating trade, as documented mainly in World Bank and OECD studies and documents. It has a positive effect on foreign trade volumes at macro levels. An extra day in foreign trade transactions reduces global trade by 4.5% in total. (OECD, 2011)

The Asia-Pacific Economic Cooperation (APEC) was established in 1989. It is a regional economic forum. It aims to leverage the growing interdependence of the Asia-Pacific.

Reforms in APEC region countries could increase intra-APEC trade by 245 \$billion. The

study in 2012 by the World Bank on the effectiveness of aid reveals that \$1 aid for trade facilitation translates into \$70 exports for buyers. (C. Mann & Wilson, 2014)

In 2004 the World Bank conducted a correlation analysis between trade facilitation based on finished products and the global movement of goods. Based on data collected from 75 countries they concluded that four factors: the first factor is port efficiency, the second is customs environment, the third is the regulatory environment, and the last one is the use of e-commerce. As a result of the study, factors are effects on each country's imports and exports.

3. FOREIGN TRADE CONCEPT AND FACILITATING INTERNATIONAL TRADE

3.1 Foreign Trade Concept

Trade is used to mean the exchange, purchase and sale of goods/products with other objects of economic value, from the production process to their consumption. Trade is generally divided into two as domestic and foreign trade. Foreign Trade is concerned with the flow of goods and capital across national borders. In broader terms, foreign trade is the supply of goods or services from other countries that countries cannot produce in their territory or that they cost more than other countries, or, on the contrary, supplying goods and services to other countries that they cost less and are demanded from. (Doğan et al., 2016)

Trade-in goods and services are the main elements of international trade. However, it would be wrong to see foreign trade only as an economic activity. Foreign trade is also a tool that enables countries to get closer to each other socially, culturally, and politically.

The main reasons for foreign trade can be counted as development differences between countries, resource distribution differences such as technology, labor, natural resources,

capital, the existence of economies of scale, and government policies encouraging foreign trade.

Merchandise trade, which meets the concept of foreign trade, is one of the most important elements in the balance of payments, which shows the monetary relations of a country with foreign economies. An imbalance in the balance of payments affects all economic indicators of that country, such as national income, income distribution, interest rates, the value of the national currency, exchange rates, international capital investments, inflation rates, unemployment.

Although the free trade view is supported by the countries, foreign trade that is not subject to any restrictions in practice is rarely encountered. Governments impose restrictions on imports due to the pressure of domestic producers who are not competitive with imports, the negative effects of balance of payments deficits, the effort to protect infant industries, and sometimes trade wars between countries (Seyidoglu, 2009).

The sole purpose of these interventions of governments in foreign trade is to increase the level of social welfare and to ensure the economic development of the country. Economic development is the transformation of a country's production structure to produce products with high added value. It is possible by raising the living standards by distributing the product in a balanced way to the income groups that make up the society (Muhteşem Kaynak, 2011). To transform the production structure and achieve world standards, international trade is an indispensable element. The country's gain from foreign trade depends on the competitiveness of domestic producers in international markets by increasing the quality of production. In addition, international trade contributes to the improvement of balance of payments deficits in the economy, It contributes to foreign exchange inflow and increases national welfare.

Global supply chain and foreign trade is a very important factor in the development of the country's economy. Therefore, governments develop some strategies based on increasing their exports and decreasing their imports. All of these policies, which countries will implement to turn their foreign trade balance sheets into their benefits, constitute foreign trade policy. To be more precise, foreign trade policy aims at eliminating payment imbalances by governments, protecting from foreign competition, economic development, eliminating market failures, providing income to the treasury, and ensuring economic stability. In addition, it refers to the systematic measures they have taken to limit and encourage direct trade flows or to regulate the methods of making these transactions. Some of the foreign trade and exchange policy tools used by governments to increase their exports and decrease their imports; Customs tariffs and non-tariff barriers are called quotas, import restrictions, import bans, subsidies as well as bilateral or multilateral trade agreements. Moreover, factors such as interest rates, loans, tax advantages to be applied to foreign investors, direct or indirect intervention in the exchange rate are other tools used (Seyidoglu, 2009).

Foreign trade takes place through import and export channels. Imports and exports have various effects on national economies. The negative effects of imports create balance of payments deficits, increase in exchange rates, decrease in production, and unemployment. In addition, the uncompetitive domestic industry may suffer. The positive effects of imports are; It ensures that the domestic producer gains competitive power by increasing the quality in the competition race with the foreign producer, ensures the increase in the welfare of the local consumer, and causes an increase in R&D investments. Export, on the other hand, creates foreign exchange inflow to the country by enabling the sale of products that cannot be sold in national markets. The foreign exchange inflow to be provided through exports helps to close the balance of payments deficits, thus contributing to the increase in production and the reduction of unemployment. Governments want to benefit from the positive effects of

international trade and try to eliminate its negative effects. Therefore, it encourages exports and imposes restrictions on imports. In summary, foreign trade is an important activity that contributes to the economic development of countries, the increase of their national income, and the development of their political and social relations with each other. With the effect of the exponential increase in this activity over the years, world economies have entered the race to get a larger share from foreign trade. For this reason, increasing exports and reducing imports are among the most important targets for national economies.

3.2 Classical Foreign Trade Theories

Foreign trade policies shaped by intense protectionist measures in the 16th and 17th centuries, when mercantilist thought was dominant, left its place to free foreign trade flow with classical economic thought. Despite this, countries have always followed protectionist policies in foreign trade, both to protect domestic producers and to create positive value in the balance of payments. Although customs tariffs were used as a means of protectionism in foreign trade, with the influence of international organizations, the policy of protection with customs tariffs lost its effectiveness and gradually left its place to non-tariff barriers such as quotas and import licenses.

Foreign trade theories aim to find answers to the questions of what countries do foreign trade for and how this trade benefits the parties. However, the scope of the concept of international trade is changing as the economic conditions, trade rules, payment methods, and goods are constantly changing and diversifying.

Mercantilist thought, the strictest form of protectionism, is an economic trend of thought that dominated Western Europe in the 16th and 17th centuries. This idea has developed depending on the birth and development of nation-states and the change in national economic policies. Mercantilism is based on the existence of a strong national state focused on protecting the

interests of the local producer. This state is the power that regulates the rules of export and import, minimizes or even prohibits imports, and regulates all kinds of policies to increase exports (Ersoy, 2015). Mercantilism is not an economic school. Mercantilists are made up of lawyers, merchants, and a group of writers who provide counseling services to the growing kingdoms. Mercantilism, on the other hand, is an economic thought shaped by the combination of the advice of these consultants on economics and the ideas advocated by these authors in their writings (Todd. G. Buchholz, 2005).

Mercantilists would explore their interests and how to increase the wealth of the national state, and give direction on the policies that the kingdom would implement. At that time, the factors that determined the power of the state were how many colonies it had, its strength to withstand long wars, and how much precious metal and money its treasury was.

The primary purpose of the kingdoms was to increase the treasury. To achieve this, kingdoms competed to acquire colonies and exploit their wealth. Raw materials were obtained from the colonies through colonization. The goods produced were also sold to these colonies at high prices. In short, it was important to grow the treasury, to export more than imports, to sell the export products expensively, and to supply the imported goods as cheaply as possible.

Therefore, a union of interests was formed between the ruler and the merchant. Therefore, Mercantilism is based on a strong state administration that regulates foreign policy and economy and aims to grow the state treasury and domestic producer/trader together (Savaş, 2000).

In summary, the main policy in the Mercantilist period consisted of intensive interventions, namely the protectionism policy, in the form of acquiring precious metals such as gold and silver, which would enlarge the state's treasury and strengthen the state, increase exports, reduce imports, and impose bans on raw material export. Another current of thought focusing

on foreign trade is the Classical Economic Current, which showed its effect right after Mercantilism. While the mercantilists were in favor of protectionism in foreign trade, the Classics had the opposite point of view and focused on freedom in foreign trade. Considered the most important representative of the classical school, Adam Smith criticizes the Mercantilist thinkers with the following statements in his book "The Wealth of Nations" published in 1776;

Imports of gold and silver are neither the sole nor the main benefit a nation derives from foreign trade. Regardless of which places it is made, foreign trade has two benefits. It sends out the surplus part of the products of the country's land and labor, which is no longer demanded at home, and brings in return what it demands. He adds value to the surplus quantity by exchanging it for something else that will satisfy some of their needs and increase their pleasure. It removes the obstacles that prevent the division of labor from being maximized in any industry due to the narrowness of the domestic market.

By creating a larger market for the surplus of the people's labor than domestic consumption, it stimulates their productive power, maximizing their annual output and thus the real income and wealth of society. These great and important services of foreign trade benefit all the countries where it is carried out. All of them benefit greatly from foreign trade, although the trader usually gets the largest share because he is dealing with directly meeting his own needs and disposing of his residues instead of any other country. Importing gold and silver needed by non-mineral countries is, of course, part of the foreign trade business, but the least important part. A country that carries out foreign trade for this purpose can very rarely load a ship in a century (Smith, 2008)

Adam Smith states that the economy will find its balance with the concept of the invisible hand and that the effort to maximize the personal interests of individuals will lead to the maximum welfare of the society and the world;

... the annual income of each society is roughly equal to the exchange value of one year's production of its industry. Therefore, each individual contributes as much as possible to the annual income of the society as long as he supports the domestic industry with his capital as much as possible, as long as he directs the product to the most valuable industry.

Indeed, he does not need to protect the public interest, nor does he know how to do this. It preferred only its security by preferring to support the domestic industry to the foreign industry. He also thinks only of his self-interest by supporting the industry with the highest product. Here, as in many other cases, an invisible hand leads him to a goal he never thought of. This is not so bad for society. By pursuing his self-interest he often serves the interest of society much better than by pursuing that purpose alone.... (Smith, 2008)

In short, personal interests are social interests. For this reason, intervening in the economy as the mercantilists advocated only wastes resources. Smith argues that the government should play an active role in areas where it is needed (justice, security, etc.) instead of intervening in the economy. The second point that Smith emphasizes in this work, which is the cornerstone of economics, is the concept of division of labor.

The increase in the production of the same number of people as a result of the division of labor depends on three things; first, to the increase in the skill of each worker; second, it saves time spent transitioning from one job to another; Finally, to the invention of machines that facilitate the work of labor, reduce the amount of labor spent and allow many people's work to be done by one person (Smith, 2008)

The division of labor is an important factor that enables specialization by creating an increase in productivity in production and thus causes both foreign trade to be made and the incomes of societies to increase. Division of labor, increase in productivity, increase in output, increase in income, and welfare is successive processes.

Industrial products, which are light in load but heavy in cost, and can therefore be transported from one country to another at much less cost compared to the coarse products of the soil, have been the driving force of foreign trade in almost every country. Countries that do not have a large enough domestic market, or where the communication between different provinces of the country is too difficult for any province to consume the products grown in the whole country, cannot develop and grow sufficiently without a large foreign market. It should not be forgotten that the development of industry depends entirely on the division of labor. The level of division of labor in any industry is proportional to the breadth of the market, as has been shown earlier.... (Smith, 2008)

As stated above, according to the Mercantilists, wealth depends on the stock of precious metals owned by the country, whereas according to Smith, wealth depends on productive labor.

According to Smith (2008), the annual labor of each nation is the main resource that provides it with all the necessary and favorable substances consumed in a year to live. These substances, which are necessary for living, are the products of labor produced by the labor force within the borders of the country and imported from foreign countries, consists of goods. The amount of these goods owned by each nation determines the wealth level of those nations (Smith, 2008). The increase in the welfare and wealth of the nation is shaped by the increase in productive power.

In summary, in a situation where there is no division of labor, the number of goods produced per unit of time will increase, thus increasing productivity and specialization in production. Thus, if a country specializes in the production of a well more than the other country, it gains a cost advantage in that good and produces that good more cheaply. In short, the increase in the efficiency of the division of labor causes the doors of international trade to be opened. Thus, the market is expanding, and a large market triggers the division of labor. This mutually reinforcing process contributes to the sale of excess domestically produced products in the foreign market, thereby increasing social income/welfare.

3.2.1 Absolute Advantage Theory

The basis of the theory of international trade was found in Adam Smith's work "The Wealth of Nations". The essence of the theory of absolute advantage, which is the first theory developed to explain international trade, is based on the concept of specialization that emerged depending on the division of labor.

According to Adam Smith, foreign trade leads to the international division of labor and contributes to the welfare of the countries participating in the trade. In the free foreign trade environment, countries can only focus on the branches in which they have a competitive advantage and specialize in those branches. For this, they will both improve resource distribution by hoarding their existing resources in the most productive areas and will lead to an increase in welfare by enabling consumers to consume the cheapest products. For this, having absolute cost superiority between countries is a sufficient condition (Yılmaz, 2014)

The main axis of Smith's theory of absolute advantage is cost differences in production. A country should specialize in the production of the goods it produces at a lower cost than the other country, export these goods to that country, and import the goods that it produces more expensive from its trading partner, which produces it at a lower cost (Seyidoglu, 2009)

What makes sense for any family's livelihood, of course, also applies to the rule of a kingdom. But a foreign country if produces a good more cheaply than we do, it is in our interest to buy it in exchange for a portion of the products of our labor.... The effort spent on an object that we would buy cheaply rather than making it does not bring the maximum benefit. The value of the annual product of labor directed from what is of great value to that of lesser value is more or less diminished. Therefore, on the assumption that it can be bought from abroad more cheaply than to produce domestically, in the natural flow of business, only a part of a good produced domestically or its monetary value could be purchased with the same capital. By not doing this, the country's industry turns from a more advantageous area to a less advantageous area.... (Smith, 2008)

Classical foreign trade models are based on some basic assumptions. These (Oğuz Kaymakçı;Recep Şen;Nuri Avcı, 2007);

- Two-country and two-good foreign trade models are used.
- The labor theory of value is valid.
- There are conditions of perfect competition.
- The economy is at full employment.
- Although factors of production are fully mobile within the country, they are completely immobile between countries.
- In global trade, money is considered neutral and therefore international trade takes the form of the exchange of goods for goods.
- Models include customs tariffs, quotas, and other foreign trade restrictions.
- It is assumed that transportation costs are zero.
- In economics, it is assumed that tastes and technology do not change.

The assumptions of this theory are insufficient to explain the foreign trade of today's world. Despite this inadequacy, it forms the basis of classical foreign trade theories, and the models developed after that is based on the assumptions of this theory. The shortcomings of this theory were tried to be covered with new theories developed later (Oğuz Kaymakçı; Recep Şen; Nuri Avcı, 2007).

The model is handled over two goods and two countries. Under the assumption that the labor theory of value is valid, there is a world economy with England and Portugal and two goods as wine and fabric, while there is no trade between the two countries before specialization. Both countries initially produce their fabric and wine production within their borders. After specialization, each country will specialize in the production of a good that it produces cheaper than the other country, and will import the goods produced by the other country more cheaply from the other country. That's how it should be; trying to do the opposite is a sheer waste of resources. Smith explains this situation as follows;

The natural advantages of a country in producing some goods over another country are sometimes so great that the whole world concedes that it is futile to collide with these advantages. With a window, a warm pillow and a warm wall, beautiful grapes can be grown in Scotland. Then, very good wine can be made from this grape. It would cost roughly, at least, thirty times the cost of bringing wine of equal goodness from abroad. Would it be a sensible law to ban the import of all foreign wines just to encourage the making of Bordeaux and Bourgogne wines in Scotland? What blatant pointlessness is there to put into any business thirty times the country's capital and work that would be required to purchase an equal quantity of the goods demanded from foreign countries. There is just as much nonsense, even if it is not so conspicuous, in favoring one or the other of these in such a job, even more than thirty or even three percent. It does not matter whether a country's superiority over another country is natural or acquired in this respect. Unless these advantages are found in

one country and not in the other, it will always be more convenient to buy from the other than to manufacture for those who do not have it. The superiority of an artist over his neighbor engaged in another trade is merely an acquired advantage. However, both of them find it more convenient to buy from each other than to do what is unrelated to their craft (Smith, 2008)

Absolute advantages theory has tried to explain foreign trade based on the exchange of two goods between two countries as a result of cost differences arising from labor productivity. However, the approach that there will be no trade, and that each country will produce the goods it needs, is the point where this theory is blocked in explaining international trade. Every theorem developed after the absolute advantage theorem has changed the assumptions used in the absolute advantage theorem, which are limited in explaining real economies, with realistic assumptions, making it easier to analyze a little more appropriate to the real economic conditions, and foreign trade has been tried to be explained by removing the blockages of the previous theory or theories with each new theory.

3.2.2 Comparative Advantage Theory

The theory of comparative advantage was examined in David Ricardo's book "Principles of Political Economy and Taxation" published in 1817. If a country has a cost advantage in the production of both goods, the aforementioned deficiency of the absolute advantage theory, which remains unsolved, at the point that there will be no foreign trade between these two countries, is eliminated by this model.

The assumptions of the classical model are also valid in the theory of comparative advantage; the economy is under conditions of full employment and perfect competition, the labor theory of value is valid. Labor is fully fluid within countries and immobile between countries. A

two-good and two-country analysis is made. The concept of the state is not included in this model, and there is no government intervention in foreign trade.

According to Ricardo, *“There is no need to base international trade on absolute advantages. Such an approach also narrows the scope of the theory”*. What needs to be underline for international trade is not that nations produce international goods cheaply, that is, they have absolute superiority in these goods. Rather, it is the degree of superiority that matters. A country should specialize in the production of which goods it has a higher advantage in the production of, i.e., which goods it produces relatively cheaply, compared to another. In short, Ricardo's analysis was shaped based on the degree of superiority (Oğuz Kaymakçı; Recep Şen; Nuri Avcı, 2007). Ricardo explains his analysis by going through Portugal and England countries and wine and fabric goods.

If Portugal had no commercial connections with other countries, it would have had to devote a part of its capital to the production of commodities, which it bought from abroad, instead of using a large part of its capital and industry for the production of wine, and with this wine to buy cloth and durable goods of other countries. These commodities would probably be of lesser quantity and worse quality than commodities that could be exchanged for wine.... (Ricardo, 2007).

Ricardo, like all classical economists, explains the benefits of foreign trade with the following expressions;

“...Foreign trade, by increasing the quantity and variety of the objects in which the income is spent, makes commodities cheap and abundant, will create an incentive for the increase of savings and the growth of capital accumulation and will greatly benefit the country...”(Ricardo, 2007)

3.2.3 Factor Endowment (Heckscher-Ohlin (H-O)) Theory

In the comparative advantage model, foreign trade between countries is possible as long as there is a difference in domestic production costs. The cost differences are based on the difference in labor productivity. However, Ricardo's model did not clarify the factor or elements that determine this difference in labor productivity. The factor endowment theory has tried to fill this gap in the theory (Seyidoglu, 2009).

The basic premise of the Heckscher-Ohlin (H-O) theory is that the factors of countries differ from each other. This difference is the main reason for foreign trade. Whichever factor each country has in abundance, that factor is relatively cheaper than the other factor.

Therefore, the country specializes in the production of the good in which that factor is heavily used. It exports the good, and imports the good that is produced by intensive use of the scarce factor. This is the basis of the foreign trade theory of the H-O theory (Marrewijk, 2012)

The main assumptions of the H-O theory are as follows (Şimşek, 2008);

- Perfect competition conditions apply in merchandise and factor markets.
- The production functions of goods are the same in both trading countries.
- Production factors have full fluidity within and between countries.
- Demand conditions are the same in both countries subject to the model.
- The law of diminishing returns and constant returns to scale apply in production.
- The goods produced have the same production function.

According to the factor endowment theory, free trade raises the price of factors that countries have in abundance, lowers the price of scarce factors, and thus equalizes international factor prices. Which factor is used abundantly in production in the country, As a result of exports, this factor becomes scarce within the country and as a result, the price of this factor rises. As a result of the import of the goods used in the production of the scarce factor in the country, the

price of this scarce factor, which is expensive, decreases as a result of the abundance of that factor within the country. As a result, free trade creates the effect of free factor mobility between countries, leading to the equalization of international factor prices. However, due to reasons such as restrictions on foreign trade, inhomogeneity of production factors, differences in production technologies, and transportation costs in the world, international factor prices cannot be equalized (Oğuz Kaymakçı; Recep Şen; Nuri Avcı, 2007).

Various theorems have been developed from the H-O theory. These theorems are; factor price equality theorem, Stolper Samuelson's theorem based on income equality, and Rybczynski's theorem.

The factor-price equality theorem states that in the absence of trade, labor that is abundant at home receives relatively less income than labor abroad, while capital, which is a scarce factor, receives more income. Labor scarce at home is less valuable than the relative price of more abundant capital abroad. The difference in the relative prices of the goods means a greater difference than the difference in the relative prices of the factors. After the trade, the relative prices of goods converge. As a result of this convergence, the relative prices of the factors of production (capital and labor) also converge. Thus, foreign trade, factor prices create a tendency towards balancing (Krugman, Obstfeld, and Melitz, 2012).

“The Stolper-Samuelson theorem states that if there are constant returns to scale and both goods continue to be produced, a relative increase in the price of a product will increase the real return on the factor that is heavily used in that industry and decrease the real return on the other factor” (Markusen, Melvin, Kaempfer, & Maskus, 1996). According to this theorem, as the abundant and scarce factors tend towards equality between countries, the share of the scarce factor in national income will decrease and the share of the abundant factor in national income will increase. This situation will cause the income of the scarce factor to

decrease and the income of the abundant factor to increase, and the income distribution among countries will tend towards equalization (Kaymakcı et al., 2007).

“This theorem, which was developed based on the H-O model, reaches different results with the Ricardo model. Since the only factor of production in the Ricardo model is labor, free trade does not have any effect on the functional income distribution. In the Ricardo model, free trade increases social welfare by increasing the real wage in each country. However, in the Stolper-Samuelson theorem based on the H-O model, while free trade increases the real income of the abundant factor, it decreases the real income of the scarce factor” (Atik and Türker, 2011).

The Rybczynski theorem states that, while all other factors are constant, if there is an increase in the amount of any factor in a country, the production amount of the good that is used intensively in the production of this factor increases, thus the production amount of the other good decreases (Husted and Melvin, 2004).

The factor endowment theory was tested for the American economy by Wassily Leontief. In this analysis, Leontief used one million dollars' worth of exports and one million dollars' worth of import substitutions. The labor required to produce one million dollars' worth of American exports is greater than the labor required to produce the same value of import substitution products, and the capital is less. Therefore, these findings led to the conclusion that, contrary to what was expected from the theory, America exports labor-intensive goods and imports capital-intensive goods. Although Leontief's analysis received a lot of criticism, Leontief tried to explain this contradiction with the high labor productivity of American workers (Atik and Türker, 2011).

America's workforce consists of workers with very good working conditions compared to other countries. Therefore, workers in the American economy are three times more productive

than in other countries. And it is normal for the country to emerge as a labor-intensive country (Kaymakcı et al., 2007).

As stated above, the lack of each new theory and the criticism it received caused the development of a new theory after itself, and foreign trade theories have evolved and survived to the present day. After Leontief's analysis, new theories were formed to explain foreign trade.

3.3 New Foreign Trade Theories

While traditional factor endowment theory explains inter-industry trade between countries with different factor endowments, it cannot explain intra-industry trade, which takes place between countries with similar factor endowments and constitutes a large part of today's trade. In addition, new theorems have been developed to explain foreign trade due to the limited assumptions of the theory in question and the Leontief paradox weakening the confidence in this theory (Kaymakcı et al., 2007).

These new theorems, which have been developed, completely abandon the conditions of constant return to scale and perfect competition, which are the assumptions of traditional theories, and explain foreign trade in the conditions of increasing returns to scale and imperfect competition markets, basing it on factors such as technology, economies of scale and product differentiation between countries (Karluk, 2003).

The theorems in question, developed after Leontief's finding, fall into two main categories. While some analyze by stretching one or more of the restrictive assumptions of the H-O model, others analyze by completely abandoning the main framework of the H-O theory (Husted and Melvin, 2004).

Although each of the theories to explain foreign trade cannot fully explain the international trade that takes place in today's conditions, each of them has made a new contribution to

international trade with a new and more realistic assumption. Some foreign trade theories focus on standard goods, while other theories focus on foreign trade of new products and explain international trade (Kaymakcı et al., 2007).

3.3.1 Skilled Labor Theorem

One of the most important alternative theorems that emerged after Leontief's findings is the skilled labor theorem developed by Donald Keesing. Keesing emphasized the differences in skilled and unskilled labor instead of the labor and capital differences between countries.

In particular, some countries are equipped with highly skilled labor, unlike others. In the production of some products, unlike others, skilled labor is used more intensively as input. Countries rich in skilled labor have an advantage in the production of goods where skilled labor is used intensively. Keesing's model easily explains the Leontief paradox. Because America has more highly educated labor than other countries, it exports labor-intensive goods (Husted and Melvin, 2004).

Keesing, contrary to traditional theories, focused on a different subject in explaining foreign trade. According to him, the main reason for foreign trade between countries is the quality of the labor factor between countries, namely human capital, rather than the labor and capital factor. In this context, countries rich in skilled labor should specialize in the production of goods in which qualified labor is intensively used and export these goods, and from countries rich in the unqualified labor force, they should import the goods they specialize in production (Atik and Turker, 2011). Thus, Keesing tried to explain foreign trade with the concept of human capital, which has never been mentioned before. In short, besides the factor endowments of the countries, he also included the phenomenon of human capital in the explanatory elements, emphasizing that, unlike the classical foreign trade theories, the labor factor is not a homogeneous value in every country.

The fact that the goods, in which qualified labor is used intensively, are subject to foreign trade, also increases the relative prices of these goods. According to the H-O theory, this is due to specialization in production. As a result, while foreign trade increases the relative price of goods produced with skilled labor, it decreases the relative price of goods produced with unskilled labor, thus increasing the supply of unskilled labor. This result also agrees with the Stolper-Samuelson theorem (Öztürk, 2009)

“There is a similarity between the factor endowment theory and the skilled labor theorem. Both the training of the workforce and the creation of physical capital require savings. In real life, skilled labor-intensive goods and capital-intensive goods are the same. For this reason, some economists suggest combining these two under the name of derived goods. The modified version of the H-O theory in this direction is called the neo-factor endowment theory”.
(Seyidoğlu, 2009)

3.3.2 Technology Gap Theorem

According to the H-O theory, production functions are identical in all countries. Posner criticizes this assumption of the H-O theory, emphasizing that technical knowledge is an element that is not easily accessible to all countries. There is no need for a factor endowment difference between countries to be able to do foreign trade. The technical knowledge levels of the countries are different from each other, even this is a sufficient and necessary condition for foreign trade. It is a process that takes time for each new invention based on technical knowledge differences to be learned by rival countries. Until this learning process takes place, the inventor country becomes the exporter of the good it produces, and at this stage, the fact that the country is an exporter of this good has nothing to do with factor equipment or comparative advantage; it is entirely due to the difference in technical knowledge (Yılmaz, 2014)

In Posner's theorem, he argues that technology changes and developments can cause trade. Because, when certain technical changes start in a country, comparative cost differences occur. Time is needed for other countries to emulate these technical changes. Posner has revealed that this time is an element that encourages trade (Posner, 1961; Şimşek, 2008). Other countries import these goods produced in that period from the inventor country until they learn the production technique. Posner defines this learning process as imitation delay (Şimşek, 2008).

The imitation delay includes external response delay, internal response delay, and time delay that will occur during the learning process.

The external response lag (I1) is the time elapsed between taking advantage of innovations by entrepreneurs in the innovating country and starting to take heed of new goods by some firms that are potential competitors in the importing country. The internal response lag (I2) represents the time required for all firms in the importing country to become aware of the competition arising from the new product. The learning process (I3) is the time required for the companies in the importing country to learn how to produce a new well, to produce it, and to sell this good to the domestic market (Posner, 1961; Şimşek, 2008).

The reaction of domestic producers to a product developed abroad also depends on the attitudes of consumers. Consumers may prefer the domestic product rather than this product. This can prolong the external response time. This period may be so long that it does not even allow trade between countries. It is also a time-consuming process for consumers to replace the new well with the old one, and this process is called demand delay (Yılmaz, 2014).

If the imitation delay is expressed with a formula;

Net delay ($L-\lambda$) is obtained by subtracting the external response delay (I1), internal response delay (I2), learning process (I3), and demand delay (λ) (Posner, 1961; Yılmaz, 2014).

When the imitation is successfully carried out, the export of the inventor country approaches a halt, and the imports of the imitative country tend to stop. In addition, the length of the counterfeit delay covers different periods in all countries. Thus, although one or more countries successfully imitate the new well, the innovating country will have an advantage in other countries with a longer imitation lag. Because the innovative country has more experience in producing the good. In this context, Posner defines the dynamism of a country as a function of that country's innovation trends and the country's rate of imitation of foreign innovations (Posner, 1961; Şimşek, 2008).

3.3.3 Product Life Cycle Theory

The product phases theorem came to the fore with Raymond Vernon's article "International Investment and International Trade in the Product Cycle" published in 1966. In this theorem, Vernon focused on the concept of technology, which is the product of qualified labor well equipped in terms of human capital. For this reason, this theorem can also be called an improved version of the skilled labor theorem by adding the technology factor.

In the theorem, the stages of a product from its invention to foreign trade are discussed. While Vernon analyzes these stages by dividing them into three and analyzing the American economy in his article, Louis T. Wells, in his article titled "A Product Life Cycle for International Trade" published in 1968, considers it as four stages and examines it again based on the American economy.

In this theorem, countries are divided into innovative countries and imitative countries.

Innovative countries refer to advanced industrialized countries where technological innovations are made and new goods are developed; imitative countries include the countries that first import these manufactured goods and then start producing by imitating them (Atik and Türker, 2011).

According to Vernon, the development of new technologies and new goods is possible in advanced industrialized countries such as the United States (USA). This is due to a highly educated workforce and high R&D investments. According to the hypothesis, the production of the newly invented good is primarily aimed at meeting the domestic market demand and in a small amount. Depending on the reactions received from the consumer, problems related to production are solved and the product is developed (Seyidoğlu, 2009).

According to Vernon's analysis, all businesses have easy access to scientific information. Vernon begins his analysis with this assumption, but that easy access to this scientific information does not provide equity in the production of new products. The reason why Vernon uses the American economy in his analysis is that the American consumer has a higher income level than the consumers of many countries, and the goods that appeal to this high-income segment are more widely available in the American market (Yılmaz, 2014).

Vernon's product life cycle consists of three phases, the first is the new product stage, the second one is the mature product stage and the last is the standard product stage.

According to Vernon (1966), at the first stage, production costs (proximity to raw material market, proximity to cheap labor force, economies of scale) are of little importance. Manufacturers have a high need to communicate effectively and quickly with their customers, suppliers, and competitors. Therefore, the priority at this stage is proximity to the market. In addition, there is no effort to export the product. The final purpose of the manufacturer in the first phase is to test the product by producing for domestic demand, to decide whether to continue production, and to develop the product with consumer feedback. The product is produced and marketed for the first time. At this point, the product is not very competent. The product is developed with positive and negative feedback from the consumer towards the product. At this stage, the inventor company owns the newly developed technology by itself.

The product moves on to the next stage, the second stage. At this stage, the product continues to be produced as it is now finalized with consumer feedback. However, it continues to differ even if the product has taken its final form. At this stage, sales have started not only to the near market but also to distant points, and the scale of production has been adjusted to minimize costs. The product has started to be known abroad and is now exported gradually. As a result of producing for both domestic and foreign markets, the amount of production has increased. The manufacturer, which bears the R&D costs, holds all the licenses and has doubled its earnings with license sales. Costs are minimized as there is no need for initially qualified labor and costly R&D expenditures are eliminated. With the effect of increasing earnings and falling costs, the inventor firm has reached the maximum profit point. Therefore, it more than compensates for the high initial R&D and production expenditures (Vernon, 1966).

In the final stage of the product, the production of the product shifts to regions where the final raw materials and labor power used in the production of the product are cheap to reduce production costs. Since there is no need for a qualified workforce at this stage, manufacturers in countries where production has shifted have started to learn the production methods of the product gradually and the product is now imitated. And this copycat country has entered the export market. The income of the innovative country has decreased, it stops producing the product and obtains the product from the imitative country, which gains cost advantage in production, and tries to invent a new product by using qualified labor and R&D investments. This product is standardized by passing the same stages. This ongoing cycle creates Vernon's product phases (Vernon, 1966).

Posner refers to the concept of imitation delay in his article "International Trade and Technical Change" published in 1961. With each new invention of developed countries (DC), the time for less developed countries (LDC) to imitate this product is getting longer. The

prolongation of the imitation delay is an indication that the development gap between DCs and LDCs is widening. Therefore, it becomes more and more difficult for LDCs to reach the development levels of LDCs with each new invention.

In Vernon's theorem, every invented product goes through the same phases. While the product is produced by DC under monopolistic market conditions with maximum profit, its production shifts to LDCs as soon as it is sold under perfect competition conditions with minimum profit. With each new invention, the difference in development between DC and LDC is getting wider. In short, it can be said that the product phases theorem is an extended version of Posner's technology gap theorem.

This model is an explanatory model for the Leontief paradox. *“The United States has many innovative products, so the united states will have a comparative advantage in manufactured goods that it has recently invented because these goods are not yet standardized and tend to be quite labor-intensive in their manufacture”.* (Husted and Melvin, 2004)

Investment in fixed capital is likely to be delayed until public reactions to the characteristics of the product and how best to ensure the production of goods are assured. Thus, in the early stages of production, U.S. exports tend to be labor-intensive. This stage is capital-intensive, as standardization requires the adoption of more capital-intensive production techniques. In this stage and after, the USA gradually loses its comparative advantage and starts to import it (Husted and Melvin, 2004).

The product phase's model is a model with limited applicability. This is a model for explaining trade in manufactured products that require a degree of technical complexity in their development, design, and invention. The theorem fits the facts, while in other cases its applicability is less, there is an example color television was invented in the USA, then, exported to other countries. In the early days of television production, the USA first

manufactured and then exported this product. After a while, the production of color televisions has shifted almost entirely to other nations and economies such as Japan, Taiwan, and Korea. Nowadays also Turkey is a leading producer of television. Bigger than The United States producer. The suitability of this model for color television can be mentioned. Another example of high-tech products is satellites computers, airplanes, etc. the model seems less adaptable. The United States was a leader in the production and export of these goods, still has a significant comparative advantage in these high tech products, although each is a relatively mature product today. These examples point to the main weakness of the production stages model (Husted and Melvin, 2004).

Wells (1968), on the other hand, made new contributions to the theorem. According to him, export patterns are not the same for all products. Three critical factors determine this. Firstly, as the scale of production increases, unit costs decrease (economies of scale), secondly, customs tariffs, and finally transportation costs. Differences in these variables play a role in determining whether a particular product will be exported or imported, and how to profit opportunities or threats will materialize. *“The trade cycle is affected by the cost savings that can be achieved by increasing the scale of production. If a small plant is highly productive for a particular product, a foreign producer will start producing that product while the market for the product is still small”* (Wells, 1968). Thus, The United States exports will not be successful. Also, import competition will start soon. If overseas customs tariffs or other international trade barriers are high for a particular product, this encourages foreign production. Thus, U.S. exports will receive early competition from foreign production. For products that are often bulky compared to their transport costs or value, high transport costs tend to deter trade. In extreme cases where there are very high shipping costs, trade never takes place or occurs across country borders where a purely foreign market is closer inland than a region.

When Vernon's theorem is evaluated in general, the essence of the theorem is R&D investments and human capital investments. First inventions usually occur in these countries, as DCs such as the USA can invest in R&D and human capital.

Posner's technology gap theorem and Vernon's product phase's theorem both refer to the importance of R&D investments to gain from foreign trade. Both theorems include the idea that technology is constantly changing unevenly in every country and that these changes change the structure of international trade. The most important feature of these analyzes is that modern forms of competition are taken into account in the explanation of international trade, thus abandoning one by one the basic assumptions such as homogeneity of goods, competition of many producers, full and perfect circulation of information. The idea that technical information is not instantly disseminated, and therefore production functions differ between countries, is also embedded in a dynamic consensus scheme (Erdost, 1982).

3.3.4 Similarity Theorem in Preferences

As the name of the theorem suggests, it is a theorem that asserts that international trade is made in countries with similar consumer preferences. It came to the fore with Linder's article "An Essay on Trade and Transformation" published in 1961.

The theories examined so far are those that try to explain the reasons for foreign trade from the supply side, through concepts such as factor endowments, qualified workforce, labor productivity, and technology. The similarity theorem in preferences deals with foreign trade in terms of demand and emphasizes that consumer tastes and preferences, income differences, are the factors that determine the reason and volume of foreign trade.

According to the theorem, for a product to be a potential export product, it must first have demand in the domestic market. Linder calls this request a representative request. The firm will first engage in production for the domestic market, and as the successful firm grows, the

local market will be insufficient, and the entrepreneur will realize the profit opportunities of producing for foreign countries. At this point, there will be no obstacle to produce for the export market in larger quantities than for the domestic market. Moreover, as long as the production of a good is based on a new invention, there is no reason not to believe that it will have demand in the domestic market. Because this invention has emerged to solve a problem experienced inside and is aimed at meeting a need. Therefore, the use of the present invention will be first in the domestic market. Both inventions made out of need and research projects are aimed at the domestic market. Naturally, the products that will emerge will meet the needs of the domestic market and will be tried to be sold in export markets gradually. Products produced for the domestic market take their final shape with consumer feedback and are then presented to the export market. Therefore, the production of a good that has no demand in the domestic market will also fail, as there will be no returns from consumers. Therefore, according to Linder, a good to be produced must first have a domestic market demand. The product, which has received this support from the domestic market, will take its place in export markets more effortlessly and at a lower cost. Domestic demand also determines which products will be imported. All products demanded at current prices are also potential imported products. From here, it will be seen that potential export products and potential import products are the same products. Therefore, a country trades more intensively with countries whose consumer preferences and income levels are similar to those of its consumers (Linder, 1961).

Linder's hypothesis explains which types of countries and economies can trade with each other. Living standards are partly determined by countries' factor assets. Economies and Countries with large amounts of capital per worker tend to be wealthier than countries with lower amounts of capital per worker. Therefore, international trade between countries with similar characteristics is more intense.

Rich countries tend to trade with other rich countries and poor countries tend to trade with other poor countries. This implication of Linder's hypothesis is in the opposite direction to the H-O model. While trade is made between countries with different factor endowments in the H-O model, in this theorem, countries with dissimilar factor endowments tend to trade with each other (Husted and Melvin, 2004).

According to Linder (1961), the industry of each country is shaped and progressed according to the consumer preferences of that country. However, not every consumer shows the same trends, and less of the consumers prefer alternative products with different features. These goods, which are not produced due to insufficient demand in the domestic market, are produced in another country due to excess demand. Here, international trade provides the opportunity to obtain these goods. The advantage of international trade at this point is that consumers benefit from a wider variety of goods.

3.3.5 Intra-Industry Trade

Although Ricardo's theory of comparative advantage and factor endowment theory of H-O theory state that the trade between countries will increase as the similarity between countries decreases, on the contrary, today a large part of world trade is carried out between DCs (Şimşek, 2008). The fact that a country exports and imports both goods and groups of goods in the same industry is called intra-industry trade (Yılmaz, 2014).

To carry out intra-industry trade, increasing returns to scale should be in question as well as product differentiation. However, in the presence of these conditions, manufacturers will specialize in the production of a narrower product variety instead of incurring the fixed costs required to produce all kinds of goods (Küçükefe, 2009; Diken, 2015).

If countries export the goods they have a comparative advantage and import the goods they have a disadvantage, this is called inter-industry trade (Şimşek, 2008).

While economies of scale, imperfect competition, and product differentiation reveal intra-industry trade, differences in factor endowment also reveal trade between industries (Şimşek, 2008).

Traditional theories fall short of explaining the type of intra-industry trade. This inadequacy is tried to be eliminated by new theories that have been put forward after the 1960s. New theories explain forms of international trade with an emphasis on economies of scale and product differentiation. Relative factor endowments and country sizes are more common among similar countries. Since intensive intra-industry trade is observed, traditional theories and new theories are complementary to each other (Aydın, 2008).

If two different products are sold in the market at the same price, and consumers are indifferent in their choices, this good is homogeneous (Aydın, 2008). Differentiated goods, on the other hand, are goods that differ in quality, size, and performance, design, and brand, although they provide the same level of benefit to the consumer. While the conditions of perfect competition are valid for homogeneous goods, the conditions of imperfect competition are valid for differentiated goods.

The emergence of imperfect competition conditions in these goods allowed the development of intra-industry specialization in production by incorporating it into the traditional theory (Aydın, 2008).

Before the 1980s, intra-industry trade was based on the work of Krugman, Lancaster, and Helpman and was explained only as trade-in horizontally differentiated goods produced with increasing returns to scale. After the 1980s, it is tried to be explained based on the quality differences between similar products with the studies of economists such as Falvey, Kierzkowski, Shaked-Sutton (Şentürk, 2014).

Horizontal intra-industry trade is the trade of differentiated products with the same product quality and same price, with similar factor intensities. Vertical intra-industry trade is the trade of differentiated quality products with different factor densities and sold at different prices (Rivera-Batiz and Oliva, 2003).

Determining which type of trade is classified as vertical intra-industry trade depends on the differences in the quality of the goods subject to import and export. The quality distinction is determined by comparing prices or unit values. The rule applied as standard is to calculate the ratio of the unit value of exports to the unit value of imports for a particular product type in a bilateral trade relationship. If the unit value ratio differs more than the 15% or 20% threshold, the trade is called vertical intra-industry trade. If the unit value ratio falls below the range determined by the selected threshold, the trade is classified as horizontal intra-industry trade (Rivera-Batiz and Oliva, 2003).

Vertical intra-industry trade is a type of trade that occurs depending on income differences within the country. Income level differences also increase the interest in differentiated goods for consumers with similar tastes (Aydın, 2008). In short, unequal distribution of income in countries is an indicator of demand for products of different quality. Low-income consumers demand lower-quality products, while high-income consumers demand higher-quality products. If the income distributions of the trading partners also overlap with each other, trade emerges in differentiated products. In vertical intra-industry trade, it has been confirmed in empirical studies that richer, capital-rich countries export higher quality products than poorer, labor-abundant countries (Rivera-Batiz and Oliva, 2003).

The concepts of horizontal intra-industry trade are used to explain the trade between DCs and developing countries, vertical intra-industry trade, and trade between DCs themselves.

However, in recent studies, there are findings that vertical intra-industry trade is more

important when compared to horizontal intra-industry trade, including trade between DCs (Şimşek, 2008).

In determining intra-industry trade, a distinction is made between country-specific and industry-specific factors. The size of intra-industry trade differs depending on the country-specific characteristics of the countries where foreign trade is made. Depending on the product demand and supply characteristics, it also differs between industries (Bedir, 2009).

Intra-industrial trade is a type of trade that increases as the rate of industrialization increases in heavily industrialized societies. The efficiency and volume of intra-industry trade expand as the factors that remove trade barriers such as bilateral or multilateral trade agreements and economic mergers made with industrialization become active.

Over the past half-century, the proportion of intra-industry trade in world trade has steadily increased. According to Krugman, (2012) *"the measurement of intra-industry trade is based on the industrial classification system of categorized goods in different industries. Depending on the industrial classification used, intra-industry trade is between about a quarter and half of the entire world trade flow"*. Intra-industry trade is very important role plays even more in the trade of goods produced between DCs, which make up the majority of world trade (Krugman et al., 2012).

It has been determined that economic mergers contribute to the development of intra-industry trade. For example, in the European Economic Community (EEC), which was established in Europe in 1957, it has been observed that the type of trade dominated by intra-industry trade has grown rapidly. Trade within the EEC grew twice as fast as world trade in the 1960s. Subsequently, this merger gradually turned into the EU, and intra-industry trade between these countries increased, even more, when some of the Community member countries adopted a common currency in 1999. Recent studies have also revealed that the adoption of

the euro as the common currency has led to a significant increase in the number of different products traded in the euro area (Krugman et al., 2012).

The reasons for the emergence of intra-industry trade can be listed as follows (Köse,2018);

-Product differentiation: The demand for these products, which are differentiated by creating small changes such as packaging, color, and brand, is met from foreign markets.

-Transportation costs and geographical distance: If the domestic markets are farther from the neighboring markets, the lower transportation cost causes the demand to shift to the foreign market.

-Economies of scale: A country's specialization in a certain type of good reduces costs and increases production. A variant of the product that does not experience economies of scale will also be imported by exporting the surplus.

-Income distribution differences between countries: According to Linder, consumers' tastes and preferences are determined by their income level. Accordingly, the variety of goods in a country is also a reflection of the per capita income level (Yılmaz, 2010; Husted and Melvin,1993).

The intra-industry trade model points to other effects on trade, including product differentiation, imperfect competition, and economies of scale. While intra-industry trade is certainly a measurable and important phenomenon, its theoretical predictions do not yet have a full "test". However, economists have had considerable success in measuring the contribution of key determinants to intra-industry trade (Markusen et al., 1995).

While the first empirical work on the measurement of intra-industry trade was made by Verdoorn (1960), it continued with the work of Michaely (1962), Kojima (1964), and Balassa (1966). However, the index of Grubel and Lloyd (1975), which developed a new

measurement method by arranging Balassa's index in economic studies, is used extensively in the measurement of intra-industry trade (Şimşek, 2008).

The measurement of intra-industry trade with the Grubel Lloyd Index is as follows;

$$IIT = \frac{X_i + M_i - |X_i - M_i|}{X_i + M_i}$$

In the Grubel and Lloyd index, intra-industry trade (IIT) indicates the total trade in the “i” sector, “ $X_i + M_i$ ” (exports+imports), while the amount of trade that does not include intra-industry trade is defined as “ $X_i - M_i$ ” (export-import). Therefore, the equation “ $X_i + M_i - X_i - M_i$ ” gives the amount of intra-industry trade. As a result of calculating with the formula, the total amount of intra-industry trade is found, while the percentage of intra-industry trade is found by multiplying the formula by one hundred.

If there is equality between imports and exports in the sector in question, the $X_i - M_i$ value indicating the amount of inter-industry trade will be equal to zero. Therefore, it is concluded that all of the trade is done in the form of intra-industry trade. If the export is $X_i > 0$ and $M_i = 0$, or if $X_i = 0$ and $M_i > 0$, it is concluded that all the trade is made as inter-industry trade and intra-industry trade is zero (Rivera-Batiz and Oliva, 2003).

3.3.6 In-Product Trading

Globalization has brought about reductions in production costs with the advancements in technology, transportation, and communication. Thus, the production process has been fragmented, and the production of each part of the product has shifted to the regions where it is produced at the least cost. After all, each country involved in the production specializes in the production of a piece. The fact that these manufactured parts are subject to international trade is called intra-product trade (Jones and Kierzkowski, 2000).

The most important purpose of intra-product trade is to minimize the cost of production by providing cheaper inputs in the production process and thus maximize profits. For this reason, the supply of each part of the product from the region or country that produces that part at the cheapest cost caused it to be separated.

According to Jones and Kierzkowski, the term fragmentation refers to the splitting of a previously integrated manufacturing process into two or more components or parts. With fragmentation, it becomes possible to trade each part that makes up the product. For each piece, world prices fall after international trade, specialization is achieved according to Ricardo's comparative advantage. As a result, underdeveloped economies can participate in the production process at some stage of trade and it is possible to get a share from this trade. Thus, these economies also benefit from intra-product trade. Fragmentation provides a wider scope for the application of Ricardo's theory of comparative advantage (Jones and Kierzkowski, 2000).

If the firm produces the necessary intermediate inputs for the product it produces domestically, it is called vertical integration, and if it produces abroad, it is called foreign investment. If it has other companies produce it in return for a contract abroad, it is called foreign production. With foreign investment, production factors such as capital and technology are brought to another country and the production of the goods is carried out together with the domestic partner. In this type of production, the responsibility is partially or completely on the foreign company. In the case of foreign investment, the trade that the investment firm will make between the firms established in the foreign country is intra-firm trade. In production abroad, production is carried out without any resource transfer to the foreign country where production will be made. Outsourcing is divided into two as outsourcing and outsourcing. Outsourcing is a temporary transfer of a certain part of the manufacturing process by contract.

In outsourcing, the responsibility of supplying inputs to production rests with the transferring firm. The company receiving the order has no authority to dispose of the product, except to produce the product under the contract and deliver it to the ordering company. Outsourcing, on the other hand, is not subject to re-exportation of the product produced abroad, as in external processing. Service trade is an example of outsourcing (Yılmaz, 2014).

Intra-product trade can take two different forms for firms, depending on their factor endowments and prices. The first is the shifting of labor-intensive intermediate production stages to developing countries where labor is abundant and cheap, and the second is the further production of more complex intermediate inputs, shifting to Developing countries so that benefit from technology and economies of scale.

In the second case, the intra-product trade activity reduces the capital-intensive goods and services production cost of the domestic main company, thus increasing the profitability of the firm (Cheung, Rossiter, and Zheng, 2008; Gencer, 2015).

The development of intra-product trade, which increases the profitability of companies through cost reductions, depends on many factors. With the development of technology, factors such as reductions in transportation and transportation costs, reduction of customs tariffs, removal of trade barriers step by step, tax advantages offered to foreign investors, export incentives, credit advantages, improvement of financial system and infrastructure contribute to the development of intra-product trade (Yılmaz, 2014). Thus, as these elements develop, intra-product trade continues to increase.

The most intensive practitioners of intra-product trade are multinational companies. These companies have their patents to prevent the imitation of the products they own, to minimize the production costs by removing the intermediaries, to avoid uncertainty, to protect the

reputation and quality of their brands; they go for horizontal and vertical integration (Adıgüzel, 2011).

Investments are increasing in countries and regions with cheap labor and raw materials, so the parts of the manufactured product are brought from different regions where the investment is made.

As a result, these companies, with the effect of factors such as technology, communication, and the development of transportation networks, spread rapidly around the world, especially in regions where they will make more profit, and cause an increase in intra-product trade.

3.4 Foreign Trade and Liberalization in the Framework of Theories

While examining the concept of liberalization in foreign trade, the only country that should be emphasized is Britain. Britain followed Mercantilist policies that included strict controls in foreign trade until domestic industries gained competitiveness in international markets. However, after local industries developed and the domestic market became saturated, the country, which sought new markets for surplus products, started to advocate freedom in foreign trade.

The industrialization of Britain is based on the development of the woolen industry, and therefore on cotton. While Britain was a backward country that imported technology from Europe before the 1600s, it developed with the implementation of policies aimed at protecting the domestic woolen industry from the beginning of the 1500s. Some of the implemented policies are; banning the export of raw wool, taking measures to encourage woolen production, abducting skilled textile masters in the Netherlands. Effectively implemented

during the period in question, these policies are the first form of implementation of modern infant industry protection.

After the 1700s, to increase the welfare of the people, a conscious policy was followed to encourage the manufacturing industry. Within the scope of these policies, import taxes on raw materials used as inputs in manufacturing were abolished, the scope of export incentives was expanded, and regulations were made to control the production quality of textile products. Prohibitions have been imposed on the import of manufactured goods from countries that threaten industrial sectors, including colonies.

By the second half of the 18th century, the technology gap between Britain and other countries had widened. Country, this achieved its superiority with high and long-lasting tariff measures. Until its technological superiority reached its peak in the middle of the 19th century, it continued to implement its policies encouraging domestic industry (Chang, 2003).

After the First Industrial Revolution, which was based on wool production, the invention of the steam engine and the use of the steam engine on ships and trains accelerated transportation and production. The acceleration of the construction of railways and the use of coal in the melting of iron increased the demand for iron and coal. Increasing the transportation and production speed of iron and coal II, it gave birth to the Industrial Revolution. The increase in wool production was slower than the value-added from coal and steel.

The mid-19th century was first and foremost the age of coal and steam. England provided half of the coal production. Again, the country recorded an increase of millions of tons in iron production.

In the 1870s, England alone met half of its iron production. It is not possible to talk about a railway network anywhere except England in 1848. In short, this country had become

superior to all countries in every field such as transportation, production, and communication. By now, Britain had reached maturity and began to advocate free trade.

There are two main reasons for the British defense of free trade. First, free international trade would allow the British to sell their goods to world markets cheaper than anyone else.

Because it had a cost advantage compared to other countries in transportation, communication, and production. Second, it would allow LDCs to sell their food and raw material products in large quantities and cheaply. Thus, they would have the power to buy British manufactured goods (Hobsbawn, 2009). Therefore, there is no other country that could have such an interest in removing the barriers to trade in the period in question. Despite this, Britain's transition to free trade was not a defenseless one, but slow and gradual, accompanied by effective and strict control of the state (Chang, 2003).

During this period, bilateral free trade agreements were made with some European countries.

Thus, Europe became a huge free trade area by the end of the 19th century (Berend, 2011).

This liberalization process and advocacy, which started in the 1860s, ended with the re-implementation of tariffs in many areas in 1932, as a result of the country's losing its manufacturing advantages against the USA and Germany (Chang, 2003). Therefore, Britain's free foreign trade is a situation that determines its direction only in the interests of the country.

3.5 Foreign Trade and Protectionism

The concept of protectionism in foreign trade has found application since the Mercantilist period. Another form of protectionism that started to be used after the mercantilist movement is the young industry thesis of the German economist F. List. According to this thesis, while a country has a comparative advantage in the production of a good, it cannot produce for international markets due to lack of experience, lack of knowledge or not having reached the

production scale that will minimize its costs at the beginning. Even if it produces for these markets, it cannot provide continuity in these markets since it cannot compete against its foreign competitors. The idea of protecting this young industry until it gains competitive power in foreign markets constitutes the main axis of this view (Seymen, 2000).

In this context, List opposes the Classical School's idea that free trade increases the welfare of all countries of the world. He argues that free trade will serve the interests of DCs like England that have completed their industrialization and will enable these countries to maintain their monopoly.

However, List does not blindly oppose the idea of free foreign trade. The point he criticizes is that the free trade view does not take into account the level of development of countries. In world trade where industrialized countries are active, under free trade conditions, the industry can't develop in developing countries. That's why it recommends protecting young industries. List's protection is temporary and selective. It does not contain strict rules that are permanent and cover all sectors, such as the protection of mercantilists. As a result of protectionism, it is important that the protected industry can develop and grow and become an industry that can gain competitive power. List recommends that young industries be protected by tariffs until they can compete with foreigners. The list suggests that these tariffs could be around 20-30%. If the domestic industry has not been able to stand unprotected after a certain period of protection necessary for its development and growth, the protection measures should be removed, otherwise, the incentives and protection measures made for the non-competitive industry will cause a waste of resources. This causes more harm than good for the country (Yılmaz, 2014).

Before the List, the idea of protecting young industries was first introduced in the "Reports of the Secretary of the Treasury on Manufacturing" by A. Hamilton, the first secretary of the US

treasury. Hamilton argued that, despite trade restrictions in other countries, American goods are vulnerable to competition from foreign countries. By protecting the newly established industries that have the potential to gain competitive power in the future, emphasizes the need for competitiveness.

Although Britain was the first country to implement protectionism in line with the young industry thesis, the importance of infant industry protection in the development process of the USA is an indisputable fact.

The protectionist policies that the USA started to implement after the Hamilton Reports were supported by frequently enacted laws to increase tariff rates. Until the end of the II World War, measures to protect the baby industries continued. After the war, the USA liberalized trade when its superiority in the industry became certain and started to advocate liberalization of world trade. However, the United States has never reduced tariff rates to zero and has secretly continued its measures to protect its industries (Chang, 2003).

Due to the continental trade ban announced by Napoleon between 1806 and 1815, the trade of continental Europe with Great Britain and overseas countries had almost completely stopped. With the trade ban lifted, Britain thanks to its technical superiority they could sell its products cheaply and kept foreign goods out of their markets with high customs barriers. F. Lütge summarizes Britain's point of view as follows (Derya, 2015):

“British economic policy took over foreign markets by applying ruthless policies at that time. Continental European and German industries were backward and not seen as competitors. England tried to build an industrial hegemony under the name of free trade. In this context, the British parliamentarians of the time clearly emphasized that “continental European factories should be drowned in infancy...”

This statement of the British parliamentarians about the drowning of European factories in infancy reveals, in a sense, the importance of protecting infant industries, especially at this stage.

In this period when England completed its industrialization and started to advocate free trade policies, Germany was one of the underdeveloped economies of continental Europe. Germany opposed the free trade policy advocated by England for reasons such as not having the strength to stand against British competition. At that time, Germany was economically far behind England and behind France and Belgium.

At the beginning of the 19th century, Germany was still an agricultural country, with almost two-thirds of the workers employed in the agricultural sector. In the industrial sector, where 20% of the workers were employed, the pre-industrial mode of production was still dominant (Derya, 2015).

A large part of the commercial sector was scattered and more than half of the produced products were handicraft products, while the rest were produced in factories where primitive production methods were dominant (Derya, 2015).

Germany's industrialization process is based on List's work "The National System of Political Economy" published in 1841. Before this work, List had worked on Germany's gaining competitive power and how it could be better than England against England, which had accomplished the First Industrial Revolution. It also advocates that a comprehensive set of economic policies should be implemented in addition to the protection of newly established industries for economic growth and industrialization.

According to List (1841), industrialization depends on the cooperation of the industrial sector with scientific and educational institutions. Germany has had its industrial revolution since the 1880s. One of the most important elements of this revolution is the creation of the world's

best technical education and training system (Baser, 2011). Germany's industrialization process was built on all these foundations.

During the period in question, the German states were struggling with the extremely strong British competition on the one hand, and on the other hand, they were affected by the protectionist policies of countries such as France, Austria, the Netherlands, and Russia.

Germany was completely defenseless in its foreign trade and could not take effective and quick measures to solve this problem due to its internal political fragmentation (Derya, 2015).

In the 1800s, Germany consisted of 39 federated states. All these federated states each had their currency and separate customs tariffs. The reasons such as the lack of economic unity among these states and the fact that they were applying customs tariffs among themselves did not allow them to be protected against destructive effects from outside by acting in unity against the outside.

In 1834, with the atmosphere created by List, the German Customs Union was established. With the central bank of Prussia, one of the federated states, gaining the identity of the central bank for many of the other federated states, the German economic union was achieved (Ertürk, 2006). Thus, Germany, which came as a union against the outside, gained the power of protection in foreign trade until it completed its development. In addition, progress was made in establishing technical schools, visiting factories abroad, and providing technical transfers.

In this way, foreign industries were consciously imitated; traditional handicrafts were replaced by modern factory production. Increasing technical education opportunities has paved the way for technical progress by increasing the quality of the workforce. Again in this period, import substitution started to be implemented by domestic companies with the support

of the state. The companies in question succeeded in expelling British competitors from the German market and succeeded in making their business dominant in Germany (Derya, 2015).

In short, the countries of the West that have completed their industrialization, such as England, the USA, and Germany, owe their current strength to the protectionist policies they have implemented in the past. Being aware of this, these countries have started to use new protectionism tools since they could not use the classical protectionism tools in the last century.

3.6 New Protectionism Movement

After the Great Depression, the contraction in the global economy continued until World War II. After World War II, countries made great efforts to implement foreign trade liberalization policies. In this context, the Dillon Round (1960-1961), Kennedy Round (1964-1967), and Tokyo Round (1974-1977), which are the most important negotiations for the liberalization of foreign trade by reducing tariffs, were held within the scope of the General Agreement on Tariffs and Trade (GATT). As a result of these negotiations, the growth in international trade gained momentum (Baytar, 2010). In this period after World War II, world production and trade increased significantly and steadily, capital movements reached significant dimensions and inflation rates followed a moderate course. Unemployment rates, on the other hand, remained at a level that could be called temporary unemployment (Seymen, 2000).

In the said period, this positive conjuncture, which emerged as a result of the rapid reduction of tariff rates and the removal of barriers to foreign trade, had a positive effect on developing countries, and since the second half of the 1960s, these countries entered a process of open growth. The removal of the restrictions in front of the export goods of the developing countries has created an increase in the exports of these countries. Not only their exports have

increased, but their imports from western economies have also contributed to the development of these economies (Kazgan, 2008; Seymen, 2000).

This positive effect, which resulted from the activities of liberalization of trade by lowering tariff rates in the world economy, continued for more than twenty years but was hindered by various negative factors after a while. These negative factors have led to the emergence of various protectionist policies. As the agreements signed within the scope of the aforementioned trade liberalization negotiations made it impossible to use tariffs as a protection tool, new protectionist tendencies began to sprout in the USA and some industrialized countries. These new protectionism tools, called non-tariff barriers, are quite different from the classical protectionism tools. Therefore, these new policy tools for protection, which started gradually from the 1960s and gained momentum in the 1970s, include quotas, tariff quotas, production and export subsidies, voluntary export restrictions, and numerous technical and administrative barriers (Seymen, 2000).

The main factors that led to the emergence of the new protectionism movement can be summarized as follows;

The international monetary system, known as Bretton Woods, has been established since the mid-1940s. In this system, international reserves are based on the gold standard. 1 ounce of gold was equal to 35 US dollars, thus the US dollar assumed the role of key currency in the system. In these years, many technological goods such as basic goods, food products, machinery, and equipment are produced by the USA. The countries' supply of these goods was dependent on their limited dollars. This situation caused a shortage of dollars, many countries had a foreign deficit, and the USA was the only country with a foreign surplus. The USA's implementation of the Marshall Plan in the second half of the 1940s, the Korean War, and the Vietnam War in the 1960s caused the USA to print more dollars than necessary. The

period of 1958-1971 left its mark on history as the period of dollar abundance. The printing of the dollar without its gold equivalent broke the dollar-gold bond, the confidence in the dollar decreased and the gold rush and speculative attacks started in the global economy. Thus, the international monetary system collapsed in the early 1970s (Bulut and Demirel, 2012).

This great shock in the global economy was exacerbated by the oil crisis in 1973. OPEC emerged as an important oil producer in the late 1960s. During these years, factors such as the narrowing of oil supply in the USA and the West and the increase in dependence on Middle Eastern oil increased the power of OPEC. In this process, the fact that the USA was not a good mediator in the Arab-Israeli problem created discomfort in the Arab countries. Most of the important oil producers of OPEC are Arab countries and these countries have decided to cut production by around 5% with the embargo decision.

After this decision, Saudi Arabia announced that it would cut production by 25%, and countries such as Kuwait and Libya took similar decisions, creating a shortage of oil. The contraction in supply in industrialized countries and the absence of any stocking mechanism in the said periods increased uncertainty and panic in the markets. While many countries in need of foreign oil were significantly affected by this tumultuous process, the presence of other supply channels of the USA restrained the rate of this country's impact (Özev, 2010).

With the effect of this oil scarcity and OPEC's quadruple increase in oil prices, a negative period began to be experienced in the global economy, such as shrinkage in demand, decrease in oil-related production, and, ultimately, unemployment rates. In addition, the phenomenon of stagnation (stagflation) with inflation has appeared on the stage of history (Seymen, 2000).

Although there was a contraction in demand during the 1975-1979 periods, the increase in consumption more than the supply and the Iranian Revolution in 1979 paved the way for the

second oil shock. While Iran's daily oil production was 5.24 million barrels in 1978, this production decreased to 3.17 million barrels in 1979 and 1.38 million barrels in 1981.

Factors such as the decrease in Iraq's oil production increased the barrel of oil, which was 15 US dollars in December 1978, to 42 US dollars in May 1979. Because the global economy has not yet fully recovered after the first oil shock, the wick of the second oil shock was ignited in 1979 (Özev, 2010).

On the other hand, factors such as Japan's gaining a competitive advantage in technology-intensive goods, the fact that EMs began to gain strength in the competition of labor-intensive goods with the reduction of tariff rates, and that they began to appear in international markets in the production and export of manufacturing industry began to force the DCs (Seymen, 2000). With the effect of all these factors, as DCs cannot use tariff rates as a means of protection, they have led to the emergence of new protection instruments against these countries. Thus, the liberalization process that started to emerge in the global economy after the Second World War was blocked.

4. TRADE FACILITATION

The facilitation of trade is a way to reach economic prosperity. Trade facilitation is the expansion of global trade and at the same time effects on positive benefits the economic development of countries. Therefore, it has a direct impact on global competition. It is an important factor in making investment decisions of foreign investors and its importance is gradually increasing.

Whether you export or import goods, trade facilitation benefits all parties by providing businesses with access to global markets and promoting greater participation in global value

chains (GVCs). Countries that can import and export the necessary inputs for export rapidly and securely are more attractive places for foreign investors who want to offer higher quality products and more goods to consumers at lower prices. Trade facilitation undoubtedly helps more and smaller firms to participate in trade. The main goal is to decrease unnecessary costs related to international trade transactions for companies to reach new markets. This is a huge opportunity, especially for small and medium-sized businesses (SMEs) where trading costs may be disproportionately high.

Trade facilitation is critical for high-tech products such as mobile phones, computers, etc. Components and perishable agricultural products are highly susceptible to delays and delays. This shows that facilitating trade gains more importance in the digital age.

Streamlining and simplifying trading procedures increases economic efficiency, and also removes incentives and opportunities for corruption related to border crossings.

Studies by the World Trade Organization (WTO) have shown that improvements in border crossing operations globally can increase international trade by US\$ 1 trillion per year. This means that the effect of trade facilitation on global trade has a greater impact on the world than the removal of all tariffs.

Developing country economies and SMEs are disproportionately affected by slow-running, costly border procedures. Faster, easier, and less costly processes allow many companies to engage in export or import trade for the first time, integrating into global value chains.

Research by the World Economic Forum suggests that the TFA implementation could achieve an increase of 60% to 80% in export sales of SMEs in some economies.

The ICC played an important role in the TFA ratification, implementation, and negotiations. ICC's trade network has also integrated certificates of origin and rules, customs classification, Valuation, and ICC's Incoterms® rules.

In addition, the international chamber of commerce (ICC)is one of three organizations that make up the Global Alliance for Trade Facilitation and works regularly with businesses, governments, and international organizations such as the World Customs Organization to advance member countries' customs procedures.

The global spread of e-commerce, the emergence of just-in-time logistics transportations, and the worldwide spread of e-commerce have accelerated the global supply chains. These changes impact the government's policies to provide fast, efficient, and secure border crossing and customs clearance procedures. Countries have realized that their export-driven economies depend heavily on low-cost import transactions. Lack of transparency and clearness information about regulations and rules, unnecessary, lengthy, and costly authorization processes, multiple document requirements in different data elements, different formats, increase trade time and cost. Therefore, governments have begun to take new steps recognizing the necessity of having an ideal way for more efficient management of end-to-end business transactions.

Today Such barriers that the trade facilitation agreement aims to reduce appear to pose greater barriers to international trade than quotas and tariffs. Therefore, facilitating trade is more essential than ever to increase administrative effectiveness and efficiency, reduce the costs of reaching global markets.

The overriding aim of trade facilitation is to facilitate cross-border trade (exports and imports) faster, cheaper, and more predictable while providing supply chain security. It is about harmonizing and simplifying the exchange of procedures, documents, and related information between parties in the supply chain and ensuring supply chain security. The United Nations (UN) UNECE center which is for Trade Facilitation and Electronic Business work on trade facilitation. As defined by the center, Trade facilitation is; "the simplification, standardization,

and harmonization of physical flows, payment procedures, financial flows required to move goods from seller to buyer". As this definition suggests, a global supply chain means that not only the physical movement of materials but also the financial flow and related information flow are important. This includes all government agencies that interfere with the transit of goods, financial institutions that provide financial flows, and various commercial organizations that transport goods.

To understand the details of trade facilitation, it is necessary to know some examples of trade facilitation measures. These; can be a single-window system (SW). IT solutions (EDI) standardization (electronic or paper-based), or simplified procedures (AEOs). These systems can speed up customs procedures such as risk analysis thereby facilitating global trade.

Single window system; It has a system that allows the application to be made on a single screen via a web system, instead of obtaining the necessary permits and approvals for customs clearance of the goods to be imported or exported from different institutions one by one. This reduces time costs in customs clearance procedures. Increases processing speed. All relevant government agencies respond to transactions through this single window system.

AEO, on the other hand, is a certificate granted to companies whose reliability has been approved by the customs and fulfilled the safety conditions. The main purpose of this transaction is to reduce global trade costs by providing global supply chain security.

Companies with AEO are businesses that follow the customs processes themselves and have self-control. The customs clearance processes of these companies are faster and less costly than other companies. It is an international certificate with mutual recognition agreements.

Trade facilitation involves potential gains; there are big opportunities for trade facilitation for all parties such as governments and businesses. Government agencies will profit from more efficient use of resources. Reliable and transparent delivery of public services and regulations

will allow reducing corruption in global the supply chain. The customs and trade agencies provide high levels of security and effective government control as a result of trade facilitation. Businesses and institutions will benefit from the speed of operation and lower transaction costs, which will lead to more competitive trade in global markets, increasing exports.

Reducing extra costs and delays for all countries attracts investment and supports growth. Trade facilitation measures could further benefit developing economies. In underdeveloped countries, It takes 3 times more days to export goods than in developed countries. Exporting to developing countries requires almost twice as many documents and six times as many signatures. (WorldBank, 2020)

Certainly, there is a big cost in implementing the trade facilitation reform program. Despite its high costs, this program not only leads to great increases in the global economy but also ensures the economic growth of the participating countries.

Since trade facilitation programs are reform programs, their implementation and development require a cost. There are potential gains and big opportunities for economies to facilitate trade, as documented in the studies and reports of many institutions. Notably the OECD and World Bank, it demonstrates the many rich benefits of facilitating trade, as documented mainly in World Bank and OECD studies and documents. It has a positive effect on foreign trade volumes at macro levels. An extra day in foreign trade transactions reduces global trade by 4.5% in total. (OECD, 2011)

The Asia-Pacific Economic Cooperation (APEC) was established in 1989. It is a regional economic forum. It aims to leverage the growing interdependence of the Asia-Pacific.

Reforms in APEC region countries could increase intra-APEC trade by 245 \$billion. The

study in 2012 by the World Bank on the effectiveness of aid reveals that \$1 aid for trade facilitation translates into \$70 exports for buyers. (C. Mann & Wilson, 2014)

The trade facilitation basic principles are to ensure transparency, simplification, Harmonization, and standardization in business conduct rules. Business transparency and openness is the most important way to make things easier in business transactions.

Transparency within government and ease of access to information encourage accountability of a government's and administration's actions. Requires information in a way that the public can easily access and benefit from, this information is such as laws, regulations and general practice administrative decisions, etc. (<https://tfig.unece.org/details.html>)

Before the regulatory information and their articles are changed by the relevant parties, they should be shared with non-governmental organizations and their views should be taken into account. Thus, stakeholders participate in the enactment process. Such sharing and applications contribute to solving many problems that hinder trade.

Simplification is a kind of eliminating the process of unnecessary documents in international trade and it reduce duplication of all business formalities, processes, and procedures.

Harmonization is the standardization of local business processes, operations, and commercial documents according to international trade conventions and practices. As a result of trade decisions, It is necessary to adopt and apply the common standards as member countries as part of the regional integration process.

Standardization is a set of internationally accepted practices by the parties. These applications are the process of developing various procedures, documents, and information. Standards are used to harmonize practices and methods. Full cooperation with government officials and businesses is essential to realizing these principles.

4.1 Trade Facilitation at The supply chain perspective

Applications and standards are carried out under the title of trade facilitation generally focus on the customs administrations of the participating countries. Although customs play a key role and an important factor in facilitating trade. It is not enough to focus on customs administration, trade institutions, and their processes alone. International Trade facilitation should include and contact with the entire trade environment. Also should encompass private sectors and processes involved in a trade transaction. It should consider trade from an international supply chain perspective.

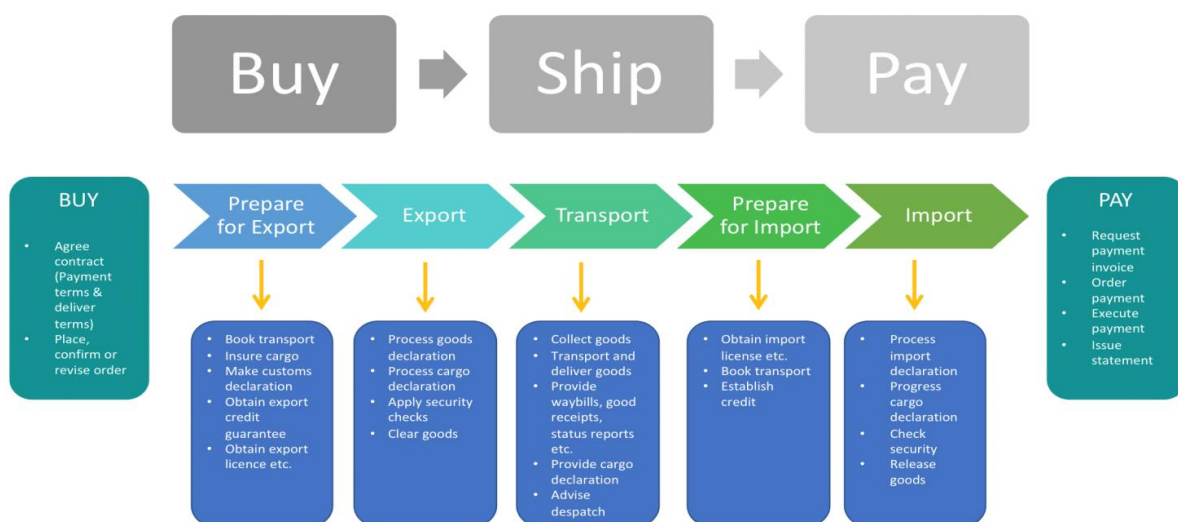
The supply chain is an activity that includes at least three logistics operations and includes all the activities necessary to produce the goods and deliver them to the final consumer. Such activities include basic activities such as a supply of raw materials, production, planning, distribution. Preparation of customs formalities required for international distribution networks is one of the most critical areas of these activities. Although a supply chain may appear to be a two-sided operation from the supplier to the consumer it is a more complex process involving many parties.

These parties in the supply chain can be trade partners such as logistics operators, customs brokers, trade companies, or regulatory from the public sector.

Looking at global trade from a Supply chain perspective makes it possible to see all steps in international trade. Looking at international trade from a Supply chain perspective makes it easy to understand all possible international trade processes and the links between them. The global supply chain perspective provides the essential framework to connect the different parties in the trading environment with simplified and harmonized procedures. It accelerates the flow of trade by providing necessary improvements throughout the chain. It reduces costs and increases efficiency.

There are many types of supply chains. Using the leanest model, known as the reference model, reduces complexity and simplifies operations. The need to design a chain for each product and business model is eliminated. “Buy-Send-Pay Model (BSP)” A supply chain model developed by UN/CEFACT is one of these examples. The supply chain includes 5 steps based on the SCOR model; the plan consists of the Source, make, deliver, and return steps. BSP can be demonstrated in three steps according to the approach, Purchase, ship, and checkout. These steps are shown in the figure below. This model can make it easier to look at and understand global trade from a supply chain perspective. The model has considered purchasing, shipping, and payment as basic steps. It is possible to see the details in the sub-titles of the model. The model includes the following steps; an Export preparation phase, export, transportation, import transactions of the other party, and finally the completion of the import transactions.

Figure 1 The UN/CEFACT Buy Ship Pay Model (Source UN/CEFACT International Supply Chain Reference Model)



Source: World Trade Report 2019

Trade facilitation should occur at three levels: regional, national, and international. While agreed regional and international standards are developed, the operational practice of trade facilitation measures, including these frameworks, also occurs at the national level. Trade facilitation measures are a process of innovation and modernization. It requires strong political support processes that build on skills such as change management and professional program management. Trade facilitation includes different types of activities and interventions. Many institutions organize these activities:

Legal Dimension: Regulatory innovations and law reforms aimed at a transparent, open, and harmonized legal framework

Organization Dimension: Inter-agency communication, cooperation, Institutional development, and information exchange for industry stakeholders.

Technology: Introducing and modernizing infrastructure for digitization of processes, electronic processing of commercial documents, development of blockchain applications.

Processes: Changes in trade, and business processes, procedures, etc.

People: Competence development of practitioners, managers, supervisors, and officials.

Within the framework of trade facilitation, the Innovation and modernization program may address a single institution or an arrangement including a single administration; For example, it may cover Customs or more than one government agency, especially programs such as a single-window system cover customs and related government agencies. However, a reform and modernization program must first involve the private sector, as such programs should support business and improve the country's overall competitiveness is necessary to ensure regular, formal consultation and cooperation by providing an appropriate job orientation to notice the business sector about education and investments necessary for its development.

Naturally, each developing country operates in different legal and administrative environments, with individual national priorities at different stages of development. For these reasons, the trade facilitation measures to be implemented and the scope of each measure, and the order in which they should be applied should be determined. Beginning with a comprehensive needs assessment, the program continues with an analysis of agenda and priority-setting implementation options and solutions. This program and reform is part of the political process that guides the planning, monitoring, and measure of the actual implementation of modernization. Trade facilitation indicators obtained under the program help manages the reform process.

The Trade Facilitation Implementation Guide provides complete implementation guides international common standards and best practices for the “Process”, “Legal”, “Technology”, and partially “Organization” dimensions of modernization and program.

An organizational improving package developed by the world customs organization addressed the “Human” dimension and institutional development aspects of reforms and modernizations. It is a guide that provides materials for human resources improving. Also provides integrity and stakeholder engagement activities.

The need for priority political support, a professional, and a change management organization to carry out such major reforms are addressed in the “*Managing organizational change in border management reform*” section of the World Bank publication “*The Border Management Handbook*”.

Strong political support and a change management organization are needed to execute trade facilitation.

4.2 The Trade Facilitation Agreement

The Trade Facilitation Agreement (TFA) is a multilateral trade agreement binding member states. All members are also members of the World Trade Organization (WTO). TFA officially came into force in February 2017. The agreement was designed to overcome trade barriers created by cumbersome and unnecessary customs procedures. Although these obstacles made it difficult for enterprises of all sizes to do international trade, they mostly brought a great burden to small and medium-sized enterprises. By ratifying the agreement, the countries committed to reduce bureaucracy at the borders to take measures to ensure faster release and customs clearance of export and import goods between member states. These reforms will not only increase transparency and efficiency, but also reduce bureaucracy and corruption, and ultimately make trade faster, simpler, and more cost-effective. These modernizations and reforms have the potential to create around 20 million jobs, mainly in developing countries. In addition, it reduces trade costs by 14.3% on average. TFA is a unique opportunity to achieve development goals such as sustainable growth and poverty reduction.

“Bureaucratic delays and “red tape” pose a burden for moving goods across borders for traders. Trade facilitation—the simplification, Modernization, and harmonization of export and import processes—has therefore emerged as an important issue for the world trading system”. (https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm)

4.2.1 Trade facilitation — cutting “red tape” at the border

According to a study conducted by the WTO in 2015, while the trade costs are equivalent to 134% tariffs for a product in high-income countries, this rate is equivalent to 219% in developing countries. Therefore, trade facilitation provides, such as simplifying the necessary documents, harmonizing customs requirements, and modernizing procedures can reduce international trade costs and transaction time costs in the framework of trade facilitation.

Reductions in time and costs in a country's Trade can seamlessly connect that country to a global and integrated production chain. It also provides a great advantage during fluctuations and slowdowns in global trade. Simplifying and facilitate international trade cost and time processes can affect an important boost to international trade and global economies.

Estimated that, TFA will reduce global trade costs by 14.3% on average, resulting in significant reductions in trade costs. Especially for African countries and least developed countries (LDCs). Full implementation is expected to reduce the average time by 47% for imports and 91% for exports.

Thanks to the time and cost burdens that TFA will reduce it is expected that existing companies will increase their exports and allow new companies to export for the first time to global markets.

In addition, “TFA is estimated to contribute 2.7% per year to world export growth and more than 0.5% per year to world GDP growth between 2015-30” (WTO)

Developing countries are expected to benefit more from this situation. According to the research of the WTO the full implementation of TFA is expected to increase economic growth in developing countries. According to these estimations, it is estimated that “economic growth will increase by 0.9% each year and exports will increase by 3.5% annually”. (WTO)

4.2.2 History

The WTO's trade facilitation agreement began in Singapore in December 1996 with a ministerial conference. After a few years of work, members formally launched negotiations on trade facilitation in July 2004, based on the rules in Annex D of this package, known as the July package. Member States agreed on Negotiations of GATT 1994 to further accelerate the movement, including in-transit goods, customs clearance, and release of goods.

The Trade Negotiations Committee established the Trade Facilitation Negotiation Group on October 12, 2004. Many of the proposals made by WTO members were submitted to the negotiating group for consideration.

These proposals continued until we completed the negotiations on trade facilitation at the Bali Ministerial Conference in December 2013. A Trade Facilitation Preparatory Committee has been established within the general council following the Agreement. The committee is also open to members of WTO. This board undertook the task of the rapid entry into force of the Agreement. Another board task is the effective functioning of the trade facilitation Agreement upon its entry into force. The trade Committee was also tasked with conducting a legitimate review of the Trade Facilitation Agreement and drafting an Amendment Protocol to add the Agreement to WTO Annex 1A.

TFA was completed by members in July 2014. On November 27 2014, members adopted an Amendment Protocol to add the treaty to the existing legal WTO framework. On 22 February 2017, the Agreement was allowed to enter into force.

4.2.3 Implementing the TFA

Developed countries that are members of TFA have committed to implement TFA immediately after it entered into force. Developing countries have stated that they can only fulfill the basic provisions that they are in a position to do. For the least developed countries, an additional 1 year is given. Submitted category A notices include these commitments.

Developed countries have committed to implement the provisions contained in the Agreement within the same year with the entry into force of the Agreement.

The countries will only apply the substantive provisions that are within their means and are able from the date of entry into force of the TFA. The Committee gives an additional one year to do so for least developed countries. These commitments are set out in the submitted

Category A notices. Category B Notifications include those from developing and least developed countries. The provisions to be applied after a transitional period following the entry into force of the TFA are also included in category B. Category C notifications contain information on capacity building and assistance. Provisions on capacity building and assistance to be received by developing countries and least developed countries after the implementation date are in this category.

TFA Part I also includes movement, clearance, and release of goods. Goods in transit are also included in this section.

The commitments of developing and least developed countries are included in part II. This section contains specific provisions that allow least developed countries to determine when to implement the treaty. Provisions regarding the process after the receipt of technical documents are included in this section.

Category A: Contains provisions that a member party to TFA will apply when the Agreement enters into force (or, in the case of a least developed country, within one year of its entry).

Category B: Includes provisions that the country that is a party to the TFA will apply after a transitional period following the entry into force of the Agreement.

Category C: It includes the aid and support provisions that the Member who is a party to the TFA will receive within 1 year after the Agreement enters into force.

For provisions designated as categories B and C., the Member State must provide dates for the implementation of provisions such as:

- > Special and differential treatment for LDCs
- > Special and differential treatment for developing countries

Part III contains provisions regarding the standing committee. The Committee monitors the coordination and implementation of the provisions of the agreement. Each member country establishes a national committee in this sense.

4.3 Benefits of the TFA

It is estimated that TFA could increase global trade by as much as \$1 trillion and reduce trade costs by an average of 14.3%. It should not be forgotten that the poorest countries can get the biggest share of this pie. Reducing costs in the global supply chain will reduce the costs of SMEs in member countries to reach global markets. Thus, the export potential of SMEs will increase.

Expected Global Benefits from the Trade Facilitation Agreement:

- As a result of the infrastructure investments to be made within the scope of TFA and the simplification of border procedures, transaction costs and transaction times will decrease, and as a result, export diversity will increase.
- LDCs and developing countries that cannot benefit from international trade will have easier access to international markets.
- As a result of the reduction of corruption, more revenue collection will be obtained social welfare will be increased and an environment of public trust will be established.
- With the increasing globalization as a result of the elimination of trade barriers, the increase in foreign direct investments (FDI) and thus an improvement in the balance of payments of the countries will be achieved.
- Facilitating trade will increase the trade volume on a global scale.
- Trade facilitation will contribute to the reduction of poverty by providing sustainable growth.

The regulations and innovations brought by the Trade Facilitation Agreement in terms of international trade and customs administrations are listed below:

- 1) Local regulations regarding international trade transactions will not only be published in the official gazette but will also be published on the internet together with workflows and contact information.
- 2) Local information inquiry centers will be established where all parties related to international trade can consult.
- 3) The private sector will be allowed to express its opinions on draft legislation, and information will be provided before they enter into force.
- 4) In case of a written application on how to apply the customs legislation, the customs administrations will be bound by their decision.
- 5) All decisions and actions of customs administrations and other public administrations regulating foreign trade can be appealed to administrative and judicial appeal.
- 6) Measures regarding animal and plant health and inspection of food products at borders will be carried out following certain rules and uniformly and for a while throughout the country.
- 7) The number of charges applied in international trade and how they will be paid must be published. Any change will take effect after a reasonable time.
- 8) Customs penalties will be subject to the principle of personality will take into account the characteristics of the event, and will be notified in writing to the addressee. If the persons doing business at the customs realize a violation of legislation and voluntarily report this situation without detecting the administration, this condition will be taken into account in the assessment of the penalty.

- 9) Transactions will be completed with the declaration made before the trade goods arrive at the customs administration and the delivery of the goods will be accelerated.
- 10) Taxes and duties due to customs can be collected electronically.
- 11) In an import transaction, the documents of which are complete, the taxes can be paid after the delivery of the goods.
- 12) Customs administrations are encouraged to conduct risk analysis in the fight against illegal trade to carry out their transactions with a Single Window to announce the average delivery time by measuring and complying with international standards.
- 13) Customs procedures will be subject to a post-control method.
- 14) Authorized obliged parties will be determined all over the world and will benefit from commercial facilities subject to WTO rules.
- 15) Air cargo delivery processes will be accelerated for reliable companies.
- 16) The Customs procedures of perishable products such as food and blood products will be accelerated.
- 17) They will work within the public administrations working at the borders.
- 18) Member states will allow international transport vehicles to transit to their internal customs to complete their import and export transactions at internal customs.
- 19) Documents and forms used in international trade will be reviewed and their requirements will be discussed and reduced in the process.
- 20) Customs administrations will deal with copies or electronic copies of documents until the originals arrive.
- 21) Rules regarding the issuance of customs brokerage certificates will be transparent.

- 22) Customs procedures will be interpreted and applied the same all over the country, and uniformity will be ensured.
- 23) The way for re-exportation of an item that is not allowed to be imported will be paved.
- 24) Regimes for temporary admission. inward and outward processing will be implemented in all WTO member states.
- 25) Transit passage rules were further liberalized decisions were made to ensure access to ports for states that do not have a connection to the sea and regulations were introduced to complicate the implementation of states that prevent trade with transport quotas.
- 26) Customs administrations increase measures in the fight against smuggling by sharing information in import and export declarations.
- 27) Member states will establish a National Committee for the Facilitation of Trade where they will monitor the implementation of the agreement and internal measures.
- 28) All member countries will be followed up continuously with a committee established within the WTO.

4.4 Cons of the Trade Facilitation Agreement

The agreement consists of 24 articles and 1 additional article which are in 3 parts. While the 12 articles in the first part of the trade facilitation agreement contain the measures to be taken to facilitate trade directly the 13-22 articles in the second part. Articles of this Agreement include arrangements for assistance to be provided to LDCs and Developing States to capacity building to facilitate their implementation of the Agreement. Articles 23 and 24 in the third part contain institutional regulations and final provisions.

The measures in the first part constitute the main provisions of the Agreement. While some of these measures are binding, some are not. If the articles regulating these measures are briefly mentioned (TFA art.1-art.12);

Article 1: Publication and Availability Of Information:

Compliance with the provisions regarding the publication of information and information sharing over the Internet will provide a transparent and predictable international trading environment. In addition, this provision will encourage trading parties to trade, strengthen communication between traders, government institutions, and the private sector. Also, it promotes contribute to the development of information and communication technology (ICT) infrastructure (UNCTAD, 2016).

Article 2- Opportunity to comment, information, and consultations before entry into force:

The legal arrangements to be made regarding the circulation of the goods their delivery and the completion of the customs procedures, including transit goods, should be published as far as possible before they come into force. Thus, it will be possible for the traders to make comments before the enforcement. This study, is aimed to identify the provisions that will hinder the trade, harm the trade parties or that will not be beneficial to the parties or that cannot be applied before the legal regulation enters into force, and to correct the wrong early.

The opportunity to comment and consult with traders will increase trust and transparency in public administrations and improve governance (UNCTAD. 2016).

Article 3- Advance Rulings:

Advance rulings refer to the decisions (customs) made by the customs administration at the request of one of the trade parties, on issues such as customs value of trading goods, customs Tariffs, classification, the origin of goods, intended for international trade. The law on which

the preliminary decision is based remains valid for a reasonable period from the date on which the preliminary decisions are made unless the circumstances change. If the member state repeals changes or invalidates the preliminary decision it shall notify the applicant including the relevant reasons. A preliminary decision with retroactive effect can be repealed, changed, or invalidated only if the decision is made based on incomplete, false, or misleading information.

Preliminary decisions create a more transparent and reliable global trading system and encourage LDCs to take part in the trading system (UNCTAD. 2016). In addition, this provision is a provision that aims to eliminate uncertainties and increase predictability for trading parties.

Article 4- Procedures for appeal or review:

This article refers to the person for whom an administrative decision has been taken by the customs administration; It includes the provisions regarding the right to demand an administrative or judicial objection or a re-examination of the decision against the decision before an administrative authority higher than or independent of the official administration that made the decision.

Article 5- Other measures to enhance impartiality, non-discrimination, and transparency:

The Member State shall immediately inform the logistics carrier or the importer as a buyer if the goods declared for import transactions are detained for control purposes. If the item's first test is negative it can provide an opportunity for a second test. If it gives this opportunity it provides or publishes to the importer indiscriminately the laboratory information on which the test can be performed.

With this article, transparency is tried to be increased and with the second test opportunity, it is tried to prevent the loss of time and money by unnecessarily returning the goods whose first test was negative.

This provision helps reduce corruption and encourage private sector participation by helping to build stable and powerful national institutions, increase coordination and harmony, and contribute to fair administration. (UNCTAD. 2016)

Article 6- Disciplines on Fees and Charges Imposed on or In Connection With importation and Exportation and Penalties

This article includes the obligation to publish information on fees and charges in accordance with article 1, and to publish changes to fees and charges before they come into effect.

In addition, the penalties to be imposed in case of violation of customs legislation are discussed under the sub-title of criminal disciplines.

The penalty to be imposed must be based only on the person(s) responsible for the violation, the material findings and circumstances of the case, and must be proportionate to the degree and severity of the violation.

The member ensures that the person(s) who are penalized are given written information about the nature of the violation and the amount of the penalty for the violation. If the customs administration discloses the relevant violation voluntarily before the detection of the violation, the member should consider this as a mitigating reason for the penalty to be imposed.

With this provision, it is also a provision to increase transparency and predictability, and it encourages those who violate the customs legislation to disclose it voluntarily. In addition, this provision helps to avoid conflicts of interest in the assessment and collection of fines and

fees, thereby making public resources more effective and efficient, promoting business and closer regional integration, ultimately promoting a healthy and reliable trading system.

(UNCTAD, 2016)

Article 7- Release and Clearance of Goods:

The first part of this article covers pre-arrival customs procedures. In the second part, transactions related to electronic payment in chapter three, Separation of Release from Final Determination of Customs Duties, Taxes, Fees, and Charges. Other sections are risk management, Post-clearance Audit, Establishment and Publication of Average Release Times, Trade Facilitation Measures for Authorized Operators.

These are briefly mentioned;

Pre-arrival processing: The systems that will allow the submission of customs declarations, import documents, and all other necessary documents in the electronic environment before the arrival of the goods are established by the member. This provision is a trade facilitation measure aimed at speeding up the delivery of the goods upon arrival.

Electronic payment: It requires the acceptance of the procedures for the electronic payment of taxes, duties, charges, and fees regarding the goods subject to import or export by the member state. **Separation of delivery from customs duties, fees, and charges:** If the determination of the taxes, duties, fees and charges related to the goods before on or after the arrival of the goods cannot be carried out quickly if all other legislative conditions are met it foresees the delivery of the goods before the said determination.

Risk management: Members facilitate the delivery of low-risk shipments by intensifying customs controls on high-risk shipments. With this provision, it is tried to prevent unnecessary loss of time, money, and effort.

Post-control: Each member accepts the post-control application and adjusts its legislation accordingly as in all other measures. Taking a risk-based approach it selects a person or a consignment for post-check and transparently performs post-check. It informs the person whose records are checked, the results of the control the rights and obligations of the person and the reasons for the said results without delay.

Average lead times: Members are supported to periodically and consistently measure and publish average lead times.

Authorized obliged party: It is an international status that provides certain conveniences and privileges in customs procedures to reliable companies that fulfill their customs obligations, have a regular and traceable registration system, have financial adequacy, safety, and security standards, and can perform self-control.

Under the Agreement, each member provides additional trade-facilitating measures regarding the transit or import, export, formalities, and procedures to authorized obliged parties meeting certain criteria.

Expedited shipments: Each member, while maintaining customs control, accepts procedures that ensure fast delivery of goods, at least for shipments arriving by air cargo to applicants who meet certain conditions.

Perishable goods: To prevent the loss or deterioration of perishable goods it ensures the delivery of perishable goods as soon as possible under normal conditions outside the working hours of the customs administration and relevant authorities if appropriate conditions exist.

Perishable items are given priority in the examinations. It ensures that these goods are stored under suitable conditions to prevent their deterioration or allows the importer to provide them.

This is an extremely important facilitation measure. Because it allows the trade of goods that

were not possible to trade before, thus, an increase in the trade volume between countries is ensured.

With this provision, members are encouraged to invest in measures such as electronic submission of declarations that reduce the time trade goods spend at the border. Thus, it contributes to the modernization of the international trade and transportation sector (UNCTAD.2016).

Article 8- Border Agency Cooperation:

This article is aimed at ensuring cooperation between border administrations. Within the scope of this provision, each member ensures the cooperation and coordination of those responsible for border controls of the goods and the authorities and administrations that carry out the transit and import, export operations of the goods. In addition, members cooperate with other members on harmonizing working days establishment and use of joint facilities, joint controls, one-stop border point establishment, to speed up border crossings, where mutually agreed.

Cooperation between border authorities builds up the capacities of institutions and encourages inter-agency cooperation (UNCTAD. 2016).

Article 9- Movement of Goods Intended For Import Under Customs Control:

Each Member is required to authorize the transport of goods intended for importation from the point of entry to the point of delivery within its territory, to the extent practicable and provided that all regulatory conditions are met.

Article 10- Formalities Connected With Importation, Exportation, and Transit:

This article includes regulations for reducing the number and complexity of formalities related to transit and import, export, reducing, and simplifying document requirements. It also

covers regulations on the use of common and international standards, single windows, pre-shipment inspection, use of customs brokers, common border procedures, and uniform document requirements, rejected goods, temporary acceptance of goods, and inward/outward processing.

Use of common and international standards: Members are promoted to use international standards or parts thereof as a basis for transit, import, and export transactions unless the Agreement provides otherwise. In addition, members are encouraged to participate in the preparation of relevant international standards by international organizations.

Single window system: It makes it possible to fulfill all legal requirements related to export, import and transit by declaring the necessary documents and information at a single point. With the implementation of this system, traders can submit all legal documents from a single point without having to go to many relevant public institutions separately. Thus, the single window system reduces transaction costs and saves time and resources.

Pre-shipment inspection: It is a practice in which developing countries have specialized private companies inspect the goods, on condition that and to the extent necessary, to check the accuracy of the quality, quantity, or price of the trade goods to be imported. Under TFA, members do not require the use of pre-shipment inspection concerning tariff classification or customs value.

Customs brokers: Persons who provide consultancy services to exporters and importers on import and export transactions. Article 10 of the TFA stipulates that members cannot impose an obligation to use customs brokers. It is also included in the Agreement that members should apply transparent and objective rules regarding the licensing of customs brokers.

Rejected Goods: If the goods submitted for import are refused by the competent authorities due to the failure to fulfill the prescribed sanitary or phytosanitary regulations or technical

regulation requirements the importer allows the importer to send the goods to the exporter or another person designated by the exporter within a reasonable time following the relevant legislation, or return it. If this option is not exercised in a reasonable time the competent authority may take a different course of action regarding the nonconforming goods.

Inward processing: Temporary importation of goods that are not in free circulation to be processed within the customs territory to boost exports by providing commodity and raw materials at global market prices to give export products competitiveness in global markets to develop export markets and to diversify export products and after processing A customs regime that allows the re-export of the resulting processed product is called inward processing.

Outward processing: Outward processing is the regime in which the provisions regarding the temporary export of the goods in free movement from a certain customs region to be subjected to outward processing activities and the re-entry of the products obtained as a result of these activities into free movement with full or partial exemption from import duties.

Within the scope of Article 10 of the Agreement, each member must allow the goods to be processed internally and externally following the legislation.

Temporary acceptance of goods (temporary importation regime): Temporary acceptance of goods is defined in Article 128 of the Customs Law No. 4458 as follows; Temporary importation regime free circulation

Article 11- Freedom of Transit:

This article includes regulations on transit. The concept of transit can be defined as an opportunity provided by the customs administration based on crossing the border or country without paying the taxes that may accrue for the goods to the operators carrying the goods and subjecting the goods to only one (final) customs procedure when entering (or exiting) a

region. Within the scope of this article, it is stipulated that transit cannot be made conditional on the collection of transit fees and charges, except for administrative costs incurred due to transit and fees charged in proportion to service costs. In addition, no voluntary restrictions or similar measures on transit traffic can be requested by members. Goods subject to transit shall not be submitted to any customs duties, unnecessary delays, or restrictions from the moment they enter the territory of the member state to the moment they leave. Technical regulations and conformity assessment procedures within the scope of the Agreement on Technical Barriers to Trade cannot be applied to goods in transit. If the transit requirements of the goods that have reached the customs administration of exit are fulfilled, the customs administration of exit immediately terminates the transit process. In addition, each member endeavors to appoint a national transit coordinator to whom the members can direct their questions and suggestions. to ensure that the transit procedures are carried out healthily.

With this article, if the goods in transit meet the legal requirements, they can be shipped as quickly as possible without any obstacles.

Article 12- Customs Cooperation:

Increasing the efficiency of transit operations, facilitating export and import transactions and formalities, reducing fraud and illegal trade between customs administrations require close coordination between customs administrations of trade partners (UNCTAD. 2016). This article of the agreement envisages cooperation between customs administrations in every sense. The measures envisaged by TFA to facilitate trade are aimed at increasing transparency and predictability, accelerating trade flow, and preventing uncertainty and confusion in international trade.

4.5 Facilitating Customs Process

4.5.1 Modernization of Customs Administrations

Foreign trade institutions play a vital role in global supply chain operations. Especially Customs administrations are an important role in the implementation of various critical policies around the world and contribute to the achievement of the national development goal. Moreover, since Customs administrations are always the first place into which the rest of the world sees a country, they have a crucial task to manage the perceptions of key individuals and institutions involved in making important international trade investment decisions (WCO, 2003). Customs is the most important government agency that can successfully respond to the need to facilitate international trade (De Wulf and Mclinden, 2006). Without an effective national Customs administration, states cannot achieve their goals in income, tax collection, trade facilitation, and society's national security concerns. The contribution of customs administrations to national economic development is potentially major.

Customs administrations can make a significant difference with trade facilitation in the lives of many poor people around the world. (WCO, 2009)

An important part of foreign trade consists of goods movements that are standardized by agreements between states. These agreements, which are divided into different types in terms of their parties, subject, quality, and purpose increased especially as a result of the Second World War and in 1990 when the bipolar world political life ended

It has become a factor shaping the international trade policies of developing countries in the post-war period. In this, besides the efforts of facilitating foreign trade eliminating cost elements, and simplifying transactions states' desire to get as much share as possible from global welfare has been effective (Gültekin and Üyümez, 2015).

For the customs administration of the member states, the modernization of business processes is not just an option; It has become a necessity for global supply chains to meet human needs at reasonable costs. The international chamber of commerce invited all its members to modernize the customs administrations because modernization is the key to economic development is an important catalyst. (Shujie and Shilu, 2009)

Customs administrations are responsible for conflicting facilitation and security policies where speed and security are equally important. It has to be a part of a system in which it is set up correctly. This system should be designed in such a way that getting maximum efficiency from the process is the main goal. Aiming to deliver the goods to their destination as quickly as possible, customs administrations aim to both ensure security by preventing violations of legislation and remove barriers to trade. For this purpose, customs administrations have been the institutions that benefited most from technological developments (Biçimseven, 2019).

Making trade safer and facilitating trade is of great importance in the economic development of countries. It is also of great importance in terms of social welfare, unemployment and poverty reduction. The most important development regarding this issue is the regulation defined as the SAFE framework. Apart from this measuring the time required for the goods to be in free circulation coordinated border management. World Customs Organization data model, authorized operator and single-window application were other remarkable practices in this period. With the World Customs Organization (WCO) SAFE Framework of Standards to Secure and Facilitate Global Trade, what needs to be done for international trade to be both fast and reliable has been determined within the scope of this agreement and this agreement has been signed by the World Customs Organization. 162 of the 177 member countries, including Turkey, has made a declaration of intent for the implementation of the SAFE Framework (Yetgin, 2014). On the other hand, besides the World Customs Organization some

important regulations were made in the Union Customs Code of the European Union (EU) which entered into force in 2016.

4.5.2 Example of Comprehensive Capacity Building in Customs

Capacity building in customs administrations is directly related to customs modernization. (It means a broad strategy and objective to improve efficiency, transparency, effectiveness, and predictability of a government's operations so that they can better meet the demands of modern times). Hence, the modernization of customs is the concept the capacity building is a tool or an action (WCO, 2009). So the main roles and responsibilities of customs administrations have remained the same for years, how Customs fulfill these roles and responsibilities has changed considerably in recent years.

This change process can be summarized as follows; (WCO, 2003)

- International trade, global supply chain flow, and Globalization continued to grow;
- Increasing international awareness of the trade costs associated with inefficient and old-world customs practices;
- Increasing investment in international modern logistics, stock control, production, and IT systems; led to increased expectation for customs administration to implement fast and predictable imports and exports;
- increases the use and awareness in communication and information technologies;
- policy requirements directly associated with international commitments (such as join to the WTO);
- Increased competition for international investment;
- Increasing trade agreements as regional, which significantly increases the complexity of managing border procedures and customs controls;

- Stagnant and declining financial and human resource allocations and increased workload and government expectations;
- increased awareness of the importance of good governance and sound integrity in customs services;

A greater awareness that, as a result of the terrorist attacks of 11 September 2001 customs administration must play an important role in protecting society from a range of threats to national security. It is very difficult to estimate the future role of any public institution. Since each state will respond in the most appropriate way to its own needs, working environment, national priorities, and needs it is possible to have the right direction for expected trends in customs there is no single universally applicable answer. However, some general themes emerge that show the future role and priorities of customs (De Wulf and Sokol. 2005).

These themes are (De Wulf and Mclinden. 2006);

- Customs administrations, while fulfilling their control duties will do so by interfering with the legal trade at the least possible level. They will rely on risk management to fulfill their control mandate (to increase income, protect society, and ensure the country's conservation policy is implemented). Customs administrations will gradually resort to risk-based goods controls and post-control inspections rather than physical inspections while crossing the border.
- A partnership will emerge between the private sector and the Customs administrations. Rather than conflict of interests, consultation and cooperation will drive these relationships. Customs will adhere to and communicate service standards such as release time, responsiveness to requests, transparency of information and procedures.
- Customs will turn to the use of ICT to better adapt to trends in modern trade procedures, which rely on direct merchant input of information and notification

electronically exchanging information. Customs clearance will be largely paperless and online. Over time, all members of the private sector will be connected to a single electronic network through which information flows seamlessly and will be able to access administrative permissions granted in real-time.

- Customs administrations involved in managing aspects of the border crossing process will better coordinate their activities to ensure full compliance without overburdening the trading community.

4.6 International Kyoto Convention on the Simplification and Harmonization of Customs Procedures

The Kyoto Convention is a two-part international agreement that provides for a comprehensive set of customs procedures to facilitate legitimate foreign trade while carrying out customs controls, including the protection of customs revenues and society. The Convention deals with the basic principles of simplified and harmonized customs procedures, such as maximum use of information technology, predictable, transparent, and modern customs practices. The first part consists of 19 articles with general recommendations on the implementation of the instruments, and the second part consists of 31 Annexes. Each of the additional items is dedicated to a specific customs clearance. For an additional article to enter into force, it must be accepted by five countries (Çayırpınar, 2013).

On Simplification and Harmonization of Customs Regimes In the preamble of the Protocol on Amendment to the International Convention “eliminating the difference that may hinder international trade and other exchanges between customs regimes and practices and facilitating, simplifying and harmonizing customs regimes and practices” While meeting the needs of customs and trade was counted among the targets, it was emphasized in the same section that the basic principles of facilitation and harmonization should be made compulsory for the contracting parties. The main objective of the Customs Cooperation Council is to

greatly facilitate customs practices and regimes and it is also stated that there is harmonization (Kılıç, 2010). However, due to the radical changes in foreign trade, transportation, and management technique, as well as the fact that the facilitation and harmonization of customs practices around the world in the original contract could not be fully finalized, the revision of the Kyoto Convention has become a necessity. On the other hand, the fact that very few states are parties to the annexes of the original convention and that most of these states make reservations on the annexes they have accepted are the reasons for the amendment of the convention.

4.7 Revised Kyoto Convention (RKC)

Revised Kyoto Convention (RKC) is the main Customs agreement for facilitating foreign trade. RKC was developed by the World Customs Organization and entered into force on February 3, 2006. On the Facilitation and Harmonization of Customs Procedures adopted in 1973-1974 Updating and revising the International Convention (Kyoto Convention). RKC aims to facilitate trade by harmonizing and simplifying Customs procedures and practices. For this purpose, the contract is based on modern customs procedures and procedures. It provides standards and recommended practices for techniques (UNECE, 2019a).

RKC has become the legal basis for effective, predictable, and efficient customs procedures. Purpose (EUR-LEX, 2019a);

- facilitation and harmonization of customs practices and procedures;
- promoting international cooperation;
- Facilitate legitimate trade and combine it with appropriate levels of customs control;
- increase the efficiency and efficiency of the customs administration and thus the overall economic competitiveness;

- promoting investment and the participation of small and medium-sized enterprises in global trade;
- RKC goals to promote economic growth by facilitating trade.

Although there is no international standard model for the functioning of modern customs administrations, the International customs community focuses on an improvement program based on the key principles and standards contained in the RCC. The following principles are largely based on the Convention; (WCO, 2003)

- Integrity: Customs administrations should focus on ensuring the highest level of integrity and be free from corruption.
- Transparency: Laws, regulations, administrative rules and procedures related to customs procedures and principles should be disclosed to the public in writing. This information should be accessible and made available to the parties.
- Accountability: Customs administrations should have a transparent and easily accessible administrative structure. This administrative body should be held accountable for its actions through the judicial review process.
- Predictability: Customs laws, regulations, administrative rules and procedures should be applied equally and consistently to everyone.
- Facilitation and Control: Customs administrations should encourage the processing and dissemination of legitimate trade through risk management, using customs laws and regulations effectively.
- Customer Service: Customs administrations should constantly modernize and try to improve the level of service they provide to businesses.
- Standardization: Customs laws, regulations, administrative rules and procedures should be updated over time and these updates should be aligned with internationally accepted standards.

- **Simplification:** Customs laws, regulations, administrative rules and procedures should be simplified as much as possible, as the excessive complexity of customs procedures will increase the workload.
- **Minimal Intervention:** Customs administrations should develop and implement reliable risk management systems and inspection controls to identify high-risk activities, people, cargo and transport and limit the level of Customs intervention.
- **Information and Communication Technologies:** Customs administrations should make maximum use of information and communication technologies to facilitate the adoption of the principles contained in the Revised Kyoto Convention.
- **Cooperation and Partnership:** Customs should seek to develop collaborative relationships with all stakeholders, including government agencies, the private sector and other Customs administrations
- **Continuous Improvement:** Customs should establish performance standards and implement systems and procedures that continually strive to improve the efficiency and effectiveness of all business processes.
- **Compliance Improvement:** Customs should work with customers to help them improve their voluntary compliance level.

In addition, all Customs reforms and modernization efforts should focus on establishing or strengthening the administrative and administrative capacities of Customs Authorities.

Countries that are party to the RKC and wish to become a party must accept the binding General Assembly and General Annex on the RKC. The General Annex to the RKS commits to the Contracting Parties the following key principles (UNECE, 2019a):

- Transparency in Customs Transactions
- Modernization of Customs Procedures
- Providing Information to Related Parties

- Risk Management and Use of Information Technologies
- Cooperation with Other Institutions. Customs Authorities and Business World
- Using International Standards
- Objection and Appeal Procedures are Easy

According to these principles, to facilitate and harmonize customs procedures. first of all, it is necessary to modernize these practices to ensure predictability, transparency, and consistency, thereby increasing efficiency and effectiveness in customs procedures. Application of modern techniques such as risk management and computing Incorporating technologies into processes as much as possible will speed up the processes. By notifying all the legislation to the relevant parties, it will also facilitate cooperation with these parties. The importance of customs administrations to cooperate with other local institutions related to foreign trade with other customs administrations in the world and with the business world is emerging. Finally, in case of any problem objection and appeal methods should be easily accessible (Ürkmez, 2014).

We can list the decisions brought within the scope of procedures facilitated by RKS as follows (Kılıç, 2010);

- Cooperation with Trade Circles
- Declaration before the goods arrive
- Submission of the declaration electronically
- Authorized person status

4.8 Authorized Economic Operator

The concept of AEO has emerged to determine the people that customs administrations can trust in foreign trade transactions to reduce their control over them and to transfer resources to more risky transactions (Terzi, 2017). AEO application; It is an arrangement where real and/or legal persons can benefit from various facilitations determined by customs

administrations by providing the conditions determined following the regulation to ensure security in the supply chain at the scale stipulated by the local legislation (the individual's supply chain, national supply chain or international supply chain). (Çalışkan, 2015) Supply chain security; is designed to provide security against theft, damage, loss of goods/cargo, or making them the target of terrorist acts or smuggling.

“AEO is defined by the WCO SAFE Standards Framework as a Customs-approved party involved in the international movement of goods. AEOs include manufacturer, importers, exporters, broker, carriers, combiners, intermediaries, ports, airports, terminal operators, integrated operators, warehouses and distributors” (UN, 2019).

4.8.1 WCO SAFE of the Authorized Operator Concept Definition by Frame

The WCO AEO program is a key program for Business Partnership between Customs administrations and tradesmen; a safe, transparent, and predictable trading environment; and in a broader context, enhanced economic well-being (WCO, 2018a).

AEO has become a Business Partnership program between Customs administrations and the private sector for WCO Members, as it allows Customs administrations to share their security responsibilities with traders, while at the same time offering the private sector the opportunity to reward them with additional facilitations (WCO, 2019).

This program provides simplified customs clearance for companies in the international supply chain engaged in customs-related activities, including manufacturers, importers, exporters, consultants, brokers, port officials, warehouse operators, and distributors. (ICAEW, 2019).

SAFE is based on four key elements (WCO, 2018b):

- Harmonization of import, export and transit pre-arrival notification application to be made in an electronic environment.

- Each country participating in the SAFE Framework uses a consistent risk management approach to address security threats.
- Upon the request of the customs office of the importing country, the customs office of the exporting country inspects high-risk containers and cargoes at the exit.
- It undertakes to clearly define the rights and authorities to be provided by the customs administration to tradesmen who meet supply chain security standards and best working practices at a minimum level.

The SAFE Framework provides a unified platform to increase world trade, provide better security against terrorism and other international crimes, and increase the contribution of Customs and trade partners to the economic and social well-being of nations. It will improve Customs' ability to detect and deal with high-risk shipments and increase efficiency in the management of goods, thereby accelerating clearance and release of goods (WCO. 2018b).

4.8.2 What the SAFE Standards Framework Provides to the Authorized Economic Operator benefits

The SAFE Framework of Standards means that it is effectively implemented when a functional balance is achieved between facilitating trade and ensuring security. Establishing such a balance also provides many benefits to businesses with AEO. These benefits are; speeding up the border crossing of goods and cargo reducing transit times and storage costs.

These benefits (Eşrefoğlu, 2009):

- Reducing the procedures for the customs clearance of cargoes.
- Accelerating the border crossing of goods.
- Reducing cargo and goods controls.
- Facilitating inspection when controls are required
- priority use of techniques.

- For companies with AEOs that continue to comply with the rules.
- reduction in certain fees and guarantees that must be paid as a
- Keeping customs authorities open 24/7 for AEO certified companies based on valid excuses

4.8.3 What the SAFE Standards Framework Provides to States and Customs benefits

The SAFE Framework is to facilitate and secure international trade, which is the main goal of it. The SAFE will ensure that global trade contributes to economic welfare, economic growth, and development by a secure and reliable supply chain. In addition, The SAFE framework provides global supply chain security and helps protect against threats. It will expand the scope of legal trade and speed up the functioning of the customs administration. Since customs undertake a significant part of tax collection, it will also facilitate tax collection. It will rearrange the laws and regulations in this context as appropriate. As it provides economic and social protection, it will cause an increase in foreign investments.

SAFE also encourages the establishment of cooperation arrangements between customs administrations and other government agencies, among other existing international standards that need to be adopted. It provides governments with coordinated border management and control, and helps ensure it by implementing the necessary measures. The SAFE Framework empowers governments to expand the customs duties and responsibilities of customs authorities in this area. (WCO, 2018b)

The main driving force of the SAFE framework is to provide the physical flow of goods by networking from customs to customs for the reliable and smooth movement of the global supply chain. Thanks to this network arrangement, it will ensure timely and accurate information flow between customs. Thus, customs and related institutions will work more

effectively. It enables customs administrations to control risky shipments more effectively and to use skis more efficiently. Thanks to cooperation, mutual controls can be provided between the customs of the member countries. Monitoring and controlling the goods from the exit customs until they reach the destination customs, in line with the determined international standards, provides a Supply Chain perspective to the customs. This increases end-to-end speed and performance throughout the entire supply chain. (WCO, 2018b)

The SAFE Framework facilitates and promotes international trade and establishes standards for securing international trade. These standards encourage importers and exporters to trade internationally and facilitate the transport of goods. The SAFE Framework takes into account modern international production and distribution models. Authorized Economic Obligation status reduces customs procedures, which means time and cost savings. One of the main principles of the SAFE framework is; it increases the uniformity of procedures and predictability by establishing international standards (WCO, 2018).

4.9 The History of Authorized Economic Operator

As a result of the September 11 2001 terrorist attacks on the USA it was realized once again that societies were open to terrorist attacks and organized crimes in every aspect including the international trade system and new methods were started to be tried to ensure security (Demir, 2013). As a result of the attacks, it was realized that the fact that the security started only at their borders was insufficient to ensure the security of the country and in this context they started to work on developing different methods to ensure the security of the country. Since the late 20th century, customs authorities have become increasingly integrated into the security of the global supply chain, and security programs have recently been developed in a global context. AEO is part of these programs and the WCO adopted an international AEO standard. the SAFE Standards Framework, in 2005 (UN, 2019). The EU created the AEO concept based on internationally accepted standards and in 2008 the “Community Customs

Law” (CCC) (Regulation) (EC) 648/2005) and the amendments to the implementing provisions (EC, 2019).

According to the European Union and Council regulation 648/2005 (EUR-LEX, 2019b);

An equivalent level of protection must be established at border controls for goods entering and leaving the Community customs territory to achieve this objective. Member States with the primary responsibility for creating and implementing an equivalent level of customs control within the Community need to implement a harmonized customs controls. The controls to be implemented should be based on widely accepted standards and risk criteria in the selection of goods and authorized obligors to reduce risks to the community and the community's trading partners. Finally, it should establish a community-wide risk management framework to ensure that resources are allocated efficiently and to support a common approach. The framework should also provide common criteria and harmonized requirements for authorized obligations and ensure they facilitate the implementation of these criteria and conditions. It is necessary to establish a common risk management framework for all Member States and to avoid wasting time by inspecting the belongings of Member States on site. States and private sector representatives came together under the umbrella of the WCO and discussed their expectations for the new formation. In these meetings, local customs authorities explained their experiences in their countries, their capacity and needs in helping to establish a possible new international system; private sector representatives, on the other hand, explained the needs and capacities of enterprises of different sizes and the requirements of foreign trade life. In the light of the opinions gathered in the meetings held regularly, the authorized obligor application has been created as a global application that will facilitate the trade life and also serve the needs of the customs administrations (Çalışkan, 2015).

Most WTO members have recognized the AEO practice and it is expected that in the coming years, most customs administrations will implement their AEO programs, and this practice will be globally disseminated and mutually recognized. The following states have implemented the main AEO or similar practices (Demir, 2013);

- USA (C-TPAT; Customs-Trade Partnership Against Terrorism): The Customs-Trade Partnership Against Terrorism (CTPAT) is one layer in the multi-layered cargo enforcement strategy of the US Customs and Border Protection (CBP). With this program, CBP works with the trade community to make strong global supply chains and improve U.S. border security, CTPAT, CBP's highest customs, and cargo security. It is a voluntary public-private partnership program that recognizes that CBP can provide the highest cargo security by collaborating closely with the initial stakeholders of the international supply chain, such as importers, carriers, combiners, licensed customs brokers, and manufacturers (CBP, 2019).
- EU member states (AEO; Authorized Operator): *“The AEO concept is based on the Customs - Private Sector Partnership offered by the World Customs Organization (WCO). Traders who optionally meet a wide range of criteria work closely with customs authorities to achieve the common goal of supply chain security and are entitled to EU-wide benefits”* (EC, 2019).
- APEC (Asia Pacific Economic Cooperation) Members (AEO): AEO means *“Authorized Economic Operator, which means a company approved and authorized by the Korean Customs Service following the criteria of Law Compliance. Internal Control System, Financial Solvency and Security Management”* (Korea), AEO Association, 2019).

- New Zealand (SES; Safe Export Programme): Helps New Zealand exporters minimize customs delays at international borders and prioritize business disruptions (New Zealand Customs Service, 2019).
- Singapore (STP; Safe Trade Partnership): *“A voluntary certification program consistent with the World Customs Organization (WCO) SAFE Standards Framework to secure and facilitate global trade. The program encourages strong security measures to enhance global supply chain security, using a risk-based approach to its business transactions. By participating in this program, a company demonstrates determination and willingness to keep its supply chain safe”* (Singapore Customs, 2019).

4.10 World Customs Organization SAFE Framework and Authorized Economic Operator

4.10.1 Purpose and Principles of the SAFE Framework

The SAFE Framework is based on two principles, which are defined as establishing a connection that will provide continuous communication between customs administrations and increasing cooperation between customs administrations and the private sector (Çalışkan, 2015).

The objectives of the Safe Standards Framework are (WCO, 2018b):

- Establishing standards that provide global supply chain security also development and facilitation to increase certainty and predictability.
- To provide fully integrated, combined, and logical global supply chain management for all modes of transport.

- To develop the role, functions, and capabilities of Customs in line with the opportunities and challenges of the 21st century.
- To make strong cooperation between Customs administrations to improve their ability to detect high-risk shipments.
- To make strong cooperation between Customs administrations through the exchange of information, mutual recognition of controls, mutual recognition of Authorized Economic Operators (AEO), and mutual administrative assistance.
- To make strong cooperation between customs administrations and other government agencies such as the Single Window system for global supply chain and Security.
- To make strong the Customs and Private sector business cooperation.
- Promote the seamless movement of goods through secure global supply chains.

SAFE is based on four key elements (WCO, 2018b):

- It is based on the facilitation of the application of import, export, and transit pre-arrival notification to be made in the electronic environment.
- Each state participating in the SAFE Framework is committed to using a valid supply chain risk management model to address security and safety threats.
- Upon the demand of the customs office of the importing country, the customs office of the exporting country inspects high-risk cargoes and goods at the exit.
- Clearly defines the rights and powers to be provided by the customs administration to tradesmen who meet supply chain security standards and best working practices at a minimum level.

4.10.2 Authorized Obligation within the scope of SAFE Framework Status

AEO refers to the supply chain consisting of approved persons who observe the criteria determined by the customs administrations in foreign trade transactions to ensure the safety of

goods and information related to the goods. Filled declarations for shipments within the supply chain involve fewer import and export procedures. Links of the authorized supply chain benefit from integrated cross-border facilitated procedures. In the case of AEO authorized obligors who meet the conditions are expected to act in a simplified procedure with the least information declaration and in applications where customs clearance procedures are faster. Authorized obligors; They are companies that make their supply chain security following safety standards, integrate previously tried best practices into their workflows, and comply with quality accreditation processes determined by customs administrations. In addition, these companies and individuals are traders who protect the integrity of goods, cargo, and containers by using advanced technologies, constantly update their security measures and work in constant cooperation with customs administrations.

4.10.3 Authorized Obligation within the scope of SAFE Framework Program

Creation Criteria

The criteria sought within the scope of the SAFE Framework determine the minimum standards that customs administrations should have to apply for AEO. AEO standards created in this context determine the responsibilities of both customs administrations and businesses applying for AEO certificates. In the created responsibility distribution; when creating national AEO programs, customs administrations should ask businesses to work integrated with customs administrations to prove their commitment to supply chain safety through cooperation programs created with these studies to have their commercial records traceable and to have financial competence. In this context, the criteria that customs administrations should create while creating national AEO programs and practices in line with the SAFE Framework and the conditions that businesses must fulfill to be authorized liable (Framework standards for the security and facilitation of world trade, 2019 Annex 3) are given below in detail (Çalışkan, 2015);

- **Criteria Related to Proven Legal Compliance:** When examining the applications of enterprises that will apply for AEO customs administrations should consider how well the companies fulfilled their responsibilities in the previous customs procedures and the penalties they received.
- **Criteria Related to Traceability of Commercial Records:** AEO companies regarding import and export; must keep timely, accurate, complete, and verifiable records.
- **Required Criteria for Financial Adequacy:** Businesses holding AEO certificates must have a sufficient financial balance sheet to fulfill their commitments regarding the characteristics of the sector in which they trade.
- **Required Criteria for Cooperation and Consultation:** Customs administrations, other institutions, and companies with AEO certificates; should regularly communicate and exchange ideas about their mutual interests, bearing global supply chain security and international trade facilitation measures, in a way that does not endanger the safety-related activities of customs administrations at all international, national, and local levels.
- **Criteria Relating to Training:** Customs administrations and companies holding AEO certificates should be aware of the deviations from safety policies and knowing what activities should be done related to security gaps, practices related to safety policies should be established for the training of customs administrations and company employees.
- **Criteria for Information Exchange and Confidentiality:** Customs administrations and companies holding AEO certificates should protect the security of companies' trade secrets and important information. It should establish firewalls or develop existing systems against the malicious use and capture of this information by unauthorized persons.

- **Criteria Required for Cargo and Goods Security:** Customs administrations and companies holding AEO certificates should implement routine procedures to contribute to the safety of cargo and goods, as well as measures and/or supportive measures that ensure cargo integrity and access controls are at the highest level possible.
- **Criteria Relating to Vehicle Safety:** Customs administrations and companies holding AEO certification should work together to ensure that there is sufficient capacity for the effective protection and continuity of transport vehicles in establishing effective control regimes that are not enforced by another national or international rule maker.
- **Criteria Relating to Facility and Operational Safety:** Customs administrations should establish some criteria and processes to ensure that the internal and external environment of the facility is monitored and inspected and the safety of the buildings, taking into account the commitment of AEO holding companies to international conditions.
- **Criteria Relating to Personnel Security:** Customs administrations and companies with AEO should investigate the background of potential employees in line with the laws according to the level of authority and responsibility of employees. In addition, customs administrations and authorized obliged parties are responsible for businesses, vehicles, cargo zones, loading, and unloading areas; should prohibit unauthorized access that may adversely affect the safety of these areas in the global supply chain.
- **Criteria relating to the Security of Trading Partners:** Customs authorities should establish the criteria and conditions for holding AEO certification by providing the safety of the global supply chain, supported by the commitment of companies holding AEO to voluntarily increase the safety measures of their trading partners.

- **Criteria for Crisis Management and Survival of Extraordinary Events:** To reduce the effects of possible natural disasters or terrorist events, the principles of crisis management and recovery from extraordinary events should be regulated, and these principles should also include the principles of planning and how to continue working in these extraordinary situations.
- **Criteria Relating to Measurement, Evaluation, and Development:** Customs administrations and AEO holding enterprises should adhere to the SAFE Framework and ensure the integrity and adequacy of the safety management system while determining the monitoring, Measurement, analysis, and development principles. Potential areas of security management system development should also be identified to improve supply chain security in the future.

4.10.4 SAFE Framework and Authorized Economic Operator Programs Mutual Recognition

Mutual recognition by the SAFE Framework must take place in both steps. First of all, companies with AEO certificates in the two countries should be mutually recognized by authorized obligor practices. In the second step, different countries mutual recognition of customs inspections is carried out separately by customs administrations. In this context, audits should be monopolized for businesses with AEO. Benefits of signing mutual recognition agreements; Companies that have operations in the contracting countries will not have to apply for AEO more than once. It will also save time and cost. As a result of the fact that the same goods are not inspected more than once by the customs administrations of the countries that are party to the agreement, businesses save time and can use their resources for risky shipments. The WCO mediates the meeting of representatives of customs administrations and the private sector through SAFE Framework Working Group Meetings held at regular intervals. At these meetings, the authorized liability regulations created and

developed by the customs administrations are introduced, and the results of the pilot projects, practices, and researches implement by the customs managements of different countries are shared with the representatives of other countries and the private sector. Thus, the AEO program emerges which is constantly evolving and whose deficits are constantly closed as a result of applications in different countries. Countries have the opportunity to recognize each other's AEO practices without making a mutual recognition agreement and see the perspective of the countries on the practice.

According to 2019 information provided by the members of the AEO program, the program is listed as follows;

19 AEO programs are under development and 84 programs are operational.

5 customs compliance programs and 30 operational Customs Compliance programs will be launched, 4 multilateral/regional MRAs and 47 bilateral MRAs resulted. Currently, 65 MRAs are being negotiated.

Table: 2

Operational AEO programmers: 84

WCO region	Member administration	Title	Type
Americas and Caribbean: 18	Argentina	AEO	Import/Export.
	Bolivia	AEO	Import/Export/Customs Brokers. Highway Carriers.
	Brazil	AEO	Import/Export/ Bonded Warehouse. Port and Airport Operators/Carriers/Customs Brokers/Freight Forwarders.
	Canada	Partners in Protection (PIP)	Importers. exporters. carriers (rail. sea. air. highway). Customs brokers. couriers. warehouse operators. freight forwarders. shipping agents.
	Colombia	AEO	Import/export.
	Costa Rica	AEO	Exporters. Importers. Maritime Port Operator. Export Load Terminal.
	Cuba	AEO	All the international supply

			chain operations.
	Dominican Republic	AEO	Importer. Exporter. Consolidators (air. freight. and ocean transport). Customs Brokers. Third Party Logistics Providers. Warehouse Keeper. Free Trade Zones. Manufacturers. Marine Port. Authority. Airports. and Shipping.
	Ecuador	AEO	Export/Customs Brokers/ Special Economic Development Zone (ZEDE) Operators.
	El Salvador	AEO - SV	Exporters. Carriers. Importers. Customs Brokers. Warehouse Operators. Couriers.
	Guatemala	AEO - GT	Importers. Exporters. Customs Brokers. Logistics Operator. Warehouses. Ports. Carriers. Manufacturers.
	Jamaica	AEO	Import.
	Mexico	AEO	-Importers/Exporters. -Highway Carriers. -Customs brokers. -Railway transport. -Industrial zones. -Bonded warehouses. -Strategic bonded warehouses. -Couriers. -Third Party Logistics Providers.
	Panama	AEO	Importers. Exporters. Customs Brokers. Warehouse Keepers.
	Peru	AEO	Exporters. Importers. Customs Brokers. Warehouses. Couriers. And gradual incorporation of other operators.
	Uruguay	Qualified Economic Operator	Import. Export. Customs Brokers. Highway Carriers. FTZ Users. FTZ Warehouses. Freight Forwarders. Port Operators. Cargo Terminals.
	US	Customs-Trade Partnership against Terrorism (C-TPAT)	Importers. Exporters. Carriers (Air. Sea. Highway. Rail). Customs Brokers. Third Party Logistics Providers. Consolidators (Air Freight. Ocean transport. NVOCC). Marine Port Authority & Terminal Operators. Foreign Manufacturers (Canada & Mexico Only).
	Paraguay	AEO	Importer. Exporter. Customs Broker. Depositary (Ports).

			National Transport Company. Transportation Agents. Freight Forwarder. Remesa Express Company.
Middle East and Northern Africa: 9	Egypt	AEO-Egypt	Import/Export/Customs Brokers/Warehouse Keepers.
	Bahrain	AEO	Importers. Exporters. Transportation Companies. Warehousing and Storage Companies. Clearance Offices.
	Jordan	Golden List	Import/Export/Customs Brokers/Warehouse/Carriers/ QIZ Companies
	Morocco	AEO	Importers. Exporters and Logisticians (Agents. Carriers. Express Carriers and Warehouse Managers).
	Oman	AEO	Import and Export
	Qatar	AEO	Importers and Exporters
	Saudi Arabia	Saudi AEO	Importers. Exporters. Customs Brokers. Manufacturers. Shipping/Air Agents. Cargo Handlers. Carriers. Warehouse Operators. Cargo Terminal Operators.
	United Arab Emirates	UAE-AEO Programme	-Importer. -Exporter. -Manufacturer. -Customs Broker. -Shipping Agent. -Carrier. -Cargo Handler. -Airline Agent. -Courier Company. -Logistics Operator. -Free Zone Company. -Warehouse Operator. -Port/Airport Operator.
East and Southern Africa: 5	Tunisia	AEO	Import/Export.
	Burundi	AEO	Import/Export.
	Kenya	AEO	Import/Export.
	Rwanda	AEO Programme	Importers. Exporters. Customs Brokers. Warehouse Keepers. Manufacturers and Transporters.
	Mauritius	AEO	Importer & Exporter.
	Uganda	AEO	Importer. Exporter. Customs Brokers. Warehouse Keepers. Manufacturers. Freight Forwarders.
Asia Pacific: 13	Australia	Australia Trusted Trader Programme (ATT)	Australian Trusted Trader is open to any Australian Businesses who import and/or export as well as service providers (e.g. Customs brokers and freight forwarders).
	China	AEO	Importers. Exporters.

			Manufacturers. Customs Brokers. Warehouses. or other.
	Fiji	AEO Programme	Importer. Exporter. Manufacturer.
	Hong Kong. China	Hong Kong AEO Programme	All local operators engaging in international supply chain activities.
	India	AEO	Importers. Exporters. Logistic Service. Providers. Custodians or Terminal Operators. Customs Brokers and Warehouse Operators.
	Indonesia	AEO	Exporter. Importer. Forwarding. Customs Broker (PPJK). Container Depot. Warehousing.
	Japan	AEO	Importers. Exporters. Warehouse Operators. Customs Brokers. Logistics Operators (Carriers. Forwarders. Shipping Companies. Airlines). Manufacturers.
	Korea (Republic of)	AEO	Exporters. Importers. Customs Brokers. Freight Forwarders. Transporters. Sea Carriers. Air Carriers. Ground Handlers. Warehouse Operators.
	Malaysia	AEO	Importers and Exporters. consisting of: - Licensed Manufacturing Warehouses. - Manufacturers in Free Industrial Zone. - Other Manufacturers. - Trading Companies.
	New Zealand	Secure Exports Scheme (SES)	Exporters NB: Operates from point of pack to port of loading. As part of SES. the exporter is responsible for third party sites and logistics including transport operators and brokers.
	Singapore	Secure Trade Partnership (STP)	Importers. exporters. manufacturers. warehouses. Customs brokers. freight forwarders and carriers.
	Thailand	AEO	Import/export/Customs broker
	Vietnam	AEO	- Export enterprises - Import enterprises - Customs brokers - Key investment project approved by the Prime Minister.
Europe: 39	Azerbaijan	AEO	Legal Persons.
	Armenia	AEO	Exporter. importer. registering entities in the field of Customs

			affairs (Customs representatives. Customs carriers. representatives of Customs warehouses. temporary storage warehouses. free warehouses)
	Belarus	AEO	Importer. Exporter. Customs Brokers. Warehouse Keepers. Warehouse of Temporary Storage Keepers. Manufacturers. Carriers
	EU (28 countries)	AEO	All operators in international supply chain
	Israel	AEO	Export
	Moldova	AEO	Whole supply chain.
	Republic of North Macedonia	AEO	Whole Supply Chain
	Norway	AEO	All operators involved in the international movement of goods.
	Serbia	AEO	Everyone involved in the supply chain related to Customs procedures.
	Russian Federation	AEO	Importer. Exporter. Customs Brokers. Warehouse Keepers. Warehouse of Temporary Storage Keepers.
	Switzerland	AEO	Whole Supply Chain.
	Turkey	AEO	Exporters. Importers. International Freight Carriers.

Source: WCO, Compendium 2020

Table: 3

AEO programmers Under Development: 19

WCO region	Member administration	Title	Type
Americas and Caribbean: 1	Chile	AEO	Export/Customs Brokers.
West and Central Africa: 5	Cote d'Ivoire	AEO	Import/Export.
	Ghana	AEO	Import/Export.
	Gabon	AEO	Importers/Exporters.
	Nigeria	AEO PILOT PROGRAMME	Importers. Manufacturers.
	The Democratic Republic of the Congo	AEO	Import/Export.
East and Southern Africa: 5	Angola	AEO	Import/Export
	Botswana	Trans Kalahari	Import/Export

		Accreditation Scheme	
	Lesotho	LRA Preferred Trader Accreditation Programme	Importers. Exporters. Customs Brokers & Transporters.
	Seychelles	AEO	Import/Export
	South Africa	AEO	Importers; Exporters; Customs Brokers; Warehouse Keepers; Manufacturers; Tier 1 Suppliers; Transporters.
Asia Pacific: 5	Bangladesh	AEO	Import. Export.
	Myanmar	AEO	Importers. Exporters. Warehouse Operators. Customs Brokers. Freight Forwarders. Manufacturers. etc.
	Pakistan	AEO	Exporters (first). Importers (second). Customs Brokers & others (later).
	Sri Lanka	Sri Lanka Customs AEO	Importers. Exporters. Logistics Operators.
	Philippines	AEO	Import/Export.
	Georgia	AEO	Import/Export.
Europe: 3	Iceland	Viðurkenndir Rekstraraðilar -AEO	Import/Export.
	Montenegro	AEO	Import/Export

Source: WCO, Compendium 2020

Table: 4

Operational Customs Compliance programmers: 30

WCO region	Member administration	Title
Americas and Caribbean: 6	Belize	Belize Trusted Trader Programme
	Brazil	Blue Line
	Canada	Customs Self-Assessment (CSA)
	US	Trusted Trader Pilot Program
	Bolivia	Operador Económico Autorizado – OEA (Authorized Economic Operator – AEO)
Middle East and Northern Africa: 3	Algeria	AEO
	Sudan	Golden List
	Yemen	Trusted Trader Programme
West and Central Africa: 4	Senegal	Privileged Partnership Programme
	Nigeria	Fast Track
	Togo	Privileged Partnership Framework

East and Southern Africa: 7	Cameroon	Performance Operators' Contracts
	Madagascar	Accelerated Clearance Programme (PAD)
	Mauritius	AEO
	Mozambique	AEO
	Rwanda	Gold Card Scheme
	South Africa	Preferred Trader (Accreditation Level 2)
	Tanzania	Compliant Traders' Scheme
Asia Pacific: 6	Zambia	Customs Accredited Clients Programme (CACP)
	Australia	Australian Trusted Trader
	Cambodia	High Compliant Trader Incentive Mechanism
	Fiji	Gold Card Service
	Indonesia	Mitra Utama
	Iran	Iran AEO
	Sri Lanka	Compliant Traders Facilitation Programme
Europe: 4	Azerbaijan	The Green Corridor
	Georgia	Golden List Procedure
	Kazakhstan	AEO
	Serbia	Simplified Customs Clearance Procedure

Source: WCO, Compendium 2020

Table: 5

Customs Compliance programmes To Be Launched: 5

WCO region	Member administration	Title
Asia/Pacific: 4	Australia	Quality Management System (QMS) and Plan
	Brunei	Darussalam Sutera Lane Merchant Scheme (SLMS)
	Mongolia	Compliance Programme
	Timor-Leste	Secure Economic Operator Programme
East and Southern Africa: 1	Zambia	Customs Accredited Client Programme

Source: WCO, Compendium 2020

Table: 6

*Concluded MRAs**a. Bi-lateral MRAs: 74*

Date	Member administration	Date	Member administration
June 2007	New Zealand – US	November 2015	Switzerland – Norway
May 2008	Japan – New Zealand	December 2015	US – Dominican Republic
June 2008	Canada – US	December 2015	Korea (Rep. of) – Chinese Taipei
June 2008	Jordan – US	March 2016	Hong Kong – Malaysia
June 2009	Japan – US	May 2016	Mexico – Canada
September 2009	EU – Norway	July 2016	Australia – New Zealand
June 2010	Canada – Japan	August 2016	Hong Kong – Japan
June 2010	Canada – Korea (Rep. of)	December 2016	Brazil – Uruguay
June 2010	Canada – Singapore	December 2016	Thailand – Korea (Rep. of)
June 2010	EU – Japan	January 2017	China – Switzerland
June 2010	Korea (Rep. of) – Singapore	July 2017	Canada – Australia
June 2010	Korea (Rep. of) – US	July 2017	Korea (Rep. of) – Australia
January 2011	EU – Switzerland	July 2017	Korea (Rep. of) – UAE
May 2011	Japan – Korea (Rep. of)	July 2017	Canada – Israel
June 2011	Korea (Rep. of) – New Zealand	July 2017	Hong Kong, China – Australia
June 2011	Japan – Singapore	October 2017	Korea (Rep. of) – Malaysia
May 2012	EU – US	November 2017	Israel – China
June 2012	China – Singapore	November 2017	Australia – China
November 2012	US – Chinese Taipei	November 2017	New Zealand – China
July 2013	Korea (Rep. of) – China	December 2017	Uruguay – Korea (Rep. of)
October 2013	China – Hong Kong, China	December 2017	Peru – Korea (Rep. of)
November 2013	India – Hong Kong, China	March 2018	Uruguay – Peru
December 2013	Israel – Chinese Taipei	April 2018	Costa Rica – Mexico
February 2014	Hong Kong, China – Korea (Rep. of)	April 2018	Uruguay – Bolivia
March 2014	Korea (Rep. of) – Mexico	April 2018	Costa Rica – Mexico
June 2014	Japan – Malaysia	May 2018	Australia – Singapore
June 2014	Korea (Rep. of) – Turkey	June 2018	Hong Kong, China – New Zealand
June 2014	Hong Kong, China – Singapore	September 2018	Peru – US
June 2014	Malaysia – Japan	September 2018	Australia – Chinese Taipei
June 2014	US – Israel	October 2018	China – Japan
October 2014	US – Mexico	December 2018	India – Chinese Taipei
November 2014	EU – China	April 2019	Korea – Kazakhstan

December 2014	US – Singapore	April 2019	China - Belarus
March 2015	Israel – Korea (Rep. of)	April 2019	China - Kazakhstan
April 2015	Korea (Rep. of) – Dominican Republic	April 2019	China - Mongolia
June 2015	Hong Kong – Thailand	April 2019	China - Uruguay
October 2015	India – Korea (Rep. of)	June 2019	Singapore-New Zealand

Source: WCO, Compendium 2020

Table: 7

b. Plurilateral/regional MRAs: 4

Date	Member administration	Date	Member administration
April 2016	Agadir Agreement Member States (Tunisia. Egypt. Morocco. Jordan)	April 2019	Customs administrations of Central America (Costa Rica. El Salvador. Guatemala and Panama)
July 2018	Pacific Alliance (Chile. Mexico. Peru. Colombia)	May 2019	ANDEAN Community (Bolivia. Colombia. Ecuador. Peru)

Source: WCO, Compendium 2020

Table 8

c. Plurilateral/regional MRAs: 4

Member administration	Member administration
EU - Canada	Guatemala - Mexico
Malaysia -Thailand	Guatemala - US
Malaysia - China	Mexico - Brazil
US - Brazil	Mexico - China
Australia - Thailand	Paraguay - Pacific Alliance
Mexico - Hong Kong. China	Peru - Brazil
Bolivia - Brazil	Peru - Costa Rica
India - US	US - United Kingdom
Hong Kong. China - EU	Uruguay - China
Australia - US	Bahrain - Saudi Arabia
Brazil - Argentina	Egypt - Saudi Arabia
Iran - Russian Federation	Egypt - UAE
EAC (Burundi. Kenya. Rwanda. Tanzania and Uganda)	UAE - China

– Korea (Republic of)	
China - US	Regional Mercosur MRA (Brazil. Uruguay. Argentina. Paraguay and Bolivia).
US - Uruguay	UAE - India
Switzerland - Japan	UAE - Oman
Mexico - Israel	South Africa - Botswana
Kazakhstan - Turkey	South Africa - Eswatini
Hong Kong. China - Canada	South Africa - Lesotho
Colombia - Costa Rica	South Africa - Namibia
Saudi Arabia - UAE	Uganda - China
Korea (Rep. of) - Vietnam	Uganda - India
Korea (Rep. of) - Mongolia	Hong Kong. China - Indonesia
Australia - Japan	Hong Kong. China – Russian Federation
Hong Kong. China - Israel	Indonesia – Malaysia
Southern Africa Customs Union (SACU) Members (Eswatini. Botswana. Namibia. Lesotho and South Africa)	Republic of North Macedonia – China
CEFTA (Albania. Bosnia and Herzegovina. Republic of North Macedonia. Moldova. Montenegro. Serbia and Kosovo (United Nations Interim Administration Mission in Kosovo on behalf of Kosovo))	MRA of the Americas “Declaration of Sao Paulo” (Argentina. Brazil. Bolivia. Chile. Guatemala. Paraguay. Peru. Dominican Republic and Uruguay)
Dominican Republic – Mexico	Turkey - China
Argentina – Uruguay	Serbia - China
Canada – China	China – Chile
Canada – New Zealand	China – Iran
Turkey - Georgia	China – Russian Federation
Dominican Republic - Guatemala	

Source: WCO, Compendium 2020

5. ANALYSIS

5.1 Aim and Hypotheses

This study aims to analyze the relationship between trade facilitation and macroeconomic indicators for 63 countries in the period 2007 - 2019 with panel data analysis. We use Trading Across Borders Ranking as a trade facilitation proxy.

Hypotheses:

H_0 : There is no relationship between trade facilitation and macroeconomic variables.

H_1 : There is a relationship between trade facilitation and macroeconomic variables.

5.2 Data

Table 9 presents variables and the data gathered from the World Bank. The analysis covers the period 2007 – 2019 and annual 801 observations.

Table: 9

Variables & Abbreviations

Variables	Abbr.	Variables	Abbr.
Growth in Imports of Goods & Services	IMG	Growth in Exports of Goods & Services	EXG
High-Technology Exports (% of Exports)	HTE	High-Technology Exports (% of total exports)	HTG
Inflation	INF	Foreign Direct Investment Inflows (% of GDP)	FDI
Consumer Price Index	CPI	Gross Domestic Product (GDP)	GDP
Real Interest Rate	RIR	GDP per Capita Growth	GDC
Unemployment ratio	UEN	Gross National Income (GNI) Growth	GNG
Unemployment modeled by ILO	UEI	GNI per Capita Growth	GNC
Current Account Balance (% of GDP)	CAB	Trading Across Borders Ranking	TAB
Current Account Balance	CAD	Dummy	D
Net Trade Balance	NTB		

Source: Author

5.2.1 Doing Business Report

International Trade is still the driving force of economic development from past to present. Developing communication technology has accelerated globalization. Even small and medium-sized companies have reached global markets today. Great advances and investments in the logistics sector have facilitated access to every region of the world. International trade provided advantages to developing countries. Many developing countries became a part of international trade thanks to exports.

The World Trade Organization and the World Customs Organization turned foreign investments into an opportunity by transferring information to member countries on these issues. These organizations have published various researches and reports on many commercial issues in member countries. These reports were instructive for investors. The

World Bank conducted studies investigating the investment climate in many world countries for these investments. The report study, which began in 2004, covered approximately 155 countries, from Afghanistan to Zimbabwe. The study in 2020 measured the ease of doing business in 12 areas covering 190 countries. These reports are the most important indicator of the trade flow in the member countries. "Trading Across Borders", the most important pillar of international trade, measures the customs performance of countries. Standardizing and modernizing customs procedures and reducing bureaucracy play a major role in removing barriers to global trade.

Today, most of the investments in the world are directed towards emerging economies, which are also defined as countries in the process of rapid growth and industrialization. The abundance of the workforce and the size of the market are the main factors affecting this orientation. In addition to these factors, nearness to major markets, quality of substructure services, protection of real estate from theft, transparency of the government's tender procedures, macroeconomic situation, or institutional structural capacity are also important for business investments.

To invest in a country, the suitability of that country's investment environment is important. The suitability of the investment environment makes it easier for investors to decide and choose that country. There is a direct relationship between the competitiveness or business/investment environment indices that try to determine the quality of the investment environment of countries and foreign capital investments. In other words, foreign investors determine the direction of their investments by taking into account various indices calculated by some international official or private institutions.

Doing Business/Ease of Doing Business Index is used to evaluate the suitability of the investment environment in a country. In other words, this index ranks the countries of the

world according to the criteria of having a suitable economic environment for doing business/starting a business, and this ranking is published every year in reports with different names.

The Doing Business/Ease of Doing Business Index evaluates the basic regulations that apply throughout the life cycle of businesses in an economy, such as establishing and operating companies, doing cross-border trade, paying taxes, and bankruptcy procedures.

With this index, in terms of scope or content; In addition to economic indicators such as per capita income, labor cost, inflation rate, public finance, quality of labor force, numerical data on foreign trade, in the country examined; The level of workability in the country in question is tried to be determined by evaluating basic parameters such as education level, jurisdiction and legal order, regulations on private property rights, conditions of employment and exit, conditions and costs of establishing a new company, and tax procedures.

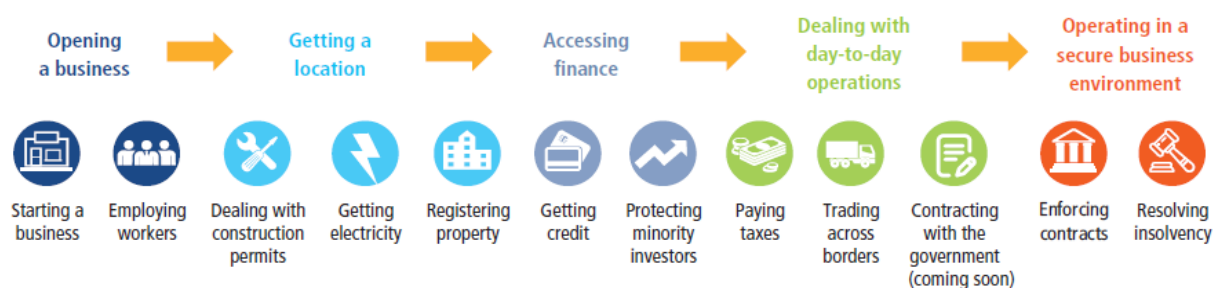
This index is determined by survey studies and is organized to cover Small and Medium-Sized Enterprises (SMEs), which make up a large part of the private sector, and focuses on various criteria or criteria applied for businesses. These criteria have undergone various changes/additions over the years, and the criteria are taken into account in the Doing Business/Starting a Business 2020 Report, which includes data for 2019;

Figure 2 what is measured in Doing Business?

Indicator set	What is measured
Starting a business	Procedures, time, cost, and paid-in minimum capital to start a limited liability company for men and women
Dealing with construction permits	Procedures, time, and cost to complete all formalities to build a warehouse and the quality control and safety mechanisms in the construction permitting system
Getting electricity	Procedures, time, and cost to get connected to the electrical grid; the reliability of the electricity supply; and the transparency of tariffs
Registering property	Procedures, time, and cost to transfer a property and the quality of the land administration system for men and women
Getting credit	Movable collateral laws and credit information systems
Protecting minority investors	Minority shareholders' rights in related-party transactions and in corporate governance
Paying taxes	Payments, time, and total tax and contribution rate for a firm to comply with all tax regulations as well as postfiling processes
Trading across borders	Time and cost to export the product of comparative advantage and to import auto parts
Enforcing contracts	Time and cost to resolve a commercial dispute and the quality of judicial processes for men and women
Resolving insolvency	Time, cost, outcome, and recovery rate for a commercial insolvency and the strength of the legal framework for insolvency
Employing workers	Flexibility in employment regulation
Contracting with the government	Procedures and time to participate in and win a works contract through public procurement and the public procurement regulatory framework

Source: World Bank, Doing Business Report, 2019

Figure 3 what is measured in Doing Business?



Source: World Bank, Doing Business Report, 2019

In terms of trade facilitation indicators one of the most important indices that allow us to compare countries is the Doing Business report prepared by the World Bank. This report attempts to measure the difficulty or ease of establishing a Small Medium Enterprises with existing regulations for a new entrepreneur to invest. Also, it focuses on the requirements for exporting and importing goods by standard ocean freight and measures the time and cost

involved (excluding tariffs). Time and cost here are the time and cost to bring together all the official procedures for export and import from the contract between the two parties, up to the delivery of the goods. Cross-border trade indicators, therefore, include the type and number of all documents required for customs clearance to export or import goods; all necessary to export or import goods time required to comply with procedures; and costs associated with all customs procedures required to export or import goods. The report provides quantitative indicators on regulation for “*starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency*”. (WorldBank, 2020)

Figure 4 How *Doing Business* collects and verifies the data



Source: World Bank, *Doing Business Report*, 2019

5.2.2 Trading Across Borders Index

Trade means buying and selling goods/products with other objects of economic value along the supply chain. This process creates a flow from the production process to consumption.

While tradable goods and services flow, on the one hand, money and information flow on the opposite side of this flow. It is called Commerce or Cross-Border Trade.

Some studies are carried out to understand the bureaucratic and logistical barriers faced by traders and to find solutions. In these studies, steps such as the necessary transactions for the export and import of goods, the duration and cost of the shipment process are measured. In this sense, the World Bank uses the Ease of Doing Business/Ease of Business Index and the Cross-Border Trade Index for this purpose.

The index used in the World Bank studies measures the performance of foreign trade transactions in member countries. The Cross-Border Trade Index is determined by considering the documents required for the export or import of goods by sea. Maritime trade is the main mode of transportation selected within the index. Trade Index is determined by considering the duration cost of the shipment process and the concepts of Border Compliance and Document Compliance are used for this purpose.

Border Compliance covers transactions made during border crossing. The most important of these processes are; customs clearance of goods and transactions carried out by customs consultancy firms.

Document Compliance includes standardization of different documents to be used during border crossing. These documents are; customs procedures, documents requested by other public institutions, and documents used during transportation.

Figure 5 what do the indicators on the time and cost to export and import cover?

Documentary compliance
Obtaining, preparing and submitting documents during transport, clearance, inspections and port or border handling in origin economy
Obtaining, preparing and submitting documents required by destination economy and any transit economies
Covers all documents required by law and in practice, including electronic submissions of information
Border compliance
Customs clearance and inspections by customs
Inspections by other agencies (if applied to more than 20% of shipments)
Port or border handling at most widely used port or border of economy
Domestic transport
Loading and unloading of shipment at warehouse or border
Transport by most widely used mode between warehouse and border
Transport by most widely used mode between border and warehouse
Traffic delays and road police checks while shipment is en route

Source: World Bank, Doing Business Report, 2019

The study also includes a dummy variable about using AEO. Thus, we can follow the impact of AEO on macroeconomic indicators.

Table: 10

Trade Across Border Rankings of 63 Countries Period of 2007-2013

Economy	TAB 2007	TAB 2008	TAB 2009	TAB 2010	TAB 2011	TAB 2012	TAB 2013	AEO Date
Argentina	71	107	106	110	115	102	139	2017
Armenia	119	118	143	102	82	104	107	2014
Australia	23	34	45	27	29	30	44	2016
Austria	15	12	19	24	25	25	26	2013
Belgium	36	48	43	43	44	36	29	2013
Belarus	113	137	134	129	128	152	151	2008
Brazil	53	93	92	100	114	121	123	2014
Bulgaria	104	89	102	106	108	91	93	2013
Bolivia	135	115	117	121	125	126	125	2015

Canada	8	39	44	38	41	42	44	2008
China	38	42	48	44	50	60	68	2008
Colombia	128	105	96	97	99	87	91	2011
Costa Rica	100	54	94	60	69	73	51	2011
Cyprus				15	19	19	18	2013
Czech Republic	41	30	49	53	62	70	68	2013
Denmark	3	2	3	6	5	7	4	2013
Switzerland	49	37	39	39	43	41	35	2011
Finland	2	5	4	4	6	6	6	2013
France	26	25	22	25	26	24	27	2013
Germany	7	10	11	14	14	12	13	2013
Ecuador	126	131	124	125	126	123	128	2015
Egypt, Arab Rep.	83	26	24	29	21	64	70	2014
Spain	25	47	52	59	54	55	39	2013
United Kingdom	14	27	28	16	15	13	14	2013
United States	11	15	15	18	20	20	22	2001
Vietnam	75	63	67	74	63	68	74	2011
Greece	123	65	70	80	84	84	62	2013
Hong Kong SAR, China	1	3	2	2	2	2	2	2012
Croatia	92	96	97	96	98	100	105	2013
Hungary	76	45	68	70	73	74	73	2013
India	139	79	90	94	100	109	127	2011
Indonesia	60	41	37	45	47	39	37	2015
Ireland	30	20	18	21	23	21	28	2013
Israel	13	8	9	11	10	10	10	2011
Italy	110	62	60	50	59	63	55	2013
Jamaica	74	92	100	104	104	97	106	2014
Japan	19	18	17	17	24	16	19	2006
Jordan	78	59	74	71	77	58	52	2005
Korea, Rep.	28	13	12	8	8	4	3	2009
Lithuania	32	23	26	28	31	28	24	2013
Luxembourg		32	31	31	32	31	32	2013
Moldova	105	122	135	140	141	134	142	2014
Mexico	86	76	87	74	58	59	61	2012
Macedonia, FYR	127	72	64	62	66	67	76	2009
Netherlands	16	14	13	13	13	13	12	2013
Mauritius	21	17	20	19	22	21	15	2012
Malaysia	46	21	29	35	37	29	11	2010
New Zealand	12	16	23	26	28	27	25	2004
Norway	5	4	7	9	9	9	21	2009
Panama	57	9	8	10	11	11	9	2013
Peru	93	71	93	91	53	56	60	2013
Poland	102	40	41	42	49	46	50	2013
Portugal	27	31	33	19	27	26	17	2013
Romania	35	38	40	46	47	72	72	2013

Russian Federation	143	155	161	162	162	160	162	2012
Paraguay	117	123	138	152	152	154	155	2018
Singapore	4	1	1	1	1	1	1	2007
Slovak Republic	88	90	116	113	102	95	98	2013
Slovenia	108	69	78	84	56	50	57	2013
Sweden	9	6	6	7	7	8	8	2013
Thailand	103	50	10	12	12	17	20	2011
Turkey	79	56	59	67	76	80	78	2013
Uruguay	59	125	127	131	132	125	104	2014

Source: Author

Table: 11

Trade Across Border Rankings of 63 Countries Period of 2014-2019

Economy	TAB 2014	TAB 2015	TAB 2016	TAB 2017	TAB 2018	TAB 2019	AEO Date
Argentina	129	128	143	111	116	125	2017
Armenia	117	110	29	48	52	46	2014
Australia	46	49	89	91	95	103	2016
Austria	19	19	1	1	1	1	2013
Belgium	28	26	1	1	1	1	2013
Belarus	149	145	25	30	30	25	2008
Brazil	124	123	145	149	139	106	2014
Bulgaria	79	57	20	21	21	21	2013
Bolivia	126	125	124	98	89	96	2015
Canada	45	23	44	46	46	50	2008
China	74	98	96	96	97	65	2008
Colombia	94	93	110	121	125	133	2011
Costa Rica	44	47	67	71	73	73	2011
Cyprus	27	34	43	45	45	49	2013
Czech Republic	68	58	1	1	1	1	2013
Denmark	8	7	1	1	1	1	2013
Switzerland	35	22	40	37	38	39	2011
Finland	9	14	32	33	34	34	2013
France	36	10	1	1	1	1	2013
Germany	14	18	35	38	39	40	2013
Ecuador	122	144	120	97	102	109	2015
Egypt, Arab Rep.	83	99	157	168	170	171	2014
Spain	32	30	1	1	1	1	2013

United Kingdom	16	15	38	28	28	30	2013
United States	22	16	34	35	36	36	2001
Vietnam	65	75	99	93	94	100	2011
Greece	52	48	27	29	29	31	2013
Hong Kong SAR, China	2	2	47	42	31	27	2012
Croatia	99	86	1	1	1	1	2013
Hungary	70	72	1	1	1	1	2013
India	132	126	133	143	146	80	2011
Indonesia	54	62	105	108	112	116	2015
Ireland	20	5	48	47	47	52	2013
Israel	10	12	58	59	60	64	2011
Italy	56	37	1	1	1	1	2013
Jamaica	118	115	146	131	130	134	2014
Japan	23	20	52	49	51	56	2006
Jordan	57	54	50	50	53	74	2005
Korea, Rep.	3	3	31	32	33	33	2009
Lithuania	15	21	19	19	19	19	2013
Luxembourg	41	35	1	1	1	1	2013
Moldova	150	152	33	34	35	35	2014
Mexico	59	44	59	61	63	66	2012
Macedonia, FYR	89	85	26	27	27	29	2009
Netherlands	13	13	1	1	1	1	2013
Mauritius	12	17	66	74	70	69	2012
Malaysia	5	11	49	60	61	48	2010
New Zealand	21	27	55	55	56	60	2004
Norway	26	24	45	22	22	22	2009
Panama	11	9	54	53	54	57	2013
Peru	55	55	88	86	92	110	2013
Poland	49	41	1	1	1	1	2013
Portugal	25	29	1	1	1	1	2013
Romania	76	65	1	1	1	1	2013
Russian Federation	157	155	170	140	100	99	2012
Paraguay	154	150	135	116	120	127	2018
Singapore	1	1	41	41	42	45	2007
Slovak Republic	108	71	1	1	1	1	2013
Slovenia	48	53	1	1	1	1	2013
Sweden	6	4	17	18	18	18	2013
Thailand	24	36	56	56	57	59	2011
Turkey	86	90	62	70	71	42	2013
Uruguay	90	83	153	146	151	152	2014

Source: Author

5.3 Method and Methodology

5.3.1 Panel Data Analysis

Econometric data; they are defined as cross-section data (unstructured/undated), time series (dated – regular frequency), and pooled (panel) data (Gujarati, 2016). Cross-section data are data used to show the change of any variable in a fixed time unit according to different units. (Tatoğlu, 2012)

The number of loans, deposits, declared profits, many employees, and branches of 30 banks operating in Turkey in 2018 can be given as examples of horizontal section data. Time series, on the other hand, is the series that show the change of the values of the variables according to the frequency values in time (year, month, week, day, hour, etc.) (Orhunbilge, 1999) As an example of time series, annual sales figures, profits, asset sizes, etc. of a company traded in BIST for the period 1990 - 2018 can be displayed.

Panel data, which is mixed data in Turkish, contains both the horizontal and vertical (time) dimensions of the data, unlike the two data types above.

For example, the sales, profits, assets, etc. of 20 companies traded in the BIST Industrial (XUSIN) index based on quarterly frequencies from 1995 to 2018 can be displayed.

Although the Turkish equivalent is pooled data, it is seen that it is widely used as panel data when we look at the literature. Panel data were both space and time dimensional data (Gujarati, 2016). For this reason, researchers who want to examine the change of a group (each observation value in the horizontal section) over time with econometric tests often need panel data analysis. By using panel data methods, more reliable and healthy results can be achieved.

Panel data are defined by different names according to the type of data. If each unit is observed all the time, it is called a balanced panel, and if data is missing or missing for some units, it is called an unbalanced panel.

In other words, if the unit in the panel data set is equal to the same number of observations, it is called a balanced panel, and if it is not, it is called an unbalanced panel (Tatoğlu, 2012).

Another distinction in panel data is that if the cross-section of the panel data set is larger than the time dimension, it is called a short panel. Otherwise, it is called a long panel.

In the use of panel data models, since time and units are considered together, a larger number of observations is studied. This increases the degrees of freedom and increases the power and reliability of the tests performed. In addition, the multicollinearity problem that may arise when the time series are used separately is solved with panel data. The results of models estimated with cross-sectional or time data may be biased. In this case, the heterogeneity of the units cannot be controlled (Tatoğlu, 2017). However, in panel data models, heterogeneity of units can be controlled since both cross-section and time data are examined together. In addition to the benefits and convenience of panel data models, there are also some difficulties and weaknesses. Data collection and data finding are at the top of the problems encountered in panel data models. In cases where the data cannot be fully obtained, some changes in the research may become a necessity. In panel data models, when the unit size is longer than the time dimension, degrees of freedom and asymptotic estimation problems may arise.

Based on the panel data set, the regression relationship between the Y and X variables can be expressed as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \mu_{it}$$

$$i=1,2,\dots,N \quad t=1,2,\dots,T$$

While expressing the variables, the index i for the cross-section and t for the time series are mostly used. In panel data, double indices are used in the series since they show changes according to both unit and time. In the Excel sheet, first, the units of horizontal observations (i) and then the order according to the time variable (t) for each unit are shown.

Time invariant variables that reflect the characteristics of each unit in the panel data model are called unit effects, and unit invariant variables that reflect the properties of each time are called time effects. In the model, if there is a correlation between the error term and the independent variables, there is internality, if there is no correlation in the same period, there is a weak externality, and if there is no correlation with the past/future values, there is a solid externality. Intrinsic mostly emerges when working with variables excluded from the model, measurement error, dynamic models, and simultaneous models. The inter-unit correlation means that there is a correlation between the error terms of the units.

5.3.2 Prediction Methods in Panel Data Models (Fixed Effect and Random Effect)

There are two important estimation approaches in panel regression estimation the fixed effect and random effect (Lopez, 2015). The choice between fixed effect and random effect in panel regression estimation emerges as an important problem. In the use of panel data models, the existence of unobservable unit effects may arise for each unit. If the effects are treated as a random variable, such as the error term, the random effect is; if the cross-section is treated as an estimated parameter for each observation, there is a fixed effect.

If the cross-section units are chosen randomly from a large population, it would be logical to consider the random effect approach, and if the units constitute the entire population, it would be logical to consider the fixed-effect approach. Pooled or mixed least-squares model (Pooled OLS model) can be added in addition to the fixed effect and random effects approach, which

are among the panel data estimation methods. Cross-section and time-series features are not taken into account in the estimation of the pooled panel model.

5.3.3 Hausman Test

It is necessary to determine which of the fixed effects and random effects approaches is suitable for the models. At this point, Hausman's (1978) test statistics are used to determine the appropriate model selection. One of the most important differences between fixed and random effects models is whether unit effects are correlated with independent variables. If there is no correlation between them, the random-effects model is more appropriate.

The hypotheses of the Hausman test statistic are as follows:

Null Hypothesis $\Rightarrow H_0$: Random effect is more favorable.

Alternative Hypothesis $\Rightarrow H_1$: The fixed effect is more appropriate.

While calculating the Hausman test statistic, the H statistic (H) is calculated by making use of the difference between the variance and covariance matrices of the generalized least squares estimator and the estimator for the group. The Hausman test tests the equality of this difference to zero.

5.3.4 Panel Unit Root Tests

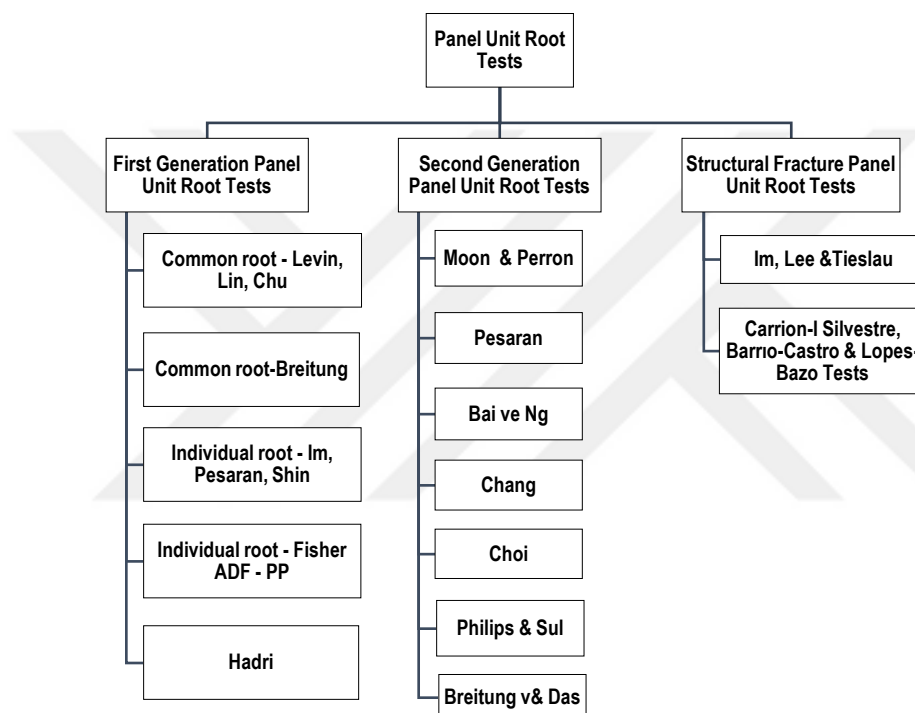
The panel dataset contains cross-section (unit values/observations) and time series values.

Since the time dimension is included in the panel data set, it is necessary to examine whether the series is stationary over time. The series is said to be stationary if the variance and mean of the series are independent of time and the covariance depends on the time difference.

Stationary series are series that do not have a unit root. As in time series analysis, it is desired that the series be stationary in panel data analysis. If econometric analyzes are performed with non-stationary (containing unit root) series, the problem of spurious regression arises (Sevüktekin & Nargeleçekenler, 2010).

Accordingly, unit root weakens the reliability and validity of the analysis results obtained. In other words, the t , F , and R^2 values obtained give deviated results. For this reason, the primary evaluation of the data by researchers who want to work with the panel data set will be to determine whether there is stationarity or not. Panel data unit root tests have asymptotic properties of the data because they include both unit and time dimensions (Şak, 2018).

Figure 6 Classification of Panel Unit Root Tests



Source: Sarikovanlık et al. 2019

Tests developed to determine whether panel data are stationary over time are shown in Figure 6. In grouping the panel unit root tests, it is checked whether there is a correlation between the units. The correlation between the units for the panel data affects the asymptotic properties of the tests. First-generation unit root tests have been developed for cases where there is no correlation between units. Second-generation unit root tests have been developed for cases where there is correlation and cross-section dependence between units. Unit root tests with

structural break were also demonstrated in Perron's (1989) study with the main finding that in the case of a structural break, unit root tests yield results in favor of the acceptance of the unit root hypothesis.

5.3.5 Levin, Lin and Chu Panel Unit Root Test

The Levin, Lin, and Chu panel unit root test is based on the t-test and was developed to analyze the effect of deterministic trends only in the panel data set with a balanced panel. Levin, Lin, and the Chu developed the panel unit root test in 1992. In 1993, unit root analyzes were generalized according to varying variance and autocorrelation, and with the additions they made in 2002, they completed the missing parts of the test they developed for the panel unit root.

5.3.6 Im, Pesaran and Shin Panel Unit Root Test

In Im, Pesaran, and Shin's (IPS) (1997) unit root test, which does not require balanced panel data, there should be no gaps in the time series of the units.

5.3.7 Fisher-ADF & Philips Perron (PP) Unit Root Test

In the Fisher-ADF and PP tests, the panel data set is not required to be a balanced panel. There may also be gaps in the time series of the units. The Fisher-ADF & PP tests for the panel data set are the application of the ADF and PP unit root tests for the time series for each unit.

5.3.8 Panel Causality

The existence of a relationship between variables in time series is not proof of causality or the direction of the relationship (Gujarati and Porter, 2012). Several tests have been developed from past to present to determine the existence of the relationship between the variables. The first studies for causality were made by Wiener (1956). The common and popular causality test was introduced by Granger (1969).

Based on causality analysis, the direction of the relationship between the variables is investigated. Information about the severity of the relationship cannot be obtained with causality tests (Tatoğlu, 2017).

5.4 Results

The model of the study is:

$$\begin{aligned} \text{TAB}_{it} = & \alpha + \beta_1 \text{GDP}_{it} + \beta_2 \text{GDC}_{it} + \beta_3 \text{IMG}_{it} + \beta_4 \text{EXG}_{it} + \beta_5 \text{HTE}_{it} + \beta_6 \text{HTG}_{it} - \beta_7 \text{FDI}_{it} - \\ & \beta_8 \text{INF}_{it} - \beta_9 \text{CPI}_{it} - \beta_{10} \text{RIR}_{it} - \beta_{11} \text{UEN}_{it} - \beta_{12} \text{UEI}_{it} - \beta_{13} \text{CAB}_{it} - \beta_{14} \text{CAD}_{it} + \beta_{15} \text{NTB}_{it} + \\ & \beta_{16} \text{GNG}_{it} + \beta_{17} \text{GNC}_{it} + \beta_{18} \text{D}_{it} + u_{it} \end{aligned}$$

$$i=1,2,\dots,N \quad t=1,2,\dots,T$$

TAB in the model, the value of the Trading Across Borders Ranking of each country i in the period t is the dependent variable. The error term is represented by u_{it} .

The correlations between TAB and other variables of the model are low. The highest positive correlation is 0.4355 between TAB and INF. The negative one is 0.3470 between TAB and HTG.

Panel Data method is an important econometric method used to gather cross-sectional observations of countries, firms, and households etc. over a while. Panel data models can be estimated based on panel least squares, fixed effects or random effects approaches. In most economic models, Hausman Test is in use to choose between fixed effects and random effects estimators. If the difference between the parameters is not systematic at the end of the test, it is decided that the random-effects model is appropriate, and if systematic, the fixed effects model is appropriate. The Hausman test proves that the model has a random effect that emerges in panel data analysis (Table 12).

Table: 12

Hausman Test

Ho: The difference in the coefficients is not systematic
64.1373
Prob = 0.0000

A cross-section dependence test is crucial for panel data analysis. The test examines whether the cross-section units are interdependent and whether they are equally affected by a shock in the series. The correlation between the cross-section units or the dependence of cross-section in short, affects the selection of unit root tests to be used in the investigation of the possible unit root in the series. Since first-generation unit root tests do not take into account this correlation between units, second-generation unit root tests should be used in case of cross-section dependency. Breusch-Pagan LM test, Pesaran LM Test and Pesaran CD Test results confirm that no cross-sectional dependency occurs in the model (Table 13).

Table: 13

Cross-sectional Dependency Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	7.670.74	1891	0.0000
Pesaran scaled LM	93.98		0.0000
Pesaran CD	6.73		0.0000

Table 14 presents Levin. Lin & Chu.Im. Pesaran & Shin. ADF-Fisher and PP-Fisher test statistics results. EXG and GDP variables are not stationary, and they become stationary at 1, difference. The variables that are stationary in the first difference are transformed and added to the model.

Table: 14

Unit Root Test Results

Variable	Levin. Lin & Chu	Im. Pesaran & Shin	ADF - Fisher	PP - Fisher	Prob.*	1. Diff.	Prob.*
TAB	-23.6362	16.3715	458.984	566.503	0.0000		0.0000
CAB	-12.9143	-7.1537	247.152	317.742	0.0000		0.0000
CAD	-11.0191	-5.1697	207.564	219.962	0.0000		0.0000
CPI	-4.67612	1.22237	163.886	319.732	0.0000		0.0000
EXG	-23.8858	-17.3599	495.653	664.517	0.3715	-27.2534	0.0000
FDI	-18.1413	-13.8763	411.621	480.993	0.0000		0.0000
GDC	-18.1001	-15.0653	436.521	488.553	0.0000		0.0000
GDP	-0.7146	3.5853	98.825	121.588	0.2374	-23.0674	0.0000
GNC	-19.6765	-15.4937	447.851	502.586	0.0000		0.0000
GNG	-18.7661	-14.9352	435.333	503.811	0.0000		0.0000
HTE	-11.6795	-2.0187	167.640	165.248	0.0000		0.0000
HTG	-10.3163	-5.3560	225.251	208.390	0.0000		0.0000
INF	-15.6306	-9.5550	302.495	277.249	0.0000		0.0000
IMG	-25.1885	-17.4562	500.021	627.035	0.0000		0.0000
NTB	8.9717	-3.2040	171.321	177.479	0.0000		0.0000
RIR	-10.3573	-7.5684	275.197	293.331	0.0000		0.0000
UEI	-5.7726	-2.2576	178.108	130.350	0.0000		0.0000
UEN	-5.5128	-2.9229	189.046	145.669	0.0000		0.0000

Table 14 presents Panel Least Squares results with random-effect model. The Model is statistically significant at the 5% significance level (F-statistic value = $0.0000 < 0.05$). Panel model demonstrates the relationship between trade facilitation and macroeconomic variables. In addition, as shown in Table 15 unemployment ratio, unemployment modeled by International Labor Organization, real interest rates, import growth, inflation rate, high technology export (both amount and growth) foreign direct investment and consumer price have a relationship with TAB. The coefficient of high technology export is negative. It is expected as positive. Unemployment modeled by International Labor Organization is positive instead of negative. The significant relation between TAB and AEO is a sign of trade facilitation effects on macroeconomic variables.

Table: 15

*Panel Regression Results**Dependent Variable: TAB*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D	-6.691191	3.077156	-2.17447	0.0300
UEI	7.594805	1.894588	4.00868	0.0001
UEN	-7.646130	1.867326	-4.09469	0.0000
RIR	2.423084	0.242388	9.99669	0.0000
NTB	-0.000000	0.000004	-0.00861	0.9931
IMG	-0.000020	0.000000	-3.34279	0.0009
INF	2.887497	0.297262	9.71363	0.0000
HTE	-0.714939	0.167218	-4.27549	0.0000
HTG	0.000090	0.000003	2.67600	0.0076
GNG	1.563224	2.503772	0.62434	0.5326
GNC	-2.395840	2.637286	-0.90845	0.3639
GDPD	-0.180235	0.461160	-0.39083	0.6960
GDG	2.663625	2.923845	0.91100	0.3626
GDC	-1.153413	3.069645	-0.37575	0.7072
FDI	-0.640285	0.191287	-3.34725	0.0009
EXGD	-0.000001	0.000002	-0.46269	0.6437
CPI	0.112441	0.042340	2.65566	0.0081
CAD	0.000000	0.000005	0.17214	0.8634
CAB	-0.478200	0.314516	-1.52043	0.1288
C	35.90682	7.613761	4.71604	0.0000

$$\begin{aligned}
 \text{TAB} = & 35.90 + 2.53\text{IMG}_{it} + 9.73\text{HTG}_{it} - 0.64\text{FDI}_{it} - 2.88\text{INF}_{it} - 0.11\text{CPI}_{it} - 2.42\text{RIR}_{it} - \\
 & 7.64\text{UEN}_{it} - 6.69\text{D}_{it} + u_{it}
 \end{aligned}$$

The model has no autocorrelation (Table 16) and heteroskedasticity (Table 17) problem among variables

Table: 16

Autocorrelation Test

Wald Test	
H0: No autocorrelation occurs among variables	
H1: Autocorrelation occurs among variables	
t-Statistic	Prob

-0,6825	0,5063
---------	--------

Table: 17

Heteroskedasticity Test

Breusch – Pagan - Godfrey LM Test	15.25	0.1234
H0 : the error term variances are homoscedastic		
H1 : the error term variances are heteroscedastic		

We apply the Granger Causality test developed by Granger (1969) to define the causality relationship between variables in the next step. The Granger causality test determines the direction of the causality in the presence of a time-dependent lagged relationship between variables. Table 18 presents the causality test results between economic growth and variables.

Table: 18

Granger Causality Results

Variable	F-Statistic	Prob.	Variable	F-Statistic	Prob.
CAB - TAB	214.813	0.1175	HTE - TAB	0.19514	0.8228
TAB - CAB	380.251	0.0228	TAB - HTE	0.99199	0.3714
CAD - TAB	0.97588	0.3774	HTG - TAB	0.07102	0.9315
TAB - CAD	0.66654	0.5138	TAB - HTG	0.73255	0.4811
CPI - TAB	760.446	0.0005	IMG - TAB	0.27871	0.7568
TAB - CPI	725.533	0.0008	TAB - IMG	134.281	0.2618
EXG - TAB	0.11586	0.8906	INF - TAB	804.029	0.0004
TAB - EXG	586.682	0.0030	TAB - INF	518.418	0.0058
FDI - TAB	183.068	0.1611	NTB - TAB	0.78711	0.4556
TAB - FDI	265.382	0.0411	TAB - NTB	0.18912	0.8277
GDC - TAB	201.567	0.1340	RIR - TAB	0.41953	0.6575
TAB - GDC	0.02715	0.9732	TAB - RIR	946.870	9.E-05
GDP - TAB	506.365	0.0066	UEI - TAB	458.516	0.0105
TAB - GDP	0.34900	0.7055	TAB - UEI	132.993	0.2652
GNC - TAB	274.364	0.0651	UEN - TAB	510.481	0.0063
TAB - GNC	0.35472	0.7015	TAB - UEN	209.583	0.1238
GNG - TAB	579.677	0.0032	D - TAB	371.161	0.0249
TAB - GNG	0.12276	0.8845	TAB - D	0.39260	0.6755

Two-way causality occurs between Inflation (INF). Consumer Price Index (CPI) and Trading Across Borders Ranking (TAB). One-way causality emerges from Trading Across Borders Ranking (TAB) to Gross Domestic Product (GDP). Gross National Income Growth (GNG). Unemployment rate (UEI) and Dummy. Also, one-way causality emerges from Current Account Balance (CAB), Export Growth (EXG), Foreign Direct Investment (FDI), Real Interest Rate (RIR) and unemployment rate by ILO methodology UEI) to Trading Across Borders Ranking (TAB). Panel Causality Test results are consistent with the Panel regression results.



CONCLUSION

Trade has contributed to the development and enrichment of countries and societies for centuries. In fact, we can say that this contribution is more than all other factors. The fertile lands and rich mineral deposits of the countries provided economic prosperity to those countries thanks to trade. The products grown on fertile agricultural lands have spread all over the world thanks to trade, and rich mines have created added value through trade. Even countries without fertile lands or even mineral deposits, such as the Netherlands and Switzerland, became rich through trade. Countries on trade routes benefited from this global flow of trade, and their ports developed and expanded. Goods transported on trade routes opened up new trade areas in these countries. Many ancient cities such as Istanbul and Baghdad prospered and developed thanks to trade routes such as the Silk Road. Ancient trade routes, such as the Silk Road from China to Europe, and the Spice Route from India to Europe, brought economic prosperity to many countries. Country-specific mines and agricultural products were transported to other countries through international trade. Discoveries brought new worlds and their unique goods to first world countries. There are many scientific studies showing that trade is the driving force in the development of societies. The Netherlands, which makes agriculture by gaining land from the sea, can export to the whole world thanks to international trade. So much so that according to the data of 2020, it is the country that exports the most agriculture in the world. Japan, which is not very rich in terms of iron and petrochemicals, has a considerable place in world automotive exports. Producing cocoa paste, the raw material of which is hazelnuts, the Italian food giant buys almost all of its raw materials from Turkey. While Turkey's hazelnut export is around 2.5 billion USD as of 2020, the Italian food giant exports more than 10 billion USD. In today's world, international trade is the driving force in the economic development of countries.

With the effect of globalization, International Trade has created a network that includes all countries. In countries that are part of global trade, the level of economic welfare has increased relatively to other countries. Global trade has also affected the development of international logistics and investment in these areas. Developing logistics has allowed goods to move between countries at lower costs. In today's world, businesses that produce goods and services have become a global manufacturer by making their production and imports from different countries, as well as trading in many different world countries. Global Supply Chain companies produce their brands in different countries, market and trade in different countries. Thus, a flow of commodities and goods occurs from countries to countries, from customs to customs.

The Global Supply Chain has a multi-source and multilateral structure like multinational companies. Basic production areas such as the production, assembly and design of a product are made by hundreds of different companies in different countries. These multi-input and complex production processes can affect each other like links of many intertwined chains. The different procedures and practices in concern to international trade in different countries affect supply chain performance. In addition, this commodity flow along the supply chain also creates security concerns between countries. There is a delicate balance between supply chain performance and supply chain security.

The epidemic in 2020 led to major disruptions in the global supply chain. Especially in the automotive sector, the slowdown in the production of some parts and even interruptions from time to time affected automobile sales.

International Trade is still the driving force of economic development from past to present. Developing communication technology has accelerated globalization. Even small and medium-sized companies have reached global markets today. Great advances and investments

in the logistics sector have facilitated access to every region of the world. International trade provided advantages to developing countries. Many developing countries became a part of international trade thanks to exports.

The World Trade Organization and the World Customs Organization turned foreign investments into an opportunity by transferring information to member countries on these issues. These organizations have published various researches and reports on many commercial issues in member countries. These reports were instructive for investors. The World Bank conducted studies investigating the investment climate in many world countries for these investments. The report study, which began in 2004, covered approximately 155 countries, from Afghanistan to Zimbabwe. The study in 2020 measured the ease of doing business in 12 areas covering 190 countries. These reports are the most important indicator of the trade flow in the member countries. "Trading Across Borders", the most important pillar of international trade, measures the customs performance of countries. Standardizing and modernizing customs procedures and reducing bureaucracy play a major role in removing barriers to global trade. The World Trade Organization has done a lot of work to remove barriers to trade and ensure global supply chain security. The most important of these works is the trade simplification agreement. WTO members negotiated at the 2013 Bali Ministerial Conference on the landmark Trade Facilitation Agreement (TFA), which entered into force on 22 February 2017.

Trade simplification is based on two pillars, the "Single Window" System, and the "AEO" (Authorised Economic Operator) system. AEO is operational in 97 countries and under development in 20 countries. 33 operational Customs Compliance programs and 4 Customs Compliance programs due to be launched. Concluded 87 bi-lateral and 4 plurilateral/regional MRAs (Mutual Recognition Agreements/ Arrangements) and 78 MRAs under negotiation.

The subject of this study is based on the “Trading Across Borders” data of the Doing Business Report between 2007-2019 of the AEO program in 63 countries. The changes on the macroeconomic data were measured with the Panel Data Analysis method.

In his book “Why The Nations Fall”, which is the result of his 15 years of work, Daron Acemoglu asks the following question, which is the subject of the research; Why are some countries developed and advanced while others lag behind? Economic and political institutions, the functioning of these institutions, access to information, investment climate and the existence of democracy are the main factors affecting economic development. Trade simplification includes customs and foreign trade procedures covered by economic and political institutions. These are the reasons why some countries cannot get a share from global trade. According to the World Trade Organization, trade simplification has affected developing countries the most.

The economic and political institutions of developed countries are already modern and developed. This study has revealed that there are changes in favor of the countries in the macroeconomic data of the countries that have switched to the AEO (Authorised Economic Operator) system. Panel regression and panel causality tests confirm this significant linkage. Panel model demonstrates the relationship between trade facilitation and macroeconomic variables. In addition, unemployment ratio, unemployment modeled by International Labor Organization, real rates, import growth, inflation rate, high technology export (both amount and growth), foreign direct investment, and consumer price have a relationship with Trading Across Borders Ranking which is a trade facilitation proxy in this study. Results are consistent with Mann (2012). Panel Causality Test results are consistent with the Panel regression results. A causality relationship emerges between the many variables. Two-way causality occurs between Inflation (INF), Consumer Price Index (CPI), and Trading Across

Borders Ranking (TAB). We know that inflation and the consumer price index affect all macroeconomic variables directly or indirectly. Also, one-way causality emerges from Trading Across Borders Ranking (TAB) to Gross Domestic Product (GDP), Gross National Income Growth (GNG), Unemployment rate (UEI) which are important macroeconomic factors.

Despite the recent increased protectionist rules in world trade, it is also necessary to remove, at least reduce, and better determine and facilitate legal trade to prevent damage to global production processes and the safe growth of global trade. Thus, the share of developing countries in international trade will increase and they will earn more income by doing more foreign trade. Since the increase in international trade has an increasing effect on employment, social income will increase. While the quality of social welfare increases with economic development, the effectiveness of other social activities will ensure social progress.

In recent years, trade liberalization of world trade effects positively global supply chains. With the liberalization of trade efforts to remove barriers on supply chains flow, facilitate trade, and reduce costs on foreign trade have gained momentum. Trade Facilitation is important agenda of the World Trade Organization (WTO) as part of the Doha Development Negotiations after 9.5 years of tough negotiations. The Trade Facilitation Agreement in general; GATT Article V (Freedom in Transit) Article VIII (Trade-Related Fees and Formalities) and Article X (Transparency and Uniformity of Trade Legislation and Practices) contain the provisions drafted to explain and improve the cooperation between the customs administrations and the provisions of special and favorable treatment. Authorized Economic Operator (AEO) applications are now in use to simplify and accelerate customs practices and reduce costs. The authorizations and permissions AEO contains bring great convenience to the authorized officer in terms of time and cost and greatly increase the competitiveness. With

the "Single Window System" to digitize customs and facilitate trade. it has been ensured that all the information and documents required for goods subject to foreign trade are presented at a single application point. The World Bank measures and reports the results of all trade facilitation and AEO with the World Bank Doing Business Report.

Economic analysis and studies reveal that the efforts to facilitate trade have an undeniable positive effect on trade and economic growth. There are several benefits to implement trade facilitation. The most important benefit of facilitating foreign trade is the reduction of trade costs. With the facilitation of trade, the reduction in costs will have positive effects both for businesses and for the national economy. In addition, with the decrease in foreign trade costs, the competitiveness of companies will increase and companies will be able to deliver their goods to consumers in a faster and cheaper way. As a result, consumers will have the opportunity to access a wider range of goods cheaper and more easily.

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