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EFFECTS OF TRANSATLANTIC TRADE and INVESTMENT PARTNERSHIP AGREEMENT ON CONTAINERIZED CARGO FLOW IN TRANSATLANTIC

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ABSTRACT

Ever since the globalization influenced the world economy and international trade structure; liberal economy and production policies are established in organizations from micro level to macro level and became the key aspect to understand the behaviors of international organizations today. Not only the multinational firms but also the nations, even unions such as EU and US support the liberal economic policies because just like profit maximizing national and international firms, the nations are also living organizations with an aim of maximizing welfare and income of the society. Competitiveness became crucial in order to survive in our ear so that the numbers of nations that support protectionist policies decrease from one day to another. Under these circumstances, transatlantic trade and investment partnership (TTIP) between world's dominant players of US and EU will play a crucial role whereas if two parties agree to sign, it could have an enormous impact on world economy and trade structure. The aim of this paper is to estimate the possible effect of TTIP on transatlantic seaborne trade activities in terms of TEU volume. Using the expected increase in export value according to CEPR's research, SPSS statistical packaged used in order to generate a regression model to estimate the dependent variable of transatlantic trade volume in TEU.

Keywords: TTIP, Economics, International Trade, Seaborne Trade, Logistics
JEL Classification: C53, F13, F17

1. INTRODUCTION

In 21st century's world, one of the most crucial concepts discussed within the economies is the term of globalization (Mathews, 2006). The term of modern globalization actually is introduced in the 19th century and even accelerated in post period of the World War II, especially after 1980s (O'Rourke et al., 2000). World Bank, which is an actor of globalization, defines the globalization as growth of interdependence of countries thanks to increase in integration of trade, finance, ideas and people (Soubbotina, 2004). Thus, the globalization does not only refer to trade of goods and services; but it also refers to the movement of idea, capital, technology and labor. In this point of view, globalization may have impact on economies, cultures, people and technologies as well (Feigenbaum, 2002; Anheier & Isar, 2008).

Today, there is a consensus that globalization brings a strong impetus to the competitiveness in such a manner that it influences the organizations to have global strategy to maintain a competitive advantage with varying activities which may be found in several regions. Moreover, globalization contains key elements and drivers. International trade and international investment opportunities can be seen as the key elements of globalization and its' drivers have very close links to technologic improvements which reduce the cost of transportation, production and communication (Riain, 2000; Hesse & Rodrigue, 2004; Clift & Diehl, 2007; Rodrigue, 2007; Banyai, 2012). Within the scope of globalization, strategic management plays an important role for all size of organizations from micro to macro level so that it is crucial to measure the best location of different stages of production in different regions in order to ensure the economic sustainability (Shangquan, 2000; Ernst & Kim, 2002; Hitt et al., 2014). As globalization brings a competitive view to 21st century, competitiveness may be sustained through multinational companies expanded to international scale. Multinational corporations became the main elements of globalization and their production and allocation of resources is organized with

respect to profit maximization (Morgan et al, 2003). Their economic expansion reshapes the macroeconomic outlook of the world economies.

Just like profit maximizing national, international and multinational firms, the nations are also living organizations with an aim of maximizing welfare and income of the society as neoliberal economic policies points out the welfare-maximizing consequences of market exchange (Evans & Sewell, 2013). So the nations are also aware of the influence of globalization and set their strategies under these circumstances. From one day to another, the number of nations who support the protectionist view is decreasing (Skogstad, 2015). They are more open to the foreign competitiveness and influences so that restrictions to international trade are pushed down and import tariffs and quotas, export restraints eased their places in international trade. As the world economic system is changed, there were of course needs for a supranational power to control this economic integration processes among nations. International institutions such as World Trade Organization (WTO), International Monetary Fund (IMF), General Agreements on Tariffs and Trade (GATT) are important actors to ensure free trade instead of protectionism (Mansfield & Reinhardt, 2003). Producers became multinational organizations and implemented more open strategies in terms of trade and production by investing to research and development. Moreover, since 2001, in macroeconomics view, inflation rates in all over the world was declined because of this competition mostly based on strides in China and liberal economic policies which created a disinflation era.

It is actually a chain rule and the key aspect of this chain can be considered as the globalization. It may be important to understand this chain in order to have satisfying understanding of today's economy. To cope with the competition in globalized business environment; just like firms gaining a new outlook via multinational engagements, nations seek for global partnerships as well. Thus, many kinds of economic integrations have been assigned in all regions in the world. As economic integrations gain this much power and influence and getting stronger from one day to another; we are more likely to read the news regarding free trade agreements, custom and economic unions today. One of the crucial agreements is the Transatlantic Trade and Investment Partnership (TTIP) agreement between United States (US) and European Union (EU). Within this framework, the aim of this paper is to analyze the possible consequences of TTIP in transatlantic seaborne merchandise trade in terms of TEU. To do so, time series analysis and several regression models are generated.

At this end current study is organized as follows. Second section is dedicated to the international trade movements of the commodities in current conjuncture, the third section is focused on the meaning of the TTIP for the partners and world trade, and data selection criteria's and methodology implemented is given in the fourth section. We aim to explain the results of the regression models with more specifically on seaborne trade volume in transatlantic in the fifth section. Finally we conclude the results in the sixth section.

2. BRIEF OUTLOOK: WORLD TRADE AND ECONOMY

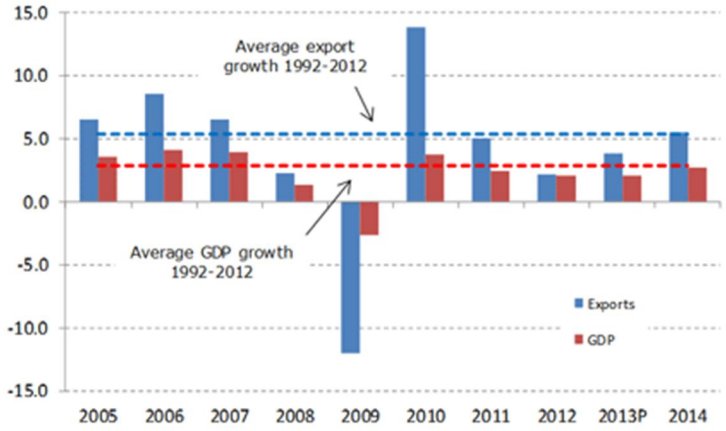
With the help of withdrawing protectionist measures, improving market access, avoiding policies which distort competition and striving to agree reforms to global trade rules, governments can boost trade and seize the opportunities that it offers for everyone as claimed by Roberto Azavedo who is the general director of World Trade Organization (WTO Press Release, 2015). Over the past 20 years, international trade has been affected by many factors including financial crisis, improvement in technology and increased number of states membership of WTO (Barro 2006; Reinhart & Rogoff, 2008). Some financial crisis hit the economies in the 20th century such as Mexico's monetary crisis (1995-2001), Asian financial crisis in 1997 and explosion of dotcom bubble in 2001; especially the latter two factors caused decline in merchandise trade in 1998 and 2001 (Cheetham, 1998; Barro 2006; Reinhart & Rogoff, 2008). Nevertheless, ever since 1990s, trade flows increased rapidly and even accelerated after 2000s. According to WTO data, developing countries became very crucial under the world merchandise roof and according to WTO, worlds' export to developing countries in 2014 has increased nine times higher and reached 4,198 billion $ (USD) comparing with 487 billion $ in 1995.

This global increase remained up until the financial crisis experienced in 2008 followed by a sharp fall in world trade volume. Even though the great recession was a breakdown point for global economies, following two years after financial crisis, in 2010 and 2011, trade have experienced a recovery thanks to the fiscal and monetary policies implemented by governments and central banks, especially by FED. FED made large scale

asset purchases known as quantitative easing (QE) and increased the balance sheet from 0,9 billion $ to 4 billion $ in the end of 2013 (Labonte, 2013). Economies needed a fresh blood and blood thinners for the blood to flow through the sick economies so that central banks implemented expansionary monetary policies and give cash to the economies in order to help the world economies and international trade as a fresh blood and decreased interest rates as a blood thinners.

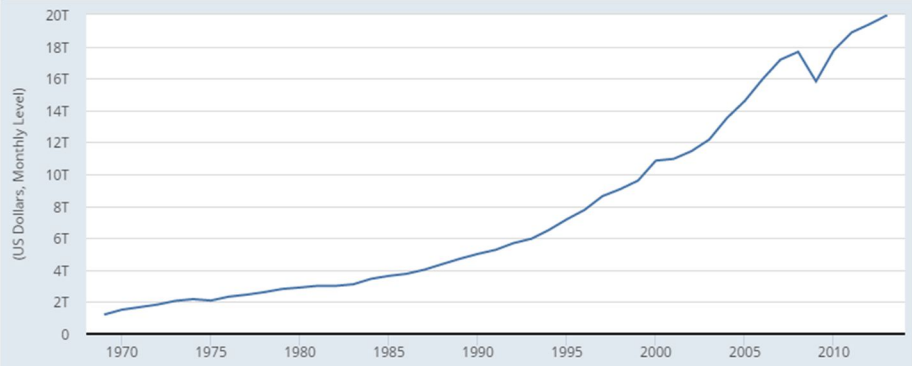
This new policy helped to boost the economies and international trade to recover in 2010 and 2011(WTO, 2015). According to the WTO data, the year of 2009 experienced the biggest drop in merchandise trade by 22% in terms of value and the year of 2010 experienced the highest recovery rates in trade with 14% increase in terms of value over the last 20 years. However, trade growth since then is weak. Huge economies which have influences on world economy, such as EU and US needed to make policy regulations after the financial crisis in order to save their economies. FED made it through QE program in 2009 but EU was a bit late to implement policies but nevertheless they give bailouts to some economies such as Greece, Portugal, and Ireland (Polychroniou, 2012). Considering that EU has a large share of the world imports with the amount of 32% including trade between EU countries according to the numbers of WTO; WTO reports also argues that economic conditions in the EU were improving in early 2015 even though the unemployment remains high and if a stronger recovery takes hold in the Eurozone thanks to European Central Bank (ECB) monetary easing program, world trade could also grow. Figure 1 shows the world GDP and export growth for the period of 2005-2014.

Figure 1: Average GDP and Export Growth (Source: WTO)



In order to see how the trade volume increased from 2 trillion $ to 20 trillion $ from 1970 to 2014, figure 2 helps us to visualize the numbers. According to the WTO data world exports of merchandise was 5.168 billion $ in 1995 whereas it is 19.002 billion $ in 2014. Trade has been increasing its role in GDP in terms of the ratio of trade in GDP. WTO reaches to the ratio of world trade to world GDP and this ratio was 20% in 1995 and 30% in 2014 (WTO, 2015). One of the major contributors of this increase is the existence of WTO, GATT, WB and IMF. Just to visualize the impact of those institutions, China is an object to mention. In 1990's, China has implemented policies for reducing the nontariff barriers, lowering tariffs and abolishing the trade distortions resulted by exchange rate regimes (Ianchovichina & Martin, 2003). Finally in 2001, they became an active member of WTO (WB, 2015). And the world was introduced with cheap goods and commodities imported from China which makes developed and developing economies more competitive by forcing domestic producers to produce more efficient way using more technologies (Shafaeddin, 2002). Because, it was the only way for domestic producers in order to compete with cheap Chinese commodities (Morrison, 2001). Also this strong Chinese demand for natural resources has resulted an increase of prices in oil and primary resources between 2002 and 2008 until the great recession. Strong recovery in 2010 and 2011 has been hampered due to the political instability and increase in prices of oil.

Figure 2: Volume of Goods and Services for the World (Source: OECD)



However, according to the World Trade Report 2015 published by WTO, world trade and output has been suffered in 2014-15 including slowing GDP growth in emerging economies, uneven economic recovery in developed countries and rising geopolitical risk. Also the strong exchange rate fluctuations and the fact of the FED to increase funds rate contributed to the appreciation of dollars against other currencies which has a negative impact on emerging economies. There is a risk of outflow of money in emerging countries as Brazil, Chili, Colombia, China and Turkey. As US economy seems to recover its lost and there is a fear of inflation, FED changed its policy as Bernanke announced tapering program (Mishra et al., 2014). They stopped the QE program which is not necessary anymore to inject more blood to a healthy economy that might results blood pressure as inflation and then there is a possibility of rising interest rates further in US. On the other hand, since the world leading exporter China experiences the slowest growth of 7.4% in past 24 years, the demand for natural resources and oil decreased. Oil prices decreased from 110 $ to 30 $ per barrel, according to Reuters number, which has a negative impact on oil and raw material exporter economies. Slow demand from China is not the only reason for oil price to decrease, also the oversupply of oil and use of shale gas also contributed to decrease in oil prices. But lower oil prices and commodities might boost the global GDP and trade if their positive impact on net importers of these products outweighs the negative impact on net exporters. Nevertheless, because of the slow growth in emerging economies, political tension in Middle East and fluctuations in currency resulted slow growth in merchandise trade. Growth forecasts are subjects to revise in a decreasing manor. In 2014, WTO data shows 2,5% increase in world merchandise trade roughly equal to 2,5% increase in world GDP. See below Table 1 the share of merchandise trade by regions in 2014.

Table 1 shows that world merchandise export reached to 20 billion $ in terms of value. Around 80% of global trade by volume and over 70 % of global trade by value are carried by sea and are handled by ports worldwide (UNCTAD, 2014). In the year of 2013, 9.548 millions of tons of cargo loaded and 2.844 millions of tons oil and gas, 2.920 millions of tons main bulks such as iron ore, grain and coal, 3.784 millions of tons other types of dry cargo (UNCTAD, 2014). Table 1 also shows that trade is hold mainly by US (9%) and EU (33%). These two important economies are about the sign an agreement which will not only cover international trade but also will cover international investment partnership.

Last two decades are the years of crisis such as Greek debt crisis, Middle East Crisis, Ukraine Crisis, slow growth in emerging economies which is also a crisis, decline in commodity prices crisis and under this circumstances, the world have been searching for new partners and expand its boundaries in terms of trade, investment and production. From this point of view, we can understand that how important is the TTIP for worlds' trade and how it might affect the volumes of production and trade of merchandise.

Table1: World Merchandise Trade for Selected Economies in 2014 (Source: WTO)

	Exports		Import	
	Value (billion $)	**Share (%)**	**Value (billion $)**	**Share (%)**
North America	**2.493**	**14**	**3.300**	**18**
US	1.621	9	2.413	13
Canada	475	3	475	3
Mexico	398	2	412	2
South & Central America	**695**	**4**	**739**	**4**
Brazil	225	1	239	1
Others	470	3	500	3
Europe	**6.739**	**37**	**6.722**	**36**
EU(28 Countries)	6.162	33	6.133	33
Germany	1.508	8	1.216	7
Netherlands	583	3	678	4
France	672	4	588	3
UK	506	3	684	4
Italy	529	3	472	3
Others	2.364	12	2.495	12
Non EU countries	577	4	589	3
Asia	**6.426**	**35**	**6.325**	**34**
China	2.342	13	1.959	11
Japan	684	4	822	4
India	322	2	463	2
Newly Industrialized	1.312	7	1.316	7
Other Asians	1.766	9	1.765	9
Others	**2.069**	**10**	**1.483**	**10**
World	**18.422**	**100**	**18.569**	**100**

3. TTIP AND ITS IMPACTS ON TRADE

3.1. TTIP

Office of the United States Trade Representative defines TTIP as an ambitious, comprehensive, and high-standard trade and investment agreement being negotiated between the US and the EU. TTIP will help unlock opportunity for American families, workers, businesses, farmers and ranchers through increased access to European markets for Made-in-America goods and services. This will help to promote US international competitiveness, jobs and growth. On the other hand European Commission emphasizes the aim of the agreement by saying that EU wants to help people and businesses large and small, by opening up the US to EU firms, helping cut red tape that firms face when exporting, setting new rules to make it easier and fairer to export, import and invest overseas. Commission also says that EU has some problems as kick-starting their own economy responding to conflicts close to their borders adapting to other, emerging economies outside Europe maintaining their influence in the wider world. And the agreement might help creating jobs and growth across the EU and cutting prices when EU shop and offering them more choices so that EU would influence world trade rules.

For both sides, agreement seems beneficial so that the upcoming TTIP announced by the leaders in February 13, 2013 and aims to finish negotiations until 2017. This agreement is more than a bilateral trade agreement between EU and US since it aims not only to terminate custom tariffs and to minimize the restrictions rather than tariffs but also aims free investment opportunities. Free Trade Agreements (FTAs) aims to increase buying and selling, importing and exporting opportunities by reducing tariffs and quotas but not allows the free movement of capital and labor. But TTIP will help to stimulate equal rights for both EU and US firms for investment, free participate in the public tender, improving the standards for intellectual property rights and allows the EU and US service firms to operate freely in both regions. Briefly, the topics negotiated are market access in goods, services, investment, and government procurement; regulatory issues and nontariff barriers; labor, environment customs, competition and state own enterprises. Considering that the economies of the

two partners of the agreement match 45% of the worlds' GDP and 30% of the worlds' trade volume; upcoming agreement will change the regulations of the world trade and increase the role of EU and US in world economy. Even without the agreement, bilateral relationship is close to US$ 1 trillion in goods and services between two parties in 2013. Around 37% of tariff lines are already duty free in US and 25% is duty free in EU.

European Commission published a report on September 2013 regarding the TTIP with its impact and the study is conducted by Centre for Economic Policy Research (CEPR). According to this report; it is estimated that TTIP could maintain 120 billion € for EU (basically 0,5% of GDP) and 95 billion € for US (basically 0,4% of GDP) by 2027. It is also expected that two millions new employment created in both parties. Wages of skilled and unskilled workers will increase roughly by 0,5%. A household of four members in Europe will earn 545 € more per year which will increase the income of households 655 € per US family (CEPR, 2013).

3.2. Impact on Trade

According to the CEPR's study, the impact of TTIP on the trade and income is not only in US and EU but also GDP in high income OECD economies (except EU and US) will increase by 36 billion € or 0,19% whereas GDP in low income countries will increase by 2,4 billion €. Overall increase in income of US and EU will contribute this increase in other studies.

The US is one of the most crucial trade partners for the EU considering the exports numbers. According to the Eurostat, in 2011, before the agreement was on negotiations, almost 17% of total EU exports were to the US. The US is also a crucial source of EU imports. It is the third most important (11% of total imports) after China and Russia. For the US, the EU is also a key bilateral trade partner. The EU was the second most important destination for US exports (after Canada), representing 19% of total exports. It is also the second most important import partner (after China), supplying 17% of total US imports.

According to the trade data taken from Eurostat, the most important sector in terms of value is the machinery and transport equipment in both export and import. The second important sector is the chemicals. Moreover, under the study of CEPR; there are two scenarios which is in a less ambitious scenario, EU exports to the US will increase by 16% whereas US exports to the EU increase by 23%. And in an ambitious scenario, EU exports to the US will increase by 28% while US exports to the EU increase by 37%. According to the CEPR's estimation, trade of motor vehicles will experience significant rally for both direction. Expected increase of US's motor vehicle export to EU is 207% and 346% in less ambitious and ambitious scenarios respectively. On the other hand, EU's export of motor vehicles to US will grow by 71% and 148% in less ambitious and ambitious scenarios respectively (CEPR, 2013).

Table 2: Potential effects of TTIP on export (Source: CEPR)

	Potential Increase %	
	Less ambitious	Ambitious
EU export to US	16.16	28.03
US export to EU	23.20	36.57

Meanwhile, considering that world's trade flow is transformed mainly in maritime with the amount over 80% of world trade, seaborne trade volumes will also be affected by the TTIP. Also by making use of the UNCTAD Maritime Transport Report data, we can implement possible changes in seaborne trade volumes in transatlantic. With this regard, we generate a regression model in order to estimate the possible seaborne trade volume in terms of TEU in transatlantic.

4. DATA AND METHODOLOGY

The results of this study are based on bilateral export between EU28 and US in value term and transatlantic trade volume (from North America to Europe and from Europe to North America) in TEU term whereas each data are obtained from official sources. We use annually export data as an independent variable which we obtain from United States Census Bureau, between US and EU-28 in terms of value for the period of 19 years from 1997 to 2015. Export data is considered as the benchmark of transatlantic merchandise trade volume to estimate the future seaborne trade volume in our study. However, as the EU is an enlarging organization ever

since its initial shape; an adjustment to export data was required in order to cover the period examined in this study (1997-2015). To do so, we add the bilateral export values of post-facto members of EU-28 (Bulgaria, Croatia, Cyprus, Estonia, Czech Republic, Hungary, Latvia, Malta, Poland, Lithuania, Slovakia, Slovenia, and Romania) to US for the period from 1997 to the time of membership to EU that enable us to generate an approximate export value between EU-28 and US for historical period. Considering the aim of this paper, the data for seaborne merchandise trade volume (in TEU term) in transatlantic between Europe and North America are obtained from Review of Maritime Transport Series of UNCTAD and used as a dependent variable in our regression models in order to estimate the possible trade volume with consequences of upcoming TTIP agreement with respect to CEPR's study.

Figure 3: Export Value between EU28 and USA, in millions of US $ (Source: United States Census Bureau)

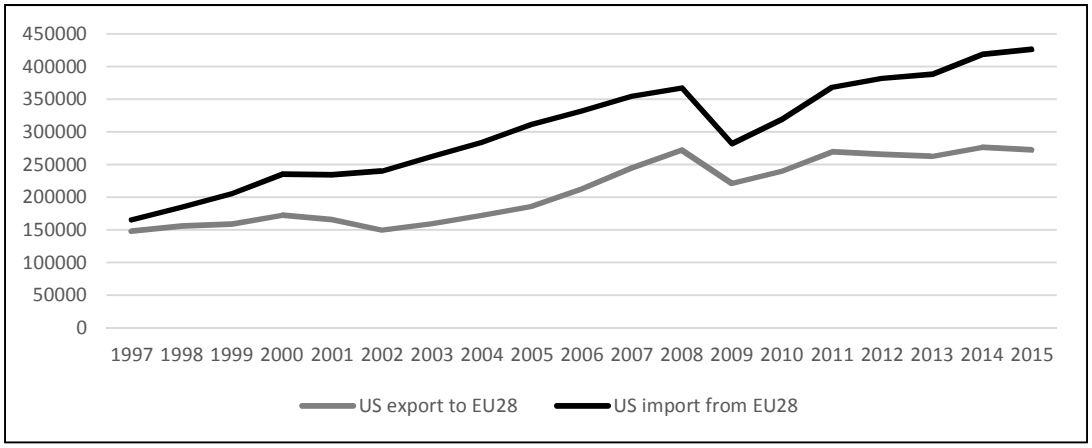


Figure 3 shows the export value between EU28 and US; and Figure 4 shows the transatlantic trade volume (in TEU) from North America to Europe and the opposite direction. By assessing the both figures, it is obvious to argue that there is a high level of co-movement between export values in dollars and export volumes in TEU for both directions. Due to the great recession, the decline in trade volumes (in both value and volume term) can be observed in the figures.

Figure 4: Containerized Cargo Flows in TEU (Source: UNCTAD)

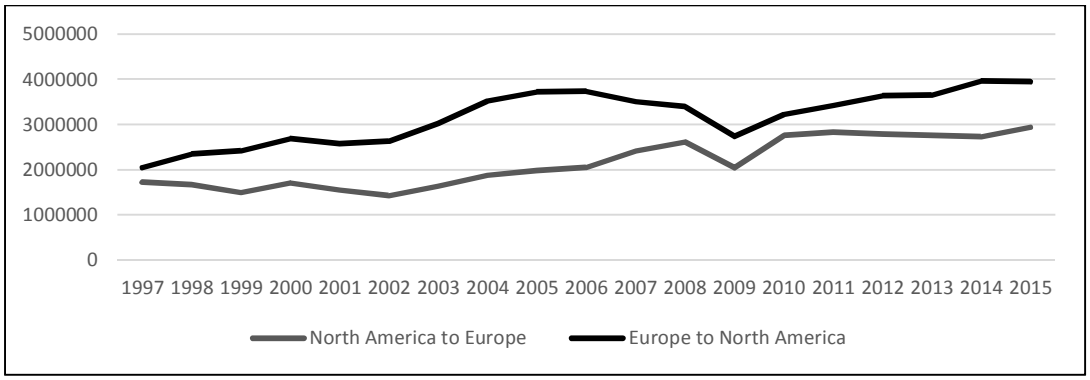


Figure 3 and Figure 4 also show that export numbers is higher in the direction from Europe to North America in both value and volume terms.

Before generating a regression model, we also find how strong is the correlation between US export to EU28 and containerized cargo flows from North America to Europe; and between EU28 export to US and containerized cargo flows from Europe to North America. Table 3 shows the correlation coefficients between variables.

Table 3: Correlation Coeffients

Between EU28 export to US, and containerized cargo flows from Europe to North America	0,91
Between US export to EU28, and containerized cargo flows from North America to Europe	0,96

To estimate the expected volume in transatlantic merchandise trade in 2027, we generate two regression models for the directions from North America to Europe; and from Europe to North America for the ambitious and less ambitious scenarios of CEPR's study. This means that we find four results under less ambitious and ambitious scenarios for both directions. To do so, we create four indexes, using base year of 100=1997, with an aim of creating significant regression model. For the first model, first index for US export to EU28 (USEXP) used as an independent variable and second index for containerized cargo flows from North America to Europe (NA_EU) used as a dependent variable; for the second model, third index for EU28 export to US (EU28EXP) used as an independent variable and fourth index for containerized cargo flows from Europe to North America (EU_NA) used as dependent variable.

Model 1: Containerized cargo flows from North America to Europe $Y_1 = B_1 + B_2 X_1$ Y_1: index for containerized cargo flows from North America to Europe (NA_EU) X_1: index for US export to Europe (USEXP)	**Model 2**: Containerized cargo flows from Europe to North America $Y_2 = B_3 + B_4 X_2$ Y_2: index for containerized cargo flows from Europe to North America (EU_NA) X_2: index for Europe export to US (EU28EXP)

Indexes in regard of value ($) and freight volume (TEU) are illustrated in Table 4. The regression models are illustrated as follow:

Table 4: Index Values for Dependent and Independent Variables

	Export ($) Index 1997=100		TEU Index 1997=100	
	USEXP	EU28EXP	NA_EU	EU_NA
1997	100	100	100	100
1998	105,32	112,42	96,71	114,28
1999	107,20	124,69	87,41	117,92
2000	116,35	142,27	99,28	131,14
2001	112,26	141,93	90,35	125,42
2002	101,61	145,55	83,26	128,17
2003	107,95	159,24	95,13	147,38
2004	116,57	171,97	109,54	171,55
2005	126,16	188,97	115,52	181,00
2006	144,23	201,56	119,44	181,76
2007	165,60	215,10	140,41	170,81
2008	184,47	223,07	152,28	165,14
2009	149,60	171,02	119,03	133,24
2010	162,54	193,79	160,11	156,72
2011	182,65	223,69	164,18	166,93
2012	180,01	231,75	162,43	177,13
2013	177,57	235,05	160,31	177,60
2014	187,09	253,58	158,95	192,67
2015	184,75	258,31	171,11	192,29

As the TTIP agreement is negotiated to be signed in 2017; we use time series analysis to calculate the expected US export to EU28; expected EU28 export to US; expected seaborne merchandise trade from Europe to North America; and expected seaborne trade from North America to Europe for 2016 and 2017. Using these results, we find the index numbers of dependent and independent variables for 2016 and 2017 as well. Regression model of the time series analysis is of bilateral export values given as following in Equation 1 and Equation 2.

Equation 1: Time Series Regression Model of US export to EU28 to calculate the expected value in 2017:

US Export to EU28=128.136.175 + 8.253.272 * Year; (R^2=0,865)

Equation 2: Time Series Regression Model of EU28 export to US to calculate the expected value in 2017:

EU28 export to US= 169.344.474 + 13.393.011 * Year; (R^2=0,909)

Table 5: Estimated Export and Containerized Cargo Flows Number

	Estimated Cargo Flows (x000.000 $ / 1997=100)				**Estimated Cargo Flows (TEU / 1997=100)**			
	US export to EU28		**EU28 export to US**		**N. America to Europe**		**Europe to N. America**	
	$	Index	$	Index	TEU	Index	TEU	Index
2016	293.201	198,65	437.204	265,10	3.029.156	176,18	4.038.388	196,51
2017	301.455	204,24	450.597	273,22	3.116.199	181,24	4.125.198	200,74

Next step of our methodology is to adapt the results of CEPR's study as illustrated in Table 2. We use expected increase in export values from 2017 to 2027 and calculate the expected bilateral export between US and EU28 in 2027; thus we see up to what number the index will increase. Using the estimated index numbers of bilateral export for both EU28 and US in the regression models, we find the expected index number of containerized cargo flows in 2027 for both directions. The last step is to evaluate our results in terms of millions of TEU using the equation in step 6 (illustrated in Table 6: Estimation steps below) and sum the results for both directions to reach the expected merchandise trade in TEU term in transatlantic in 2027. Moreover, to compare our findings, we also find the expected volume of transatlantic merchandise trade without the effects of TTIP by using time series analysis.

Equation 3: Time Series Regression Model of Transatlantic Trade Volume in TEU to calculate the expected volume in 2027 without the TTIP impact.

Transatlantic Containerized Cargo Flow in TEU = 3.590.471,123 + 173.853,619*Year; (R^2=0,866)

Table 6: Estimation Steps

Step 1	Create and index for export values (US dollars term) and transatlantic merchandise trade (TEU term) with base year 1997
Step 2	Using time series analysis, estimate the bilateral export value for 2017 since TTIP is negotiated to be signed in 2017
Step 3	Find the expected index for the variables in 2017
Step 4	Using the CEPR's estimates of percentage change in bilateral export for both partners, calculate the expected export and its equivalent in index term for 2027
Step 5	Run the regression by using the results found in fourth step and calculate the TEU index for 2027
Step 6	Find the equivalent of TEU index in 2027 using the formula below: Estimated Trade Volume in TEU in 2027 = (Estimated Index Number of TEU in 2027 * Trade Volume in TEU in 1997) / 100

5. RESULTS

In order to compare the effect of TTIP on transatlantic seaborne trade, we first estimate the expected result in Equation 3 by using time series data and we find that transatlantic seaborne trade may reach to 8.979.933 TEU without TTIP affect in 2027. Of course, we assume a base scenario without any crisis assumption for the period between 2015 and 2027. To forecast the effect of TTIP on transatlantic seaborne trade, we firstly estimate containerized cargo flows from North America to Europe for less ambitious and ambitious scenarios in section 5.1; then we estimate the containerized cargo flows from Europe to North America for less ambitious and ambitious scenarios in section 5.2. We finally give the results of TTIP on transatlantic seaborne trade in terms of TEU by summarizing the results of the calculations in section 5.1 and section 5.2 for less ambitious and ambitious scenarios.

5.1. Containerized cargo flows from North America to Europe

As the correlation coefficient is significant and high for the export value and containerized cargo flows for the trade activities from US to Europe (see Table 3), we take the US export index (USEXP) as an independent variable whereas the index for cargo flows from North America to Europe (NA_EU) is taken as dependent variable. Since the TTIP agreement is negotiated to be signed in 2017; we apply time series analysis to calculate the expected US export and then the expected index number for US export in 2017; we find that the index will be 204,24 in 2017. Adding the TTIP affect predicted by CEPR, we find that USEXP index will reach to 251,62 or 278,93 for less ambitious and ambitious scenarios respectively. As already mentioned, we aim to estimate the expected cargo flows in 2027 from North America to Europe, we use the forecasts of Centre of Economic Policy Research (CEPR) for the expected increase in US export to Europe in ambitious and less ambitious scenarios. CEPR expect an increase of US export to Europe by 23,20% and 36,57% for less ambitious and ambitious scenarios respectively. Using SPSS statistical package, our regression model to estimate the expected index number of containerized cargo flow from North America to Europe is as follows:

Equation 4: Y_1= -1,595+0,891*X_1 ; (R^2= 0,948)

Whereas Y_1 is the index for containerized cargo flows from North America to Europe and X_1 is the index for US export to Europe. Using the expected index number for US export to EU28 in value, the index for containerized cargo flow from North America to Europe is estimated as 222,60 (3.827.460 TEU) and 246,93 (4.245.803 TEU) for less ambitious and ambitious scenarios respectively.

5.2. Containerized cargo flows from Europe to North America

As the correlation coefficient is significant and high for the export value and containerized cargo flows for the trade activities from Europe to US (see Table 3), we take the EU28 export index (EU28EXP) as an independent variable whereas the index for cargo flows from Europe to North America (EU_NA) is taken as dependent variable. Since the TTIP agreement is negotiated to be signed in 2017; we apply time series analysis to calculate the expected EU28 export and then the expected index number for EU28 export in 2017; we find that the index will be 273,22 in 2017. Adding the TTIP affect predicted by CEPR, we find that EU28EXP index will reach to 317,37 or 349,80 for less ambitious and ambitious scenarios respectively. As already mentioned, we aim to estimate the expected cargo flows in 2027 from Europe to North America, we use the forecasts of Centre of Economic Policy Research (CEPR) for the expected increase in Europe export to US in ambitious and less ambitious scenarios. CEPR expect an increase of US export to Europe by 16,16% and 28,03% for less ambitious and ambitious scenarios respectively. Using SPSS statistical package, our regression model to estimate the expected index number of containerized cargo flow from North America to Europe is as follows:

Equation 5: Y_2= 53,889 + 0,545 * X_2; (R^2= 0,885)

Whereas Y2 is the index for containerized cargo flows from Europe to North America and X2 is the index for Europe export to US. Using the expected index number for EU28 export to US in value, the index for containerized cargo flow from North America to Europe is estimated as 226,85 (4.662.002 TEU) and 244,53 (5.025.232 TEU) for less ambitious and ambitious scenarios respectively.

By adding up the results for both scenarios and directions; we reach the results given in Table 7.

Table 7: Estimated Containerized Cargo Flows in Transatlantic (2027)

	From North America to Europe		**From Europe to North America**		**Total Volume in Transatlantic**	
	Less Ambitious	Ambitious	Less Ambitious	Ambitious	Less Ambitious	Ambitious
TEU Index	222,6	246,94	226,86	244,53	224,92	245,62
TEU	3.827.460	4.245.802	4.662.001	5.025.231	8.489.462	9.271.034

We may finally compare the results for the results with TTIP affect and without TTIP affect. Our time series analysis gives the result of 8.979.933 TEU without TTIP affect in the base scenario with no crisis assumption. However, with TTIP affect in less ambitious scenario, containerized cargo flow in transatlantic may reach to 8.489.462 TEU which is below the estimates in base scenario. In ambitious scenario, on the other hand, the result is 9.271.034 TEU which is 9% above the estimates in the base scenario.

5. CONCLUSION

Today, to cope with competitive effects of globalizations, unions try to establish strong partnership relations with others as well as corporates and economies. One of very recent partnership attempt is TTIP, an ambitious, comprehensive, and high-standard trade and investment agreement being negotiated between the US and the EU. Experts expect that TTIP agreement between world's dominant players of US and EU may have an enormous impact on world economy and trade structure, whereas if two parties agree to sign.

Despite the crucial importance of TTIP, the lack of substantial researches concerning the effects of this partnership is surprising. As a response to highly integrated financial and trade systems, economies and corporates are more sensitive to any changes in trade and economic cycles which increases the uncertainty in policy and management decisions making processes. Within this scope, strategical management plays a crucial role for both countries and corporates to minimize the damages of future economic and trade actions.

This study aims to fulfill the gap on studies about TTIP by analyzing the possible consequences of TTIP in transatlantic seaborne merchandise trade in terms of TEU with a time series analysis and several regression models. It is argued that the outcome of this study is a subject to concern for logistic executives and policy makers in international trade. Hereby, thanks to this study, stakeholders in international trade may have less worries and lower concern of uncertainty regarding the consequences of TTIP agreement on world seaborne merchandise trade.

According to the results of generated regression models it is estimated that the index for containerized cargo flow from North America to Europe may reach 224,92 and 245,62 by the end of 2027 for less ambitious and ambitious scenarios respectively. When the index generated by authors transform to the amount of containers it is found that containerized cargo flow from North America to Europe may reach 8.489.462 TEU and 9.271.034 TEU by the end of 2027 for less ambitious and ambitious scenarios respectively. According to the results of current study the finding of the less ambitious scenario is less than the container amount of base scenario while the finding of the ambitious scenario 9% above the estimates in the base scenario (8.979.933 TEU).

Although this study uses the outcomes of the Center of Economic Policy Research (CEPR)'s study, estimated cargo flows in terms of TEU may be affected with lower degree than the effects on export and import values calculated by CEPR. This result shows that the cargo volume transferred to both sides of Atlantic may not change too much due to possible effects of TTIP. This outcome can be considered as an important input for strategic managers. However expected exceeding volume will be generated by the production and marketing capacities of new investments and / or ventures. Thus, it is not expecting the gravity point of the World Trade and the international transportation will be changed radically. So, the strategies and the routes of the main international transporters may be still the same.

The results of this study can be criticized because of some limitations. First of all the results of the current study is based on time series analysis by neglecting synergetic effects of future changes, and included recent cargo volumes. However, trade volumes are affected many different parameters in the economy which are excluded in this study. This study also focused on the flow of cargo transportation so the new technologies in regard of production, packaging, and transportation are neglected. As this research analyze the overall impact of TTIP, it can be expanded for further studies through analyzing the expected effect of TTIP on sub-industry which mainly involves the containerized cargo flows and may give a different results.

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