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TRANSATLANTIC TRADE AND INVESTMENT PARTNERSHIP (TTIP): IMPACT AND CORRELATION ANALYSIS BASED ON TRADE AND INVESTMENT BETWEEN TURKEY AND EU, AND THE USA

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Abstract

The main objective of this study is to ascertain the importance and necessity of Turkey, based on trade and investment, in TTIP agreement as a partner country with both European Union (EU) and the USA. Here, it uses secondary data sources — Central Bank of the Republic of Turkey (CBRT) and Turkish Statistical Institute — from 2001 to 2016. To obtain vibrant findings, the study introduces two statistical analyses: correlation and regression. In addition, it elucidates descriptive analysis for comprehending the general trade and investment scenario. The results derived from correlation suggest that there is a strong positive correlation between Turkey's total foreign trade and its export to and import from EU and the USA, Turkey's total FDI and EU's FDI in Turkey, as well as Turkey's total FDI and the USA's FDI in Turkey. In addition, a strong positive correlation has been found between Turkey's total resident FDI in abroad and Turkey's FDI in EU and the USA. On the other hand, the regression results indicate that Turkey's trade and investment with EU and the USA have a significant impact on Turkey's total foreign trade and investment.

Keywords: *TTIP, Turkey, European Union, the USA, Customs Union, PTA*

JEL classification: *F14, F21*

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1. Introduction

Globalization has provided a staggering pace in the world economy by stimulating trade, investment, and business to go beyond the domestic and national market and enter into another foreign market in the world. Nowadays, the world we live in is more interconnected and integrated, not just from an economic, but also from other points of view as well, — e.g., from social as well as political aspects — which has never been before. Countries around the globe are frequently enjoying the benefits of the globalization, which interconnects individuals, companies, businesses, and so on.In his book *Sovereignty-at-Bay: The Multinational Spread of U.S. Enterprises*, Professor Raymond Vernon, Harvard Business School, mentioned in 1971 the uprising investment and outsourcing of the production process of U.S. companies to other countries and vice versa. During that time, the economic interest and demand of the U.S. and other countries were increasing accordingly. Today, it is, however, difficult to contemplate a trade, investment, and business without placing the concept of globalization, i.e., free trade agreement.

Over the period, countries around the globe have been emerging with different zone or block to exercise the free trade concept by agreements—i.e., dissolving the trade barriers, tariff and non-tariff—between countries by complying with various criteria agreed upon. For example, the North American Free Trade Agreement (NAFTA) encompasses the USA, Canada, and Mexico, where they removed trade barriers for exchanging (exporting and importing) goods and services among them. On the other hand, the European Union (EU), originated from the European Coal and Steel Community (ECSC) and the European Economic Community (EEC), as well as a union of 28 member countries, has one of the major purposes the creation of economic harmony among the countries. Unlike NAFTA and EU, there are numerous agreements, trading blocks, and economic zones around the globe, of which some are operational and others are on the negotiation table. The Transatlantic Trade and Investment Partnership (TTIP) is one of the agreements which is on the negotiation table; it mainly encompasses two countries: the USA and EU.

The Transatlantic Trade and Investment Partnership (TTIP) is a trade and investment agreement between EU and the USA. The main purpose of the agreement is to get rid of custom duties, red tape, and restriction on investment in both EU and the USA. By eliminating the hurdles, the USA and EU intend to spur their economy, reduce unemployment by introducing new jobs, broaden the choice of goods and services, and curtail the price for consumers (Kirişci, 2014). Currently, the agreement is on the negotiation table, which commenced in July 2013 with a round of talks between EU and the USA every few weeks. The negotiation is continuing from both sides: the European Commission (EC) plays a major role in negotiating on behalf of EU, and the United State Trade Representative (USTR) and his team negotiate on behalf of the USA. Through this agreement, both parties anticipate enjoying economic benefits. An economic assessment of TTIP by Joseph Francois (project leader) (Francois et al., 2013), anticipates some important major findings, i.e. that the EU could achieve a significant economic gain of around 119 billion Euro a year, whereas the USA would gain 95 billion Euro per year. Importantly, the benefits from the agreement between

the U.S. and EU would not be at the expense of rest of the globe; however, it would increase trade and income all over the world, with projections of the increasing world income of approximately 100 billion Euro. Alongside, the study predicts an increasing export of EU to the USA, which would culminate at around 28 percent. Considering the overall scenario, the total export would rise 6 percent in the European Union and 8 percent in the USA. In addition, 80 percent of the total anticipated economic gain would come from curtailing cost imposed by bureaucracy and regulations, as well as from liberalizing trade in services and public procurement. Finally, the study estimates that the accord, TTIP, would add 0.5 percent of GDP to the EU economy.

Needless to say, the TTIP accord, perhaps one of the most important trade agreements, would not only affect the EU and USA's economics in particular; rather, it would influence the rest of the world, especially Turkey, which may confront an antagonistic situation that would affect its economy intensely (Yilmaz, 2013). This situation might happen if EU and the USA finalize the agreement without considering Turkey. It is so because this trade agreement would accelerate trade creation for both EU and the USA, but not for Turkey, unless the latter enters into the agreement. However, this involvement of Turkey in the agreement is only possible if both EU and the USA do agree to consider Turkey for the agreement. A study on "Reducing Transatlantic Barriers to Trade and Investment" mentioned that "in a traditional set-up, when tariffs are lowered, this implies trade diversion and trade creation due to relative as well as absolute changes in trading costs". Alongside, this study forecasted that trade creation within EU and the USA under TTIP will be greater than trade diversion (Francois et al., 2015). Nevertheless, keeping all the predicaments about Turkey's involvement into the agreement apart, Turkey might arise as a third country and sit on the negotiation table to broaden the perimeter of the agreement, as it already signed a Customs Union agreement with the EU in 1995 and was officially recognized as a candidate for full membership on 12 December 1999. This possibility has become more explicit when Turkey expressed its willingness to be part of the negotiation process in 2013. Now, before delving into the probable participation of Turkey in the agreement, a brief illustration of the history of trade and investment relationship between EU and Turkey would promptly strengthen the discussion.

The inkling of joining Turkey as a member state of EU is not just today's trending topic; it actually began in 1959, when Turkey expressed its first aspiration. In this long parley, EU and Turkey have complied with some remarkable accords which imbued Turkey to have a hope of becoming a member of the EU. Among the accords, it was the Customs Union (CU) decision of the EU-Turkey Association Council on 22 December 1995 and the European Council decision on 17 December 2004 - which disclosed the accession negotiations with Tukey - that strengthened the economic concord between EU and Turkey (Yilmaz, 2013). However, the recent negotiation on TTIP has become one of the prime causes of headache for Turkey, because if TTIP's final shape excludes Turkey, then it would affect the Turkish economy adversely. A study about "TTIP impact on Turkey" predicts that, if Turkey is not able to be a part of TTIP accord or has no FTA with the USA, then it would experience a downturn by a maximum of 4 billion dollars per year (half a percent of the 2012 GDP), as well as half a percent drop in exports. On the other hand, assuming the USA and Turkey do

sign a free trade agreement, then Turkey's GDP will upsurge by 31 billion Dollars (approximately 4 percent of the 2012 GDP) and the country would achieve a nearly 7 percent increase in its export (Güneş et al., 2013).

Now, considering the above discussion, should Turkey only be concerned with its involvement into this agreement for its economy? Or, should the EU and USA also be concerned with Turkey's involvement for strengthening the agreement. A study on "The Possible Effects of Transatlantic Trade and Investment Partnership (TTIP) on Turkish Economy" concluded that Turkey's involvement in the TTIP is not just in the interest of Turkey; rather, EU and the USA would also benefit in sense of higher GDP growth rate. Turkey's gain from the agreement could end up at 30 billion USD compared to it not having been part of the agreement (Mavuş, Oduncu & Güneş, 2013). Another study on "TTIP's enlargement" mentions that a growing recognition of the Turkish economic development can not only make a significant contribution to the USA and the EU's economic growth and employment level that strategically keeping Turkey in the West and as a member of the transatlantic alliance, but is also in the interest of both the EU and the U.S (Kirisci, 2015). In the same study, the author also pointed to a quote of Joost Lagendijk, a former member of the European Parliament and a close watcher of the EU-Turkish relations, saying that "Turkey's inclusion in TTIP could become a great success story as much as its exclusion becoming a disaster". Furthermore, according to Kaleagasi & Ornarli (2013), Turkey is a natural partner of EU because of its vibrant economy and cooperation with various European institutions, which would strengthen the transatlantic economy, enhance the policy convergence capability within the G20, and bolster prospects for Turkey's accession to the European Union. In addition, it should also be kept in mind that Turkey has a significant geographical and geopolitical importance in the region —it is the most strategic member of NATO and it may well be at a crossroad (Kirisci, 2015). Therefore, taking the above reasons into consideration, Turkey possesses a stronghold to be a partner of the TTIP agreement. For this reason, the main purpose of this study is to ascertain the importance of Turkey through an impact and correlation analysis, based on trade and investment in the TTIP agreement as a partner country with both EU and the USA.

In the remainder of this study, section 2 evinces literature review. Section 3 introduces the methods and data calculation along with data sources. The findings are presented and elucidated in section 4. Finally, the last section discusses conclusion, limitation, and recommendation.

2. Literature review

Numerous studies have been conducted in order to analyze the TTIP agreement, where most of the papers considered only EU and the USA; in other words, studies including Turkey with EU and the USA in the TTIP agreement are rare to find. Although there are some papers which have considered Turkey as part of the agreement, these are mostly from the Turkish point of view, i.e. why is the TTIP agreement important for Turkey, what would the benefits for Turkey be if it is to be considered in the

agreement, how Turkey's economy would react if it is to be unconsidered. However, here, this research investigates TTIP from an opposite point of view, that is, why Turkey is important for the agreement This makes the paper a unique and identical one. Therefore, from among all studies related to TTIP, a few of them have been mentioned, as follows:

Aslan, Mavuş, and Oduncu (2014) analyzed the possible quantitative effects of the TTIP and TPP on the Chinese economy under three different scenarios. The study used the GTAP network and the Standard GTAP General Equilibrium Model set, under the assumptions of perfect competition and constant returns to scale. The results showed that considering TTIP alone negatively affects the Chinese economic variables; on the other hand, the Chinese economy experiences higher damage compared to TTIP alone when both TTIP and TPP are realized. However, including China in the TPP agreement has a positive effect on its economy, despite the negative effects of the TTIP. Cottier, Egger, Francois, Manchin, Shingal, & Sieber (2014) investigated potential impacts of the EU-US Free Trade Agreement on the Swiss economy and the external economic relations. To obtain the findings, the study considered a multi-pronged and multi-disciplinary approach, which includes the CEG model, statistical analysis, and comparative analysis. One of the results showed that a discriminatory and shallow EU-US agreement may damage the Swiss economy. Kirisci (2015) discussed Turkey's possible involvement in the TTIP agreement or, in other words, enlarging TTIP by including Turkey. He analytically pointed out some strong reasons of why Turkey should be considered as part of TTIP. Mavuş, Oduncu, & Güneş (2013) scrutinized the possible effects of transatlantic trade and investment partnership (TTIP) on the Turkish economy. Here, the study used the GTAP network and the Standard GTAP General Equilibrium Model set under the assumptions of perfect competition and constant returns to scale. It found that Turkey's involvement in the TTIP is not just in the interest of Turkey, but that EU and the USA would also benefit, in the sense of higher GDP growth rate. Turkey's gain from the agreement could end up at 30 billion USD compared to it not having been part of the agreement. Yılmaz (2015) focused on the future of the Turkish-EU economic relations in face of the initiation of the US-EU negotiations on TTIP. The study showed the TTIP and the EU-Turkish Economic Relations regarding the Customs Union.

3. Methodology

The study considers two statistical methods — correlation and regression — to analyze the trade and investment data for Turkey, EU, and the USA. In the first part, it elucidates the descriptive analysis of growth rate of trade and investment of Turkey, EU, and the USA. Then, it includes a correlation analysis, which illustrates the relationship among the three countries based on trade and investment. In the final part, it evinces the impact of EU and the USA's trade and investment on Turkey's total trade and investment; in other words, a regression analysis.

3.1 Data sources and explanation

Secondary data sources have been selected to ascertain the trade and investment relationship between Turkey and EU and the USA from 2001 to 2016. The Central Bank of the Republic of Turkey (CBRT) and the Turkish Statistical Institute, commonly known as TurkStat, are the main sources of the data. Due to the unavailability of some data, the study has sorted out some data to make the calculation more precise and vivid. In that continuation, it selects Switzerland, Iceland, and Norway instead of Cyprus and Slovenia for Turkey's resident's FDI in EU data. On the other hand, considering EU's FDI in Turkey, it includes Switzerland, Iceland, Liechtenstein, and Norway instead of Cyprus, Latvia and Lithuania. Now, though Switzerland, Iceland, Liechtenstein, and Norway are not member states of the EU, they are part of the European Economic Committee (EEC) and the single market. Furthermore, this study includes the United Kingdom as a member state of EU, because there is a flimsy possibility of Britain coming back to EU; in addition, the referendum has yet to be officially executed. More importantly, the Central Bank of the Republic of Turkey (CBRT) and theTurkish Statistical Institute have yet to remove the UK from their data bank as an EU member state.

3.2 Model clarification

Noticeably, most of the studies related to TTIP followed the qualitative method, along with descriptive analysis. For example, a study on "TTIP and EU-Turkish Economic Relations" discussed the relationship between EU and Turkey from different perspectives to bolster Turkey's involvement into the TTIP agreement (Yılmaz, 2015). Alongside, another study, "TTIP's Enlargement and the Case of Turkey", explained various macroeconomic variables to justify the enlargement of the TTIP agreement (Kirisci, 2015). However, there are three similar studies that used an economic model to arrive at their findings. First, "The Possible Effects of Transatlantic Trade and Investment Partnership and Trans-Pacific Partnership on Chinese Economy" used the GTAP network and the Standard GTAP General Equilibrium Model (Aslan, Mavuş, & Oduncu, 2014). Second, "Potential Impacts of a EU-US Free Trade Agreement on the Swiss Economy and External Economic Relations" applied a multi-pronged and multi-disciplinary approach (Cottier, Egger, Francois, Manchin, Shingal, & Sieber, 2014). Finally, "The Possible Effects of Transatlantic Trade and Investment Partnership (TTIP) on Turkish Economy" used the GTAP network and the Standard GTAP General Equilibrium Model (Mavuş, Oduncu, & Güneş, 2013).

As discussed, this study uses correlation and regression, along with descriptive analysis, to find out the importance of Turkey for the TTIP agreement. Here, a correlation test evaluates the bilateral relationship between Turkey and the EU, as well as between Turkey and the USA, based on trade and investment. On the other hand, the regression test finds out the impact of Turkey's trade and investment on EU, as well as on USA's trade and investment, and vice versa. The main reason for introducing these models is its objectives — finding out the relationship and impact. And, importantly, correlation and regression are the widely used methods to find out the correlation and impact of variables.

3.3 Unit root test

To proceed with the calculation, the study introduces a stationarity test for both trade and investment time series data. The test examines whether there is a unit root or not in the time series data; if the test recognizes a unit root, then the series is considered as a non-stationary; the use of the non-stationary time series data may lead to spurious regression (Stock and Watson, 1989). At the same time, the result of the spurious regression may lead to making a wrong decision. To ensure stationarity, different types of techniques could have been exercised. However, this study exercises the Augmented Dickey-Fuller test only, instead of the Dickey-Fuller (DF) test, because the time series may create an autocorrelation problem in the DF test. Actually, the ADF test is the most prominent unit root test tool to ensure stationarity of time series data. Considering the nature of the test, it is similar to the Dickey-Fuller (DF) one, except for the lag difference.

3.4 Correlation and regression analysis

After testing the stationarity of the data, this study exercises the Statistical Package for Social Science (SPSS) to analyze the correlation among three countries based on trade and investment. Here, it considers the Pearson correlation with a five percent level of significance. On the other hand, to explicate the impact of EU and the USA's trade and investment on Turkey's total trade and investment, the study runs the Econometric Views (Eviews) 9 version. In the regression analysis, it introduces the s Ordinary Least Square (OLS) method, which ascertains the relationship between dependent and collection of independent (explanatory) variables, with an error or disturbance term. In this study, the total foreign trade and investment of Turkey are considered as dependent, and the trade and investment of EU and the USA with Turkey as independent variables.

The general OLS equation as follows:

$$Y=\alpha_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\cdots+\beta_nX_n+\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots \textit{(i)}$$

Where, Y is an observed random variable; it is also called a dependent or response variable. Subsequently, X is called an observed non-random variable (also named conditioning or predictor or explanatory or dependent variable). Alongside, is a slope parameter— it explains the status of the observed random variable in the absence of explanatory variables. On the other hand, represents intercept parameter; it explains the magnitude and direction of linear relation. Finally, denotes the unobserved random variable or error or disturbance term. Actually, it captures the amount of variation, which is unpredicted by the slope and intercepts parameters.

Now, considering the variables[3] in the equation,

$$TTFT=\alpha_0+\beta_1 (TEXEU)+\beta_2 (TIMEU)+\beta_3 (TEXUS)+\beta_4 (TIMEU)+ \varepsilon \ldots\ldots\ldots\ldots (ii)$$
$$TFDIT=\alpha_0+\beta_1 (EUFDI)+\beta_2 (USFDI)+ \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$
$$TFDITA=\alpha_0+\beta_1 (TEUFDI)+\beta_2 (TUSFDI)+ \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iv)$$

3.5 Hypothesis

Taking into consideration equations (ii), (iii), and (iv), the hypotheses of the regression analysis are as follows:

For equation (ii):
Null hypothesis (H_0): It assumes that independent variables do not have influence on the dependent variable (TTFT).
Alternative hypothesis (H_1): It assumes that independent variables do have influence on the dependent variable (TTFT).

For equation (iii):
Null hypothesis (H_0): It assumes that independent variables do not have influence on the dependent variable (TFDIT).
Alternative hypothesis (H_1): It assumes that independent variables do have influence on the dependent variable (TFDIT).

For equation (iv):
Null hypothesis (H_0): It assumes that independent variables do not have influence on the dependent variable (TFDITA).
Alternative hypothesis (H_1): It assumes that independent variables do have influence on the dependent variable (TFDITA).

4. Findings and analysis

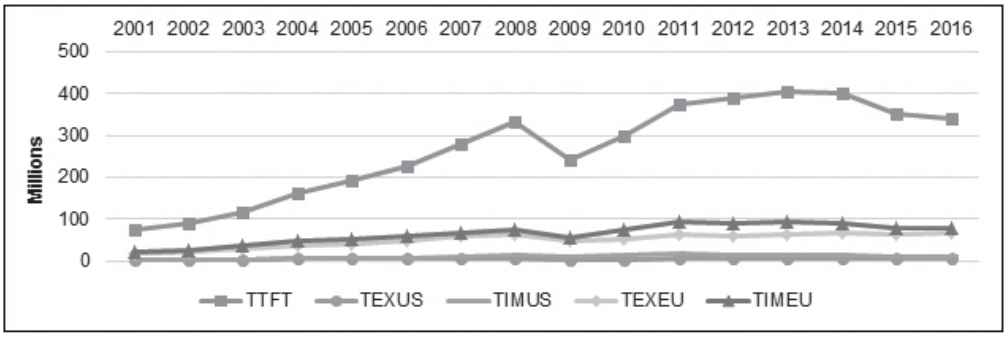
4.1 Descriptive analysis

In this section of the study, it begins by describing the graphical illustrations of foreign trade and investment of Turkey with EU and the USA, along with a presentation of the percentage of the EU and USA trade and investment in the total Tukey's foreign trade and investment.

Graph 1 shows a somehow akin movement of the total foreign trade with EU and the USA, though, as compared to the EU, the USA merely has little participation in the trade with Turkey. Here, the orange line, USA's import from Turkey or, in other words, Turkey's export to the USA, experiences an upward, though a sluggish trend, which started with approximately 3.1 million USD in 2001 and was followed by 6.6 million USD in 2016.

3 **TTFT=** Total Turkey's Foreign Trade, **TEXEU=** Total Export of European Union in Turkey, **TIMEU=** Total Import of European Union in Turkey, **TEXUS=** Total Export of the USA in Turkey, **TIMUS=** Total Import of the USA in Turkey, **TFDIT=** Total FDI in Turkey, **EUFDI=** European Union's FDI in Turkey, **USFDI=** The USA FDI in Turkey, **TFDITA=** Total Resident's FDI of Turkey to Abroad, **TEUFDI=** Turkey Resident's FDI in European Union, **TUSFDI=** Turkey Resident's FDI in the USA

Graph 1. Foreign Trade of Turkey in EU and the USA

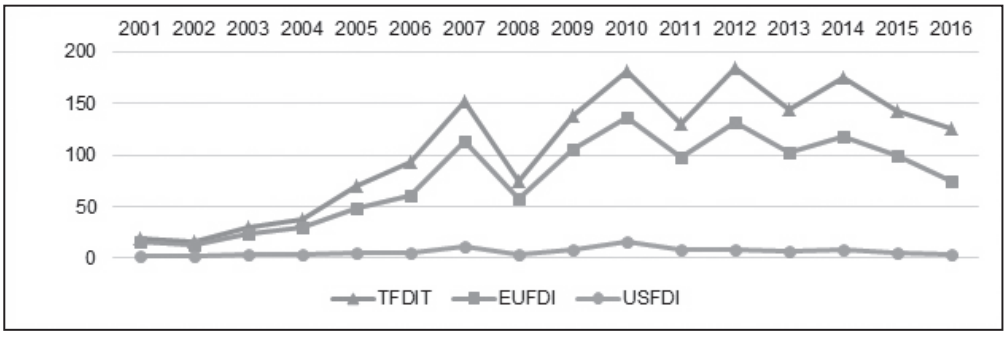


Source: Turkish Statistical Institute (TurkStat)

As with the export trend, Turkey's import from the USA somehow shows similar direction, but after 2011, instead of rising its imports from the USA, Turkey reduced its import from the USA in a gradual manner and it dropped to around 10.8 million USD, which was approximately 16 million USD in 2011. Surprisingly, Turkey's import and export to and from the EU demonstrates an alike pattern as that with the USA. The import of EU from Turkey was 17.5 million USD, which turned to approximately 68.3 million USD in 2016, but imports of Turkey from the EU dropped to approximately 77.5 million USD, which culminated at around 91.4 million USD in 2011.

Now, considering the investment, FDI, EU is the major partner in Turkey's total FDI inflow. Graph 2 shows that Turkey's total FDI inflow, as well as EU and the USA's FDI in Turkey, where the trends are somehow similar; it experienced a vacillation movement during the period of 2006 to 2016. According to the graph, after 2001, the EU and USA's FDI in Turkey started experiencing a steady growth and reached at approximately 113 million and 11.5 million USD respectively, to only stumble afterwards and experience a fluctuation in the following years.

Graph 2. EU and USA's FDI in Turkey

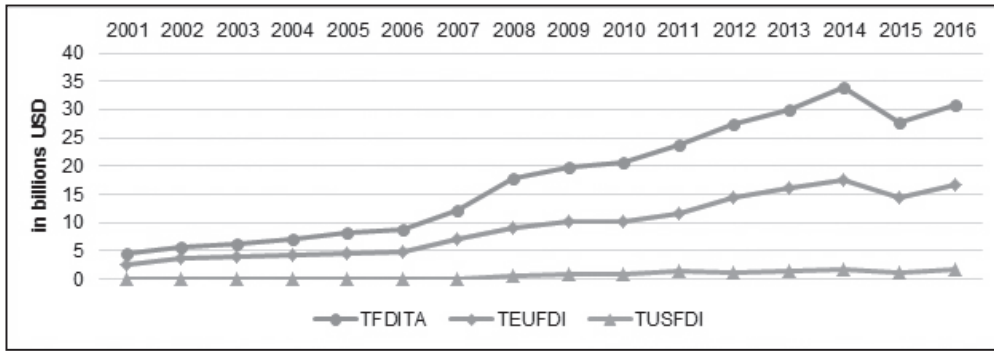


Source: The Central Bank of the Republic of Turkey (CBRT)

On the other hand, in Graph 3, the FDI outflow of Turkey to EU and the USA experienced a substantial growth in terms of the total FDI outflow growth of Turkey, and culminated

at approximately 17.7 and 18 million USD in 2014 for EU and the USA, respectively. Then, it stumbled for a while in 2015 and turned its neck upward again.

Graph 3. Turkey resident's FDI in EU and the USA



Source: The Central Bank of the Republic of Turkey (CBRT)

Now, taking into consideration the EU and USA's contribution to Turkey's total foreign trade and investment, the most interesting aspect is the contribution of EU in the trade and investment. The second column of Table 1 shows how much involvement Turkey has with EU as well as with the USA. In 2001, Turkey exported more than 50 percent to EU; in the meantime, this figure was 10 percent regarding the USA. In the following years, Turkey's export to EU experienced a trivial rise until 2007; but, immediately after that year, it began going down and reached at 48 percent in 2016. At the same time, Turkey's export to the USA followed the same track of that to the EU; in 2016, it plummeted down by half percent of the 2001 export. On the other hand, Turkey's import from the EU was also obtrusive; in 2001, it was around 50 percent of the total import; then, in the following years, except in 2002, 2003, and 2004, it experienced a down turn and reached 39 percent of the import in 2016, although still being significant. Alongside, Turkey's import from the USA also followed the same track as it did with the EU, though the percentage is not as significant as with the EU.

The single most striking observation to emerge from Table 1 is the investment column, that is to say FDIs in Turkey. Nearly 100 percent, or more specifically 82 percent of the FDI inflow in Turkey was staggeringly from the EU in 2001. In the following years, the EU continued to hold the pinnacle position, but – immediately after 2004, it reduced its investment in Turkey and the FDI turned to around 60 percent in 2016. Alongside, the USA's investment in 2001 was 12 percent, though it was unobtrusive to notice considering the EU. As with the EU, USA's investment also followed a downturn and reached merely three percent in 2016. On the other hand, from Turkey's FDI outflow perspective, the annual outflow took a somehow opposite direction, though there is a trivial fluctuation as compared to the inflow of FDI. In 2001, Turkey's resident invested an immense percentage in the EU — more than 50 percent of Turkey's total FDI outflow. In the following years, it continued to hold the topmost position of investment in the EU, though the FDI outflow went down to less than 50 percent in 2011, but turned back and still holds the topmost position. In the meantime, Turkey's investment

in the USA has also experienced an upward slope, starting at three percent in 2001 and reaching five percent in 2016.

Table 1. Turkey's foreign trade and investment in EU and the USA

Year	EU		USA		FDI in Turkey		FDI in Abroad	
	% of export	% of import	% of export	% of import	EU % of FDI	USA % of FDI	EU % of FDI	USA % of FDI
2001	56%	48%	10%	8%	82%	12%	57%	3%
2002	57%	50%	9%	6%	81%	11%	64%	2%
2003	58%	51%	8%	5%	79%	11%	64%	2%
2004	58%	49%	8%	5%	79%	9%	60%	2%
2005	57%	45%	7%	5%	70%	7%	54%	2%
2006	56%	43%	6%	4%	65%	5%	54%	2%
2007	57%	40%	4%	5%	75%	8%	58%	1%
2008	48%	37%	3%	6%	76%	6%	51%	4%
2009	46%	40%	3%	6%	77%	7%	51%	4%
2010	46%	39%	3%	7%	75%	9%	50%	5%
2011	46%	38%	3%	7%	75%	6%	49%	7%
2012	39%	37%	4%	6%	72%	5%	52%	5%
2013	42%	37%	4%	5%	71%	4%	54%	5%
2014	43%	37%	4%	5%	68%	5%	52%	5%
2015	44%	38%	4%	5%	70%	4%	53%	4%
2016	48%	39%	5%	5%	60%	3%	54%	5%

Source: The Central Bank of the Republic of Turkey and Turkish Statistical Institute (TurkStat)

4.2 Correlation Analysis

The correlation analysis provides an important finding between two variables — how strong or weak relationship they have between each other. Table 2 demonstrates the relationship between Turkey's total foreign trade and Turkey's export to and import from EU and the USA. Considering the correlation data, there is a strong positive correlation between Turkey's total foreign trade and Turkey's export to and import from EU and the USA. Now, after splitting the variables into export and import, at first, Turkey's import from the EU has the highest strong correlation with Turkey's total foreign trade, where Turkey's exports to the EU and import from the USA are in the second and third position. Here, Turkey's total foreign trade has the least strong correlation with Turkey's export to the USA. Interestingly, all the relationship between the variables are statistically significant at one (0.01) percent level.

Table 2. Correlation analysis of Turkey's total foreign trade and Turkey's export to and import from EU and the USA

Variables	TTFT	TEXEU	TIMEU	TEXUS	TIMUS
TTFT	1	0.973**	.991**	0.815**	0.955**
TEXEU	0.973**	1	.967**	0.845**	0.890**
TIMEU	0.991**	0.967**	1	0.805**	0.951**
TEXUS	0.815**	0.845**	.805**	1	0.658**
TIMUS	0.955**	0.890**	.951**	0.658**	1

*** Correlation is significant at the 0.01 level (2-tailed).*

Now, looking over the correlation between Turkey's export to and import from EU and the USA, Turkey's export to and import form EU and the USA are positively correlated; however, the correlation with USA is not as strong as with the EU; instead, the correlation between Turkey's export to and import from the USA is moderately correlated, but the one with the EU is strongly correlated.

Table 3. Correlation analysis of total FDI in Turkey and individual FDI of EU and the USA in Turkey

Variables	TFDIT	EUFDI	USFDI
TFDIT	1	0.992**	0.836**
EUFDI	0.992**	1	0.880**
USFDI	0.836**	0.880**	1

*** Correlation is significant at the 0.01 level (2-tailed).*

Likewise, considering investment, FDI, in Table 3, the total FDI in Turkey has a strong positive correlation with the EU and USA's FDI in Turkey, though the correlation of EU's FDI in Turkey is stronger than USA's FDI. Importantly, similarly to the foreign trade, the correlations are statistically significant at one (0.01) percent level.

Table 4. Correlation analysis of Turkey's total resident FDI in abroad and Turkey's individual FDI in EU and the USA

Variables	TFDITA	TEUFDI	TUSFDI
TFDITA	1	0.996**	0.969**
TEUFDI	0.996**	1	0.955**
TUSFDI	0.969**	0.955**	1

*** Correlation is significant at the 0.01 level (2-tailed).*

On the other hand, in Table 4, the total Turkey's resident FDI abroad also has a strong positive correlation with Turkey's FDI in the EU and the USA; interestingly, the correlation is statistically significant at one (0.01) level.

4.3 Regression Analysis

Whether explanatory variables have impact on the dependent variable or not, the regression analysis provides that information through different types. This study exercises one of these types — the ordinary least square method — to ascertain the impact of Turkey's trade and investment to EU and USA's impact on the total foreign trade and investment of Turkey. Here, Table 5 presents the regression analysis of Turkey's foreign trade with EU and the USA. The result shows that Turkey's export to and import from EU and the USA jointly have significant impact on Turkey's total foreign trade. Now, considering the independent variables individually, only Turkey's import from EU and the USA have significant impact on Turkey's total foreign trade at a five percent level; this, however, is not the case with Turkey's export to EU and the USA.

Table 5. Regression analysis of Turkey's Foreign Trade with EU and the USA

Dependent Variable: TTFT
Method: Least Squares

Sample (adjusted): 2 22
Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1712480.	2716301.	0.630446	0.5373
TEXEU	1.394001	0.686900	2.029409	0.0594
TIMEU	1.968968	0.702165	2.804139	0.0127
TEXUS	3.583656	5.451853	0.657328	0.5203
TIMUS	5.867155	2.561539	2.290481	0.0359

R-squared	0.957605	Mean dependent var	5663096.
Adjusted R-squared	0.947006	S.D. dependent var	52465402
S.E. of regression	12077715	Akaike info criterion	35.65588
Sum squared resid	2.33E+15	Schwarz criterion	35.90457
Log likelihood	-369.3867	Hannan-Quinn criter.	35.70985
F-statistic	90.35100	Durbin-Watson stat	1.583817
Prob(F-statistic)	0.000000		

Source: Authors' computation (Eviews)

On the other hand, from the coefficient perspective, the coefficient of Turkey's import to EU 1.9689 indicates that a one-unit increase in import to EU leads to an increase in Turkey's total foreign trade by 1.9689 units, provided that the other variables remain constant. Interestingly, this increased unit is approximately four time less than in the case of the USA. Therefore, the coefficient of Turkey's import from the USA of 5.8671 indicates that a one-unit increase in import from USA leads to an increase in Turkey's total foreign trade by 5.8671 units, holding other variable fixed.

This coefficient is statistically significant at a five percent level. Unfortunately, the other two variables — Turkey's export to EU and the USA — are not statistically significant. Finally, to measure how strong the data are to the fitted regression line, the R-square value of 95.76 percent means that the 95.76 percent variation in Turkey's total foreign trade can be explained by the independent variables.

Table 6. Regression analysis of Foreign Direct Investment of EU and the USA in Turkey
(Equity capital)

Dependent VariableÎTFDIT
MethodÎLeast Squares

Sample (adjusted)Î2001 2016
Included observationsÎ16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1916.006	1763.889	1.086239	0.2971
EUFDI	1.264750	0.142511	8.874739	0.0000
USFDI	0.338131	1.045006	0.323568	0.7514

R-squared	0.975939	Mean dependent var	6695.313
Adjusted R-squared	0.972237	S.D. dependent var	41205.21
S.E. of regression	6865.736	Akaike info criterion	20.67383
Sum squared resid	6.13E+08	Schwarz criterion	20.81870
Log likelihood	-162.3907	Hannan-Quinn criter.	20.68125
F-statistic	263.6415	Durbin-Watson stat	2.429214
Prob(F-statistic)	0.000000		

Source: Authors' computation (Eviews)

Table 6 demonstrates the impact of the EU and USA's FDI in Turkey on the total FDI in Turkey. Here, the least square model shows that the EU and USA's FDI in Turkey jointly have a significant, impact on the total FDI in Turkey at a five (0.05) percent level. But, individually, only EU's FDI in Turkey has significant impact on the total FDI in Turkey. On the other hand, considering the coefficient, the coefficient of EU's FDI in Turkey of 1.2647 indicates that a one-unit increase in EU's FDI in Turkey leads to an increase in the total FDI in Turkey by 1.2647 units, holding other variables fixed. This coefficient is statistically significant at a five percent level, but, unfortunately, it is not significant for the USA's FDI in Turkey. Finally, the R-square value of 97.59 percent indicates that the approximately 98 percent variation in the total FDI in Turkey can be explained by the EU and USA's FDI in Turkey.

Besides the FDI inflow in Turkey, the regression analysis of Turkey resident's FDI abroad has an important contribution to the total FDI in Turkey. Table 7 illustrates the regression analysis of Turkey resident's FDI in EU and the USA. The results of the least square model evince that Turkey resident's FDI in EU and the USA mutually have significant impact on Turkey's total FDI at five (0.05) percent level.

Table 7. Regression analysis of Resident's Foreign Direct Investment in EU and the USA
(Equity capital)

Dependent Variable: TFDITA
Method: Least Squares

Sample (adjusted): 2002 2016
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	130.1337	194.1197	0.670378	0.5153
TEUFDI	1.432390	0.141290	10.13795	0.0000
TUSFDI	2.906645	0.650093	4.471122	0.0008

R-squared	0.954573	Mean dependent var	1761.667
Adjusted R-squared	0.947002	S.D. dependent var	2686.992
S.E. of regression	618.5796	Akaike info criterion	15.86959
Sum squared resid	4591688.	Schwarz criterion	16.01120
Log likelihood	-116.0219	Hannan-Quinn criter.	15.86808
F-statistic	126.0808	Durbin-Watson stat	2.206905
Prob(F-statistic)	0.000000		

Source: Authors' computation (Eviews)

Alongside, individually, the independent variables do have an impact on Total FDI in Turkey; the impact is also statistically significant at a five (0.05) percent level. Now, from the coefficient perspective, the coefficient of Turkey resident's FDI in EU of 1.1323 signifies that a one-unit increase in resident FDI in EU leads to an increase in the total FDI in Turkey by 1.1323 units, holding other variables fixed. Surprisingly, the coefficient of Turkey resident's FDI in the USA is almost double than that in the EU; it is significant at a five (0.05) percent level. Finally, the R square value of 95.45 signifies that the approximately 95 percent variation in the total FDI in Turkey can be explained by Turkey resident's FDI in EU and the USA.

4.4 Discussion

This part compiles all the descriptive, correlation, and regression analyses to scrutinize the findings from different perspectives for developing a plausible and perspicuous understanding about the topic. Now, considering the percentage of the import, export, FDI inflow, and FDI outflow, it is notable that Turkey and EU have an enormous trade and investment relation between each other.

Actually, what does it mean? From a general perspective, it represents just a trade and investment relation, but if it is to be looked at from a dependency angle, then a different picture would emerge. First of all, Turkey's exports to EU, at an average

of 50 percent each year, have a huge contribution to the supply curve of Turkey's economy. On the other hand, this same amount contributes to the demand curve of EU's economy. Thus, emerging a new trade agreement within the CU of EU derailing Turkey might prod Turkey to look for new markets for economic stability, which could create a trade imbalance among the countries in the region. But, this immediate trade imbalance could be controlled by inviting Turkey on the TTIP negotiation table, though the possibility of trade imbalance still remains, but might be reduced.

Secondly, considering Turkey's import of an average of 42 percent each year from EU also leads to the same dependency on each other. This time, Turkey is a significant supply market for EU and has a significant contribution to the EU's supply curve; on the other hand, it is also the same for Turkey, because of the demand curve. Although considering the export and import, the USA is not a big market for Turkey and vice versa, it still has a significant contribution to the economies of both countries.

Finally, looking at the investment part of an average of 80 percent of FDIs in Turkey, it is derived from the EU and USA each year, where EU is the significant market leader. This huge FDI not only benefits Turkey, but EU as well. So, any imbalance in the trade may jeopardize this enormous investment hub for both countries, which also goes for the Turkey-USA investment relation. On the other hand, Turkey's resident FDI to the EU and the USA, which averages at around 60 percent of total Turkey's investment each year, is also significant for all three countries.

In a nutshell, it is somehow rational to mention that this enormous trade and investment dependency among each other signifies the importance of the involvement of Turkey in the negotiation table of the TTIP agreement.

Now, from the correlation perspective, Turkey's total foreign trade and investment are strongly correlated with Turkey's foreign trade and investment to the EU and the USA. The most notable point is that Turkey's export to and import from the EU are strongly positively correlated — with the increase of exports to the EU, Turkey's imports from the EU also rise. Looking at this point from another angle signifies that increasing the acceptance of Turkey's products and services by the EU stimulates Turkey to accept more products and services from the EU, which illustrates the stable economic dependency on each other. This relation is also noticeable in investments —Turkey's FDI inflow from and its FDI outflow to the EU are strongly correlated (0.851) at a one (0.01) percent level of significance. It implies that the growing EU's investment in Turkey prods Turkey to increase their investment in EU.

On the other hand, these trade and investments of Turkey are also positively correlated to the USA, but noticeably it is not as strong as with the EU. There is a positive moderate correlation, which also implies an increase in USA's import from Turkey that stimulates Turkey to import more from the USA; the same explanation goes for investment. Now, considering the opposite part of the table, the strong correlation of trade and investment also indicates that any stumble into the flow of trade and investment between Turkey and the EU and Turkey and the USA might change the economic course of the region; in other words, this might lead to trade imbalance within the region.

Finally, from a regression perspective, it is obtrusive that Turkey's trade and investment with the EU and the USA has significant impact on Turkey's total foreign trade and investment. Considering equation (ii), it can be predicted that the increase of the total foreign trade of Turkey depends on Turkey's export to and import form the EU and the USA.

On the other hand, equations (iii) and (iv) explain that the EU and USA's FDI in Turkey has significant impact on the total FDI inflow in Turkey; alongside, Turkey's resident FDI in the EU and the USA also has significant impact on the total FDI outflow of Turkey. Now, taking the hypotheses into consideration, the study rejects all null hypotheses; in other words, it accepts the alternative hypotheses.

In a nutshell, it can be evinced that Turkey's trade and investment to the EU and the USA has a tremendously significant impact on Turkey's total foreign trade and investment. Therefore, this significance of the regression models or, simply put, the trade relation between Turkey and the EU and Turkey and the USA naturally demand to see Turkey as part of the TTIP agreement.

5. Conclusion and recommendation

The Transatlantic Trade and Investment Partnership (TTIP) is a trade and investment agreement between the EU and the USA. The main purpose of the agreement is to get rid of custom duties, red tape, and restriction on investment in both EU and the USA. By eliminating the hurdles, the USA and EU intend to spur their economy, reduce unemployment by introducing new jobs, and broaden the choice of goods and services and curtail the price for consumers. However, this agreement has an opposite scenario, i.e., it would affect Turkey's economy antagonistically if Turkey is not being considered as a member of this agreement (Yilmaz, 2013). For this reason, Turkey expresses its willingness to be part of the negotiation process, though the intention of allowing Turkey to the negotiation table has yet to lucid. Therefore, the main goal of this study is to ascertain the importance of Turkey, based on trade and investment, for the TTIP agreement as a partner country with both the EU and the USA.

There are several studies that analyzed the topic from different perspectives, especially some studies that considered the geopolitical aspects to scrutinize the pros and cons of the agreement as well as involvement of Turkey in the agreement. But, this study focuses only on the importance of Turkey for the agreement, not just for Turkey, but for the region as well, especially for both the EU and USA. To do so, the study has found some profound and tremendous rational reasons, which consider Turkey's prompt inclusion in the agreement. The results show a profound strong positive correlation between Turkey and the EU and the USA. Alongside, it also evinces a significant impact of Turkey's export, import, FDI inflow, and FDI outflow to the EU and USA on Turkey's total foreign trade and investment. Importantly, from a statistical perspective - which is vital for the analysis - the study rejects all the null hypotheses, thus implying Turkey's importance for the agreement for both the EU and USA. However, there are some limitations that should be considered in the evaluation of this study. Firstly, the

unavailability of some countries data. Secondly, the derailing geopolitical aspect of the region. Finally, the limitation of using long time series data for foreign trade and investment. Nevertheless, in research, every loophole is an opportunity for potential researchers. So, these limitations can be a stronghold for the researchers who would like to study in future.

Therefore, taking into consideration all of the findings, as well as its possible benefits and drawbacks among these three countries, the authorities related to the Transatlantic Trade and Investment Partnership (TTIP) should reassess the manifesto of the agreement and invite Turkey to the negotiation table as a partner country in the agreement.

In summary, trade or investment agreements, or any other agreements which take place to strengthen an economic condition of countries or regions or even the world, are a bastion for an economy. But, if it does not bring welfare for the world's economy mutually and rather put some countries at jeopardy, then people who are related to these agreements should rethink before finalizing the agreements.

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